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Original Articles.

A BIT OF PROFESSIONAL REMINISCENCE,
ETHERWISE AND OTHERWISE.

BY BENJAMIN EDDY COTTING, M.D., A.M., A.A.S., ETC.
*Ex-President Massachusetts Medical Society; Assistant¹ at the first
 Public Demonstration of Sulphuric Ether for annulling Pain dur-
 ing a Surgical Operation at the Massachusetts General Hospital,
 October 16, 1846.*

MY FIRST CASE AFTER GRADUATION.²

IN the autumn of 1837, having previously taken my medical and other degrees at Harvard University, and having joined the Massachusetts Medical Society — then, as now, the two essentials for one intending to become a regular physician in Massachusetts — I took an office in Boston, temporarily, that I might again hear medical lectures, walk the hospital, occasionally attend a dispensary-patient, and, having no ambition to become a city doctor, that I might more easily find, as at length I did find, what I most hoped for, permanent residence in a reasonably large suburban country-town.

A few days after I had taken my room, I unexpectedly received a request to visit a middle-aged gentlewoman — in order, as I supposed, to assist in a charitable enterprise in which I knew her to be interested. I found, however, to my surprise, that she wished professional advice. Her ailment proved to be a mammary scirrhus infecting the entire organ, and apparently ready to break out externally into a cancerous ulcer. As gently as I could, I suggested that the whole organ must be removed without delay. Such was the practice then, and may be now, though it has varied much in the interval. On rising to leave, I was asked to consider the visit as strictly professional, and to make note of it, as she would probably wish to call me again. I left gratified, but somewhat astonished.

A few weeks later, she sent for me again; in the mean time she had consulted Drs. Warren and Hayward and other eminent surgeons and older medical men, and had received, presumably, similar opinions and advice. On my arrival this time, she took me into her parlor, and having locked the door, approached me with upraised finger and said in earnest and solemn tones, "I do not ask you to say whether you can do the proposed operation as well as the eminent men I have consulted; but I do ask you to tell me plainly, *upon your honor*, whether you think you can do it *well*."

On my admitting, calmly as I could, that I did think I could do it *well*, she told me to come early the next week and perform the operation.

Now, here was a trying situation for a young practitioner with his first notable patient. Friends, especially young professional friends, and some older ones, strongly urged me not to attempt so serious a matter, suggesting that, leaving out the possible return of the disease with ultimate fatal result, there was the possibility of imperfect performance, the risk of loss of self-possession in case of unexpected emergencies, and other like chances. Dr. Hayward alone emphatically said, "Of course you'll do it — and I will be present to render any needed aid!" In truth, I had already, while a student, performed quite a number of severe surgical operations in almshouse practice, some of magnitude, severity and danger, quite equal to that

proposed; and therefore hesitated less than if it were a first trial. Besides, I intended to, and did actually, repeat dissections and perform this operation on the subject to further qualify for this occasion.

Well, the day arrived. Four physicians, Drs. M. S. Perry, Wiley, Carpenter and Wellington, came as assistants (to hold the patient); and Dr. Hayward, true to his word, was there also.

The patient — never one of more self-possession or of greater self-control — was afterwards said to have involuntarily struggled forcibly, and to have groaned vociferously, fearfully affrighting all in the house. The operator, however, proceeded, unmindful, as was his duty, of the struggles, and literally deaf to the groans, and rapidly finished the amputation. Dr. Hayward managed the sponges and tied the arteries, a half-dozen or so. The bleeding was considerable, but not excessive. The cutting portion had taken but a few seconds; rapidity was then as essential as dexterity.

The arteries were tied, and in tying the arteries one string was cut off close to the knot, and the other brought down and out at the nearest convenient place, for easy removal later, and to guide to the surface slight oozings, if any; then, the arteries tied and the wound wiped dry, the integuments were brought over the cut surface, and secured at their edges by two very small superficial stitches of thread, except at one point where the skin involved in the disease had been removed; here the wound was left to granulate. Then a layer of old-fashioned sheet-lint, suitably shaped, laid over the whole wound. Over all a soft compress to support the parts was secured from above downwards by a soft roller bandage. Such were the simple dressings — the usual ones — in those days. Household nursing, more valued then than now, accomplished the rest to perfection.

This patient "did well," as the phrase is. There was no after-hemorrhage, hardly a drop of oozing, no constitutional disturbance to speak of; the dressings were gradually removed (by daily clippings), and new supplied as needed. The ligatures all came away within four or five days, without resistance, and the wound healed by first intention, throughout, except at the small excised portion, which granulated normally and healed rapidly.

The operation was satisfactory to all parties. In less than a fortnight the patient was about the house; and before the season was over she was engaged in her usual avocations and in society as a well woman. The disease never returned.

Such was surgery in the hands of an ordinary medical man sixty years ago; for this operation was performed nine years before the discovery of anesthesia. Other cases were like unto it; for this was merely an ordinary case — only remarkable that it fell to a young beginner, so early in his career, and perhaps in that it was successful, by chance, on many of the points which have since been too unequivocally attributed to new processes in detail. Certainly Nature sometimes seems to favor the uninstructed and inexperienced, and fortunately does the healing for them.

But what of the patients? one may ask. No mortal man can ever describe the agony of the whole thing from beginning to end, culminating in the operation itself with its terrifying expressions of infernal suffering.

Our patient in the above related case writhed beyond

¹ Gallieé for looker-on.

² Suggested by the papers presented at the Ether Memorial, written for, and read at the request of the manager, on the second or adjourned day of the Memorial, December 9, 1896.

the restraining power of strong and experienced men, and groaned, to the horror of the terrified household; and afterwards, to the day of her death, could not think of the operation without convulsive shudders. Often did she hold up her hands, exclaiming, "Oh, that knife! that awful knife!! that horrible knife!!!" Even on her death-bed, to which she was brought years later by another and entirely different malady, she more than once raised her wasted and enfeebled hands and faintly gasped the same words.

From one case learn the whole story: they were all alike, full of dreaded horrors to patients, and not without terrors to operators.

The ether discovery is *the* discovery in medicine—nothing like it before or since, and probably never will be. But it is fast becoming a thing of the "old time," and is now already out of the half-century, asserted to be so exclusively filled with all the good things.

Of course, anesthesia is the "great thing" of the age, or of any age; its benefits, however, should deter us from needlessly underrating and smiling at the shortcomings of our forefathers. lest we be laughed at for our own unbounded pretensions by those who shall come after us, and that, too, within less than another fifty years?

Soon after the ether discovery I performed a similar operation for a patient who declined to take ether; she knew she could bear it without flinching, and did not wish to have her mind clouded or her senses benumbed. The first cut—a rather long one—was borne pretty well; but the second was too much for her. She raved and stormed, roared out heavy groans and heart-rending shrieks. The operation would have had to be abandoned had not sufficient muscular force been provided for, quietly, in advance. She was held during tetanic-like spasms, and the operation was completed while she was in a position, almost that of opisthotonus. Her outcries aroused the neighbors, who rushed in in numbers to know what the occasion might be. In due time she recovered. But she never ceased to regret her mistake. Her case was often used in advocating anesthesia, and did much to establish the administration of ether in the neighborhood.

In perfect contrast to this case, I removed for another patient a large mammary tumor, under ether, and when, a year or two later the disease began to return, she insisted upon a second operation, which subsequently she required to be repeated a third and a fourth time. She declared that she would rather wake up out of unconsciousness into the knowledge of a larger but healthier and less painful wound; but at last, when after several years, apparently gained by the operation, and there being nothing left but exposed ribs and intercostals, and these beginning to show disease, she quietly settled down into a contented resignation to her fate. Ether had certainly given her several years of comparatively comfortable life.

As we left the amphitheatre on October 16, 1846, one of the foremost of the younger men called to me (by surname without prefix) saying: "If you get anything new on this matter please let me know it at once. This is a *big thing*. Whoever gets astride of this horse *first*, may ride around the world! I'm going to try it." And he *did* try it effectively; and if he at a later date more notably completed the circuit, his royal progress was due as much to his own special achievements in surgery as to the speed of the particular nag he then mounted.

I associated much with the first experimenters of etheric anesthesia. Its first days did not pass as smoothly as now thought. There were sceptics who declared the whole thing a sham, a hazardous humbug. "They'll kill somebody yet," was the frequent prediction. The discoverer was persecuted in every direction. Having had as a patient a hysteric young woman who went into convulsions on inhaling the ether, he was summoned into a criminal court to answer to the charge of malpractice; and, had this been his first patient, no one would have dared repeat the experiment, or allowed it to have been made, and the world would have lost its greatest boon. By such a narrow chance did the discovery escape failure. Threatenings were rife, and the public was greatly agitated against the then-called reckless experiments. But some strong men were convinced and outspoken. Successful results were too numerous and overwhelming. The facts were soon widespread, and everybody resorted to the practice when needful.

The envious declared that such a discovery was too great for any one man to have the credit of. "Providence never intended such a glorious honor for any one individual," said they; and immediately set about relieving Providence from any such imputation.

Fortunately, the mills of time are slowly grinding out the truth in these matters, and the crown is gradually and securely resting on the head of the real discoverer.

RECOLLECTIONS OF SURGERY BEFORE THE USE OF ANESTHETICS.¹

BY T. M. MARKOE, M.D., NEW YORK.

WHEN the proposal to use anesthetics in operations began to be discussed in the surgical professional world, it soon became evident that there were two opinions on the safety, availability and wisdom of the measure. One party, mainly comprising the younger men, was warmly, even enthusiastically, in favor of giving the plan a trial, and the other, embracing many of our best and most eminent practitioners, felt hesitation as to its expediency, and some even opposed the proposal as dangerous and unjustifiable. The opposition contended that, in the first place, the prolonged etherization was a menace to life in itself, some cases having been reported, in which death had been directly due to the effect of the anesthetic, independent of operation or manipulation. Secondly, it was thought that, as the whole nervous system was under the paralyzing influence of the anesthetic, the circular coats of the vessels would lose their contracting power, and that, by reason of this want of contracting power, the blood-vessels would not retract and contract, as we usually observe them to do after section, and that therefore there would be much more active and less manageable hemorrhage than there would be if the nerves retained their sensibility. Thirdly, it was suggested, that, after the depressing effect of the anesthetic, and the nervous and stomach disturbances following its administration, the reparative processes would be less prompt and less perfect than they should be and that therefore primary union would be more rarely attained, and that suppuration would be a common result, even after the most trifling incision.

¹ Read before the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

It will hardly be realized in our day how warmly these questions were then discussed, nor is it necessary, in the light of our abundant experience, to point out their fallacy. It is quite enough for us to know, that death from ether, when properly administered, is so rare that its occurrence may be practically excluded from our consideration; that wounds inflicted under anesthesia do not bleed any more and are in no sense less manageable than those inflicted without the paralyzing effect of ether; and that the condition of wounds after anesthesia compares in all respects favorably with that of those which have been made without the disturbing effects of ether.

The question is often asked, What did surgeons do to mitigate the sufferings of operation before the discovery of etherization? Practically they did nothing. Various attempts were made in that direction. Cold was applied, by various refrigerating processes, to the point of benumbing the parts, care being taken to stop far short of congelation; but all these trials had the fatal defects that they could not be maintained during the operative procedure, and that they only affected the surface of the wound, any excursion of the knife into unnumbed parts giving pain. Opium naturally was suggested, and was very frequently used; but while its power of soothing pain after operation was recognized, its power of preventing pain during operation was disappointing. In short, up to the time of etherization, I think it may be said that, for preventing, or even diminishing, the pains inflicted by the surgeon's knife, there was no system or plan which had any general acceptance or was generally employed for that purpose, or was even moderately effective.

It has been generally supposed that, when patients were being operated upon without ether, it was necessary to bind them with straps or cords, to prevent them from making such involuntary movements as might seriously interfere with the surgeon's manipulation, and perhaps lead to serious if not fatal accidents. As a general rule, no such precautions were found necessary. Of course, in certain operations, as those in the perineum and those in the axilla, the legs in the one case, and the arm in the other, had to be maintained in a certain position, in order that the organs or parts to be operated upon might be made and kept accessible to the surgeon's knife. This, however, was only to secure a proper position, and not at all to prevent muscular resistance on the part of the patient, and, as a matter of fact, it is even now adopted, while the patient is under the full effect of ether. With children, and with certain over-sensitive, excitable, and uncontrollable persons, it was at least prudent to be sure that no sudden and perhaps involuntary movement on the part of the patient might interfere with the surgeon's proceedings; but this was never accomplished by mechanical restraint, but only by the watchful hands of a sufficient number of reliable assistants. Indeed, it almost seemed as if a certain instinctive consciousness of the danger of muscular movement or resistance restrained the sufferer from trying to escape from his tormentor, lest, perhaps, any unexpected movement by him should cause trouble and perhaps danger.

With regard to the operation itself, a great difference among individuals could be noticed as to their courage and fortitude in bearing pain. The great majority showed their suffering by groans or cries of

more or less intensity, which they seemed to have no power to control, and which indeed seemed to afford a sort of relief to their sufferings. In this respect, all agreed that women bore themselves more courageously than men; or rather, perhaps it would be more proper to say, that instances of superior fortitude and endurance were more common among women than among men; and in some of these heroic cases a long and severe operation was borne without a cry or a tremor of voice or muscle. But these were, unfortunately, rare cases, and in most the expressions of suffering were loud-voiced, and to a novice most distressing. A curious effect of the unrestrained screams and groans of those being operated upon was seen in its result upon the students in the operating-theatre. In November and December, when the young men began to assemble, to begin their course at the college, many of them attended the operations at the hospital, and there witnessed for the first time a surgical operation. It often happened, so often that preparations were systematically made beforehand, that one at least of the students watching the operation would begin to turn pale, and then faint, and presently would sink down in his place, if not supported by his comrade sitting by him. The nurses and attendants were instructed to watch for any manifestations of faintness in any of the boys, and to immediately remove them from the theatre and place them on a bed with the head low, and leave them to recover. This became so much a matter of routine, and all parties became so familiar with the scene, that it created no disturbance, and the operation or lecture went on without any confusion or interruption. It is true that this happened only in the first few weeks or months of the session, before the boys had become accustomed to the bloody scenes; but the fact remains that since the advent of anesthesia such acclimatization has been unnecessary, and that such fainting and carrying out is rarely observed, even in novices, witnessing for the first time the most severe and bloody operation. This can only be accounted for on the theory that the cries and groans and other manifestations of suffering produced a more powerful impression on the unaccustomed spectators than even the most extensive and bloody proceedings of the surgeon, and that these expressions of pain being excluded by the anesthetic, the trying effect of the spectacle is reduced to a minimum. However we may explain it, the fact remains, and it is a curious memento of pre-anesthetic days. This effect of the expression of surgical suffering on the bystanders is perhaps of no great importance in itself; but may it not be asked, What was the effect on the surgeon himself? Could he be as cool and deliberate with a patient writhing and screaming under his incisions as he would with one completely insensible to pain? Would he always be able to be as careful and thorough in one case as the other? The answer would seem to be that, while the experienced and conscientious surgeon would not, in such a case, be influenced to shirk any part of his duty, the neophytes, the timid, and the over-sensitive might sometimes be induced to hurry their cases, and get rid of trying complaints as soon as possible at the risk of overlooking or neglecting some of the minor details, on which so much of the comfort and often the safety of the patient sometimes depends.

One instance of fortitude and endurance which excited no little admiration and some amusement oc-

curred in a case in which Dr. I. K. Rodgers was operating on a very extensive necrosis of the tibia, in a fine, manly looking sailor, whose whole demeanor showed that he had come to the operating-table determined to accept and endure whatever pain it was deemed necessary to inflict upon him. He bore the first incisions without a murmur, but when the tedious and painful process of stripping the integuments from the face of the involucrum had been going on some little time, he turned to one of the assistants, and asked in a whisper, "Could I have a chew of tobacco?" It was given him, and seemed to comfort him and brace him up, and the operator proceeded to the chiselling of the bony covering of the sequestrum, which was an unusually long one. This exasperating infliction of hammering and chiselling went on for a while, when the patient asked again for another chew of tobacco, which was given him; and as before it seemed to reanimate his courage. The chiselling was long and tedious, and the poor fellow turned once more to the doctor and said, "Doctor, doctor, give me another chew of tobacco, and give me a damned big one this time." This was done, and under the stimulating influence of a "damned big chew," the operation was completed, having occupied the best part of an hour, during which not one word of complaint was uttered and not even a groan passed his lips. It should here be noticed, that many patients seemed to suffer more by the manipulations, which, after the main steps of the operation were completed, are necessary to be carefully attended to. Each touch of the sponge was a separate pain, and the ligature of each vessel seemed to give an acute pang. If the vessel were large enough to be pulled out of its sheath and isolated from surrounding tissues, its ligature seemed to be painless, but when the smaller vessels were taken up with the tenaculum, including some of the surrounding nerves and muscular fibres, the pain was extreme; and this having to be repeated many times, became from its repetition a severe tax on nerves already sorely strained by endurance of a long operation. What seemed, however, the most trying of all these minor manipulations, was the introduction of the sutures. The prick of the needle first through one lip and then through the other, and this repeated until eight or ten or more sutures were introduced was so hard to bear that few could restrain their impatient cries, though they might have behaved heroically during all the previous tortures of the operation.

The question, How much is the shock of a severe operation diminished by the insensibility of anesthesia? is one about which statistics do not give us any very positive answer. But the answer of every one of large experience is unequivocally in the affirmative, and to a very large degree. The fright, the appreciation of danger, the anxiety as to result, which the patient feels before the operation, with the section of nerves and the loss of blood during the operation, must necessarily be in themselves a cause of depression of the vital forces; but when you add to these the pain and terror which the progressive steps of an operation inspire, it would be safe to say that you have added the most potent of all the elements of shock, and further, that by eliminating these powerful factors you have very greatly diminished the dangerous features of shock, though you may not have removed them all. Certainly this is the verdict of the most experienced and trustworthy of practitioners.

Another point should not be overlooked. The fact that the patient is relieved from all apprehension of pain, either in diagnostic exploration, or in the operation itself which is in consideration, is a reason why he will be more ready, and will submit much earlier to the exploration or to the operation, thereby improving the chances of diagnosis and of operation, and sometimes of avoiding that saddest of all surgical verdicts, "Too late." How often that verdict had to be given in those pre-anesthetic days, every man, in large practice, had too many opportunities to record.

Speaking of exploratory manipulations for purposes of careful diagnosis leads us to notice the immense advantage which we have over the fathers, not only in the readiness of the patients to submit to such explorations, but in the deliberateness and thoroughness with which they are now made under ether. In those days, the examination of a tight urethral stricture, or of a bladder suspected to contain a stone, or of a rectum suspected to be cancerous, and in which the question to be settled was whether the diseased tissues were within the reach of the surgeon's knife, all these were as much dreaded, and gave sometimes almost as much pain as the operation they indicated. With all this dread and suffering from the mere examination, is it likely that the conditions should be as thoroughly and carefully explored as we explore them now, under the comfortable insensibility of ether? And if not thoroughly diagnosed before operation, is it not probable that many mishaps may have occurred during, and many failures after, an operation undertaken with an imperfect or erroneous conception of the diseased conditions which the operation was intended to remove.

There remains one department of surgery in which the advance from pre-anesthetic methods is most striking and important, and though not covering a very extensive field has, nevertheless, in that field developed some of the most valuable results which have been achieved in the whole anesthetic story. I allude to that class of cases in which the surgeon's efforts are antagonized by the involuntary, and indeed sometimes by the voluntary, action of muscles, which muscular antagonism it is often of the first importance to overcome, and in which failure to overpower the muscles often means failure of the manipulation which the surgeon has undertaken. This class embraces all those cases in which muscular contraction interferes with the surgical procedure, as in operating on the eyeball, on the throat, on the rectum, and some others, where the surgeon's work lies in the midst of muscles whose every contraction interferes with his procedures and not infrequently defeats them. Perhaps the best illustration of this class of cases is found in the reduction of dislocations, or the replacement of fragments in complicated and obscure cases of fracture. Here the main obstacle to success is muscular resistance, and it constantly happens that this resistance being overcome, the replacement becomes prompt and easy. It is therefore to the overcoming of the resistance of the muscles that we look to secure success; and in proportion to our control of muscular action is that success likely to be achieved. Three methods were resorted to in pre-anesthetic days to obviate muscular resistance. These were, first, bleeding *ad deliquium*; second, the use of tartrate of antimony; and, last, the use of tobacco as a rectal injection. These were used to the extent of producing a depression and relaxation of all

the vital forces, in which depression, of course, the muscular system largely participated; while thus relaxed the replacing efforts were made, and it must be acknowledged that something was gained and some replacements easily accomplished. But it was noticed that however faint and relaxed the patient might seem to be, as soon as the first attempts at reduction were made, the muscles were excited to resistance, and it soon became evident that we had not removed but only diminished the resistance which we desired to abolish. While consciousness remained, and the spinal reflexes were not abolished, no method we were acquainted with would altogether prevent muscular resistance; and sometimes, to our chagrin, the harsh and spoliative methods above mentioned, proved perfectly unreliable and unsuccessful in the very cases where we expected most from them. It is only when we compare the ease and promptness with which, under ether, we now reduce by manipulation alone a dislocation of the femur or shoulder, with the former laborious, tedious and painful efforts with pulleys and straps, that we fully appreciate the great blessing of anesthesia in enabling us to abolish all opposition from muscular action in the class of cases now under consideration. It seems as if we might fairly say that anesthesia, in this class of cases, is the most direct and positive addition to our surgical resources that the century has produced. For while all heartily concur in glorifying anesthesia as the annihilator of pain in surgical operations, in no department can it claim so direct a share in the success of the surgeon's efforts as in this, and in none does it form so essential a part of the successful procedure.

In conclusion, I cannot refrain from relating a circumstance in this connection which gave us no little anxiety and annoyance during the reduction of a luxation of the hip, but which caused us all to smile when the procedure was over. During my term in the hospital we had come to rely for the relaxation of resisting muscles, on the introduction into the rectum of a small but strong infusion of tobacco. This usually produced its effect in a few minutes, and was commonly followed by a depression and relaxation which was eminently favorable to our purpose; but the reduction being accomplished, perhaps, in a few minutes, the action of the tobacco continued for an hour to affect, and sometimes very seriously to depress the patient. We had come, therefore, to the plan of introducing into the rectum a cigar, instead of the more rapid and abiding infusion. This cigar had a string tied around its big end to enable us to withdraw it, and then being dipped for a moment into hot water was introduced by the small end into the rectum. The object of this plan was to enable us to remove the tobacco as soon as we had no longer any occasion for its effects. The case in question was that of a man with a dislocation of the femur, in which the pulleys and counterextending bands being all prepared, the cigar was introduced as usual, and we waited a few minutes for its effect. No relaxing effect was observed, however, and after waiting a suitable time, the reduction was effected by main force, to the great disgust of the surgeon and with terrible sufferings by the patient, no effect having been produced by the tobacco before, during or after the reduction. Of course, the cigar was then removed, and the cause of its ineffectiveness was made clearly manifest. The young dresser to whom had been con-

fided the introduction, not finding it easy to push it through the anus, had oiled it liberally, and thus succeeded in lodging it within the rectum. The mystery was solved; and henceforward it was decided that if any lubricator was to be used in these cases, mucilage should be preferred to oil.

RECOLLECTIONS OF SURGERY BEFORE THE USE OF ANESTHETICS.¹

BY WILLIAM INGALLS, M.D., BOSTON.

IN response to your courteous note, asking me to give you my recollections and impressions of the introduction of ether as an anesthetic, and of the times preceding, I cheerfully comply, asking you to bear in mind that I am not attempting an essay, but am offering my thoughts as they occur, and begging, therefore, your habitually lenient criticism for them.

I returned to Boston in 1847, after an eight-years' absence in Louisiana, where I practised among the plantations of West Feliciana. During this time, I had but few opportunities of meeting members of the profession; thus I suffered for the want of professional pabulum, which was scantily supplied by medical letters and journals only.

During the few months between my receiving the news of the first administration of ether and my arrival home, particularly during my long sailing voyage, I mused and pondered, and hoped—hoped with an earnest longing that I would find it true, that I should find it to be a fact that a substance had been discovered which would prove to be triumphant over pain, and which would overcome the horror and dread of the surgeon's knife.

Can it be true, I thought, that we now have the power to abolish those scenes of suffering with which I, in common with my *confrères*, am only too familiar? Although the surgeon, previous to operation, rarely failed to propose every means that his judgment and hope might suggest, to lessen the coming infliction, yet the infliction often remained a dreadful one, where efficient assistance was often lacking, the patient rebellious; where fears were to be overcome and merciful counsel offered; and where, often in spite of all that promised alleviation, the surgeon was obliged to operate upon a screaming and writhing being—to feel an almost equal strain upon his coolness, while conscious of the evidences of suffering, the clutched hands, the grinding of the teeth, the sharp catching of the breath, even from those who had the courage to suffer in silence.

Allusions to surgical occurrences in pre-ether times being made, permit me briefly to enlarge upon them.

The fortitude of some women, as well as men, was oftentimes a subject of pitiable admiration. The custom was to give opium or whiskey previous to operations. There were those who would say, "If you think best, I will take what you offer me, but I've made up my mind to go through with what is necessary, and I am ready without it." We have been told by many who have had the experience of a surgical operation, that the first incision, the cutting of the skin, was the most painful of all; and I have been amazed when some subjects under the knife have lain still, uttering no cry; but there was no deception as

¹ Read before the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

to suffering. One sees the hands tightly closed or strongly grasping a friend's, holding the breath with occasional noisy exhalations; one longs to hear loud outcries, they being the natural expression of pain.

The method of guarding against movements or struggles was intrusted to the care and watchfulness of attendants; I do not recollect any case for which swathes were used.

It is admitted that the observations of any one person do not amount to much in the elucidation of general subjects; and when their record is made, which overturns preconceived ideas, it is apt to be received with some misgiving as to its truth. Something may, however, be gained from a brief record of a few cases which I hold in remembrance as clearly as though they occurred yesterday:

In the year 1825 I assisted my father while he applied a first dressing to a compound comminuted fracture of both bones of the left leg of a youth; that is, I obeyed explicit directions. This was my first surgical observation. In reply to my question, why the patient did not cry out, or give more tokens of suffering than he did during the manipulations, I was told that there seemed to be, for a time, a dulling or an obtunded condition of the nervous system, after severe injuries. We call it "shock."

About three years after this, I had the privilege of being present at an operation for the extirpation of a tumor on the back of an elderly woman, who, at the first incision, gave a loud scream; her whole body seemed to shrivel; after which there were groans and moans, but there was no struggling. There were five elderly women, all of whom expressed themselves ready and willing to assist. In a little while, one of them quietly slipped through the door; shortly after, another; finally the operator and myself alone were left.

These two cases occurred in time of vacation, which accounts for the absence of students, or other and competent assistants; and it may be mentioned that, in those days, there was not a multitude of students and medical friends to select from for assistance.

I recite a more recent case which is typical of several others of former days: In 1877, a woman of large frame, beyond the menopause, developed cancer of the left breast. After due deliberation and consultation, it was decided that an operation was necessary. Upon announcing the decision, the first words she uttered were, "Not under ether." Every argument, professional, friendly, filial, that was used to induce her to accept the administration of ether, was of no avail. During the operation, so far as any movement of the body or limbs was concerned, my two or three assisting students had literally nothing to do; the patient's right hand was strongly grasped in that of my good friend and consultant. From the first moment of incision until she was placed in bed, there was no second of time in which she was not reviling me for brutality, for being without mercy, for not taking heed of the agony I was causing; and these cries rang in my ears for many days. It was like a refusal to drink from a clear, cool spring, while perishing with thirst.

I can see here in this old amphitheatre now, the left clavicle dissected out by Dr. Warren in 1831. Here and elsewhere, I have seen the specially dangerous regions of the living anatomy searched, and while doing so, were the fingers which guided the instrument

the sole consideration? Surely never with me. Care and anxiety were in the surgeon's mind, that his knowledge of what he was about should be used to the highest and best of his capabilities for his patient's good, and with it the keen apprehension of some quick, undue movement which might lead to disaster.

This will, I thought, all be ended, and we shall now be able to operate upon quiet subjects, who will remember nothing but their ether sleep. It seemed too wonderful to be true; and yet, as I soon had the delight of seeing with my own eyes, it was an accomplished fact; for, although the first actual administration of ether which I witnessed was but a partial exhibition of its mercies, yet it was but a little while before abundant and repeated proofs became a part of my personal experience.

Hardly taking time for rest and refreshment after my voyage, I went to the Massachusetts General Hospital to observe for the first time the administration of ether, which, for a number of years, was, by many, particularly called, *sulphuric ether*.

The operation was for hemorrhoids. The subject was a man whose features and form indicated a prolonged period of suffering; he looked weak and decidedly below par every way. After being placed on the table, the attendant applied a sponge wet with the ether, down over the face and mouth of the patient, suddenly, and I doubt if there could have been more than two inhalations, perhaps only one, when the subject sprang from the table, and immediately there was a formidable display of activity and strength, which was speedily overcome by three or four men, who tried to master him and save him from hurting himself. The contest did not last more than two minutes. One man, who was herculean and always at hand in the operating-room, I think his name was Michael, found his match.

Pondering upon the scene I had witnessed, I was sceptical as to the efficacy of the new, hoped-for blessing; soon, however, I became witness of good results, for I was present at a number of surgical operations with the happiest effects, and it was natural that, among medical men, ether should be the grand topic of consideration. The thoughtful of the whole community gave evidence of delight upon the theme. Surgeons, especially, were enthusiastic; and it gives me a sense of joyousness in my declining years to be able to assert that not only was anesthesia deemed an advantageous aid to diagnosis and a great help to the mechanical part of their art, but that there was almost always an acknowledgment of its *supreme benefit to mankind*.

Under the acknowledged influence that the mind exerts over the body, I desire to say that, so far as circumstances may permit, with or without ether, the patient should have but little time for anticipation of the trial he is to undergo. I believe that, in many instances, the mental agony far surpasses that of the accomplishment; that the brain is surcharged; that the heart flutters; that the nervous system and all the vital forces are in an abnormal tumult; and that this condition remains long after the performance of the operation. It seems to me that surgeons in hospitals and in full practice are unapt to discriminate between those likely to be greatly disturbed in the contemplation of a surgical operation, and those who seem to have no great care about it. The mind of the surgeon is absorbed in the consideration and necessity of the

operation; due regard is not given to the mental welfare of the subject.

In my student life, and in the other years previous to the introduction of ether, much of the surgical work which it was my privilege to witness, and occasionally to conduct, was in private practice, and thus I have fallen into this homily; for my honored teachers were careful, as I vividly recall, in attending to the mental, as well as the physical, state of their patients, as being an important element to success.

Among the many great and important discoveries and inventions in the half-century which we celebrate to-day, and which have a bearing upon our profession, we should be remiss if we did not distinguish meritoriously our increased knowledge of the power of ether and of the manner of using it, as compared with what we knew in former years. We were presumptuous in its use, as though it carried no danger with itself. Now, however, all this is changed; a careful, competent investigation of the physical and mental condition of the subject is made and recorded, both before and after etherization. This is done in public institutions, and I doubt not in private practice.

The successful introduction of ether as an anesthetic became almost instantly universally known; and, for a number of years, doubts as to its safety and the probable danger in its use were discussed with greatest interest. This was natural, for we used to witness some scenes in the operating-rooms which would have greatly excited any audience but one of medical men: such as sudden, explosive exercise of muscular activity, catching hold of the sponge, screeching; so that restraint by assistants was required, and it was often several minutes before a persevering application of the sponge would bring about the desired condition.

In the surgical reports of to-day no mention is made of an anesthetic, unless some other than ether is given. The administering of ether has become a part of all surgical operations, and should be considered of importance in each. The present method of giving ether (that of holding a sponge saturated with it a few inches from the face, letting the patient get air and breathe gently, till it can be brought down over nose and mouth without a struggle) is even now done only by few really good administrators; many of them do not allow sufficient time, but seem to think the art of giving it well, is to give it in as short time as possible.

The approach and arrival of this present method have been slow. Many of us have witnessed scenes like that of my first visit to the hospital; but I am happy to say that this is past, and that the operating-theatre is as still and serene as it should be.

Who that sees an operation under its benign and quieting influence, with the knowledge of all the suffering spared, both to patient and witnesses, can call it other than a blessing?

AN EXPENSIVE TESTIMONIAL.—According to newspaper report, a veteran living in the interior of Massachusetts recently gave a testimonial to a patent-medicine manufacturer, stating that he had been entirely cured by his nostrum. It seems that he was receiving a pension for the ills of which the medicine cured him, and that when the authorities learned of his recovery, his pension was cut off. Is he likely to suffer relapse? and if he does will he get back his pension?

RECOLLECTIONS OF SURGERY BEFORE THE USE OF ANESTHETICS.¹

BY SAMUEL L. ABBOT, M.D.,

Member of the Board of Consultation of the Massachusetts General Hospital.

I REMEMBER very well the horrors of surgery before the discovery of anesthetics. It requires very little exercise of the imagination by those who happily never witnessed them to conceive what they must have been. And yet excellent surgery was done in those days under the most difficult and trying circumstances. I cannot recall, however, any serious accident caused by the resistance or struggles of the patient, nor any occasion when it became necessary to restrain him in any way except by the hands of the bystanders. Of course the most trying moment was that of the first incision. But there were always close at hand the house-surgeons and ward-tenders, ready to grasp the patient if necessary in such a way that he could not easily interrupt the work of the surgeon. The following steps of the operation were comparatively quiet, there being much less struggle and outcry on the part of the patient, who in many instances did his best to restrain himself. Operations were done as rapidly as possible. I think I have seen large amputations done in less than a minute, and not infrequently in less than a minute and a half.

The heroism of some of the patients was wonderful to witness. Thus I have seen a woman take her seat in the operating-chair in the arena of the operating-theatre, facing the amphitheatre filled with medical students, and quietly submit to having the whole of her left breast carefully removed without uttering a sound or moving a muscle. On another occasion I saw Dr. J. C. Warren apply the actual cautery to a poor fellow's back over the vertebræ at short intervals from the occiput down to the middle dorsal region, the cautery being held at each point until it had burnt in deeply as a moxa might do, without a sound of complaint or the slightest struggling movement by the patient. Such heroism, it need not be said, called out the most enthusiastic admiration of all present. I myself happened to be within three feet of him.

Two other scenes I remember brought to my mind the horrors of the Spanish Inquisition. The first of these was an operation upon a young man for the removal of a large cancerous growth on the end of his tongue. Dr. Warren, Sen., was the operator. The patient was seated in a high-backed chair, in the operating-theatre, and behind it stood Mr. now Dr. William J. Dale, a large, strong young man, who was then one of the house-surgeons. The operation was done by a short, quick stroke of the knife which removed the outer half of the tongue. Of course, the bleeding was quite free. The actual cautery, however, was in readiness, outside of the arena, in such a position that the patient could not see it, so that he did not know what was coming. Dr. Warren quickly stepped back to the portable furnace where the hot iron was, and as quickly brought it forward, holding it behind him so that the patient might not see it. At a look from Dr. Warren the house-surgeon quickly slipped both of his hands down over the patient's eyes and the cautery was instantly applied to the whole bleeding surface. The patient, being taken completely by surprise, made a convulsive start backwards, and

¹ Read at the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

notwithstanding the strong resistance on the part of Mr. Dale, was able to push the chair in which he was seated backwards some distance. He was followed up, however, by the surgeon until the cauterization was most complete, but in such a way that the lower lip of the patient was considerably singed. I remember well the immediate, dry remark of the surgeon, "Well, if you haven't burnt yourself it isn't your fault."

Another case of the terrible suffering of surgical patients before the discovery of anesthetics is pictured very vividly in my memory — that of a poor fellow who was suffering from an old unreduced dislocation of the right thigh upon the dorsum of the ilium. An attempt was made in the operating-theatre to reduce it by powerful mechanical traction, as all the usual methods of reduction had failed.

The patient was laid on a table lengthwise between the two opposite posts which bounded the curve at the bottom of the amphitheatre in the operating-room. A strong rope was fastened to one of the posts, which was carried in a loop over the patient's right groin and back again to the post where it was made fast, for counter-extension. Another rope with a large pulley-block upon it was fastened at the same level to the opposite post, for purposes of extension. Broad leather straps encircled the thigh of the patient, who was in line with the chord of the arc at the foot of the amphitheatre. The pulling, if I remember aright, was done by ward-tenders. The whole of the surgical staff were present, I believe, at the time. Extension was begun, and it was but a very few moments before it became very painful. Still the pulling continued, and now outcries of pain and expressions of agony came from the patient. Still the pulling kept on, as there was no sign of movement of the dislocated bone. In a few minutes the traction was suspended for a short time to give the patient a little rest, while the bone was manipulated by the surgeons to see if there were any indication of its starting. There was no sign of it, however, and the traction began again. Again an outburst of yells and screams, most horrible in my memory now, after the interval of so many years. And so it went on *for half an hour*, and without success. The bone was immovable and it seemed to me at the time almost, that the man's leg would be pulled off. I remember then thinking that the tortures of the Spanish Inquisition could not have been much worse. It was the most terrible exhibition of suffering I had ever witnessed. And to think that now such scenes are impossible!

I cannot help thinking that not infrequently familiarity with their work and the strong nervous tension under which they must have done it, may have temporarily blunted the sensibilities of surgeons to the suffering they caused. I well remember a case in point: A young member of the surgical staff was once confined to his house for some days by a deep abscess under the palmar fascia of his left hand, the inflammation extending to the end of the second finger. The pain attending it became so intense that he was obliged to summon Dr. J. Mason Warren in the middle of the night in the hope of getting relief. Dr. Warren at once made a deep incision through the palmar fascia, extending it to the end of the finger. After the patient's recovery, happening to meet him at the hospital, he told me of the terrible pain which the abscess caused him; he had never conceived of such

pain; and that of the incision was perfectly "infernal." He added that it was only a few days before that he did the same operation on an Irishman at the hospital, "who made such a row" about it "that I swore at him"; and then, after a pause he continued, "I never again shall swear at a patient I am operating on."

PERSONAL RECOLLECTIONS OF THE FIRST USE OF ANESTHETICS.¹

BY ISAAC F. GALLOUPE, M.D., LYNN.

My pupilage in medicine began in February, 1846, about eight months before the advent of anesthesia, with the late Dr. A. L. Peirson, of Salem, who was then the chief consulting and operating surgeon of Essex County, consequently I saw considerable surgery without the use of ether.

In chronic disease, requiring operative interference, the dread of the operation caused it to be put off as long as possible; and in many cases it was not done at all, the patient preferring death. Every means were used, by the friends and the surgeon, to induce the patient to be *willing* to have the operation done; having done this, to make him *anxious* to be relieved of his encumbrance. When this end had been attained, the patient would have courage to submit to the operation — at least, to have it begun. In some cases his courage would last until the operation was completed; but ever afterward he was a coward if the same kind of courage was needed again.

Before the operation (except in rare cases) large doses of opium — say a teaspoonful of laudanum — were given, and brandy *pro re nata*. It was necessary to have two or three strong men at hand to ensure the quiet required by the surgeon. Tying the patient I have never seen. In 1872, while visiting the Edinburgh Infirmary, Mr. Lister showed me some large iron rings, fastened to the floor, formerly used for binding the patient down — now kept as mementos.

In the case of recent accidents the surgeon went at his work without inquiring of the patient as to his wishes in the case.

Shortly before the first trial of ether, at the Massachusetts General Hospital, Dr. Horace Wells, of Connecticut, had the opportunity to exhibit the use of nitrous oxide as an anesthetic. He had implicit confidence in the success of his experiment, and was a greatly surprised man when he saw its failure, other things (mesmerism, etc.) having been tried with non-success.

Dr. Morton's claim was that he had discovered a compound, the inhalation of which would cause insensibility to pain. He wished it tested by the surgeons at the hospitals; but they would not consent unless he would first reveal to them its composition. This he was reluctant to do, but finally consented. The faculty and students looked with derision upon Dr. Morton's claim. In this state of mind we assembled, in the operating-room of the hospital on the 16th of October, 1846, to witness the first administration of ether in the Massachusetts General Hospital.

As I recollect, there were present Drs. J. C. and J. Mason Warren, Drs. Townsend, Hayward, Parkman, H. J. Bigelow, and A. L. Peirson, of Salem. Dr. Morton was to be there at 10 o'clock; the doctors,

¹ Read before the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

ward-tenders, students and the patient were ready—but not Dr. Morton. Dr. Warren, who was to operate, waited a half-hour; he then remarked, sarcastically, "Dr. Morton has not come, perhaps he has another engagement." Then followed sneering remarks by the students, and sneering looks by the surgeons, for no one had faith in the experiment, and the students enjoyed the fun of the anticipated failure, myself with the rest.

As Dr. Warren was about to begin the operation, Dr. Morton came in, out of breath, and red in the face from hurry. He immediately commenced to give the ether from the glass inhaler then used. In three or four minutes he turned to Dr. Warren, and said, "Your patient is ready"; whereupon the operation was done without a sign of pain that I could see. Dr. Warren then stood facing the class, and said, "Gentlemen, *this is no humbug.*" We were *thunderstruck*. Dr. Warren was a tall, straight man, dignified and rather solemn in manner, with supreme self-control, laconic in speech, using the fewest words possible and never repeating them (resembling the Duke of Wellington); yet there were tears glistening on his face when he uttered those words.

Now for the explanation of Dr. Morton's tardiness. On the previous day (October 15th) Dr. Gould, a friend of Dr. Morton, suggested that valves be put in the inhaler to aid the elimination of the expired air. At midnight he (Morton) had thought out the way to do it; he then went to the house of Mr. Drake, philosophical-instrument maker, rang him out of bed, hurried him to his shop, and induced him to make the required alterations. This took him well into the next forenoon; hence Dr. Morton's delay.

In order to fully satisfy the minds of all that the Lethæon was a *complete* destroyer of pain, it was proposed to make the severest test, namely, that of the actual cauterization. It was applied, accordingly, to the back of a man suffering from caries of the spine. The iron, heated to a white heat, was passed up one side of the spine and twice upon the other side, a distance of two feet, and then zigzag between the spinous processes for the same distance. The room was filled with the odor of burning flesh and smoke, but the man did not wince. Dr. Warren said that this was the severest test possible, and proved the complete success of ether as a destroyer of pain.

A young woman named Alice Mohau was brought into a surgical ward suffering from disease of the knee, for which amputation had been advised but declined from dread of the operation, she preferring death. Dr. Hayward told her that he could give her something that would put her to sleep and make the operation painless, when she readily consented to have it done. This was the first amputation under ether. It was done by Dr. Hayward, November 7, 1846.

Dr. Warren substituted chloric ether for sulphuric and seemed to prefer it.

The first recorded case of extraction of teeth under ether was on the 30th of September, 1846, by Dr. Morton. He began his experiments by pouring the ether on cloths; that not being satisfactory, an inhaler of some kind was thought necessary. Many different kinds were tried, but none were without faults. In the early part of April, 1847, Dr. Morton abandoned them all for the cone-shaped sponge. No important knowledge has been gained connected with the administration of ether since that date.

It appears that ether was used, by inhalation, for asthma and phthisis as far back as 1818; and, singularly enough, the greatest care was used not to carry it to unconsciousness for fear of fatal results, several cases of death having been recorded from that cause.

PERSONAL RECOLLECTIONS OF THE INTRODUCTION OF ANESTHESIA.¹

BY C. V. BEMIS, M.D., MEDFORD, MASS.

IN replying to the request of your committee that as a witness of the first operation under ether, at the Massachusetts General Hospital, I would relate some of the incidents of that occasion, the first thought is that little remains to be said; that the events of that day have long ago become historical.

The picture of the theatre at that time is distinctly before me.

In the old days, the private pupils of the late Dr. John C. Warren, of whom I was one, were accustomed to assist in his operations at the hospital; and after graduation, I continued to make very frequent visits there, especially on the regular days for operations. On one of these days, the famous first operation under ether was performed.

I think nearly all of the Surgical Staff were present. I remember that Dr. Peirson, of the Board of Consultation, was there. The theatre was quite well filled with students and the younger professional men; among whom I remember Dr. George H. Gay, Dr. H. G. Clark, Dr. W. W. Wellington, Dr. Daniel D. Slade.

All waited impatiently for the arrival of Dr. Morton, who had been detained, and was late in keeping his appointment with Dr. Warren.

Immediately on Dr. Morton's hurried arrival, he began the administration of ether to the patient, already on the operating-table, through a tube connected with a glass globe which contained it; and the operation was completed quietly and without special incident.

AN INCIDENT IN THE EARLY HISTORY OF THE INTRODUCTION OF SULPHURIC ETHER AS AN ANESTHETIC.¹

BY W. G. WHEELER, M.D., CHELSEA, MASS.

IN the early part of the year 1846, a New England travelling man from Boston, on his way to the West, arrived at Little Falls, N. Y., then a village, now a city in the valley of the Mohawk. He announced himself in a circular as the agent for and interested in a wonderful discovery which he wished to exhibit; also that he would sell to dentists, physicians and surgeons the right to use the new and powerful agent which would render the extraction of teeth and all surgical operations painless. He also, by written notes to the physicians and a few of the leading citizens of the town, invited them to visit his rooms the next afternoon, to witness the effect of this oblivious drug and to see the extraction of a tooth, without pain, while the patient was under its influence.

This was a great announcement; and it required considerable faith on our part to accept the Boston

¹ Read at the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

man's notion and all that he promised. However, at the specified hour, some half-a-dozen physicians and one dentist called upon him. In his room we found an ordinary operating-chair. On a small table near by was an old-fashioned "wine decanter" half-filled with a bright-red liquid; two glass tubes (one longer than the other) passed down through the large cork, and attached to the affair was some small rubber tubing, three feet in length, with a felt cone on the end, moulded so as to cover the mouth and the nose.

Soon an elderly man, dressed like a farmer, entered; with fear and agitation he seated himself in the operating-chair, and the mouth-piece was readily adjusted. He was told to breathe in, long and deep down. During the first few inhalations he was excited, and resisted; but soon his respirations became slow and stertorous, the muscular system relaxed, the lower jaw dropped and the eyelids closed. The dentist then applied his forceps to one of the patient's molars, and out it came. In fifteen to twenty minutes, consciousness returned, and the victim's face was the expression of wonderment and surprise, as he beheld the offending member within the grip of the dentist's forceps. The patient was questioned as to his sensations, of which he could only say that he knew nothing, was glad it was out, and that he felt no pain.

The physicians asked the agent a few questions as to the *modus operandi* of this Letheon, as to how long the anesthetic effects lasted, and if it had to be repeated. It was then he seemed quite oblivious and could tell us little or nothing, but said it was safe, and that no accident had happened as far as he knew. But we found that he could tell us the exact price, or the royalty per month to be paid for the right to use the article in our surgical operations. And let me say that none of us present ventured to purchase a royalty. But we left his room somewhat surprised, and somewhat doubtful as to what we had seen of the "Boston notion," or the "newly discovered Letheon."

The question of consciousness, or rather the amount of pain that the patient was sensible of? This was the unknown quantity in the problem before us. Some of the doctors seemed sceptical, and said that there were manifestations of pain; one concluded that there had been collusion between the operator and his patient. And then, to add to our perplexity, the name signified nothing as to its chemical elements; the bright color was suggestive of danger ahead. We all readily smelt the pungent fumes of sulphuric ether, and were quite certain that this was an important constituent of the oblivious compound.

Such was the humble advent of "surgical anesthesia," this mighty boon of the nineteenth century, on its mission of mercy to relieve suffering humanity.

The discovery of ether (or rather the anesthetic property of sulphuric ether) this was the beneficent gift of painless surgery, vouchsafed to our profession for all time.

The city of Boston was its home and its birth-place. The Massachusetts General Hospital was its public sponsor at its baptism and will be the fitting custodian of its memory to the "Coming Ages."

LISTER SUCCEEDS ERICHSEN.—Sir Joseph Lister has accepted the appointment of consulting surgeon to the City of London Hospital for Diseases of the Chest at Victoria Park, succeeding the late Sir John Erichsen, F.R.S., in this office.

THE SURGICAL RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL BEFORE 1846.¹

BY H. H. A. BEACH, M.D., BOSTON.

A GLANCE at the earliest events connected with the development of the hospital, reveals the interest of Dr. John C. Warren its first surgeon, and of his father, Dr. John Warren (brother of General Warren), in its organization. In a letter sent home from London, July 9, 1800, he writes: "I have heard nothing of the hospital which was to be established in Boston. Does it progress? And have you, sir, a prospect of getting appointed to it?"²

We are told by the historian of the hospital,³ that a circular letter to the citizens of Boston, signed by Drs. James Jackson and John C. Warren, "may be regarded as the corner-stone of our institution." That strong appeal for financial aid, met with a liberal recognition; and as a result the charter was obtained in 1811. It entitled the holders to real and personal estate to the yearly value of \$30,000. A board of trustees was elected in 1813.

On April 6, 1817, a consulting staff was chosen, and the positions of attending physician and surgeon were filled for the first time by the appointment of Dr. James Jackson and Dr. John C. Warren.

Land for the hospital was purchased October 6, 1817, and the Bulfinch plan was adopted by the trustees, February 1, 1818.

The corner-stone was laid on July 4th, under which was placed a tablet engraved with the following inscription:

"The corner-stone of this edifice, designed as a general hospital, founded by the munificence of the Commonwealth of Massachusetts, was laid at the request of the Trustees of the Massachusetts General Hospital by the Grand Lodge of Massachusetts, Francis J. Oliver, Grand Master; His Excellency John Brooks, Governor; His Honor William Phillips, Lieutenant-Governor, President of said corporation, and a most munificent donor, the municipal and military officers of Boston, assisting at the ceremonies.

"The fourth day of July. MDCCCXVIII, and of the Independence of the United States XLIII. Anno Luce 5818."

"The accommodations of the hospital were intended to give to a few, in a superior style, everything which their comfort or well-doing demanded. The poor patient was sure of receiving all the care and attention and of having everything which would promote his cure, equally with the rich. The man of property might find all the accommodations of his own house, in addition to those remedial measures, such as baths, apparatus, and nurses of superior order, which he could not obtain at home. There was nothing left undone which care, medical skill, cleanliness, pure air, perfect ventilation and strict discipline could accomplish, nothing was wanting that could contribute to the ultimate success of an operation or the cure of a disease."⁴

"The origin, arrangement and in a great degree, control, of this institution in its earlier years belonged to Drs. Jackson and Warren. The trustees acted by their advice as the persons most interested in its welfare and best qualified by their profession to superintend it."

The first patient was admitted to the surgical wards for treatment on September 20, 1821, beginning the long and eminent services of Dr. Warren to the hospital, which only ended with his retirement in 1852.

¹ Read at the Clinical Meeting of the Staff of the Massachusetts General Hospital, December 1, 1896.

² Life of John C. Warren, p. 206.

³ Bowditch.

⁴ Edward Warren: Life of John C. Warren.

As the advantages of hospital treatment became known, the attendance increased until the admissions which, in 1846, had reached the number of 9,980, have to the present time become 101,162. During the past thirty years the increase in surgical operations, especially those of large scope, has risen, in the ten years ending at 1877, to 7,443; at 1887, to 7,880; and to October 1, 1896, to 12,425; a total of 21,748 in thirty years lacking six months.

In addition, the number of out-patients treated since the establishment of that department in 1864, has reached the number of 120,000; and the minor operations performed in that department and in the accident-room average 3,216 in a year (not included in the estimate of operations just given).

An eye-witness of many a bloody struggle between operators, patients and assistants in and out of hospitals, has characterized the fearful scenes that commonly occurred before the days of anesthesia, as fights exhausting alike to all concerned, but to which suffering humanity willingly turned for the relief of deformity, pain and the saving of life.

The grim associations of the old operating-theatre have been dispersed by what Sir Joseph Lister calls "the priceless blessing to mankind from America."

Present generations have appeared with the birth-right of anesthesia, sunshine and air. Few living witnesses can paint for them a perspective of surgery without anesthesia, describe the wonder and astonishment it produced, or its power in developing the science and art of surgery.

A short review of the earlier records may supply facts that will revive the atmosphere of the period and convey some idea of the relief that ether brought, alike to patient and surgeon — whose great and stern duty it was to be self-forgotten, strong and faithful while inflicting the worst tortures upon suffering men, women and children.

The first surgical record was a folio volume of 247 pages. It was sufficiently large to contain the histories of surgical patients admitted in the years 1821, 1822 and 1823. At the present time, six volumes of very nearly the same size are used in making the records of eight or nine months. The operations to be described, selected with care after an examination of every record of surgical cases admitted between the establishment of the hospital and the year 1846, were performed with few exceptions in this theatre.

The first history recorded is that of a seaman who had been afflicted with hemorrhoids for eleven years. His many voyages to India, China, the West Indies and America in that time were complicated with much pain, tenesmus, bleeding, debility, difficulty in walking, and at times with complete disability. Purgative medicines were continually necessary for his comfort.

An examination was made in order to ascertain the cause of his complaint. A stricture was found to exist in the rectum two or three inches from the verge of the anus, which with great difficulty would admit the tip of the forefinger. Several tubercles were found around the anus. Three of them were removed, first passing a curved needle with a large ligature through them and drawing them out in order to extirpate them at their bases with a knife. Very little blood was lost. Light dressing. Five days after, hemorrhage of a pint of blood, checked by cold applications and injections of a solution of sulphate of copper.

Bougies were passed to dilate the stricture, as the wounds gradually healed.

Patient discharged cured.

The second patient was a young man who had suffered intolerably for a year with symptoms of stone in the bladder. They had followed the introduction of a bean into the bladder with the intention of dilating an obstructed urethra. The obstruction had followed a slight injury of the urethra received from a fall. The record is illustrative of the care taken in preparing for an operation and exemplifies the surgical therapeutics of the times.

On the 8th of October a convention of the consulting staff (seven in number) was held, but the stone was not felt and the operation was postponed. In the following week, after an injection of the bowels, the sound was passed and heard to strike distinctly upon a stone. The operation was decided upon for October 18th, at 12 o'clock.

MEMORANDUM OF ARTICLES, ETC., TO BE IN READINESS FOR THE OPERATION.

A heavy table; table for dressings; pillows, blankets and sheets; binders, sponges, lint compresses and bandages, towels, oil, ice, syringe, ligatures, warm and cold water, wine and water, warm barley-water, basins, blood-catcher, coat.

INSTRUMENTS.

Staff-knife, pointed knife, Cooper's knife, probe, pointed bistoury, gorget, forceps, scoop, sound, needles, tenaculum, canula, needles and forceps.

PREPARATION.

The patient, well-purged the day before, early in the morning of the operation should have a good injection. After this has operated, a string must be tied on the penis four hours before the operation to retain the urine. The hair must have been well-shaved. Laudanum injected, 120 drops to the cup.

ARRANGEMENT OF PATIENT.

Assistant adjusts head, secures the feet. Two at shoulders. Staff introduced. Assistant holds it straight; then to the right; then carries the handle down; retains it until ordered, touching the stone.

OPERATION.

Tighten skin, take knife. Incision of four inches deep above. Cut transversus, avoid rectum, feel bulb, touch staff, lay bare staff. Introduce probe-knife flat, and push into bladder. Observe urine. Cut gently towards ischium, following knife with the forefinger into the bladder. Enlarge if necessary. Scoop or forceps introduced. Staff withdrawn, first touch stone. Carry forceps along staff to stone, finger in the wound, finger in the rectum. Search stone, low down. Withdraw downward. Dressing, lint in wound. Patient untied.

The stone was small, and broke during its extraction; the remainder was removed with difficulty with a scoop, and the bladder syringed out with warm water. The latter gave great pain, and did not appear to remove any fragments of stone. The patient expressed great pain in every part of the operation as he had done in sounding. One hundred and eighty drops of laudanum were given to relieve pain at intervals after the operation.

October 19th (the following day). Complaints of severe pain in the bowels and hypogastric region. Slight flush on the cheeks. Sixteen ounces of blood taken from the arm. Tartrate of soda and potash, half an ounce every three hours until a discharge from the bowels occurs. At 5 P. M., a small discharge. No flush on the face. Skin warm. No opiate.

Hyd. submur.	.	.	.	.	.	gr. xii
Pulv. opii	.	.	.	.	.	gr. iiii
Ft pil, no. xii. Take one every three hours.						

October 20th. Much better. No flush on the face. Slept well. Had three discharges from bowels.

Tartrate of soda and potash	.	.	.	3 ss at once.
Pills as before				

Evening: Skin warm. An injection of one pint of gruel with a tablespoonful of salt, wine-glass of molasses and sweet-oil. Suffered from great pain after the injection. In fifteen minutes one-half came away; pain continued but not so violent.

October 21st. Had three discharges during the night. Evening:

Tartrate of soda and potash 3 ss

October 22d. A little sallow in the face. Pulse 77, quick, but not hard. Suppuration going on well in the wound. Evening, pulse 80, a little hard.

Tartrate of soda and potash 3 ss
Pills as before.

October 23d. No evacuation from the bowels.

Tartrate of soda and potash 3 ss
Immediately.

At 1 P. M., as before, gums sore. Omit pills.

Tartrate of soda and potash 3 ss

At 7 P. M., considerable pain and movement of the bowels. One small discharge. Fomentations applied.

Tartrate of soda and potash 3 ss
Immediately.

At 8 P. M., medicine not operated. Complains of wind in bowels, with pain. Pulse 90, a little hard and more full.

Tartrate of soda and potash 3 ss

Midnight: Great pain in the bowels; very restless; pain in the wound. Pulse 100. Take twelve ounces of blood from the arm. Fullness of pulse subsides. Pain continues. Forty drops of laudanum.

October 24th. Medicine operated four times toward morning. Considerable pain all night. Slept half an hour. Pulse 92. No pill this A. M. Take one to-night. At 5 P. M., pulse as before. Tongue moist. Pain and soreness in the bowels.

Vini antimonii 3 i
Spt. nit. eth. | aa 3 ss M.
Camph. tr. opii
Thirty drops every two hours until asleep.

Wounds look better. Hot fomentations, with tansy and wormwood.

October 25th. Took drops twice. Bowels easier. Sleeps considerably. Pulse 120, more hard. White fur on tongue; edges well-defined. Mercurial fetor in the breath. Wound looks well; edges not much swollen; good granulations shooting up. Urine passes freely from wound.

Olei ricini 3 ss
Essent. menth. pip. gtt. x
Every three hours until it operates.

October 26th. Mouth and throat very sore. Oil operated twice. Pulse 120, hard. Tongue as before. Evening: More pain in bowels. Hot fomentations. Abdomen rather tense. Skin hot and sweating. Cold chills. Pulse as before. Brown fur on tongue. Very thirsty. Blister to abdomen. Ol. ricini half an ounce.

October 27th. Blister on four and one-half hours. Five discharges in the night. Wound inclined to heal.

October 28th. Countenance better. No pain in bowels. Pulse 120, less full. Tongue moist. Mouth and throat more inflamed.

Olei ricini 3 ss

October 29th. Slept well. No pain but in mouth and fauces. Pulse 108, not hard. No discharge from bowels.

Pulv. rhel 3 i
Aq. bul. 3 ii
Aq. cinnan. 3 i M.

October 30th. Pulse 92. No pain in bowels.

October 31st. Discharge of urine by urethra. No movement of bowels.

Olei ricini 3 ss

November 1st. Pulse 112. Wound diminishing. Suppuration healthy. Medicine operated twice.

November 2d. Good night. No movement of bowels.

Olei ricini 3 ss

November 3d. Two operations from oil. Face and throat still painful. Little salivation.

November 4th. One discharge from bowels. Pulse 90. Pains as yesterday.

November 5th. Pulse 88. Considerable wind in the bowels last night.

Olei ricini 3 ii
Comp. tr. seena 3 i
Essent. menth. pip. gtt. x M.

November 6th. Face sore without pain. Pulse 82. Good night. Medicine operated twice yesterday.

November 7th. Face better. Pulse 86. Appetite improving.

November 8th. No discharge from bowels. Symptoms same.

November 9th. Disposition to diarrhea. Pulse 85.

November 10th. Pulse 76. One stool yesterday and one in the night. Urine passes freely through the urethra.

During the following six weeks his progress had the usual interruptions of no movement, cathartics movements, diarrhea, the wound in the meantime becoming firmly healed. He left the hospital well.

The next case of interest was one of popliteal aneurism. The preparation for operation consisted of a bath, clearing the bowels for a few days, opium to relieve pain, and eight ounces of blood from the left arm three days before the time appointed. Two hours before the operation the patient (a woman) took six grains of opium; and as the muscles were relaxed so that their course could not be determined, the place for making the incision was settled by carrying a line from the point of the inguinal artery in the groin down to the inner edge of the patella. Another line was carried from the anterior superior spinous process of ilium to the back part of the internal condyle. One inch and a half below the point of meeting of these two lines, the incision began, and was extended upward nearly three inches toward the inguinal artery (left side). The usual dissection for tying the femoral artery was made and afterward closed. A flannel bandage was applied, and forty drops of laudanum given. The wound healed by first intention above and below the ligature. She left the hospital cured of her aneurism.

The operation for fistula ani was commonly done with giving opium or spirit.

C. B., an officer of the frigate *Constitution*, entered the hospital October 25, 1821, with urethritis; and he left it, cured, on November 9th.

C. L., male, adult, was admitted December 7, 1821, with dislocation of the left femur. The accident occurred in September, when he was thrown from a horse, and while lying on his back received the body of the horse across his thigh. His physician recognized the dislocation. The leg remained fixed in an oblique position with respect to his body; he had not the least command of it, and was in considerable pain.

The physician immediately undertook the reduction, and after about ten minutes of considerable force told him that it was reduced. The patient experienced no alleviation of his pain, neither had he the power of motion in the limb; it still remained in the same position. Not satisfied, he sent for another physician who arrived in four hours, and he declared the dislocation to be still unreduced. He immediately bled the patient about twelve ounces, and then undertook the reduction. After trying a short time, he told the patient that it was then reduced, and the patient agreed that it was. The leg could be brought nearer the other; but still there was a tendency to the oblique position — a constant inclination outward. A bandage was put about the knees to keep the thighs together. This physician then left him. He felt some relieved, and was able to sleep some that night. The next day he was again bled about a pint, and took some purgative medicine. He was then seen by the physician who first examined him, and told that the bone was broken in the neck. The patient lay on his back for fourteen days after, and then began to walk with crutches. The second physician examined him again after eight days, and told him that he was doing well. He came again in about ten days and said the same, although the patient had then no command over his leg.

About two months from the time of the accident, on visiting him his physician ascertained that the affected leg was longer than the sound one; he then told him that the thigh was not reduced. No efforts had since been made for its reduction. His health otherwise was good. Upon examination it was ascertained that the femur was dislocated and the direction as far as could be ascertained was downwards and backwards, in consequence of which the affected limb was longer than the sound one. The head of the bone was distinctly felt through the inferior border of the gluteus muscle. Considering the time that had elapsed since the accident and the difficulty of reduction of dislocations in this direction even when recent, it was thought advisable not to undertake an operation; but the patient being very anxious to have a trial made, and still desiring it after it was stated to him that there was hardly a possibility of succeeding, it was thought justifiable to attempt the reduction of the bone. On the day of the admission of the patient he was ordered to take

Magnesiæ sulph.	:	:	:	:	:	:	3i
Fol. sennæ	:	:	:	:	:	:	3ss

and to live light; next day a warm bath was ordered. At two o'clock he began taking tart. antim., gr. i, every ten minutes, until the operation. He took five grains, when vomiting was induced. At three o'clock was bled to sixteen ounces, but no faintness was produced. The operation was immediately proceeded with, and after continuing it about an hour the case was abandoned as hopeless.

December 10th. Discharged by request.

This case became celebrated through the suit of the patient against the two physicians who first attended him, for damages, contrary to the advice of Dr. Warren. In the testimony given Dr. Warren maintained the fact of dislocation, and in that view of the case he was supported by the consulting surgeons of the hospital. The juries disagreed, and the patient lived with a shortened and partly-flexed leg until thirty-seven years afterward, when at his death, Dr. J. Mason Warren was notified by his friends that an examina-

tion was desired. At Dr. Warren's request, Dr. H. K. Oliver went to Ellsworth, Me., and removed the pelvis with the upper part of the femur of each side, and brought the mass to Boston for a careful dissection of the parts. In the course of the dissection Dr. Warren's diagnosis of dislocation was verified; and after the bones had been macerated they were mounted and deposited in the museum of the Harvard Medical School. An interesting account of the case and the dissection of the specimen, with a plate illustrating the latter, may be found on page 372 of "Surgical Observations, with Cases," by J. Mason Warren, M.D.

In a case of gangrene of the foot and leg following a compound fracture of both bones of the leg, the following preparations were made before amputating the limb: "The patient was gently purged with tincture of rhubarb the day before, supported by some wine and water and good broth. Laudanum, if necessary. Forty minutes before operation a strong dose of laudanum was given before being carried to the operating-theatre at ten o'clock with dressings on except pillows and cradle. Laid on table, with his hands raised and held by two persons; knees six inches below the edge of table; each leg supported by an assistant."

A woman of forty-nine entered, with a tumor of the breast, April 24th. All things being ready, operation commenced by making a semilunar incision from the axilla to the sternum, and a similar one from the same point above the nipple. The tumor was dissected out with about one-third of the breast, beginning at the sternal part and advancing toward the axilla. Several glands there were enlarged and indurated. They were taken out (a foreshadowing of the modern operation).

Compound fracture of both patellæ. The injury was caused by the kick of a horse. A loose portion of the right bone removed. Both knees became much swollen. Had been bled freely. Alkaline cathartic. Calomel and opium every three hours. Leeches to the joints. Gruel and tea. No solid food. Apply a wash to the joints of plumbi acet. Profuse suppuration of the right joint followed. Discharged well, in two and one-half months, with good union.

In the description of the excision of a considerable tumor of the lower jaw from a man about thirty-four years old, the record states that the operation was performed and the wound dressed in forty-five minutes — rather tedious to the patient from the proximity of the tumor to an important artery and other parts of consequence. It was borne, on the whole, with a good deal of fortitude. During the operation the patient occasionally took wine and water to drink.

For the removal of piles in another case, a spring-hook was now passed through the largest tumor and drawn downwards, which exposed its full extent. The tumor was then removed by a single excision with a scalpel, and with the loss of a small quantity of blood. The others were treated in the same way. The patient was allowed a little wine and water for faintness.

During an operation for fistula in ano upon a young man, the integuments and a portion of the cellular substance was divided for the space of half an inch towards the anus and through the whole depth of the ulcer. No obstacle now presenting, the patient being secured upon the bed by five assistants, one at each lower and upper extremity and one at the head and one on each side to assist in extending the parts, an attempt was made to thrust the bistoury through the

coats of the rectum; but such was the resistance and the danger of breaking the instruments that a further attempt was useless. A careful dissection was, however, made. The patient during the operation complained of great pain, but bore it well.

The large variety of operations undertaken at the hospital included a number for cataract, from one of which the notes are as follows:

A woman of seventy-five years entered the hospital November 4th. From then until the 27th, when the operation was performed, she was purged and dieted. The eyelids, which were somewhat irritated, were treated, and the pupils kept well dilated by the external application of a preparation of belladonna. The operation was done by breaking up the cataracts with a needle and pushing the fragments into the anterior chamber. This was accomplished without much pain to the patient. Later, as the right eye did not clear up satisfactorily, the operation was repeated, and the cataract, which was very firm, depressed into the vitreous. A successful result occurred.

In another case, during the removal of some carious bone from a rib, the patient was given eighty drops of laudanum forty-five minutes previously. Being fixed upon the table and secured, by three assistants, the bone was exposed and the carious portion removed by chisel and forceps. The operation was borne with a good deal of fortitude.

Large fatty tumor of abdomen. The patient, a young woman, was given forty drops of laudanum half an hour before operating. The incision required was twelve inches, and she was held by three assistants. For most of the time during the operation was very uneasy and complained of great thirst and exhibited some signs of delirium. After being removed to her bed she became more tranquil.

In a case of aneurism, during the dissection necessary to expose the iliac artery (the patient having previously taken an opiate), when the time arrived to open the sheath of the vessel "the patient was directed to keep himself perfectly still at the moment when a division of the sheath was made over the artery in order to lay bare the coats of the artery and to separate it so as to pass the aneurismal needle completely around it and under its sheath, after which, the ligature was tied with a double knot. The patient endured the operation with considerable firmness."

An early employment of surface thermometry occurs in the subsequent treatment of the case when the following entry is made:

"February 20, 1823. Temperature of the limbs by the thermometer as follows; right limb, just below groin inside, 98°, at sole of foot, 96°; left limb (sound), inside of thigh, 97°, at sole of foot, 94°."

The ligature came away on the nineteenth day, there having been abundant suppuration.

March 18th. Limbs both alike as to strength and temperature. Discharged cured.

Nerve section. The case was one of severe neuralgia of the fifth pair. After the facial nerve had been severed at the point where it emerges from the skull, there was so much suffering that another operation was undertaken.

February 26, 1823. The patient having taken three grains of opium was seated in a convenient chair and an incision made beginning just below the zygomatic process of the os temporis and over the body of the inferior maxillary bone on the right side.

The first incision through the integuments and subjacent cellular membrane exposed the anterior portion of the parotid gland and the fibres of the masseter muscle. The dissection was then continued through the glands dividing the duct and thence carried through the muscle to the bone without dividing any considerable artery except one which was secured by a ligature. The great facial artery was exposed in the upper part of the wound. The bone being laid bare of the muscles which covered the spot opposite to the foramen for the passage of the inferior maxillary nerve into the bone, the raspatory was applied, and the periosteum removed. The trephine was next applied, and the bone perforated just opposite to the foramen, as was shown by a furrow or notch in that portion of the bone which was removed, bringing with it a portion of the nerve with one of its branches. The remaining part of the nerve was then drawn out by the forceps and cut off at the foramen, and the other end divided, making the piece removed about half an inch long and something more. The divided ends of the parotid duct were brought together by a suture. The patient walked to his room pretty well satisfied that the desired relief was obtained. Discharged cured.

Necrosis of the tibia. The necessity of a protracted operation without anesthesia is well illustrated by the next case described.

The patient (a man) was placed upon the table and held by assistants. Surgeon first made an examination with probe, learned the extent of the dead bone and the firmness and strength of the living bone. He then commenced the operation by making a longitudinal incision through the integuments of about four inches, which he afterwards crossed with another of two inches, and then carefully dissected up the integuments and exposed the bone, which proved to be thick and firm. The sequestrum was completely encased, excepting at the orifices where the matter escaped. To effect the removal of this, the raspatory was applied to the external surface of the bone. The trephine was then used and the chisel and gouge until a portion of the living bone was taken out and a part of the dead bone laid bare. A probe was again passed in, a further examination made, and the cavity ascertained to be well filled with the old bone. The operator proceeded to the removal of more of the new-formed bone using one of Hey's saws, gouge, chisel, etc., as particular circumstances required. At the same time incisions through the integuments were carried further, others made cross-wise and the flaps dissected up.

Though a good part of the sequestrum was now exhibited, it was found necessary to divide it before it could be taken out. It was accordingly done with Hey's saw, and two portions of the bone extracted without any difficulty. In consequence of the ragged edges of the dead bone being strongly interlocked in those of the new-formed bone, successive portions of the sound bone were again and again removed by the same instruments until the whole sequestrum was extracted and the operation completed. The dead portion of the bone was found to extend nearly the whole length of the tibia, and the newly-formed bone sufficient for the strength of the limb.

The patient was conveyed to his bed much exhausted. During the operation his strength was supported with wine. The operation continued about two hours, and was borne by the patient with great fortitude.

Some of the difficulties in operating for cataract are shown by the next case, which was that of a child.

April 26th. The usual preparation being made, seats adjusted and the child held by a female sitting in a chair, the speculum was applied, and the surgeon passed the needle into the eye, puncturing and dividing the cataract. During the operation the child made much resistance, with cries. The upper eyelid was inverted, which together with the tears almost entirely obstructed the site of the operation. Occasionally the opaque spot appeared to view, and was very well lacerated. Small compresses of lint were applied with bandages around the head and in a short time, the child was perfectly quiet.

The following quotation is made from the description of another case of double cataract: "Depressing the cataract was somewhat embarrassed from the circumstance that the patient, a woman of sixty-five, during the operation sunk a little forward in the chair, which of course depressed the head and altered its position in such a way that the operator was obliged to raise his head, which gave only an imperfect support to his elbow and proved rather inconvenient. The operation for depression was performed on the right eye with the left hand of the operator."

In another double cataract operation the "patient suffered considerably during the operation upon the left eye, very little in that of the right."

Dr. Warren's biographer tells us that not an eye was lost by cataract operations.

Shoulder-joint dislocation. The patient was a man sixty-two years old, and the dislocation had existed eight weeks. It was sub-coracoid. *Magnesiae sulph. sol.*, qs. Warm bath.

"To-morrow at 10 let him be bled in the erect position so as to faint. At 11 take 1 grain of tartarized antimony every fifteen minutes until nauseated. Operation at 12.

"Patient placed upon a stool. Pulleys and straps applied. Padded belt under the axilla, and secured to opposite wall. Extension then made by pulleys attached to a strap buckled at the arm, the latter at right angle with the body. The muscles became relaxed very considerably, and an effort was made, by bringing the arm forward and upward to replace the bone, but ineffectually.

"Extension was next made nearly in front of the patient, downward, and a powerful, but gradual, extension made, but without reducing the bone. The patient suffered much pain from the severity of the process, but did not refuse a further trial. Accordingly he was directed to lie on his back. The bite was passed under the axilla and secured firmly to the floor by the cord used for counter-extension, then extension was made on the arm nearly in the natural direction of the limb, the body of the patient being in line with that of the extending force. This position was very favorable for reduction, and the bone had apparently got into its place, for a hollow on the outside of the shoulder was filled up, and the head of the bone, by the pressure of the belt in the axilla, was carried toward the socket. At this time the extension was relaxed, the arm brought forward and upward over the body, but without effecting the desired object. Is thirsty. Wishes for brandy and is given two glasses. Eloped."

Neuralgia of the intra-orbital branch of the fifth pair, left side. The patient was a woman of fifty-one

years, who had suffered for eighteen years almost constant pain. For six months anodynes had been occasionally taken at night with advantage. Patient given half an ounce of sulphate of magnesia. "On the following day, the back and head supported by assistants, an incision made over the nerve from the orbit downward" the seat of the nerve was determined by passing a probe into the wound. Then with the forceps a portion of the nerve was removed. As the pain persisted without much abatement and extended to the lower jaw, three teeth were extracted; and she was discharged cured in a few days.

An amputation by transfixion of the thigh, for white swelling of the knee-joint, is described as having been done in sixty-five seconds. The patient died in three days.

A carpenter, while engaged in erecting an arch in honor of Marquis Lafayette, on August 23, 1824, fell from the ladder on which he was working to the ground. He jumped, and fractured his left femur. The limb was placed in a fracture box, and an eighteen-tailed bandage applied. He was discharged cured.

From the record of a patient who submitted to the removal of a large tumor of the breast with extensive dissection: "She sustained the operation with great calmness — was much exhausted and faint."

Necrosed bone from the tibia. "Let the patient take twenty drops of tincture of opium one hour before operation. An incision from three inches below the knee, carried down over the anterior edge of the tibia to the ankle, also a cross incision at each end of the longitudinal one. This portion dissected up, leaving bare the tibia. The bone at the lower part was sawed through to the diseased part by Hey's saw. So also at upper end. Then by chisel and mallet the portions of newly-formed bone lying over the diseased bone were removed. The edges were afterwards removed by a gouge and the bone nippers, so that the diseased portion might be removed, which was then done, the lower part of it being first raised by the levator; then the bone drawn down, as it extended a little under at upper part, and was removed. Wound was then cleansed and all parts adjusted. Compresses applied, and a roller passed around. Considerable loss of blood, faintness and vomiting during the operation; and at the termination of the operation, faintness, which lasted for some time. Was cold. Hot water and spirit was applied to the extremities, and brandy with water as freely as she could bear, with the occasional addition of six drops of ammoniated alcohol. She revived, but continued much exhausted, and became delirious. Pulse extremely rapid and feeble. Had several faint turns in the evening, with catching for breath. Hot baths and bottles were continued, with internal stimulation. She finally sank, and died at half-past nine in the evening, from the exhaustion, irritation and shock of operation, her constitution being delicate and very irritable."

An operation for the removal of a tumor of the lower jaw. Incision carried from the cheek-bone down over jaw and two inches below, in a semicircular line. A second incision meeting the extremes of the first was made, and part of the skin, etc., included, removed. The parts covering the bony tumor were then carefully dissected up on the exterior and also on the interior parts. It was then found necessary to remove two teeth from the jaw. The surgeon then proceeded to divide by Hey's saw the middle, about one and one-

half inches from the point of the chin. The bony tumor was then, by means of the levator and with some difficulty, raised; in doing which the bone gave way in the diseased part. This portion was then removed. The remaining part was then separated from the muscles covering it, and with considerable difficulty detached at its articulation, the ligaments, etc., being exceedingly firm. The facial and maxillary arteries were secured by ligature, the wound cleared and brought together. Sponges were laid upon the parts, also a compress followed by a roller. Loss of blood inconsiderable. Had some faintness at times, but bore the operation well. Tumor size of large egg.

A patient with symptoms of stone. After giving one hundred drops of laudanum, the patient was placed on the table with hands bound to feet and legs drawn up. The usual lateral operation was performed, and a stone of the size of an egg removed. Patient bore the operation well.

Cancer of penis. "Penis held fast, divided about an inch from the pubes by one stroke of the knife."

Cancer of the breast. Two semicircular incisions of five or six inches. The gland carefully dissected out. The glands of the axilla, being schirrous, were dissected out, in the course of which the axillary vein was opened. It was closed by compression.

The following brief histories appear:

January 7, 1825. "Breast was cut out with the integuments over it and the glands of the axilla."

February 4th. "Hemorrhoids cut off."

Cancer of penis. "Eighty drops of laudanum before operation. Amputation."

Up to June 26, 1826, when erysipelas was first mentioned in the records, wounds had behaved admirably, many healing by first intention, and the admissions had included many severe injuries, such as burns (largely lacerated wounds) followed by foul and suppurating discharges. The "erysipelatous affection" became so troublesome that all of the staff were requested by the trustees to propose measures fitted to eradicate the disease. They proposed the vacation of the hospital from four to six weeks. Those already sick to be isolated, and those who could bear removal to be sent to an adjoining house that could be hired for the purpose. All clothing and beds to be washed or baked. Old straw to be thrown away. The hospital wards to be exposed to the fumes of burning sulphur for three days, and one day to the strongest fumes of chlorine; then to a free current of air for at least one week, day and night. In the mean time all the sick-rooms to be whitewashed. The cellar to be thoroughly cleansed.

For the prevention of a return of this calamitous occurrence, they propose that the number of beds be diminished one-third from the late establishment, and never to be increased beyond this without a formal order from the trustees upon consultation with the Medical Board; that fireplaces be constructed where it is possible; that the water-closets be more thoroughly ventilated; and that in case of any further appearance of erysipelas the patient shall be moved out of the hospital, and everything about him removed or thoroughly disinfected.

It shall be the duty of the medical officer having such cases to report them at once to the superintendent, who shall be directed to remove such patient to some proper place without delay.

JOHN C. WARREN,
WALTER CHANNING,

JAMES JACKSON,
GEORGE HAYWARD.

On December 28, 1827, catgut ligatures were used for the first time. The patient was a woman with a tumor of the meatus urinarius.

In preparation for an amputation on September 20, 1832, the patient received at 10 A. M., pulv. opii, gr. ii; at 10.30, tinct. opii, gtt. xxx; at 11, tinct. opii, gtt. xx; without much effect.

Dislocation of the hip. The patient was admitted October 9th. From that time to the 17th, he was given saline cathartics and a light diet. On the 18th, at 10 A. M., tartrate of antimony, one grain, and repeat every twenty minutes; omit when nauseated. At 20 minutes past 10, warm bath at 100°, increased to 110°; to remain in it one half-hour.

Patient being placed on the operating table, the cords and pulleys were attached to the dislocated limb. The fourth dose of antimony produced nausea. The vein in the left arm was opened. At this time (11.40) the extension commenced. At eight minutes before twelve o'clock faintness and great prostration. The extension was steadily continued by one person. A lengthening of the limb was perceptible. Complaint of pain in the vicinity of the head of the bone. The limb was rotated inwards across the left thigh. It now appeared longer than the sound one. A broad bandage was now placed around the upper part of the thigh, passing across the shoulder of an assistant. A belt was passed around the pelvis, thus making a counter-extension to the broad bandage. The limb was again rotated inwards. No success following this direction, and the head of the bone appearing to be on the edge of the acetabulum, the limb was rotated upwards and outwards. At this time, twenty minutes before one o'clock, the patient exclaimed, "It is in!" The motion was felt by Dr. Warren while rotating, and by Dr. Hayward, whose hand was on the cervix. It was a success.

December 6, 1829. During the removal of a tumor of the lower jaw the bleeding became so profuse that it was necessary to apply the actual cautery. This checked it for a while; but as it recurred after reaching his room, it only stopped when he fainted. Five days after he had more hemorrhage, arrested by styptics.

The first case to be classed as abdominal, excepting strangulated hernias, etc., was that of a woman who entered the hospital October 28th, aged forty,⁵ with an abdominal tumor that had grown from the size of a goose-egg until it extended from the right groin to the false ribs of that side, measuring fourteen inches in that direction. It was first noticed on the same side, below and to the right of the umbilicus. Tumor movable, not tender, very firm and not fluctuating. Urine, thirty ounces, natural. No disturbance of functions. No pain. General health, appetite, and sleep good. Catamenia regular and profuse during the past ten years. Vaginal examination shows os high up above symphysis. Not tender or enlarged. Uterine fundus and body felt upon rectal examination. No tenderness or compression of gut. Enema at 10 A. M., and thirty drops of laudanum at 10.30. Operation at 11.

Directions for operation: Patient to have sixty drops of laudanum. Theatre heated carefully to 70°. Rain-water of blood-heat, and soft cloths to cover intestines. Usual instruments for an extensive operation.

Dr. Warren operated by an incision through the integuments in the linea alba, beginning three inches below the umbilicus and extending downward four inches. Subjacent muscles then carefully divided and the peritoneum opened, exposing the surface of the tumor to view. An attempt now made to reduce the size of the tumor by puncturing it with a trochar and canula. No fluid followed. It was found necessary to enlarge the incision upwards above the umbilicus. Tumor was then brought through the wound without difficulty, as it adhered only at its base. A strong cord was then tied firmly around the neck of the tumor, great care being taken to avoid including any of the intestines and to diminish the loss of blood. On cutting partly through the neck, the divided parts were found to retract, by reason of which the ligature was loosened. Another was accordingly passed around the undivided portion of the tumor, and it was then completely removed. Attempts were then made to stop the flow of blood, and several arteries were tied. After this object had been nearly or quite accomplished, the patient was found to be quite faint. Cold water was dashed upon her face, and brandy and water poured down her throat. Brisk friction of her limbs and application of blankets dipped in warm water were also made. The patient not reviving, artificial respiration was kept up for some time by inflating the lungs with a pair of bellows. The stomach-pump was then brought, and half a pint of hot brandy thrown into the stomach; but all these attempts proved fruitless, and the patient was finally given up for dead.

One of the popular methods of treating sore eyes among the public at that time was to apply a *frog that had been broiled alive in a pound of butter*. A patient entered who had found this a valuable remedy; but in spite of its efficacy he was unable to open his eyes without force.

Amputation of the thigh, May 25, 1839. "Patient had one hundred drops of laudanum. He thinks that he did not feel the opium until after the operation."

Tumor of the tongue. Tumor being grasped by double hooks, it was removed by one stroke of the scalpel. Hemorrhage considerable; not being controlled by ligature, the actual cautery was applied. At 4 P. M., another hemorrhage; compression by sponges. At 5 P. M., another hemorrhage, controlled by sponge.

During an enucleation the eye was grasped by the forceps in the same way.

Removal of tongue. Tongue being protruded, it was seized with a long-bladed polypus forceps, transversely behind tumor, and firmly compressed. Tumor then being seized between the left thumb and forefinger of the operator, a straight, sharp-pointed bistoury was passed across behind tumor through the healthy portion of the tongue, and the two lingual arteries secured by ligatures. Little blood was lost. Patient bore the operation with great fortitude.

An extensive, malignant, ulcerating growth involving the labia, nymphæ, clitoris and urethra in a woman of twenty-nine years. A careful dissection was made of the whole ulcerating surface. Great pain and persistent syncope accompanied the protracted dissection.

A long story of agony and blood, to which man was born from earliest prehistoric time; the shadows of which were lightened by the results of brilliant operations that restored life, health and limbs to the dis-

abled and unfortunate, and by the opportunities for teaching the way of saving lives to others. So far as humanity could suggest remedies or the science of the times permit, pain was relieved. The terrors of the past, which had cast their gloom over hospitals and surgeons alike, restricting the natural growth of science, that held in its grasp the suffering and mortality of millions waiting for its beneficent protection, were dispersed and shorn of their sting by the light shining from this Temple of Health on October 16, 1846. That light has been reflected to the surgery of the whole world, comforting the sufferer, arming the surgeon, and illuminating the pathway of Science throughout the Universe of Pain.

"The heart of every American physician is filled with thankfulness when he remembers that, in the providence of God, this great boon to humanity was vouchsafed to this country. The very ground upon which stands the Massachusetts General Hospital is sacred to us all."⁶

Recent Literature.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. WITTHAUS, A.M. M.D., Professor of Chemistry, Physics and Hygiene in the University of the City of New York, etc., and TRACY C. BECKER, A.B., LL.B., Counsellor-at-Law and Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. With the aid of numerous collaborators. In four volumes. Vol. IV. New York: William Wood & Co.

In a notice of the first volume of this comprehensive work, the JOURNAL said that if the standard of excellence illustrated in that volume was continued in those to follow it, the two professions of law and medicine would have at their disposal an encyclopedic production of the highest character. And now that the final chapter has been written and the last volume of the series has come from the press, it gives us pleasure to declare that our early anticipations have been realized, to congratulate the editors and publishers upon the completion of their task, and to express a candid and cordial appreciation of the publication as the best treatise on Legal Medicine which is now available in the English language. In scope, in the intelligence shown in the treatment of the many topics, in the discrimination with which the latest advances in medico-legal knowledge have been used, these volumes represent a success of which their projectors may well be proud.

This fourth, and final, volume is devoted exclusively to Toxicology and is the sole work of Professor Witthaus. The same purpose dominates this book as has found expression in the three earlier volumes in the series, namely, to gather and present whatever, relating to the subject, was most useful to the two professions for which the whole work was designed. After an interesting review of the literature and history of poisoning, setting forth the indefensible manner in which royal personages and popes, as well as people of lower degree, have used poisons to rid themselves of uncongenial acquaintances, the author wrestles acceptably with the question, "What is a poison?" A considerable section is devoted to topics

⁶ Dr. W. W. Dawson: Life of Ephraim McDowell.

pertaining to general toxicology; and, finally, in special toxicology, the author gives full attention to the various known toxic agents, their chemistry, symptomatology, anatomical effects and detection in the tissues by analytical determination. The whole field of poisons is included, emphasis and prominence being bestowed on individuals in that class where these are justified.

Our space will not permit detailed mention, and we content ourselves with the general statement that the volume is a treasury of learning at which the seeker after help will find his drafts fully honored.

Skiascopy and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic; Surgeon to Wills' Eye Hospital, Etc. Philadelphia: The Edwards & Docker Co.

The fact that the first edition of Dr. Edward Jackson's excellent monograph on "Skiascopy and its Practical Application to the Study of Refraction" was sold within the first year of its existence, bears witness to its popularity, and is the reason for the issue of a second edition. The changes that are noticed are slight, being mostly alterations in the phraseology, resulting in greater clearness of expression.

This valuable addition to the methods of objective diagnosis is treated in accordance with its importance, so that the careful reader must realize that skiascopy will be found of use only as its underlying principles are applied.

To those who have employed the "shadow-test" without a clear idea of the optical principles upon which it is based, this treatise may appear somewhat too diffuse; but whoever adopts the author's routine in examining, and becomes thoroughly acquainted with each step and the reason therefor, will not find any superfluous matter.

When beginning to study the tests it is advisable to start with known conditions of refraction, with lenses of known strength, and with the eye at a known distance, thus becoming familiar with the behavior of the light and shadow in the pupil under such conditions that in ametropia it will be possible to deduce from the pupillary appearances the state of the refraction which causes them. Great stress is laid upon the position of the light, and its most advantageous arrangement. The advantages and the disadvantages of the plane and concave mirror receive careful consideration, and explicit directions regarding the best manner of constructing the mirror are given. Other details, which in the author's wide experience would seem to him to be of value to the oculist or practitioner, have not been omitted.

It is truly a pleasure to be able to recommend so excellent a book upon so important a subject.

Water and Water-Supplies. By JOHN C. THRESH, D.Sc., M.B., D.P.H. London: The Rebman Publishing Co. 1896.

The main object of this book, as the author states, is "to place within the reach of all persons interested in public health the information requisite for forming an opinion as to whether any supply, or proposed supply, is sufficiently wholesome and abundant, and whether the cost can be considered reasonable."

This book contains twenty-three chapters, the first

seven being devoted to the different kinds of water and water-sources; these are followed by chapters upon impure water and its effect on health, interpretation of analyses, the self-purification of rivers, purification of water, domestic purification, the softening of hard-water, wells, pumps, pump machinery, water storage, distribution, etc.

The writer makes frequent reference to the experiments and investigations of the Massachusetts Board of Health, as a standard authority upon the subject.

This volume will be found to be a very useful manual for reference by young engineers, water-boards, superintendents and sanitary authorities.

The Tonic Treatment of Syphilis. By E. L. KEYES, A.M., M.D., Late Professor of Dermatology, Syphilology and Genito-Urinary Surgery in the Bellevue Hospital Medical College; Consulting Surgeon to the Bellevue Hospital. Revised edition. New York: D. Appleton & Co. 1896.

While thoroughly believing that the curative power of mercury in syphilis is due to its specific action on the disease, and from time to time as the symptoms demand it must be pushed to the point of mercurialization, the writer has found that in addition to its specific action, mercury in small doses acts directly as a tonic, by increasing the number of red corpuscles in the blood. He has demonstrated the fact of this increase of the red corpuscles on numerous patients who have been under his treatment by small doses of mercury for long periods, by actual blood-count, and has found that coincidently with the increase in the number of red blood-corpuscles, as shown by the hematometer, a marked improvement took place in the patient's general condition.

The iodides, also, he has found to possess a tonic action in addition to their antisyphilitic effects; but his experience coincides with the generally accepted view that they have very little effect on the disease in its earlier stages, being of use in the treatment of the gummatous tumors and chronic cutaneous affections of the later stages of the disease.

His plan of treatment is to give mercury up to the full dose until the earlier manifestations of the disease are controlled, and then to continue its administration in minute doses over long periods as a tonic.

The latter part of the book is devoted to a discussion of the details of the author's methods of treatment of the general and special manifestations of the disease. He does not consider it safe to suspend the mild mercurial course under two and a half years. Intramuscular injection is the method of administration of mercury to which he gives preference.

The book gives explicit directions for the treatment of the various stages and lesions of the disease, and is well fitted for a practical reference book for practitioners who may desire to inform themselves on the subject.

The Physician's Visiting List, 1897. Philadelphia: P. Blakiston, Son & Co.

We are glad to acknowledge the receipt of the above familiar visiting-list, now in the forty-sixth year of its publication. A better testimonial to its merits could hardly be given than its continued yearly appearance. We recommend the list to all general practitioners. They will find it suitable, and certainly most useful in the conduct of their daily practice.

THE BOSTON
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THURSDAY, JANUARY 7, 1897.

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RECOLLECTIONS OF SURGERY BEFORE AN-
ESTHESIA.

THE great interest which was excited among the profession in this country and in Europe in the Jubilee of Anesthesia held October 16th last, has brought out a host of recollections of the great event itself, and of the period which immediately preceded it.

The number of men who are able to recall that period is, however, a rapidly diminishing one, and the time is near when those who witnessed the cries and struggles of the amphitheatre will have all passed away.

The history of those times has never been written, and the coming generation of surgeons will never know what the ordeals of surgery without anesthesia really were, unless those who still remember them shall record their experiences.

Of the series of papers published in the JOURNAL to-day, that by the venerable Dr. Markoe gives a glimpse of the period when the new era was about to dawn upon New York. The selection from the old records of the Massachusetts General Hospital, by Dr. Beach, throws a curious side-light among many other interesting facts, upon the attention to details which seemed important in those days and now so useless.

The contributions of Drs. Cotting, Wheeler and Bemis have the flavor of the period of the middle of the century, and are the records of men who were a part of those times.

Dr. Ingalls's article is of special value, as it covers, as it were, at one leap the extremities of this century, and is the personal experience of one of the few surgeons of those times still living with us.

It is high time that the material which such men can afford the future medical historian of that era should be collected, as the generation which witnessed those stirring scenes will have soon passed away.

In this connection it is well to note with satisfaction the universal recognition of the great historic event of the birth of surgical anesthesia, and that the occasion

was celebrated on the same day, October 16th, not only in Boston, but Eastward as far as Moscow, and Westward as far as Minneapolis. The general recognition given by English surgeons, of the significance of this event, cannot be otherwise than gratifying to all American surgeons.

MEDICAL EXPERT TESTIMONY IN HYPOTHETICAL CASES.

A WELL-KNOWN lawyer, when asked his opinion of the value of medical expert testimony in hypothetical cases replied that it served a purpose in showing the utter worthlessness of the medical testimony on the other side. He admitted, of course, that his own experts were open to a similar criticism, but said that the jury balanced the one against the other and considered the result as being equal to zero.

Between the rules of evidence in court on the one hand, and the desire of the lawyer, on the other hand, to make out the best possible case for his client, the physician may be placed in an embarrassing, or even compromising, position, or else feel obliged to decline to give the courts the benefit of his experience in such cases. The lawyer, too, may be driven by his opponent to think that he must rebut certain testimony by using the hypothetical question under most unsatisfactory conditions, which many physicians might regard as not preventing them from accepting the situation for what they considered a good enough purpose.

But even here, we think that both lawyer and physician may make a mistake. Not long ago, a lawyer contesting what was regarded as the insane will of an insane person was confronted with the unexpected appearance in court of two physicians who on a hypothetical question testified to the man's sanity. The lawyer desired another physician to go at once to court and contradict these opinions and was rather surprised at his saying that it would be impossible for him to place himself in such a position. The advocate was advised, however, to tell the jury that the question of the soundness or unsoundness of mind in the case before them was one of facts and not of opinion; that they were even better able than the physicians to pass upon the facts, which seemed plain, inasmuch as their position was an impartial one and that of the physicians prejudiced, because the physicians had been employed by the defence, and examined and cross-examined, in such a way as to make it very difficult for them to avoid giving one-sided testimony. The lawyer followed the physician's advice, for which there was no fee, and gained his case.

It is not easy for medical men to estimate the weight of various kinds of evidence on the minds of the jury. We cannot but believe, however, that in the case recently tried in Boston, there was an excellent opportunity for the government to use such an argument with telling effect, and at the same time to relieve the medical profession from an embarrassment for which it has received less credit than fairly belongs to it.

The lawyers know that some physicians think that they may act as medical counsel for any client and, like his advocate, make out as good a case as they can for him, irrespective of what would be their opinion if given in an entirely unbiassed way. Others are so judicial-minded or scientific in their attitude, and so fair in their statements, that it has happened that lawyers finding them summoned by their opponents have not found it necessary to call other experts to contradict them, because they trusted to their fairness, intellectual and moral.

Physicians who respect themselves and who wish their profession to be respected have not thus far been able to suggest any complete remedy for what is generally admitted to be a most deplorable state of things; the lawyers seem equally at sea, and the courts, following rules and precedents, cannot exclude testimony which is by both admissible.

Until some reform is begun, the medical profession can only depend upon itself to act with dignity and self-respect in individual cases, and, as a body, to make its approval or disapproval felt as to general practices.

THE RATES OF MORTALITY IN NEW ZEALAND.¹

THE populations of the colonies of British Australia and other neighboring regions present features of unusual interest, and the reports from these colonies compiled in recent years are unusually full of valuable statistics.²

The census examinations of the population of New Zealand, of European descent, taken at irregular intervals, shows a rapid increase from a total of 26,707 in 1851 to 626,658 in 1891. The males were in excess at each enumeration, and were in the ratio of 1,288 males to each 1,000 females in 1851, and 1,133 to each 1,000 in 1891.

The population has increased, not only in consequence of immigration, but in consequence of the excess of its birth-rate over its death-rate. For the whole period of forty years the deaths were less than one-third as many as the births. Added to this is the fact of a low mortality of infants, the deaths under one year being generally less than ten per cent. of the births. This high birth-rate, and low infant-mortality has a marked effect upon the age-constitution of the people, as the following figures will show:

PERCENTAGES OF POPULATION AT CERTAIN AGES.

	New Zeal. 1881-91.	Eng. and Wales. 1891.	Mass. 1865-90.
Birth to four years . . .	14.	12.3	9.9
Birth to fourteen years . . .	41.1	35.	28.8
Five to fourteen years . . .	24.5	22.8	18.8

The result of this unusually large ratio of persons at ages of life when the death-rate is low (five to fourteen years) is to produce a low death-rate at all ages.

¹ Reprint from the New Zealand Journal of Insurance, Mining and Finance, November, 1895. Quarto, 16 pp. By George Leslie, Assistant Actuary, Government Life Insurance Department, etc.

² See, for example, the Victorian Year Book.

The population at ages beyond sixty is also correspondingly small.

Mr. Leslie constructs from his census enumerations and the vital statistics of the colony, a life table for New Zealand; and if the figures may be relied on (which we have no reason to doubt), it would appear that no more healthful region has yet been found. The general death-rate of the population for the years 1880 to 1892 was never higher than 11.5 per 1,000, and ranged between 11.5 and 9.5 during that period.

The table giving the probabilities of living for the first five years of life shows that the New Zealand child has a greater probability of living than the children of the same ages in the Australian Colonies or in the healthy districts of England, and nearly as great as the children of the English peerage (a selected class).

The ratio of males to females at birth in New Zealand is as 1,045 boys to 1,000 girls, the number of the former during the thirteen years 1880-1892, exceeding the latter by 5,381. But the deaths of boys under five during the same period, exceeded those of girls of the same age by 2,737, so that fully one-half of the difference in the sexes had disappeared before the fifth year of life was begun.

Since the general death-rate is shown to be low, it follows that the rate from special causes is also generally low. The following table shows the death-rates per 10,000 of the population from different causes in New Zealand:

ANNUAL DEATH-RATES PER 10,000 LIVING, FROM CERTAIN CAUSES, NEW ZEALAND AND MASSACHUSETTS.

	New Zeal. 1885-94.	Mass. 1885-94.
Measles	1.03	1.0
Scarlet fever . . . . .	.23	2.2
Whooping-cough	1.8	1.2
Diphtheria and croup	2.9	7.4
Typhoid fever	2.14	3.8
Small-pox	0.0	.04
Cancer	4.5	6.0
Consumption	11.2	26.1

It appears from Mr. Leslie's statements that the colony has been exempt from small-pox since the English occupation of the island in 1840.

It appears also from the foregoing figures that the death-rate from the principal infectious diseases is generally less than that of Massachusetts, the exceptions being measles and whooping-cough. The death-rate from violent causes, and especially from suicide, is greater than that of most civilized countries.

MEDICAL NOTES.

ANTITOXIN IN LOUISIANA.—The Louisiana State Board of Health has announced that it will supply antitoxin free of charge to poor diphtheritic patients.

SIR JOSEPH LISTER RAISED TO THE PEERAGE.—Sir Joseph Lister, who was raised to the peerage on New Year's Day, is the first physician to receive that honor. The discovery and application of surgical asepsis gives reason enough for the bestowal of this extraordinary distinction.

ROUX DIFFERS FROM PASTEUR. — Dr. Roux has accepted a decoration from the German Emperor. Pasteur, it will be remembered, declined a similar proffered honor.

INTERNATIONAL MEDICAL CONGRESS. — The managers of the surgical section of the Twelfth International Medical Congress to be held in Moscow, Russia, in August, 1897, have invited Dr. Stephen Smith to accept an honorary presidency and preside at one session of the section.

A MEDICAL PRESIDENT. — M. Adolphe Deucher, who has just been elected President of the Swiss Confederation for the ensuing year by an almost unanimous vote, is a member of the medical profession. He was born in 1831, and was actively engaged in medical practice till the year 1879, when he retired in order to devote himself entirely to political life.

PLAGUE IN LONDON. — Two cases of plague have occurred during the autumn in a sailors' hospital in London, both being sailors recently arrived from Bombay. This ought to settle once for all the question whether plague is carried to long distances by sea, and increase the probability that the Bombay outbreak was communicated by sea from Hong Kong.

PHILADELPHIA PEDIATRIC SOCIETY. — More than one hundred physicians met at the College of Physicians, Philadelphia, on Tuesday, December 22, 1896, to organize the Philadelphia Pediatric Society, "for the study of disease in children, in all its branches." A Constitution and By-laws were adopted, and the following officers elected: President, Dr. J. P. Crozer Griffith; Vice-Presidents, Drs. Edwin E. Graham, Arthur A. Meigs, Frederick A. Packard; Secretary, Dr. Alfred Hand, Jr.; Treasurer, Dr. C. F. Pettiboue; Executive Committee, Drs. Alfred Stengel, J. Madison Taylor, Chas. W. Burr, Wm. B. Atkinson, Thompson S. Westcott. The membership list is a large one, including many of the prominent physicians of Philadelphia and vicinity.

PROFESSOR ERISMANN COMPELLED TO LEAVE RUSSIA. — Dr. Erismann, professor of hygiene in the University of Moscow, who was chosen general secretary of the organization committee for the coming International Medical Congress of Moscow, has been obliged, on account of what the government considered his too liberal ideas, to resign his position, and leave Russia; he has taken up his residence in Switzerland. Dr. W. K. Roth has been appointed general secretary in his place. Professor Erismann was sent by the Russian Government as one of the chief official delegates to the International Medical Congress in Berlin, in 1890. He was senior professor at Moscow. According to the *British Medical Journal*, sympathetic expressions of regret in the Russian papers have been suppressed, and the medical and lay press has been positively forbidden by the chief of the department for press regulations to express any sympathy with him in any form whatever.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, December 30, 1896, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 83, scarlet fever 29, measles 127, typhoid fever 21.

A CENTENARIAN. — The one hundredth birthday of Mrs. Chloe Fales Adams Metcalf was celebrated at her home in Walpole, Mass., on January 1, 1897.

DEATH AT THE AGE OF ONE HUNDRED AND THREE. — Catherine Perry, of New London, Conn., died December 29th, aged one hundred and three.

DEATH OF A CENTENARIAN. — Miss Miranda Herick died in Willimantic, Conn., December 31st, aged one hundred and one years.

OPENING OF THE BROOKLINE PUBLIC BATH. — The new Brookline (Mass.) Public Bath was opened with an interesting swimming and water-polo exhibition on January 1st and 2d, by professional swimmers, and members of the Brookline Swimming Club. All who were present were impressed with the beauty and admirable arrangement of the new building and its excellent appointments in every particular.

THE ANNUAL MEETING OF THE AMERICAN PHYSIOLOGICAL SOCIETY. — The Ninth Annual Meeting of the American Physiological Society was held in Boston, December 29th and 30th. The meetings were held at the Harvard Medical School and at the Harvard University Museum at Cambridge, and numerous interesting and valuable papers were read. On December 29th, Mr. Alexander Agassiz delivered a lecture before the Society at the Fogg Museum of Art, Harvard University, Cambridge, and received the members at his house after the lecture. On December 30th, Prof. E. B. Wilson lectured before the Society at the Fogg Museum, on "Recent Developments of the Cell Theory," and after the lecture the President and Fellows of Harvard College entertained the members at lunch. In the evening the Annual Dinner of the societies of Physiologists, Morphologists, Psychologists and Naturalists was held at the Hotel Brunswick, Boston, after which followed the address of Prof. W. B. Scott, President of the American Society of Naturalists.

MARRIAGE AT ADVANCED AGE. — The report of a recent wedding in Maine, at which the bridegroom was ninety-seven and the bride eighty-seven years old, is only surpassed by the account of a Kentucky wedding in which the bridegroom was aged one hundred and three and the bride one hundred and one. It is a little singular that both these weddings took place in leap year. Whether this fact has any significance or not, it looks as though a man might meet his fate at any time between sweet sixteen and sweet one hundred and one. Our old bachelors had better not boast of their contentment with single blessedness until they have successfully weathered the century mark. However, by next leap year,*all centenarian bachelors and

maids will be aged one hundred and eight, which can probably be fairly considered, for the present at least, beyond the danger limit.

ANNUAL REPORT OF THE CHILDREN'S HOSPITAL. — The Annual Report of the Boston Children's Hospital shows that during last year, the twenty-eighth year of its existence, 779 patients were treated in the wards, 2,959 in the out-patient department, and 343 at the convalescent home, making the total number treated during the year 4,081. Antitoxin has been given as a prophylactic against diphtheria as a routine measure to all children entering the institution, with the result that only one case of diphtheria originated during the year, and that in a case where the antitoxin was unavoidably omitted. The report closes with an appeal for funds to carry on the work.

A TOWN ENSLAVED BY THE COCAINE HABIT. — It is reported in the daily papers that so large a number of the inhabitants of the town of Manchester, Conn., have become slaves to the cocaine habit, that in the opinion of an "experienced physician," "the future prosperity of the town is involved." The trouble arose from a preparation of cocaine and menthol which a druggist in the town compounded about a year ago, and exploited as a remedy for asthma. So popular has this "snuff" become that people are seen in the streets and in dark corners at public entertainments indulging their passion for the compound. According to the report, the druggists, although getting rich by the sale of the compound are so bothered by "well-known men and women" who ring them up at all hours of the night to obtain a supply, threatening to break into the store if their wants are not attended to, that they have become prime movers in an attempt to check the evil habit. Large numbers of the people are apparently running into debt to provide themselves with this expensive drug and, if the story is true, we must acquiesce in the reported remark of a druggist, who says, "their condition is pitiable." A drug habit which will drive "well-known men and women" to threaten violent entrance into drug stores must be indeed a difficult problem for the town authorities to cope with.

NEW YORK.

DEATH OF DR. NEWMAN. — Dr. William Newman died at his residence in Brooklyn on December 31st, aged seventy-six years and six months. Dr. Newman was a licentiate of the Medical Society of the State of New York in the year 1874, and practised both in Brooklyn and New York, having an office on East Grand Street in the latter city.

DR. SHAFER'S LECTURES. — The Trustees of the New York Orthopedic Dispensary and Hospital announce that Dr. Newton M. Shaffer, surgeon-in-chief, will give his twentieth annual course of clinical lectures on orthopedic surgery at the institution on Monday and Thursday afternoons during January and February. These lectures are free to the medical profession and students.

A CHRISTMAS PRESENT TO ST. MARK'S HOSPITAL. — A pleasing feature of the Christmas celebration at St. Mark's Hospital, on Second Avenue, was the presentation to the institution of a check for \$5,000 by Mr. Ruttanan, one of the directors.

LOW DEATH-RATE IN DECEMBER. — The bulletin of the State Board of Health for November states that the number of deaths reported in the State during that month was only 7,888. This represents an annual death-rate of 14.74, which is the smallest recorded for ten years. The total number of deaths was 500 less than in November, 1875.

TYPHOID AT A NURSES' TRAINING-SCHOOL. — A somewhat serious outbreak of typhoid fever is reported at the training-school for nurses of Mount Sinai Hospital. The school is one of the largest in the city and twelve out of sixty-six pupils have been attacked with the disease. The hospital authorities have been endeavoring to make a thorough investigation of the origin of the outbreak, but the result has not as yet been announced.

COMPLETION OF THE NEW BUILDINGS OF ST. LUKE'S HOSPITAL. — On December 28th a gold medal was presented by the American Numismatical and Archæological Society to the Board of Managers of St. Luke's Hospital, in commemoration of the completion of the new hospital buildings at Amsterdam Avenue and 113th Street. The medal has on one side a medallion of the Rev. Dr. Muhlenberg, founder of the institution, and on the reverse an appropriate inscription.

THE POLYCLINIC HOSPITAL DESTROYED BY FIRE. — One of the largest fires that has occurred in New York in months took place on Christmas day, and among the buildings destroyed was the New York Polyclinic Medical School and Hospital. Fortunately the fire occurred in the day-time, and all of the sixty patients, some of whom had just undergone severe operations, were successfully rescued. A fire, of a less serious nature, also occurred on the same day at the St. John's Guild Hospital for Children on West 61st Street, in which there were some forty patients.

THE NEW ANNEX OF THE ORTHOPEDIC HOSPITAL. — The Board of Supervisors and the Trustees of the New York Orthopedic Dispensary and Hospital, in East 59th Street, held their annual reception on December 21st, and on this occasion the recently completed annex to the hospital, with its operating-room, roof-garden, play-room and cheerful wards, was thrown open to inspection. In his address the President, Mr. O. Egerton Schmidt, stated that the improvements were largely due to the generosity of a lady, who withheld her name, who last summer gave \$37,000 to the institution. An important feature of the new annex is a complete Röntgen-ray apparatus, and in his remarks Dr. Newton M. Shaffer, the surgeon-in-chief, who was also one of the speakers, dwelt upon the material assistance rendered to orthopedic surgery by this discovery.

DEATH OF DR. WALLACE.—Dr. William Wallace, one of the best known physicians in Brooklyn, died at his residence in that city on December 22d, after a brief illness. He was born in Ireland in 1835, but was educated in Scotland, and was a graduate of the University of Edinburgh. He received his medical degrees from the Royal College of Surgeons in 1856, and the Royal College of Physicians in 1860. He served as an assistant surgeon in the British Navy during the Crimean War, and afterwards became ship's surgeon in the Cunard Steamship Company. He settled in Brooklyn in 1864, and has practised there ever since. At the time of his death he was a member of the Council of the Long Island College Hospital and physician to St. John's Hospital and the Home for Consumptives. He leaves a widow and two sons.

Correspondence.

CAMDEN, S. C., AS A HEALTH RESORT.

CAMDEN, S. C., December 22, 1896.

MR. EDITOR:—Thinking that some of your readers might be glad to learn the particulars about one of the Southern winter resorts, I will give some of my impressions of Camden, S. C., and the Hobkirk Inn where I have brought friends to pass the winter.

The soil of Camden and vicinity is sandy. The town is situated at the foot of Hobkirk Hill, a slight elevation from which the land slopes very gradually towards the river, which runs west and south of the town. The town is well ditched, so that with the sandy soil the drainage is very good. Dr. Moore tells me that there have been only five or six cases of typhoid in this section during the past year. The inn itself is an old manor-house with open fire-places, both in the great square rooms of the old house and in the more recently built wings. There is no furnace or steam to make the air dry as a lumber kiln.

The cordial welcome and persistent attention of the proprietor, Mr. F. W. Eldredge, and the cheerful appearance of the entrance-hall and parlor at once permanently dispel any doubts which may have arisen in one's mind during the last sixty-mile ride through the barren cotton-fields as to the advisability of having separated one's self from home comforts.

The sanitary arrangements are good, the earth-closets being cleaned and their contents removed each day. The water from the bath-room and kitchen is carried away from the house into one of the ditches at a distance in the field, and the rubbish heap is cleared out each week or oftener as demanded.

Water for the house is furnished by a well just back of the inn, but the drinking-water by a well in the side garden. This well is bricked and cemented to the very bottom so that nothing can get in from the sides, and thirty-five feet of sand ought to guarantee good filtration for the water.

There are broad piazzas and good walking in the garden and immediate neighborhood. Walks and drives are not specially interesting, as there is but little variety to the scenery of the broad, brown cotton-fields, and the roads are soft and sandy. Bicycling about the town is fair, but it takes a good deal of courage to leave the limits of the sidewalks on which you ride. Horseback riding I have not tried, but apart from the sandy roads must be pleasant, for there are roads interlacing in all directions, going into the woods and around the swamps.

In the warm part of the day the air is not at all enervating. The temperature has been about 40° each morning at breakfast time, yet there has been none of the sharp

frosty feeling in it which characterizes our late October mornings. The soil is so porous that the water quickly disappears, and there is hardly a suggestion of mist the morning after even a heavy rain in the night.

The reports of the National Climatological Society, I believe, give the matter of temperature of Camden for a number of years, but, if I am not mistaken, there have been no accounts of what is practically the most important feature of a health-resort, the humidity, so I will append the following table which has been kept by Mr. E. H. Townsend, of New York:

AVERAGE RELATIVE HUMIDITY OF CAMDEN.

1893. January, 62%; February, 64%; March, 56%; April (16 days), 52%.
1894. January (20 days), 69%; February, 65%; March, 56%; April (18 days), 54%.
1895. January (21 days), 59%; February, 55%; March, 60%; April (23 days), 54%.
1896. January (20 days), 63%; February, 57%; March, 50%; April (5 days), 38%.

The above is interesting as giving the relative humidity for just those portions of the year in which Camden is useful to Northern visitors and not an average humidity, including the hot, dry summer. The mid-day observations for the past two years will also be of value as giving the condition of the atmosphere for the out-of-door period of the day:

1895. January, 53%; February, 50%; March, 53%; April, 47%.
1896. January, 57%; February, 47%; March, 40%.

Just one thing more. As Kipling says.

"But the backbone of the army is the non-commissioned man!"

So the backbone of a hotel is its cook, and "Mis' Ella" leaves nothing to be wished for. Very truly,

A. K. STONE, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 26, 1896.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,892,332	603	190	8.84	17.17	.68	1.19	5.78	
Chicago . . .	1,678,967	400	183	13.00	23.25	3.50	3.50	6.25	
Philadelphia . .	1,164,000	393	121	12.75	14.25	5.00	2.25	8.00	
Brooklyn . . .	1,100,000	—	—	—	—	—	—	—	
St. Louis . . .	560,000	192	51	11.44	17.16	—	1.04	3.64	
Boston . . .	494,205	163	44	7.93	9.15	.61	—	4.88	
Baltimore . . .	496,316	117	—	7.93	9.15	.61	.61	4.88	
Cincinnati . . .	336,000	68	25	11.76	5.88	1.47	—	10.29	
Cleveland . . .	314,537	98	25	9.00	17.00	—	1.00	3.00	
Washington . .	275,500	82	39	14.64	14.64	6.10	2.44	7.32	
Pittsburg . . .	238,617	—	—	—	—	—	—	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	87,754	35	6	8.58	11.44	2.86	2.86	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . . .	98,687	36	9	13.85	11.11	—	2.77	8.31	
Fall River . . .	88,020	22	16	15.65	31.25	6.26	—	9.39	
Lowell . . .	84,359	36	13	2.77	—	11.11	—	2.77	
Cambridge . . .	81,519	26	6	26.85	23.10	—	7.70	3.85	
Lynn . . .	62,365	—	—	—	—	—	—	—	
New Bedford . .	55,254	25	12	12.00	12.00	4.00	—	8.00	
Springfield . .	51,534	16	3	6.66	20.00	—	—	6.66	
Lawrence . . .	52,153	15	6	—	20.00	—	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem . . .	34,437	11	1	9.09	—	—	—	9.09	
Brookton . . .	33,157	9	2	11.11	—	—	—	11.11	
Haverhill . . .	30,185	10	3	—	20.00	—	—	—	
Malden . . .	29,709	10	1	—	10.00	—	—	—	
Chelsea . . .	31,295	—	—	—	—	—	—	—	
Fitchburg . . .	26,394	8	3	12.50	12.50	—	—	12.50	
Newton . . .	27,122	10	3	—	—	—	—	—	
Gloucester . . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	9	4	22.22	11.11	—	11.11	—	
Waltham . . .	20,877	4	1	—	—	—	—	—	
Quincy . . .	20,712	—	—	—	—	—	—	—	
Pittsfield . . .	20,447	—	—	—	—	—	—	—	
Everett . . .	18,578	4	1	25.00	—	—	—	—	
Northampton . .	16,738	—	—	—	—	—	—	—	
Newburyport . .	14,554	3	2	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,511: under five years of age 797; principal infectious diseases (small-pox, measles, diphtheria and

croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 298, acute lung diseases 405, consumption 279, diphtheria and croup 148, typhoid fever 47, diarrheal diseases 35, scarlet fever 27, measles and whooping-cough 13 each, erysipelas 11, cerebro-spinal meningitis 1.


From scarlet fever Boston 10, New York 5, Philadelphia and Baltimore 3 each, Chicago, Pittsburgh and Cambridge 2 each. From measles New York 7, Chicago, Boston and Cambridge 2 each. From whooping-cough Philadelphia 4, New York, Chicago and Pittsburgh 2 each, Cincinnati, Cleveland and Taunton 1 each. From erysipelas Chicago and Washington 3 each, New York 2, Baltimore, Boston and Everett 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,846,971, for the week ending December 21st, the death-rate was 18.2. Deaths reported, 3,789: acute diseases of the respiratory organs (London) 302, diphtheria 86, measles 77, whooping-cough 73, scarlet fever 55, fever 39, diarrhea 26.

The death-rates ranged from 11.3 in Derby to 24.8 in Plymouth: Birmingham 21.8, Bradford 19.6, Croydon 15.0, Halifax 13.8, Hull 17.0, Leeds 17.8, Leicester 15.5, Liverpool 23.5, London 17.2, Manchester 18.5, Newcastle-on-Tyne 19.7, Nottingham 19.1, Salford 19.5, Sheffield 18.2, Sunderland 16.3.

METEOROLOGICAL RECORD

For the week ending December 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S..20	30.01	23	30	16	47	45	46	W.	S.W.	16	6	O.	C.	.20
M..21	29.93	23	34	21	62	61	62	W.	W.	8	5	O.	C.	
T..22	30.00	22	28	16	66	58	62	W.	N.E.	11	5	C.	O.	
W..23	29.92	20	22	17	92	45	68	N.	N.W.	16	18	N.	O.	
T..24	30.23	13	19	7	72	57	64	N.W.	W.	10	16	C.	C.	
F..25	30.42	16	23	10	65	59	62	N.W.	S.	16	10	F.	C.	
S...26	30.16	28	35	20	50	64	57	S.W.	N.W.	20	15	C.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 26, 1896, TO DECEMBER 31, 1896.

MAJOR WILLIAM R. HALL, surgeon, relieved from duty at Whipple Barracks, Ariz., and ordered to Washington, D. C., for duty.

FIRST-LIEUT. IRVING W. RAND, assistant surgeon, relieved from duty at Fort Clark, Tex., and ordered to Fort Huachuca, Ariz., for duty.

FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, relieved from duty at Fort Huachuca, and ordered to Whipple Barracks, Ariz.

The leave of absence on surgeon's certificate of disability granted MAJOR WILLIAM C. SHANNON, surgeon, is extended three months on surgeon's certificate of disability. Fort Custer, Mon.

The leave of absence granted CAPTAIN WILLIAM L. KNEEDLER, assistant surgeon, for seven days, San Diego Barracks, Cal., is extended twenty-three days.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING JANUARY 2, 1897.

R. M. KENNEDY, passed assistant surgeon, ordered to the Naval Hospital, Norfolk, December 28th.

CHARLES T. HIBBETT, surgeon, ordered to the Norfolk Navy Yard.

N. MCP. FEREEDEE, surgeon, detached from the Norfolk Navy Yard and ordered to hold himself in readiness for sea.

R. WHITING, surgeon, detached from the "St. Mary's" and ordered before the retiring board at Washington, December 28th, then placed on waiting orders.

R. P. CRANDALL, passed assistant surgeon, detached from the Naval Hospital, New York and ordered to the "St. Mary's."

L. MORRIS, assistant surgeon, ordered to the "Essex."

A. R. WENTWORTH, passed assistant surgeon, detached from Naval Hospital, Portsmouth, N. H., on relief and ordered to the "Marblehead."

E. H. GREEN, surgeon, detached from the "Marblehead," on reporting of relief and ordered to Naval Dispensary at Washington, D. C.

H. B. FITTS, passed assistant surgeon, ordered to Naval Hospital, Portsmouth, N. H.

A. C. H. RUSSELL, surgeon, detached from the Naval Medical Examining Board, New York, on relief and hold himself in readiness for the "Lancaster."

J. M. EDGAR, surgeon, detached from the "Saratoga" and ordered to the "Vermont."

H. WELLS, surgeon, detached from the "Vermont," on relief and ordered as member of Naval Examining Board, New York.

W. C. BRAISTED, passed assistant surgeon, detached from the "Columbia" and ordered to the Naval Hospital, Newport, R. I.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 11th, at 8 o'clock.

Dr. A. T. Cabot will read a paper entitled: "Cyst of the Brain—Epilepsy." Discussion by Drs. J. J. Putnam and M. H. Richardson.

Dr. H. A. Lothrop will read a paper entitled: "A Case of Hypospiad." Discussion by Drs. A. T. Cabot and M. H. Richardson.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

RECENT DEATHS.

BYRON W. MUNSON, M.D., died at Sharon, Conn., January 2d, aged fifty-three years. He served through the late war in the medical department, and for about ten years was superintendent at the State Soldiers' Home at Noroton.

DANIEL MARCH, JR., M.D., M.M.S.S., of Winchester, died in Woburn, January 1, 1897, aged fifty-two years, of angina pectoris. Dr. March was born in New Haven, Conn., but came to Woburn with his parents when a boy. He graduated from the medical school of the University of Pennsylvania in 1858. After serving as house physician of the Episcopal Hospital in Philadelphia for over a year, he removed to Pittsburgh, where he practised for a time. He came to Winchester in 1879, and had a large practice in that town and vicinity. He succeeded Dr. Winsor, of Winchester, as medical examiner of the fourth Middlesex District about ten years ago and had held the office ever since. He fell over a wire fence a few days ago while crossing a lot and received a severe shock, from which he had suffered considerably, and he had thought of going away for a while to recuperate. He was a member of the East Middlesex Medical Society, the Calumet Club of Winchester and other societies. He was married to Miss Jennie S. Stevenson of Pittsburgh, who survives him.

BOOKS AND PAMPHLETS RECEIVED.

Solutions Dobell. Anterior Soft Hypertrophies of the Nasal Septum. By Edwin Pyncheon, M.D., Chicago, Ill. Reprints. 1896.

Fourteenth Annual Report of the Trustees of the Soldiers' Home in Massachusetts, at Chelsea, for the year ending June 30, 1896.

A Series of Articles on Speech-Defects as Localizing Symptoms, from a Study of Six Cases of Aphasia. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1896.

On Movements of the Eyelids Associated with Movements of the Jaws and with Lateral Movements of the Eyeballs. By Harry Friedenwald, A.B., M.D. Reprint. 1896.

Ueber den Werth der Vasogenpräparate (Pearson). Von Dr. Golner in Erfurt. Separat-Abdruck aus Reichs-Medicinal-Anzeiger, No. 23, Jahrgang, 1896. Verlag des Reichs-Medicinal-Anzeigers, B. Koenig, Leipzig.

Transactions of the American Gynecological Society, Vol. XXI, for the Year 1896. Philadelphia: Wm. J. Dornan. 1896.

The Surgical Treatment of Intracranial Tumors. By William W. Keen, M.D., Philadelphia. Reprint. 1896.

The Discovery of Anesthesia by Ether; with an Account of the First Operation Performed under its Influence at the Massachusetts General Hospital, and an Extract from the Record-Book of the Hospital. By Washington Ayer, M.D., San Francisco, Cal. Reprint. 1896.

Original Articles.

THE TREATMENT OF FLAT-FOOT.¹

BY J. S. STONE, M.D., BOSTON.

In a normal foot lines drawn downward along the middle of the leg should pass through the second toe in front and the middle of the heel behind, while a line drawn backward through the great toe should pass through the middle of the heel. As seen from above, the inner border of the foot should be slightly concave and nearly parallel with the inner border of the opposite foot. The normal range of voluntary motion with the knee held straight should be from one hundred and thirty or forty degrees in plantar flexion to a dorsal flexion ten or twenty degrees beyond a right angle, while there should be about thirty degrees each in abduction and adduction.

The distribution of the weight may be excellently studied by looking up through plate-glass on which the foot rests, a method first used in the study of flat-foot

Improper shoes and improper attitudes, the latter in part dependent on the former, play a most important part in the causation of nearly all these cases. The delicate feet of children, which are arched from birth, are put into shoes with narrow toes and a convex inner border,—a custom which is continued through life. And as if to add insult to injury children are taught to toe out.

Thus the fore-foot is abducted while the great toe is further forced into the valgus position. Owing to the direction of the tarsal joints abduction of the fore foot is inseparably associated with eversion and with a rotation of the bones on an antero-posterior axis. The term "pronation" is applied by Lovett to this combined movement of abduction, eversion and rotation.² The position of pronation is the position of weakness.

In order to determine the relative influence of the various muscles in maintaining the arch, the effect of pronation, and the effect of tonic contraction of those muscles which tend to pronate the foot, some experi-

The figures represent the pull in pounds on each tendon separately, necessary to cause a beginning change in the shape of the foot. When in normal position this pull raised the arch a little. When pronated it took the strain off the ligaments.	Bearing a weight of 60 pounds.		Bearing a weight of 120 pounds.		Bearing a weight of 60 pounds, with the foot in a pronated position.		
	The foot in a normal position.	The foot in a pronated position.	The foot in a normal position.	The foot in a pronated position.	Steady traction of 15 pounds on the Peroneus Longus.	Steady traction of 15 pounds on the Peroneus Brevis.	Steady traction of 40 pounds on the Tendo-Achillis.
Tibialis Anticus	8	14	20	32	20	20	20
Tibialis Posticus	6	16	12	24	16	20	20
Flexor Longus Pollicis	8	13	10	32	25	22	18
Flexor Longus Digitorum	7	15	13	24	20	20	25
Peroneus Longus	10	15	16	24			

by Dr. Lovett. While an imprint on smoked paper gives merely a composite picture of all the positions which the foot has assumed, the view through the glass shows not only the contact line at any moment but shows the weight-bearing surfaces as white anemic areas. With a foot in normal position most of the weight is borne by the middle of the heel and the middle of the ball of the foot, beneath the heads of the second, third and fourth metatarsals. The great toe seems not so much to bear weight as by a constant balancing to throw the weight off itself toward the outer portion of the foot.

The outer, slightly arched side of the foot is relatively strong. The inner side, owing to its high arch, is relatively weak. When, however, the two feet are viewed together the longitudinal and transverse arches form a dome the circumference of which is in contact with the ground.² Elasticity and strength are thus secured so long as the muscles give proper support.

Aside from those cases of flat-foot due to congenital deformity, rickets, paralysis and trauma, the ordinary "static" form due to a disproportion between the muscular strength and the demands made on the foot, measured both in time and in weight, may develop at any time under unusual strain, but is particularly apt to begin in early childhood or in adolescence.

ments were tried with the normal amputated foot of a man of middle age.

The tibia and fibula were fastened securely to a vertical bar upon which a known weight could be placed. The tendons of all the muscles of the leg were then isolated at a point just above the ankle, their relations beneath the annular ligaments being left undisturbed. To each tendon a wire was fastened, so that by means of a spring balance a definite pull could be put upon any tendon.

The results are shown in tabular form.

The last three columns represent the pull necessary to bring about a change in the arch when the muscles are opposed by a steady traction on the pronei and the tendo-Achillis.

It was found that when two or three tendons, as for instance the tibialis anticus, tibialis posticus, and flexor longus pollicis were pulled upon simultaneously, the total traction necessary to cause a beginning change in the arch approximately equalled the traction on any one tendon necessary to cause a similar change.

That the distribution of the weight-bearing surfaces⁴ might be carefully studied, a series of photographs was taken of the same foot as it rested upon glass vertically over the camera. Careful measurements of these photographs show a lengthening of the foot, as

¹ An abstract of which was read at the Annual Meeting of the Massachusetts Medical Society, June, 1896.

² Bradford: Treatment of Flat-foot, International Clinics, Fifth series, vol. II.

³ Lovett: Mechanics and Treatment of the Broken-down Foot, New York Medical Journal, June 20, 1896.

⁴ See article on the Foot, Reference Handbook of the Medical Sciences.

measured from the tip of the heel to the tip of the great toe, of four per cent. under a pressure of eighty pounds. This increase in length is diminished to three per cent. by traction of twenty pounds on any tendon. Traction on either the flexor or extensor of the great toe or on the tendo-Achillis muscles, which affect the limits of the measurements taken, decrease the length a little more.

The breadth of the surface of the heel in contact with the glass is increased about four per cent. under a pressure of eighty pounds; an increase which disappears with traction of twenty pounds on any ten-

don. A traction of forty pounds on the tendo-Achillis diminishes this measurement by about four per cent.

The breadth of the fore-foot across the heads of the metatarsals increases nearly three per cent. under a pressure of eighty pounds. This increase is counteracted by a traction of twenty pounds on either the extensor longus digitorum or the peroneus longus, the latter muscle playing an important part in maintaining the transverse arch.

The instantaneous photographs, one set of a normal foot, the other of a markedly flattened and pronated foot, show the behavior of the transverse and longi-



1. Normal position. Under no weight. All muscles relaxed.



2. All muscles relaxed. Foot pronated.

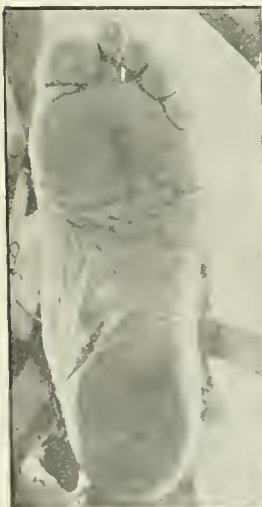


3. Tibialis anticus.



4. Tibialis posticus.

The difference between (1) the foot at rest in a normal position, and (2) the relaxed and pronated foot under a weight of eighty pounds is most marked in the contour of the inner side of the foot. With the foot still under the same weight, traction of twenty pounds on the (3) tibialis anticus or (4) tibialis posticus tends to restore the normal outline of the inner side of the foot, and also to throw the anterior weight-bearing surface to the outer side.



5. Peroneus longus.



6. Peroneus brevis.



7. Peroneus tertius.



8. Extensor longus digitorum.

In each of these photographs the foot is under a weight of eighty pounds, pronated and relaxed, except for a traction of twenty pounds on the tendon indicated. In each the outer border of the fore-foot is raised, the outer portion of the longitudinal arch is heightened, the axis of the weight-bearing surface of the heel is directed toward the great toe, and the convexity of the inner border seen in (2) the relaxed and pronated foot is not in the least decreased. In short the peronei and the extensor longus digitorum are active pronators.

tudinal arches under muscular activity in walking. In each the longitudinal arch is considerably heightened excepting at that moment when the heel and toes are in contact with the ground. In the normal foot the transverse arch is obliterated anteriorly at the same moment. It is greatly increased however as the heel is raised. In the flat-foot the transverse arch does not appear anteriorly at any time. The most striking difference between the normal and the abnormal foot is seen when the muscles are powerfully contracted in raising the heel from the ground. In the former there is a strong adduction of the fore-foot; in the

latter there is a marked increase in the pronation, already great.

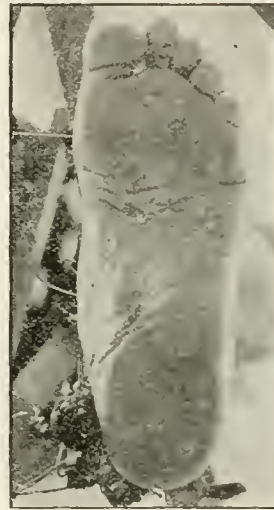
From the tables given above the following deductions may be drawn: First, the muscular pull required to remove the strain from the ligaments in the pronated foot is approximately double that necessary to maintain the foot in normal position. Second, the muscular pull necessary to remove the strain from the ligament varies approximately directly with the weight borne. Third, a tonic contraction of the peroneus longus or brevis offers as much resistance to the muscles most active in maintaining the arch as a much



9. Extensor proprius pollicis.



10. Flexor longus pollicis.



11. Flexor longus digitorum.

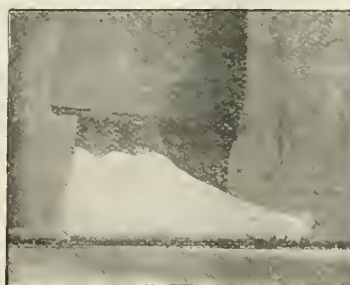


12. Tendo-Achillis.

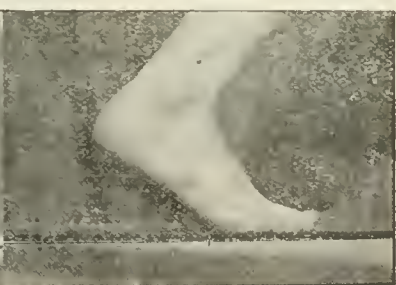
As in the last group the foot is under a weight of eighty pounds, pronated and relaxed, except for a traction of twenty pounds on the tendon indicated. In the last (12) photograph, however, the traction on the tendo-Achillis is forty pounds. In no case is the contour of the inner side of the foot altered from that seen in (2) the relaxed and pronated foot. The distribution of the weight on the fore-foot is not altered from the normal, the axis of the weight-bearing surface of the heel is not directed inward toward the great toe and the outer portion of the arch, although heightened slightly by the flexors (10, 11) is not raised to the same extent as by the peronei (5, 6, 7) and the extensor longus digitorum (8).



13.



14.



15.

These instantaneous photographs of the outer side of a normal walking foot (13, 14, 15) show the increase in the longitudinal arch as the foot falls and as it rises. During the period in which the heel and the toes are both in contact with the ground the whole outer border also touches.

The photographs of the bottom of the same foot (16, 17, 18, 19) show no marked difference between the foot at rest bearing half the body weight (16) and the foot bearing the whole weight at that instant in walking when the whole outer border is in contact with the ground (17). As the heel rises, however, the breadth of the foot measured across the ball, narrows about ten per cent. (18, 19). At the same time the fore-foot is adducted (compare the inner and outer borders of 16 and 17 with 18 and 19), the transverse arch, which is obliterated anteriorly in the foot while standing (16) and in the walking foot when the heel and toes are both on the ground (17), becomes more and more pronounced as the heel rises (18, 19), and the inner longitudinal or main arch is heightened, while the inner malleolus becomes less prominent.

The instantaneous photographs of a much flattened and pronated foot, painful only after long walking and then but moderately so, show certain marked differences from the normal foot. In the foot at rest bearing half the body weight (20) and in the walking foot when the heel and toes are both in contact with the ground (21) there is no trace of a longitudinal or transverse arch. As the heel rises (22, 23) the fore-foot narrows about five per cent., a half as much as in the normal foot, the longitudinal arch appears, but the transverse arch does not. Where the transverse arch should appear there is a large callus. Instead of an adduction of the fore-foot as is normal (18, 19), there is an increase in the abnormal abduction (compare the outer and inner borders of 22 and 23 with 20 and 21, and with 18 and 19) and a marked increase in the abnormal prominence of the internal malleolus. It is remarkable that with all this pronation there is not a hallux valgus.

stronger tonic contraction of the tendo-Achillis. This opposes the view that contraction of the tendo-Achillis plays a very important part in the etiology of flat-foot, but confirms the importance of securing perfectly free mobility, particularly in adduction, in the treatment of flat-foot.

These facts show the importance of an increase in weight and the assumption of the weak, pronated attitude in the causation of flat foot. The muscles thus handicapped become exhausted and allow the astragalus, through which the entire weight of the body is transmitted, to drop downward, forward and inward, from its support on the os calcis, which is in turn lowered anteriorly and at the same time rotated on its long axis in such a manner that the weight-bearing surface is shifted inward. The changes in the positions of the other bones are, in short, those of abduction

onto the great toe and the first metatarsal. The middle of the heel and the middle of the sole lose their function owing to the fact that the eversion of the foot has brought them outside the lines of weight transmission, drawn down through the middle of the leg. The arch flattens. The characteristic deformity and awkward shuffling gait come on.

As regards treatment those cases of simple pronation, the "weak foot" of Whitman, are to be distinguished from those in which there is in addition a breaking down of the arch, while the latter class must be subdivided into those which permit the normal range of mobility and those which are rigid.

In the milder class of cases, as Whitman points out,⁵ attention must be given first to teaching a correct attitude. Those required to stand should be taught to throw the weight as much as possible on the outer



16.



17.



18.



19.



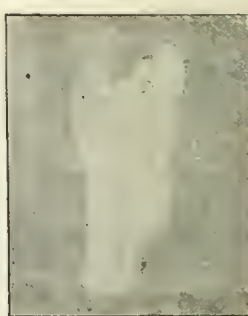
20.



21.



22.



23.

tion and rotation secondary to the change in the position of the astragalus.

The abnormal strain put upon the ligaments is most marked in those supporting the head of the astragalus and in the calcaneo-astragaloid interosseous. As these yield, they give rise to the characteristic pain and tenderness about the head of the astragalus. The abnormal distribution of pressure and the yielding of other ligaments may give rise to symptoms in other parts of the foot. Pains in the calf are usually due to muscular strain, while those in the knee or hip may be explained by the rotation of the whole limb due to the impossibility of any rotation of the astragalus between the two malleoli. Congestion, muscular spasm, and later muscular contracture and inflammatory adhesions follow.

The weight is shifted inward onto the weak side of the foot. An abnormal amount of work is thrown

side of the foot, to avoid toeing out, and to utilize the long flexors by feeling the ground with the toes, rather than to allow the weight to fall passively on the heels. The muscles should be rested by a frequent change of attitude.

The great disadvantage under which the muscles labor in pronation has already been shown. Proper shoes are of the utmost importance in the prevention of pronation. A good shoe⁶—and such is now sold by many dealers—should have a straight inner border, a low, broad heel, and a high shank not cut away too much on the inner side. The forward part of the shoe should be at a slight angle with the heel, that the fore-foot may be held adducted. The breadth across the heads of the metatarsals should be that of the foot

⁵ Whitman: A Study of the Weak Foot, Transactions American Orthopedic Association, vol. viii, 1896.

⁶ Lovett: The Mechanics and Treatment of the Broken-down Foot, New York Medical Journal, June 20, 1896.

bearing half the body weight. It has been shown above that the breadth of the foot in walking is never greater than this, that in fact the foot becomes narrowed as the heel is raised from the ground. The difference in breadth between the foot bearing no weight and that bearing the full body weight is about ten per cent. Considerably more than half of this increase in breadth occurs when the foot bears half the body weight. The difference in breadth between the foot bearing the whole weight and that bearing half the weight is thus but slight.

If with such shoes there is still a tendency to pronation, it may be overcome by building up about a quarter of an inch the inner side of the heel and sole, opposing the eversion in this way. This measure is particularly applicable with children.

Next in importance to placing the muscles at a mechanical advantage, come measures directed to increasing the muscular strength. Bathing, rubbing and exercise are necessary, together with any proper constitutional treatment. Certain exercises are of particular value, and should be practised at frequent intervals for a few moments at a time. Springing onto the toes and at the same time separating the heels, walking on tip-toe, and adducting the foot against resistance are among the simplest and most efficient exercises. Bicycle riding is a most useful exercise, strengthening the muscles which support the arch while placing but little weight upon it.

In those cases in which the arch has yielded, or is yielding, these milder measures are often not sufficient. Some form of mechanical support is then necessary. Padding of saddler's felt is useful temporarily, while a pad sewed to a leather insole is rather more permanent. Any form of support, however, which presses upon the shank and inner side of the shoe is not satisfactory for any length of time.

Among the more permanent supports nothing has yet proved so generally satisfactory as the metal plate, either of steel or bronze, accurately fitted to the shape of the foot in a corrected position. The pattern of Whitman,⁷ or that described by Lovett,⁸ are in common use. The latter pattern is certainly better adapted for use in those cases of anterior metatarsalgia due to a lowering of the transverse arch, and frequently entirely relieved by raising the plate anteriorly, immediately behind the heads of the metatarsals to which the pain is referred. Whatever pattern is adopted, the plate must fit with accuracy. Where possible it should be fitted at the workshop. Otherwise it is best made on a plaster-of-Paris cast run in a mould made by placing the greased foot lightly in soft plaster. A plate which causes pain is not satisfactory, and any chafing or reddening or cutting of the skin is to be remedied at once by a change in shape. Bony prominences and sensitive points are not indicated in a cast. Recurrence of the old pain after a plate has been worn several weeks is probably due usually to an increase in the height of the arch, brought about by the advantageous position in which the muscles work. In such cases relief follows slight raising of the plate, in order to give the arch its accustomed support.

Limitation of motion, as seen in the rigid type of flat-foot, may be due to muscular spasm, muscular con-

traction, or inflammatory adhesions. From whatever cause arising, it must be overcome. Simple muscular spasm usually ceases as the pain and sensitiveness subside under the ordinary methods of treatment. Muscular contracture, however, requires systematic stretching. Contraction of the tendo-Achillis may be overcome by manipulation and exercises which dorsiflex the foot when the knee is fully extended. A limitation of adduction has been shown to be more important than a limitation of dorsal flexion. It must also be overcome by persistent exercise and manipulation. The Shaffer shoe is not usually within the reach of the general practitioner.

In cases in which inflammatory adhesions have formed, two courses are open. The most prompt and satisfactory method is to etherize the patient, break up the adhesions fully, and hold the foot at rest in plaster for several weeks in an over-corrected position. A foot thus treated always requires a supporting plate before any weight whatever is borne upon it.

When circumstances make this radical treatment impossible, the resistance of the adhesions may be gradually overcome by manipulation and exercise, combined with a gradual building up of the inner side of the shoe, and of the arch by means of pads or plates gradually raised. In such cases treatment should not cease until the full range of normal mobility has been attained.

As in the causation of flat-foot muscular inefficiency, either absolute or relative, is the most important factor, so any treatment which is satisfactory must aim principally to strengthen the muscles. In helping the muscles to regain their tone plates are very efficient. Any treatment, however, which makes necessary the permanent use of plates or other form of support is in so far inefficient and unsatisfactory. The aim should always be to restore the normal muscular support.

In conclusion, I wish to acknowledge my indebtedness to the works of Lovett, Whitman, Bradford and Dane, and to thank Dr. S. W. Ellsworth for kind assistance.

MENTAL AUTOMATISM IN EPILEPSY: A PSYCHOLOGICAL STUDY.

BY L. PIERCE CLARK, M.D.,

First Assistant Physician at Craig Colony, Sonoma, N. Y.; Member of New York Neurological Society, etc.

THE presence of mental automatism in epilepsy and kindred disorders of reduction in consciousness is common and frequent, and is thereby rendered a subject of great interest for close investigation by the neurologist, psychologist, alienist and medico-legal expert. Its very frequency and the protean forms in which it manifests itself necessitates careful study in order to estimate the degree of responsibility of the individual as a volitional agent. That automatism which manifests itself in epilepsy is intimately associated or dependent upon the disorder of consciousness is an hypothesis which has long since been ably defended by various writers, and especially by Hughlings Jackson in his well-known writings upon epilepsy.

It is still a matter susceptible of two different interpretations as to just what this disorder of consciousness may be: first, that in the presence of mental

⁷ Study of the Weak Foot.

⁸ Lovett and Dane: Affections of the Arch of the Foot commonly classified as Flat-foot, New York Medical Journal, March 7, 1896.

automatism, no consciousness exists; second, that during the automatic state consciousness exists, but in such an attenuated and disordinated form as to be incapable of registering acts with any degree of permanency — thus a temporary or permanent amnesia of the automatic acts persists on the return to normal consciousness. If the presence or absence of amnesia is to be a test whether or not consciousness exists in the automatism, we are forced to accept both theories as an explanation in order that we may cover all phenomena. It is comparatively easy to see how these two theories would blend and give us an explanation of all the various motor and psychical phenomena present in this interesting condition of epilepsy.

Certain epileptics have an accurate knowledge of their acts which were performed while subject to automatism; others have no recollection of the occurrence of such acts, although it must be said that the majority of this latter class are open to suggestion and quickly incorporate any facts which may be told them of their previous disordered state of consciousness. Whether these epileptics are particularly open to hypnotic suggestion because of their peculiar mental make-up, which may have given origin to their epilepsy and its sequent mental automatism, or, whether a detailed statement of their former acts served to revivify the but faintly impressed images received while consciousness was in a disordered state, are both questions which it would be of great interest to ascertain by future study.

It is worthy of remark, that the acute mental disturbance caused by and found in epilepsy partakes more of the nature of mental automatism accompanied by acute delirium than any other form of insanity.

These periods of automatism usually follow convulsive seizures in epilepsy; so it is essential that we should examine these attacks and ascertain, if possible, their nature and influence upon this disordered state. That the condition generally follows *petit mal* rather than *grand mal* is a matter of record, although the cases which will be presented in this article were all of *grand-mal* type and in only one case, after a single attack of *petit mal*, did automatism ensue.

The question naturally arises, Why should this condition be a more frequent sequela to an epileptic seizure than to all other disorders of consciousness, which occur in other pathological conditions? While recognizing that the essential basic constituent of an epileptic attack is a disorder in consciousness, which may or may not be associated with a convulsion, yet the structural change in the so-called substratum of consciousness which underlies this disorder must be carefully investigated in order to obtain an accurate conception of the relationship. It is undoubtedly proven that the sum total of nervous action is essential to the correct concept of consciousness. This being the case, any great disorder in the cerebral activity must necessarily influence the complex state or better states of consciousness.

Todd, Robertson, Jackson and Gowers have shown how sudden, excessive and persistent nervous discharge of one or all of the cortical brain centres may be followed by temporary paralysis which may be either local or general; local, if the cortical exhaustion of inhibition were local, and general, if the disturbance of the cortex were general or diffuse. While we do not contend that consciousness has such a materialistic basis, which to be true would be ideal, yet it

is probable that an analogous condition obtains in all such reductions and attenuations in subject-consciousness, such as mental automatism appears to be. The character and degree of mental disturbance attending the epilepsy is probably the greatest factor in deciding the absence or presence of automatism in any single case. The cases which have recently come under observation have all been those more or less addicted to the use of alcoholic stimulants, and present a fairly distinct and uniform mental type. They are all nervous and excitable, and subject to periods of extreme irritability which is most noticeable in the inter-paroxysmal state.

Notwithstanding the automatic acts performed in the post-convulsive state are usually described as of a simple character, yet the relative simplicity of such mechanical acts is determined by the degree of intelligence of the subject, as well as the character of the seizures and their severity in the higher realms of mental activity. While one may perform such simple acts as to walk about assuming a studied and anxious expression of countenance, another more intelligent and in whom a like mental disturbance has taken place, may perform such complex acts as to write letters to his friends which are very well expressed (as Case III). Again (as Case II), he may perform difficult arithmetical problems. These last-named acts are undoubtedly of a high intellectual order, and seem to prove that the change in consciousness in all cases was not of a horizontal reduction, but certain areas of the brain remain as foci undisturbed and are still capable of giving direction to intelligent thought and action.

The ordinary manifestations of automatism may be easily diagnosed. To the careful observer the patient may be seen performing a number of contending, purposeless acts, in which there is marked incoherence in words, sentences and continuity of thought. His association of ideas is broken. His remarks pour forth in a disjointed, fragmentary mass, and no special idea remains long enough to make its impress upon consciousness and so remain fixed and permanent in the normal state. All power of inhibiting ideas which do not follow the laws of association is completely lost, and attention is attenuated to a marked degree. There is no tendency toward a unity of consciousness, which is imperatively necessary for the existence of attention. While the foregoing description holds for the typical case, there are many more atypical conditions which are extremely difficult to understand and recognize.

When we compare the two disordered states of consciousness, somnambulism and automatism, we recognize that they are antipodal states and cannot exist at the same time, but may be found in the same case at different times. It is as common to see a case of somnambulism perform relatively complex acts while in the disordered state, as it is rare to observe the same degree of complex acts performed in automatism. But that they have some association is well proven by the fact that a great number of epileptics who are afflicted with mental automatism have been, in earlier life, somnambulists. In Case I given here, this state of somnambulism still persists in a mild form; and at these times, when he is apparently automatic without any seizure having preceded it, he is doubtless somnambulant. In short, while somnambulism might properly be defined as a tendency towards a unity of consciousness in which the subject is possessed of a fixed

idea which he endeavors to accomplish or realize, automatism, on the other hand, may be described as the condition in which many states of consciousness have equal tendencies to present themselves at the same time, and the inhibition of higher centres, such as the will may call into action, are withdrawn or lost. There are varying degrees of the disordered state of consciousness, ranging all the way from the performance of simple physical acts to those of very complex mental ones. Therefore, the milder forms of automatism may approximate a unity of consciousness, and in this way resemble or shade off into true somnambulism.

The writer will present several cases of automatism which have come under his observation very recently.

CASE I. Male, thirty-eight years of age, a merchant by occupation. His epilepsy has been in existence for three years. The assigned cause was alcoholism. A maternal grandmother had epilepsy, and patient's father died of "brain fever." The majority of his attacks are of the *grand-mal* type and occur about once a week, generally at night or in the early morning hours. His attacks have never been preceded by an aura. He had three slight attacks of mental automatism prior to his admission to Craig Colony. One was of a somnambulant character; while in this state, he left the house in a partially disrobed condition and walked about the grounds for ten minutes, apparently in search of something, but as he did not find it, he returned to the house, and remained in a sound sleep for six hours. At other times, during attacks of epileptic automatism, patient walks about and does various purposive acts, such as cleaning the lavatories and making beds. During these times, if he is at all molested, he is liable to be very irritable and pugnacious. There is a general muscular rigidity attending all purposive acts, and these are performed more rapidly than normal movements in every-day action. He rarely converses with any one at these times, unless he is spoken to, and then his replies are intelligent and direct. During one of the attacks he carried a patient, who slept in an adjoining bed, about the room and acted foolishly and simple. Following these periods of sleep-walk, which last from fifteen minutes to two or three hours, he generally returns to his bed and sleeps soundly. He has no knowledge of these attacks the next morning, and would not know that they had taken place were it not for a slight feeling of "weariness." Occasionally during the day following a regular attack of epilepsy, he will perform for a few moments these same automatic movements; but if left alone and made to lie down, he quickly recovers from them without doing any personal violence. Whenever opposition has been made to his performing work which he desired to do while in this disordered state, he has shown great personal violence. An illustration of this is given in the following:

After a seizure which occurred while patient was coming to the colony, he assaulted two brakemen and smashed a car window and a seat as a result of a brakeman's interference when he attempted to raise the car window. He had had a slight epileptic attack a few minutes before, and was automatic. He is very strong and muscular, but displays more strength during these periods of automatism than in normal muscular action. He is clear mentally, and quite capable of performing good labor, if not interfered

with and made to do differently than he does in this abnormal cycle which rehabilitates normal consciousness. After one of his recent attacks, the patient sat up in bed and stared about him in a bewildered manner; he arose quickly and began to run about the house performing all sorts of automatic acts such as searching for imaginary objects under the beds, in the attic and lavatories. Occasionally, he has had periods of sleep-walk without having had a seizure; he is likewise unconscious in the morning of having had such an attack. This last-mentioned phenomena is especially noticeable when he has not received his regular dose of sleeping medicine at night.

CASE II. Male, thirty-two years of age, a printer by occupation. Epilepsy has been existent for thirteen years. Cause was unknown. No neurotic family history was obtainable. General character of attacks is *grand mal*. His attacks are generally nocturnal, occurring in the early morning hours, and they are not preceded by an aura. At the time of admission, patient presented some of the typical mental characteristics of the epileptic, the most noticeable being his extreme irritability and amnesia which preceded and followed his attacks. He was unable to carry on prolonged or sustained mental labor. The patient was placed upon Flechsig treatment, and for three months after he had no attacks; the morning after this period of immunity he had a severe convulsion. He arose, dressed himself immediately after the attack, and conversed in a rational and intelligent manner with those about him. After breakfast, he was absent from the house for an hour or so, during which time it was afterward learned that he visited the shop where he was accustomed to work, but what he did there is not positively known. He returned to the house, lay down, and soon fell asleep, and remained asleep for three hours. On awaking he was perfectly oblivious of what had occurred, and was very much surprised to find that it was morning, that he was dressed and had apparently been out to work. He had no recollection of what he had done during this interim, and persistent effort to recall what had happened was also unsuccessful. In describing this occurrence, which is altogether unexplainable to the patient, he uses the expression, "I must have done so and so." The attack preceding this period of automatism was of the typical *grand-mal* character; general muscular convulsion of clonic spasm lasting for two minutes ensued. Heretofore the patient has always had a prolonged sleep-stage following his regular attacks. This time the sleep-stage did not follow, and had the automatism not followed the attack, the seizure would not have been especially noteworthy.

CASE III. Male, thirty-one years of age, a clerk by occupation. Cause of his epilepsy is unknown. No neurotic history. Patient's attacks are of *grand-mal* type, and occur every two or three weeks, both by day and by night, generally in the early morning hours. Preceding his convulsive seizures there is a tonic spasm of the forearm and arm of the right side. When this is especially severe, the extensors of the forearm are sufficiently active to cause the patient to drop whatever he may be holding at the time. This is generally attended by slight inspiratory movement, causing a quick closure of the epiglottis. Patient is entirely unconscious of the significance of this muscular movement, which may last two or three hours before the general convulsion takes place. After one

of his severe attacks had occurred and the sleep-stage had been omitted, the patient engaged in his daily work, which was to care for one of the offices and act as messenger. There was but little change noticeable in the patient, except that he seemed to be slightly incapable of understanding any question addressed to him. He performed his duties with alacrity, and during the day carried messages about the colony and distributed packages as he was ordered. He conversed upon almost any subject suggested, and did so in a rational manner; yet there was an unnatural appearance about the eyes and facial expression which at once, to the careful observer, would indicate that he was not in a rational state. During the day he made but one mistake in carrying messages and packages. The same day he received some papers and letters from his friends; the following morning he was entirely oblivious of their receipt and of all the other occurrences of the previous day.

In another case, the period of automatism makes its appearance without a convulsion having taken place, although what might be termed a very slight attack of *petit mal* may supervene. The patient will whistle and sing odd bits of song, and at the same time almost falls upon his hands and knees, but quickly recovers himself and runs about the house, laughing boisterously and doing various foolish acts suggestive of a mild state of intoxication. After such attacks the patient has no recollection of anything that has occurred during the fit and the automatic state following.

In all cases a family history of somnambulism was obtainable, and in all cases which have come to the attention of the writer no aura was found to precede the attacks. It seems probable that the so-called psychical attacks of epilepsy are really periods of automatism.

In one case, the patient, while in one of the mild forms of *petit mal*, would converse with any one, but, as she afterwards stated, she was hardly conscious of what she said and did at those times, and was very apt to express ideas antithetical to those which she really entertained, both at the time and previous to the attack. Such attacks last for two or three minutes; and in the normal consciousness which immediately follows, the patient remembers what she has said during the period of automatism, and often makes an effort to correct the wrong ideas which were expressed.

In a case which has recently come under the writer's observation, a description of the mental automatism is as follows: The first attack occurred about five years ago, and followed a severe convulsion. The patient was taken to the police station and placed in restraint for two days, then he was removed to the hospital and placed in restraint for six weeks. During this time he was incoherent, and showed considerable violence in his manner, but did not attempt any assault. The return to normal consciousness was sudden and absolute. Three years after this first attack, while on his way home from work as railroad engineer, he stopped in a way station, threw out both operators, and sent a message by telegraph to the central station and received the reply. After having done so, he locked the door of the station and proceeded on his way home. He only became aware of what he had done by the fact that he found the key of the station in his pocket the next morning. The

messages were carefully sent and received during this attack of automatism. He himself was somewhat surprised that he was able to send a message with so few mistakes. Upon return to normal consciousness, which is always sudden, patient is unable to recall any of his past acts performed while in the automatic state.

To show the length of time that automatism may be present after an attack of epilepsy the following case is presented: M. B., female. She had a severe attack the night before admission to Craig Colony. After three weeks of automatism patient became conscious of where she was, and partially conscious of what had occurred since her admission to the colony. It was extremely difficult at the time of her admission to tell whether this case was in the automatic state, or whether she was suffering from a certain degree of mental impairment as a consequence of her epilepsy, although it is now obvious that the former condition was her true state, as evidenced by her return to normal consciousness and her performing daily work in an acceptable manner.

Slight attacks of epileptic automatism occur frequently, but they are diagnosed with difficulty, and occasionally disappear before one can say positively that they have really been present. The ability to decide the degree of responsibility in such epileptics becomes extremely difficult.

The close relationship which all disorders of consciousness sustain to one another, especially when automatism is present, is manifest when such conditions are studied closely. Somnambulism was present in Case III from early life, and the habit was also found in his family history long before his epilepsy began.

Just what mental condition predisposes one case of epilepsy to mental automatism more than another, it is impossible at present to state. However, it is probable that certain subjects would not suffer from mental automatism if they did not have epilepsy or some other disease which materially interferes with cerebral activity, resulting in marked disturbance or reduction in subject-consciousness.

REMARKS ON MATERNAL IMPRESSIONS.¹

BY W. T. COUNCILMAN, M.D., BOSTON.

I SHALL not confine myself strictly to the subject of maternal impressions, but shall make some general remarks on the subject of malformations and the theories concerning their causes.

By malformations is understood a marked departure in structure from the type of the species. There is no sharp line of separation between malformations and the slight departures from the normal type which are known as variations, and which when advantageous for the species may be continued and rendered permanent by natural selection. The most pronounced malformations in which there is an extreme departure from the normal type are known as monstrosities.

The beginning of our knowledge of malformations really dates from the foundation of embryology by Wolff in 1759. Previous to this time they had more of theological than scientific interest. The principal question regarding them was whether they were pre-

¹ Remarks before the Obstetrical Society of Boston, November 17, 1896.

formed or whether they were due to secondary causes modifying the original direction of growth. Swammerdam attributed their formation to a modification of the germ produced at the time of fecundation. Such an idea was a necessary consequence of the doctrine of the pre-existence of germs. If it was admitted that monstrosities existed pre-formed in the germ, it followed that God must create them as such. Malebranche refused to admit this. Regis contended that this was the case, and if normal beings showed the infinite goodness, the malformations showed the infinite power of the Creator. Duverney, in 1706, described a double monster of the type of ischiopagus, and showed that certain anatomical conditions were incompatible with the theory that the monstrosity was due to the accidental union of two fetuses. If it did not result from the fusion of two germs, it must have existed as such from the beginning, and this showed the pre-existence of monstrosities. There was a famous discussion on this question in the Academy of Sciences in Paris which lasted from 1824 to 1840, between Lemery and Winslow. Lemery showed a monstrosity with two heads and a single body, which he explained by the fusion of two embryos. Winslow combated this idea, taking the side of the pre-existence of monstrosities. The work of Wolff may be said to have been completed in 1817 by the work of Baer and Remak. The final acceptance of the theory of development overthrew the theory of the pre-existence of monstrosities. If they do not exist in the germ, they must develop from the ovum.

The first scientific classification of malformations was given by the work of Geoffroy St. Hilaire, published in 1834. He collected all the malformations which were described and depicted in various scientific treatises, and classified them. He has done for monstrosities what Linneus has done for botany and Cuvier for anatomy.

When the idea of the pre-existence of germs, which necessarily carried with it the idea of pre-existence of monstrosities, was overthrown, it was believed that they were due to abnormal conditions acting on the developing embryo which altered the course of normal development. Then came the experimental period, in which the influence of various abnormal external conditions on the developing embryo was studied, and the attempt made to find the earliest abnormal conditions of development and to follow these in successive stages to the resulting malformation.

Experiments having for their object the production of malformations began almost simultaneously with artificial incubation. More deformities were found in artificial incubation than in the natural process, and an attempt was made to find out the conditions which produced them. It was generally supposed that artificial incubation of the eggs of chicks was learned by the French in the Egyptian campaign, but before this it had been successfully followed. The elder Etienne St. Hilaire, was one of the French savants who accompanied Napoleon in his expedition to Egypt, and on his return to France he carried out artificial incubation of eggs on a larger scale than had been previously attempted. It is possible that the monstrosities which he observed in the eggs in artificial incubation may have first excited his interest in malformations, and led to his brilliant work. He studied the action of abnormal conditions on the egg, and attempted to produce malformations after the third day

of incubation. In this he was not successful, because after the third day the chick embryo is so far formed that malformations are not possible.

Pannum published in 1860 an extensive series of observations on the subject. He subjected the eggs to various conditions, the principal means which he used being the influence of greater degrees of heat and cold; and in this way he produced various monstrosities.

The most extensive work on the subject has been that of Darreste. He began his work in 1854 at Lyons, and has prosecuted it with great enthusiasm since that time. He has now a teratological laboratory in Paris which is devoted to this work. Darreste has found that almost any abnormal conditions acting on the egg in the first days of development can lead to the production of malformations. The principal means which he has employed have been shaking the eggs in a machine devised for that purpose, subjecting them to the influence of variations of temperature, varying the position of the egg, etc. He has in this way been able to produce a large number of malformations, but he has not been able to produce at will any definite malformation.

Lombardini endeavored to modify the normal course of development by subjecting the eggs during incubation to the action of electric currents, and by rotating them. He obtained in this way monstrosities; but the nature of the monstrosity was inconstant and without relation to the treatment which the eggs have undergone.

Gerlach varnished the entire egg with the exception of a restricted space corresponding to the position of the embryo, and he found that the parts beneath the varnish did not develop; and he was able to produce in the short period which the embryo lived under these conditions, various abnormalities of development. Attempts have been made to produce malformations by making an opening in the egg and acting directly on the developing embryo.

Warynski and Fol by means of the electric canterly were able to destroy certain parts of the embryo, or to retard their development while the other parts develop. The experiments of Warynski and Fol were carried out in a better manner by Gerlach, but all of the results which have come from the action of conditions acting directly on the embryo have not been encouraging.

More encouraging results have come from the attempts made to produce malformations in the eggs of invertebrates. The egg of the echinoderm seems to be especially suited for experiments of this sort. Malformations can easily be produced in these eggs, and they nearly always take the form of double monstrosities. The work of Hertwig in this respect is very interesting. He found that by subjecting the eggs to various conditions, especially to the conditions which could exercise a more or less benumbing effect on the egg, instead of one, two or more spermatozoa could enter. According to the number of spermatozoa which had entered, double or triple malformations could be produced. Other experiments have shown that double malformations can be produced in these ova in other ways.

Very extensive general conclusions have been drawn from the experiments of Hertwig. Duval assumed poly-spermism to be the general cause of double malformations, and because Hertwig produced

these by subjecting the eggs to the action of alcohol, he explains the possible fact that double malformations are more common in drunkards, by supposing that drunkenness at the time of conception might allow the entry of more than one spermatozoon. Opposed to this idea, it has been shown that poly-spermism is the normal condition in certain invertebrates. The idea of the part which poly-spermism may play in the production of double malformations goes back to the time of Jacobi in 1765, and he attributes all double malformations in man and animals in which the double being has a common stomach to poly-spermism.

Attempts have been made to produce malformations experimentally in mammals by opening the abdomen and injuring the embryos in various ways. The results of these experiments have not been fruitful. Darreeste found from his work that the most common pathological condition which he produced was abnormalities of the amnion, and this led secondarily to the formation of various malformations. There is no doubt that abnormalities of the amnion play a very important part in the production of malformations in mammalia. It has certainly been shown experimentally that malformations may be produced by the action of abnormal conditions acting on the embryo during the first days or hours of development. In man these conditions must act during the first five weeks of intra-uterine life; after that they become inoperative. The fact that certain malformations are hereditary would show that the cause of malformations may be found in some condition of the male or female cell before conjugation takes place. Cases of the heredity of certain of the minor malformations, chiefly those characterized by excess of development, such as polydactylism, are perfectly well known. The more severe types of malformations are not inherited; principally because the subjects of them are incapable of sexual life.

Of maternal impressions as a cause for malformations, it is hardly worth while to speak. There is no scientific foundation for the belief, and no proof that maternal impressions can have any effect on the developing embryo. All malformations seen in man are found in the lower mammalia, in whom the influence of impressions cannot be supposed to be of much importance; and they are also found in birds. In the case of birds, we must suppose that an impression acts on the hen during incubation and is transmitted by her to the egg which she is hatching.

There are some interesting observations as to the frequency of malformations. Peusch has found that malformations are more frequent in illegitimate than in legitimate children. This would probably speak in favor of the influence of abnormal external conditions, because the unfortunate mothers are more subject to the influence of privation and dissipation. All malformations are more frequent in females than in males. In 100,000 births, Peusch has found 454 simple malformations, 61 single monstrosities and two double monstrosities. There is a considerable difference in the species of animal in the frequency with which malformations are found. They are more common in the hog, cat and cow than they are in the horse and goat.

Malformations have been more studied, not with regard to their especial cause, but with regard to the abnormalities of development, by means of which they are produced. In this respect there is the closest relation between teratology and embryology.

Authors of treatises on malformations have been able to explain almost every malformation by certain abnormalities of the development. In general we can say that malformations are due to excess of development, to defect of development, or to the persistence of embryonic conditions. The exact steps in their formation are in most cases not known. Malformations are especially apt to occur in those parts of the body in which there is the greatest complexity in development, and in which the course of normal development is not clearly known.

His has said with regard to this, that the explanations which have been given of the malformations are to be regarded more as examples of the action of an ingenious intellect than as true explanations. The future investigation of malformations must be in the direction of embryology. The subject is more closely related to this than it is to pathology. Nothing more is to be gained from the mere anatomical description of malformations. That was practically completed by the work of St. Hilaire in 1834, and but little has been added since then.

The most interesting malformations are not those which come at full term and which strike us by their remarkable form, but those in which the development is at a very early period. Abortion is frequently due to malformations of the embryo, which lead to its death. This is especially the case in the very early abortions, which appear as retarded menstruation. The very small embryo is passed out with the hemorrhage, and is not found unless carefully searched for. Most of the questions in teratology are to be solved in the future by the study of these early embryos. Theories of their formation, founded on what embryological facts are known or supposed to be known, no matter how brilliant these theories apparently are, will be found to be as false as theories usually are.

EXCESSIVE PHYSICAL EXERCISE AS CAUSE OF NERVOUS EXHAUSTION.

BY S. G. WEBBER, M.D., BOSTON.

It is necessary to understand at the very beginning that the term "excessive" is relative and does not—indeed, cannot—mean the same for each person. That amount of exercise which can be borne by one person would be far in excess of the strength of another, and could not be endured. An Indian scout or runner could cover a distance far beyond the ability of an ordinary person; and most people can walk farther than one of my patients, who found himself so exhausted by a walk of five miles that he had to ride home.

My object is to call attention to what I believe is a source of danger at the present time, when athletics are so popular. For many, a moderate amount of exercise is as much as the pupil or patient can take with safety. Hence the need of physical examinations in every doubtful case before entering upon a course of gymnastics. The family physician should have a care in this respect over the children, and guard the weaker from harming themselves by following the fashionable tendency; for it is not merely in gymnasia that the harm is done. Fortunately in nearly all such institutions there is now at least a nominal recognition of the fact that a young man may overtax himself; and in many there is a doctor who is supposed to have

an oversight of the young men or women who attend to exercise. Yet a physician may not recognize in a hasty examination the inherent weakness which is well known to the family physician.

As now the various sports and games are in greater favor than at any time for many years past, there is need of care as to the amount of training the young receive or try to get outside the gymnasias. The fashion and rage for athletic sports, and the desire to train the body, to bring it into the highest state of discipline and under the most perfect control, is more general now: all the young men and boys—and girls, as to that—are striving to make the most of themselves physically. Baseball, football, golf, rowing, tennis, bicycling, and for the less hardy, croquet, with other outdoor games are drawing our young people into the open air as never before in the memory of this generation. The contests for which the participants prepare by a long course of training, and which attract crowds of interested spectators, have increased an hundred fold within my memory.

The influence of this tendency is felt everywhere by both sexes, by old and young. Gradually the spirit of rivalry has extended, and now the programme in athletics is nearly as long as that of former collegiate studies. There has arisen among young people a strong tendency to overdo in this direction. More good than harm comes from this popularizing of athletics. The community is gaining in that our youths are acquiring health and endurance which enables them the better to take their part in life. Now boys and young men can get in the field of sport training for muscle and eye, for brain and nerve and judgment, which formerly it was difficult to find.

There is a class of students who go into athletic training with a serious purpose, with the desire to make it an added means to the end they have in view. They have no intention of engaging in any contest of strength or skill; they recognize that they are not able to compete with their more robust fellows; but they desire to prepare themselves for more vigorous work in the study, that they may attain the best results in the class-room.

The glamour of athletic contest is thrown over them in the preparatory school and in early college life, and they come to believe that the stronger they can make their bodies, the more muscle they can develop, the more severely can they tax their brain, and the more their mental powers will develop.

Many below the average in physical stamina, who need to husband their strength carefully, begin too early to seek greater muscular power, not knowing that if they spend in the gymnasium four-fifths of their strength, they cannot use three-fifths in study.

To a certain point it is true that training the body will give vigor to the mind; but there is a limit beyond which one cannot go without the mental power, and later the physical suffering. The limit varies with each individual. And there is a limit as to the character of the training, the nature of the exercise, and also a limit as to the amount of time which should be spent in the training. It would be unwise for a boy with naturally weak legs to try at first to walk or run as far and as fast as one who was unusually robust and strong in his legs. Let him begin with light leg work, and by graduated exercise develop the muscular power, and he will be able to do a fair amount of walking, but never attain to the greater power. If he in this and

other respects cultivates immoderately the moderate power he possesses, he will do himself harm, and at length will find that he cannot use his brain in study to the best advantage. But if he will be satisfied to train his body according to the natural capacity of that body, the brain will not fail him. He may be honorable among the thirty, but cannot attain to the first three.

The fashion is now, and has been for some years, so set towards athletic sports that there is danger lest young men and boys who need to be moderate and careful in exercise should plunge into it too vigorously and suffer harm. Public sentiment is strongly in favor of a healthy mind in a healthy body, and no one raises a warning voice to restrain the young man; or if they do, the protest is too often feeble or neglected. This is true of all forms of gymnastic work. Military drill is useful to a large majority of boys, but occasionally there is one who ought not to be subjected to it. The very marked cases where it would be injurious are recognized and escape, but there are many doubtful cases, where unless such boys are carefully examined, they may suffer from the training.

It is well to keep in mind that many boys and girls, young men and maidens, need medical advice as to the amount and quality of gymnastic training which will be of greatest service to them.

No gymnastics which overtax and strain the growing youth in muscle or joints, wherein the difference in natural strength and development of individuals are not taken into account, are safe. The progress should be gradual, from light to severe, to more severe exercise until each has reached the limit of his normal capacity, and is in condition to do the best work in all departments of life. For the majority of young men and women this is far below the training needed for an intercollegiate contest of any kind.

My plea is for the family physician to study the physical and mental idiosyncrasies of his youths, not patients perhaps, and give unsought warning, if necessary, lest they run into some of the mistakes made by some of my patients, remembering that in many persons both brain and body cannot be trained to the highest efficiency. There are a few brawny blacksmiths who have a mental power proportional to their biceps, but the rule is otherwise.

The report of a few cases illustrating what I have said, will help to impress the truth of the statements made, and will show that there is some danger in the direction indicated.

Mr. H. H., age twenty-one, had been fairly well most of his life; had typhoid fever a little more than a year before I saw him. The day before he had the fever he hit his head playing football; the next day he had a severe headache, and two days later the fever. About seventeen days later he went home; and three days after, he had fever again, and was in bed five weeks. He was out of college two months and a half.

A few years before coming to college he had worked hard, and for three years had had a tremendous strain. Before the above illness he had been well, and after making up his lost time he was well. He came back in September feeling well, but about Thanksgiving time he felt dragged. After attending a football game, not playing, he felt tired; rested, and felt well till the week before Christmas. For nearly a month he worked and rested alternately, as he felt more or less tired.

He had eight hours a day college work, exercised

fifty minutes in the gymnasium, and took a gentle run afterwards. He ate well, eating a large amount of meat. He slept about eight hours and a half.

His life was regulated. He was advised to take less exercise, to be regular in his hours of study and meals, to omit some of the work he was doing. The last of May he felt well. He got through his examinations without trouble, having some headache, but not severe. He returned to college after the vacation in pretty fair condition, but somewhat tired with the sports and gayeties of the summer. He was inclined to eat rather too much meat; but he had cut down his outside work and the amount of exercise he took. He got through without further serious trouble.

The most important part of the treatment in this case was cutting down the exercise to fifteen or twenty minutes a day of less severe kind of exercise than was used at first.

This young man had practised gymnastics alone in the gymnasium. Gymnastics alone, without the association of a class, is more of a strain, less of a mental recreation, than if taken in a class. Alone, the whole time is given more fully to work, with fewer or no intermissions, and there is less variety of mental recreation.

The best results can be obtained for the average youth in class work with music. There is the exhilaration due to many taking part in the same exercises, in addition to that caused by the music. The fun and amusement turn the work and exercise into a recreation. Also in class work there is necessarily waiting one for the other, giving short periods of rest, so the gymnastics can be continued longer. In solitary work, if necessary, there should be short pauses for rest, and the time devoted to exercise should be less than in class work. I am not now speaking of those who need gymnastics as a remedial measure to overcome definite diseased conditions, but of those who being in normal health desire to increase general muscular strength and physical vigor.

Mr. M. G., age twenty-one, came to me early in 1893. He was a student. He had been ailing three or four days. He had been in another college and had broken down, doing work outside his regular college work. He then rested a year and a half. At the beginning of that break-down he had vertigo, and could not fix his mind on any subject. He entered the Sophomore Class. Two days before he came to me, he felt faint while studying; this was followed by a headache the next day, and when he came to me he had difficulty in following lectures. He complained chiefly of headache and backache; had to give up his work for about an hour. He took a sleigh-ride and felt better. When I saw him he simply could not apply his mind. He had been taking too much physical exercise, though I did not make note of how much. By moderating his work and regulating his mode of life, he succeeded in doing fairly well.

Another patient was always rather weakly and could not play like other children. When he first began to break down he felt an excessive languor. He used to take long walks to keep up his strength, often farther than his strength would warrant, and had to return home in the cars. He was finally obliged to give up study, as his mind would not work. The physical exercise was only one of the causes for this young man's running down, and probably not the chief cause.

Another patient, Mr. A., gave much attention to gymnastics in college, and played ball. He was obliged to intermit his college course, practised at the Butler health-lift, gained, and then finished college. He was always delicate and nervous, had many symptoms referable to the digestive tract, and suffered from headaches; he did fairly well for several years if he did not have too much physical strain in addition to mental. I cannot give the particulars of a long period of slowly increasing nervous exhaustion, but mention the case, as the extra physical tax in the gymnasium and in playing ball seemed to hasten a nervous collapse, which perhaps could not have been entirely prevented without a complete change in the plans of his life-work.

Another young man, J. G. M., age twenty-two, while in school, at about nineteen years of age, danced much and drilled much, being ambitious to excel in the military drill. He also played and ran in his play very much. When he left school he went into a business in which it was necessary for him to climb many stairs. The last year in school he found his mental power was not so good as it had been previously; he had to read his lessons over more frequently to understand them; it was harder to learn. After going into business and taxing his legs more, he had numbness in his legs, backache across the lower lumbar region; at times he had hot sensations, and again cold chills running down his back and legs. He was beginning to have trouble in walking on level ground.

This case is one in which there was more physical exhaustion than mental; yet the mental tire was well developed in the last year at school, and had he continued to study, no doubt it would have become still more marked.

Miss W. was a vigorous, active girl, engaged in all sorts of out-door plays and sports; was very strong, and able to do more than most of her companions, but was of delicate, nervous constitution, and did not inherit nervous vigor. She rather took pride in her good physical condition. Being much interested in the violin, she studied that instrument, practising four or five hours a day. After five years of this she broke down rather suddenly. There was excessive physical strain in addition to mental fatigue and excitement. The principal symptoms were in the legs, numbness and inability to stand, pain and tenderness in the back and head, headache and inability to concentrate her mind.

What shall we say of young children taking long walks? children eight to twelve years of age walking twelve miles on a stretch? A lady recovering from a sickness, played croquet so long that she was exhausted and her full recovery delayed. These are only examples of cases wherein exercise has been pushed beyond safe limits from a mistaken idea that thereby greater strength would be gained — not from necessity and the need of unusual exertion in life's necessary work. In each case illness and weakness was caused or hastened by the means taken to prevent its occurrence.

There are some whom we need to warn against overtaxing themselves in the very laudable design of making the most of themselves in every respect.

NOTE.—Since writing the above I have seen a young man, eighteen years old, who rode on bicycle over two hundred miles in two days. For several days he was very tired. Some weeks later he gave out mentally and physically, not having entirely recovered from the exhaustion caused by the ride.

Clinical Department.

A NOTE ON BISMUTHUM TRIBROMPHENYLICUM AS A SURGICAL ANTISEPTIC.

BY CHARLES GREENE CUMSTON, B.M.S., M.D., BOSTON,
Assistant Professor of Surgical Pathology, Faculty of Medicine,
Tufts College, etc.

It is difficult to pass an opinion regarding the real value of an antiseptic, because bacteriological experiments are not always in accord with the clinical results obtained. Such, for example, is iodoform, which theoretically is without value, while practical experience demonstrates its great virtues.

The phenols, such as carbolic acid, the chlorobromo- and iodo-phenols, cresol, pyrogallol, naphthol, etc., are the most powerful antiseptics, after those of the mineral series, but their use is limited on account of their toxic and caustic properties. These defects disappear if H₂O is replaced: example, phenol and salicylic acid give by their combination salol.

The reason why salol and other like products give such excellent results when applied to wounds or the mucous membranes is because they split up into their constituents in a *slow and continuous* manner, so that when a large surface is covered, the toxic and caustic action of the creosote or carbolic acid does not occur. The phenolates of bismuth easily decompose in presence of the organic liquids, and the amount of phenol liberated is sufficient to give excellent antiseptic results.

Of all the groups of antiseptics, bismuthum tribromphenylicum, or as it is also termed "xeroform," is recognized as the most active: first, because it contains, besides 49 per cent. of oxide of bismuth, 50 per cent. of tribromphenol, while other products only contain from 10 to 20 per cent. of phenol, cresol or naphthol; and, secondly, tribromphenol is more antiseptic than phenol.

Bismuthum tribromphenylicum has for chemical formula $C_6H_2Br_3O-Bi-O$, and is rapidly decomposed by acids and bases, especially when heated. But, on the contrary, it may be heated to 110° C. without decomposing and is thus superior to iodoform because it can be *sterilized*.

It is a fine, yellow, neutral powder, which does not decompose when exposed to light; its odor is slightly carbolic; it is tasteless and does not irritate the mucous membrane of the digestive tract.

Little has been written regarding the surgical applications of this product; but there is no doubt in my mind that it has a large field of usefulness in surgery. In open wounds, those in which no infection has taken place, the tribromphenol of bismuth will secure union by first intention. It appears to exercise a calming influence on burns, like iodoform. In cutaneous affections with secretion of pus, such as impetigo and sycosis, the results obtained, with this preparation were not satisfactory. In some cases of *pruritus localis sine materia* the itching was stopped by the application of this product. When applied after the curettement of tubercular abscess or glands, cicatrization was rapid.

On account of the continual development of tribromphenol and oxide of bismuth, a wound will be kept in a perfectly antiseptic condition, while the slightly irritating action of the former gives a fresh and healthy aspect to the wound.

One of the properties of iodoform is to produce granulation tissue; tribromphenolate of bismuth and other antiseptics, such as airol, euophen, iodol, etc., do not have this quality to such a degree; consequently in order to cause granulations to spring up, iodoform should be first applied, and cicatrization can be accomplished with the bismuth product. This method I tried with success in two cases of fistula in ano after having freely opened, excised and curetted the fungous masses.

My experience with the product under consideration amounts in all to twenty-six cases, as follows: five cuts of the extremities requiring from three to twelve sutures; one ulcer molle; two operations for bilateral laceration of the cervix; seven curettements for acute gonorrheal endometritis; two cases of vaginitis; three operations for tuberculosis of the bones; one abdominal hysterectomy; one tubercular abscess of neck; one sub-aponeurotic abscess of axilla, one appendicitis; and two operations for fistula in ano.

In all these cases it appeared to me that this powder gave more satisfaction than I have ever had with iodol, euophen, iodoform or tincture of iodine, all of which I have thoroughly tried. In the gynecological cases it appeared to me that this product had a marked influence on the regeneration of the epithelium.

In no case did I meet with any toxic symptoms, although in the cases of tuberculosis of the bones and tubercular abscess of the neck in a child eleven months old I applied the powder very freely in the wounds.

In closing this short note I would strongly recommend this substance to the profession as a safe and sure antiseptic, and in many respects superior to iodoform or other powders of this class.

THE STIMULATING TREATMENT OF PNEUMONIA.

BY S. L. ABBOT, M.D., BOSTON,
Member of the Board of Consultation of the Massachusetts General Hospital.

In the *London Lancet* of April 4th of last year, was an interesting paper by Dr. Squire, strongly advocating the stimulating treatment of pneumonia, in which a hospital case was cited in illustration of its efficacy. The patient was "so far gone" that the physician in attendance gave him up as in a hopeless condition. The interne and the nurse, however, determined he should not die if they could help it, and accordingly plied him with brandy, as much as they could get down. The result was that he took in twenty-four hours thirty-two ounces of brandy, with decided benefit, and following up the treatment the man got well. A good abstract of the paper is published in the *Therapeutic Gazette* of August 15th.

This case brings very forcibly to my mind one under my care in the Massachusetts General Hospital some years since. The patient was a respectable young woman, eighteen years old, who at the time of her admission, was suffering from double pneumonia, the lower half of both lungs being solidified. She was of course in a very critical condition, requiring that she should be held up by all the means that could be employed. She absolutely refused, however, to take any form of nourishment, even milk. Happily, she did not object to stimulants, so I directed the nurse to give her as much good French brandy as she could

persuade her to take, properly diluted, watching carefully for any sign of over-stimulation.

On the following morning I was astonished to find that she had taken half of a so-called quart-bottle of the stimulant (a little short of sixteen ounces) without the least discomfort or over-excitement. The treatment was continued, the same quantity of brandy being given her each of the two following days, with no bad result. On the morning of the fourth day whiskey was substituted for brandy, and of this she took three-quarters of a quart-bottle each day for four successive days, without the least discomfort or over-stimulation. On the morning of the eighth day there was a decided change for the better, and the patient absolutely refused to take a drop more of liquor. This was accordingly omitted, and she took without any objection, milk and other light nourishment such as her condition called for, and her recovery was complete and rapid. It was interesting to note how readily the patient, who was not an habitual user of stimulants, took them as prescribed — how entirely free she was from any appearance of intoxication while taking them — and her instant rebellion against them when the demands of nature had been satisfied. She took no drugs from the beginning to the end of her illness. I will only add that I cannot recall any other case in my practice in which I have thought it advisable to give stimulants so freely. Of course I have used them very often, as the case required, but never so far as I can remember, to the entire exclusion of food and drugs.

Medical Progress.

REPORT ON DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

TREATMENT OF SCARLET FEVER BY ANTI-STREPTOCOCCUS SERUM.¹

THIS publication is a *résumé* of studies made in ninety-six cases of scarlet fever in the Hôpital Trouman. It was taken for granted that the secondary infection in the severe cases of scarlet fever was due to streptococci, and that by means of inoculations with anti-streptococcus serum, this dangerous complication might be avoided. Of the ninety-six cases four died; these cases, however, had been received after the duration of the disease for a number of days. In two children who died in spite of the injections there were found present also Klebs-Löffler bacilli. The latter were found, together with streptococci, in fifteen other cases of scarlet fever. Two more of the fatal cases were suffering from uremic poisoning. There was still another death which was due to a double pneumonia as a complication. The results arrived at were the following: That the action of the serum is only temporary. The injections must therefore be repeated as often as an exacerbation takes place. The most marked effect of the injections is on the glandular swellings and the initial albuminuria. They do not, however, prevent the appearance of purulent albuminuria. The writer expresses the opinion for the present, that the remedy may do some good in scarlet fever cases.

¹ A. Marmorek: Wiener med. Wochenschrift, 1896, xlv, 7, 250. Pediatrics, September 1, 1896.

RESULTS OF THE PATHOLOGIC ANATOMICAL EXAMINATIONS OF THE EAR IN MEASLES.²

F. Bezold after carefully conducted examinations for a number of years arrives at the following practically important conclusions: In not one case of death from measles was there missing at the autopsy a muco-purulent or purulent secretion in the temporal bones. With the exception of one case, where the process existed before the contraction of measles, there were present fresh inflammatory processes, confined in one case only, to the bony tube, in two cases to the tube and the floor of the tympanum. In all other cases there were collections of secretion, redness and swelling covering all the cavities of the middle ear. A spontaneous perforation of the drum membrane is not often produced by the otitis of measles. Injection of the vessels was slight, irregularly distributed and occasionally punctiform. The destruction of the drum membrane and the auditory canal occur more seldom, probably on account of the more protracted course of the inflammation, than we find in other forms of otitis, notably that occurring in scarlet fever. The otitis of measles is to be looked upon as an integral part of the systemic infection, and does not arise through extension from the nose into the Eustachian tubes, etc. In the greater number of cases the pus is again absorbed without having caused perforation of the membrane, or any injury even to the hearing. In a few cases the exterior of the drum membrane does not show any changes, but usually it is somewhat darker, and particularly in the posterior upper quadrant is of a diffuse livid-red color. Masses of pus may shine through in the intermediary zone of the posterior half, giving it a yellowish color, and usually it is slightly bulging here. Besides this, single radiating vessels are frequently seen, and in single cases a sinking of the drum membrane is observed. The surface becomes successively dimmer, often wrinkled, and on greater saturation by serum or thin liquid pus, raised vesicles are noticed. If a perforation takes place from the middle ear, the secretion will continue days or weeks. The perforation is seldom large, and always closes up again. With good treatment, hearing is restored even in the perforative form. In comparison with the forms of otitis which complicate other infectious diseases, the one appearing with measles is to be considered of a relatively mild character.

CONTRIBUTION TO THE CAUSATION AND THE STATISTICS OF PRIMARY TUMORS OF THE BLADDER IN CHILDHOOD.³

The author reports the clinical history and autopsy report of a case of primary sarcoma of the urinary bladder, occurring in a boy two and three-fourths years of age and collates the published cases of primary tumors of the bladder, up to the present time, which occurred in childhood. He was able to gather only thirty-two cases, including his own, thereby showing the rarity of the affection in early life. In thirty cases, where the sex was mentioned, twenty cases were males, and ten females; so that also in childhood, as in adult life, the male sex seems to be predisposed to this affection. As regards the age of

² F. Bezold: Der Kinderarzt, 1896, vii, 80. Pediatrics, October 1, 1896.

³ Steinmetz: Deutsche Zeitschr. f. Chirurgie, 1896, xxxix, 313, 336. Pediatrics, October 1, 1896.

the patients, children during the first five years of life are most frequently attacked. In twenty-nine cases, where the ages were recorded, there were twenty-three cases during the first five years of life (including one newly-born) and only six cases between the fifth and thirteenth years.

All the tumors belonged to the class of connective-tissue tumors. Fourteen (one case was a myosarcoma) were sarcomata. Thirteen are designated as myoma, but the author, in conjunction with Albarran and Fenwick, is inclined to believe that also these were probably sarcomata or myxo-sarcomata (most of these tumors having been diagnosed from their macroscopic appearances); so that the sarcoma must be looked upon as the predominating variety found in the bladder of children. Besides these, there are recorded one fibromyoma, one cystofibroid, one rhabdomyoma and two other tumors, which were not classified. In two of the cases there were present congenital deformities of the urinary organs, namely, one diverticulum of the bladder, and in the author's case a horse-shoe kidney. The seat of the tumors was usually at the neck of the bladder and its lower third, which may explain why dilatation of the ureters and hydronephrosis with implication of the kidney (pyelonephritis) was observed so frequently. Quite frequently (as in the author's case) a part of the tumor protruded into the urethra, and in females through the urethra into the vulva. Of twenty-six cases only one presented a solid tumor; in one case there were two tumors, but in all the others a great number was present. Nearly always cystitis, and hypertrophy of the muscular wall of the bladder were present, which latter fact might be of diagnostic importance on bimanual palpation of the empty bladder. Metastases were only mentioned in one case, a lymphatic gland the size of a hazel-nut being found at the lower end of the left ureter.

The course of the disease in the child differs from that of the adult, inasmuch as hematuria, which usually appears very early, is seldom found in the child (only four cases of hematuria are mentioned, in two of which it occurred at the very end, probably caused by the intense cystitis). More frequently the affection begins in children with difficult urination, — strangury, anuria, symptoms of stone, pain in the bladder and glans penis, causing the patient often to continually pull at the organ. The prognosis, as a rule, is fatal. Within ten weeks to three months from the first symptoms, death is induced by infection (cystitis, pyelonephritis) and uremia (hydronephrosis), in only one case, published by v. Linhart, the duration of the disease covered a period of two years. Operations were performed in fifteen cases, one case only, operated on by Billroth and published by Gussenbauer, which proved to be a solitary pedunculated myosarcoma, was successful. It may be that the prognosis in the future will become somewhat more encouraging, if an earlier diagnosis would lead to an earlier operation. It should be borne in mind, in this connection, that Albarran has often found a hematuria in tumors of the bladder which could only be recognized by a microscopical examination of the urine.

TUBERCULOSIS IN EARLY INFANCY.⁴

H. Kossel had the opportunity of observing twenty-two children, from the ages of two months to three

years, during their illness with tuberculosis. All of these cases ended fatally. There was also found at autopsy in fourteen children, who died from other causes, at the ages of from one and one-half to ten years, tubercular foci situated in the bronchial glands in ten cases, and in the mesenteric glands in one case. There were no symptoms of the disease manifested during life in these cases. Amongst the anatomical findings in these cases, the changes in the respiratory tract and its lymphatics were undoubtedly the most marked, and those of the digestive tract next. In the latter, the disease was primary in the intestines; in one child, eight months old, a tubercular ulcer of the ileum was found, together with tubercular infection of the mesenteric glands.

The observations made in numerous cases of extensive tubercular processes in infants only a few months old, seems to raise the question, whether an infection with tubercle bacilli may not have been possible during intra-uterine life. This question is not only of scientific interest, but also of great practical importance. The author thinks it noteworthy, as militating against infection before birth, that he never found older tubercular foci in the liver, into whose circulation all germs that are being carried by the umbilical vein must pass first. Moreover, these foci were always found in the lungs, or in those glandular environments whose main roots were nearest in connection with the outer world, that is, the bronchial or mesenteric lymph-glands. The author comes to the conclusion that in tuberculosis of early infancy, at least, we have to admit an infection with the micro-organism, in the first few months following birth, by contact. It is quite obvious that infants whose parents expectorate the infectious germs of tuberculosis in large quantities, are very likely to admit tubercle bacilli by way of the respiratory system, or the digestive organs, into the economy. In the course of the investigation, the discovery was made, that among the children from one to ten years of age, who were sent to the institution (usually for diphtheria), forty per cent. were suffering from latent tuberculosis. Does it not seem about time, says the author, to follow the lead of the Americans, and employ practical measures against the spread of tuberculosis.

AN ADDITION TO THE THERAPEUTICS OF SUMMER DIARRHEA IN INFANTS.⁵

O. Reinach made a report from the H. v. Rankes's clinic, on the use of serum, for its blood-thinning qualities, in severe cases of gastro-enteritis. The sterilized serum of the cow was used, though horses' serum is now employed, since Landois proved that the latter was perfectly harmless to the human blood corpuscles. The experiments were made on fifteen infants, ranging in age from fourteen days to nine months, all of them very serious cases, some nearly moribund. These infants were all artificially fed, and were suffering from acute digestive disorders, and treatment was commenced two or three days after the beginning of the disease, when they had already rapidly lost flesh. Four of the patients died, two with severe lobar pneumonia, and two of severe follicular disease of the large intestine. In the rest of the infants the serum treatment showed a favorable influence on the disease. The general appearance improved.

⁴ H. Kossel: *Der Kinderarzt*, 1896, vii, 19. *Pediatrics*, Oct. 1, 1896.

⁵ O. Reinach: *Münch. med. Woch.*, 1896, xliii, 421. *Pediatrics*, December 1, 1896.

the eyes became clearer, cyanosis diminished, the vessels of the skin became injected, and digestion was rapidly improved. Nourishment consisted of thin rice water during the first twenty-four to forty-eight hours.

From ten to twenty-six cubic centimetres of serum were injected under the skin of the thorax. No eruption ever occurred at the site of puncture. In one case an eruption similar to measles, lasting two days, appeared after two weeks, without any fever. Fever was noted in two cases after the injection, and in one case rose to 38.5° C. The rapid improvement of the digestive power and of the stools, in most cases, was partly due without doubt, to ingredients of the serum, which vitalized metabolism. Especially does common salt exert an influence on glandular activity. The fact that albumin is injected subcutaneously in the serum is probably of importance, when we remember that in these cases nourishment was withheld for a number of days. In twenty cubic centimetres of the serum, the albumin amounted to one and five-tenths grammes, equal to the amount of albumin contained in fifty grammes of undiluted cows' milk, or one hundred and fifty grammes of mothers' milk. This, of course, is but a small quantity. It is, however, possible to divide a larger portion of serum into two parts and inject it. At all events, it seems to some purpose that even small quantities of nourishment should be brought into the body where all food has been stopped by the mouth. Further researches in this direction will be made.

New Instruments.

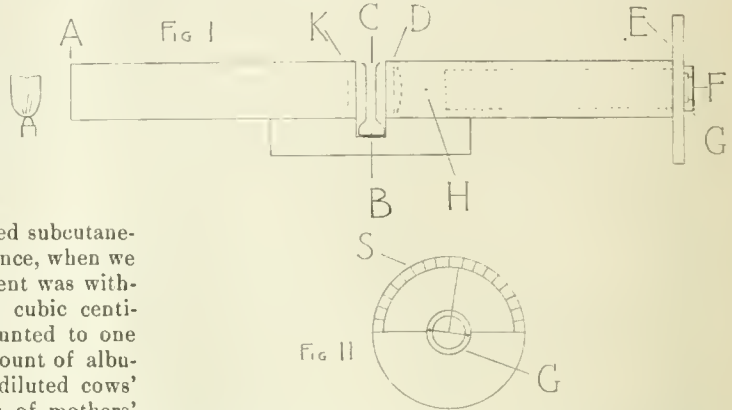
AN AXOMETER.¹

BY CHARLES H. WILLIAMS, M.D., BOSTON.

It is often desirable to measure the position in which a cylindrical lens is being worn, and with the weaker lenses of half a dioptric, or less, especially when combined with a spherical glass, it is not easy to determine quickly and accurately, by ordinary means, the position of the axis of the cylinder. For this purpose I have arranged a simple instrument, as follows:

A box (or tube), sixteen inches long by one and a half inches square, has at one end A, a thin brass diaphragm with a very small hole at its centre. The size of this hole is important for the proper working of the instrument, and my best results have been obtained by drilling through the thin brass plate with a number-nine sewing-needle, so that the point projected about one-sixteenth of an inch through the plate. The middle of the box at B is cut out so that the lens to be measured can be inserted in the double-spring C, which holds the lens at right angles to the axis of the box. At D is a plano-convex lens of three and a half inches focus, and at E is a smaller box which slides into the larger one and carries on its outer end a ground-glass screen F, on which the rays of light from the hole in the diaphragm are focused in a point. If a cylindrical lens, either convex or concave, is placed in

the path of the rays at C, the image on the ground-glass screen, instead of being a dot, will be drawn out into a fine line, and the direction of this line will be at right angles to the axis of the cylindrical lens. A circular rotating frame G is placed outside the ground-glass, and across the diameter of this frame is stretched a fine wire, which, by moving the frame, can be made to correspond to the direction of the line of light



focused below it on the glass; a pointer attached to the frame will then show on a scale S (Fig. II), the angle at which the axis of the cylindrical lens is placed, as compared with the horizontal line of the instrument, the scale being graduated through 180 degrees from left to right on the upper half of the circle, the zero being on the horizontal line to the left. The horizontal line of the instrument is shown by a fine wire at H, passed from side to side through the centre of the box.

To use the instrument, the patient is requested to put on his glasses, and while they are on his face in the usual position, a ruler, or any straight edge, is held against his nose in front of the glasses, so that its upper edge stands horizontal and about in front of the centre of the glasses. This edge marks the horizontal line of the glasses as worn, and is indicated on each glass by touching them with a fine-pointed tooth-pick moistened with ink, making two dots on each glass about three-quarters of an inch apart, all the dots being on the horizontal line. The glass, so marked, is now placed in the spring C, the sliding-box at E is removed, and a white card or paper is placed behind the glass, so that on looking through the box at E, the glass can be shifted so as to bring the dots to coincide with the wire H, which marks the horizontal line of the instrument. Replacing the sliding-box at E, removing the card, and holding the end of the box A near a gas flame, a line of light will be seen focused on the ground-glass F, provided the lens is a simple cylinder, and by moving the wire in the frame G to coincide with the line of light, the angle at which the lens is worn can at once be read off on the scale of the instrument. If the prescription calls for a glass at 90° , and this test shows the angle to be 93° , or some slighter variation from 90° , it will probably not make an appreciable difference to the patient, for in putting the glasses on, from time to time, especially with eyeglasses, he will probably make as much or more variation than this, but if the amount is considerable, often reaching 5° to 10° , or more, and if there is discomfort on using the glasses, the error will need correcting. The glasses must be placed in the spring so that the

¹ Read at a meeting of the American Ophthalmological Society, July 16, 1896.

observer looks through them in the same direction as the patient does when he is using them.

If we wish to measure the axis of the cylinder in a compound lens, it will be necessary to place in the box at K a spherical lens from the trial case that will neutralize the spherical component of the compound lens, otherwise the line of light will not be focused on the screen.

When measuring a concave cylinder it is easy, not only to get the direction of its axis, but also its power when less than two or three dioptries; for if we withdraw slowly the sliding-box at E, we find a point where the rays of light will be brought to a focus in a line at right angles to the first line, and a scale on the side of the sliding-box will then show the power of the concave portion of this glass, it being necessary to draw the sliding-box further out, the higher the power.

Since writing the above the instrument has been improved by making the tube longer so that the direction of the line of light with the weakest lenses can be more easily seen and the direction of the axis measured. The sliding tube is made to push in or draw out from the zero point so that the power of cylinders up to one dioptric convex or concave can be measured, in addition to direction of the axis of any cylinder. The spring clip for holding the lenses has been improved. A better method has been devised for bringing the horizontal line of the glass to correspond to the horizontal line of the instrument without removing the sliding tube, and the whole apparatus has been made of light metal and mounted on a convenient stand. Such an instrument can be obtained from Messrs. Miller & Welch, 38 West Street, Boston, Mass.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, November 17, 1896, the President, DR. JAMES R. CHADWICK, in the chair.

DR. W. T. COUNCILMAN spoke on the subject of
MATERNAL IMPRESSIONS.¹

DR. J. J. ENGELMANN was interested in the ground taken by Dr. Councilman, with which he can hardly agree. He recalled a case of a woman pregnant eight months, brought to a Philadelphia hospital badly burnt. Within a week she gave birth to a child that showed similar marks as of a burn and in corresponding situations. This, to say the least, is a startling coincidence. This and cases cited by Fordyce Barker have made him believe in maternal impressions, although he cannot understand how they are brought about.

DR. J. B. SWIFT referred to a case that came under his observation where a woman eight months pregnant struck her thumb-nail with a hammer. The infant born at full term had the thumb of the corresponding hand discolored, and the nail, as in the case of the mother, finally came off.

DR. EDW. REYNOLDS said that it was difficult to get away from the evidence presented by the large number of cases reported by competent men, which seem to prove the existence of maternal impressions on the fetus.

DR. C. M. GREEN spoke of a family in which extra toes were hereditary. He also referred to a mulatto child whose back resembled in its hairy growth the back of a rat. The mother, it was said, stepped on a rat going down the cellar stairs, and believes in this way she marked the child.

DR. C. E. STEDMAN referred to the frequency with which mothers think their children will be marked compared with the rarity of birth-marks and monsters, and also to the fact that if a child is marked the mother then proceeds to think up some impression she may have had to account for it.

DR. J. G. BLAKE said he had never been able to connect any malformation with a maternal impression. He referred to a child born without arms which he had shown on two occasions to the Society.

DR. C. W. TOWNSEND mentioned a case of Dr. W. L. Richardson's where in two pregnancies the patient experienced much nervous dread, thinking the child would be marked, as she had seen many deformed and diseased people. Both of these children were perfect. At the third labor she remarked to Dr. Richardson that she had no fear of the child being marked, not having worried about it, and moreover she had seen no disagreeable sights. This child, however, was marked.

DR. J. R. CHADWICK said that his scepticism had been somewhat staggered by Fordyce Barker; but it seems more reasonable to attribute these very exceptional cases to coincidences rather than to maternal impression.

DR. E. G. CUTLER, by invitation, read a paper entitled

SOME REMARKS ON UMBILICAL HERNIA, ESPECIALLY AS OBSERVED IN ANCIENT SCULPTURE.²

Recent Literature.

Over the Hookah, the Tales of a Talkative Doctor. By G. FRANK LYDSTON, M.D., Professor of Genito-Urinary Surgery in the Chicago College of Physicians and Surgeons, Professor of Criminal Anthropology in the Kent College of Law, etc. Sold by subscription only. Profusely illustrated from the author's designs by C. EVERETT JOHNSON. Chicago: The Fred Klein Publishing Co.

This striking and profusely illustrated volume of 600 octavo pages, is a collection of short stories with a medical flavor, often more or less fantastic in character, purporting to be the talks of an old physician of varied experience with a friend who is a medical student.

They are said to be most of them original or founded on real incidents, and, according to the author, if the characters seem overdrawn, it is their own fault, and not that of his description. Certain of the character sketches are in the form of dialogues between the doctor, who acts as interlocutor or "middleman," and whose Socratic function is to ask questions calculated to bring out the desired side of the "character" which he wishes to display. The hypothetical questions of the middleman are sometimes somewhat suggestive of a ventriloquist's questions to his puppet, laboriously planned and carefully impressive in their style.

¹ See page 32 of the Journal.

² Publication reserved.

The Histo-Pathology of the Diseases of the Skin. By DR. P. G. UNNA. Translated from the German, with the author's assistance, by NORMAN WALKER, M.D., F.R.C.P., Ed. Edinburgh: William F. Clay. New York: Macmillan & Co. 1896.

It would be impossible in the space allotted to us to attempt a serious criticism of this colossal work from the pen of Dr. Unna. Several exhaustive critiques have appeared in journals devoted especially to cutaneous medicine, of which that by M. Darier in the *Annales de Dermatologie et de Syphiligraphie* is worthy of especial praise. Dr. Unna has preferred to work through the whole subject of cutaneous pathology anew rather than to present a critical digest of the existing literature. He acknowledges that it has been impossible to do this completely, in the five years during which the book has been in process of making, and that its amplification must be left to the future. As it stands to-day, however, it is a monument to his industry and application, and a mere turning of its leaves must excite the wonder of all dermatologists.

As was to be expected from the general scheme of the work, the author's own views and studies are usually the only ones presented, and in many instances a decided position is taken from the examination of a very meagre amount of material. Dr. Walker has certainly rendered a great service to dermatologists outside of Germany in translating this work, as Unna's style makes a perfect understanding of his thought extremely difficult even to those who have a good knowledge of the German language.

To the dermatologist Unna's work is indispensable for reference; for however much we may disagree with him, and however hastily he may seem to us to settle many questions on insufficient evidence, he has certainly made some distinct contributions to our knowledge. To the reader not versed in dermatology, or to one who has not at least to some extent followed Unna's literary career of late years, the book will prove baffling and worthless. Almost a completely new nomenclature has been introduced by the author, expressive oftentimes of beliefs that are shared by few or no other authorities, and a reference to previous articles of his own would be necessary before even a partial understanding could be reached.

In addition to the double colored plate of nineteen illustrations of histological appearances brought out by Unna's especial methods, that appeared in the German edition, we have forty-two illustrations in the text, made from preparations from Unna's laboratory, which add much interest to the reading matter.

The Medical and Surgical Uses of Electricity. By A. D. ROCKWELL, A.M., M.D. Illustrated with 200 engravings and one plate; 8vo; pp. xvi, 612. New York: Wm. Wood & Co. 1896.

This work is practically the ninth edition of Beard and Rockwell's well-known work, but, as it has been thoroughly revised, and much new matter added, and as the late Dr. Beard died soon after the second edition appeared, it has been thought proper to publish the present edition under Dr. Rockwell's name alone. The familiar plan of the work has been retained, but the illustrative cases have been omitted to make room for the various additions. The section on static electricity has been entirely rewritten and much enlarged, and a chapter on the Röntgen rays gives proof that the new edition has been brought up to date.

THE BOSTON

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TREATMENT OF CANCER OF THE STOMACH.

THE purpose of the present article is to consider the treatment of cancer of the stomach from a medical point of view. That relief and even cure have in some instances been obtained through surgery is admitted. Most cases, however, remain from the first under the care of the physician, and for reasons deemed sufficient, surgical means are not tried.

The medical treatment has ever been pre-eminently disheartening. The physician makes his diagnosis, and feels that his mission is virtually over. In hospital wards it is customary for the medical attendant to stop occasionally at the bedside of the patient to call attention to the peculiarities of the case, but the therapeutic part of his clinical remarks does not detain him long.

Since the discovery of improved methods of diagnosis through the chemical examination of the contents of the stomach, there has been a reaction against the do-nothing régime, and a feeling has become prevalent that something more can be accomplished for the amelioration of these unfortunate patients. This has found its latest expression in an article by Prof. Albert Robin in the *Bulletin Général de Thérapeutique*.¹

In the first place, though it is rendered certain that there are no absolute chemical criteria of gastric carcinoma, yet in the great majority of cases there is absence of digestive power and of the normal acid-secretion ("apepsia and anachlorhydria"). Lactic acid is generally found in excess, and sometimes butyric and acetic. The digestion of albuminoids is wholly insufficient and nil; the stomach "has become an inert receptacle in which aliments stagnate and are not utilized." It has been found, however, that amylaceous matters are fairly well transformed, for sugar is constantly detected in the contents of the stomach after the ingestion of starchy food; the lactic acid comes from this source. Hence, then, a leading indication is to diminish or suppress in the daily fare of these patients, albuminoid foods, and to prescribe a starchy

¹ December 15, 1896.

diet. By fulfilling the latter indication, vicious fermentations are in a great measure arrested. The complete interdiction of animal food is, however, not called for when the pylorus and intestine are not involved, for there is then the possibility of ready transit of ingesta into the intestine, whose power of digesting albuminoids is well known. Meat powders and peptones may be permitted in these cases of integrity of the pylorus; even tender fowl, lean, tender meat of whatever kind, white fish, meat jelly, etc. Azotized feculents, as boiled mashed peas, pea soup, bean porridge, also cooked fruits, cold biscuits, pilot bread, etc., may often be eaten with impunity, while fresh bread, pastries, cheese and sugar give great distress by the fermentations which they occasion. Patients suffering from gastric cancer should drink but little, and eat but three times a day.

Robin proposes numerous drugs in the treatment of this disease, and believes that more benefit may be obtained from a judicious use of pharmaceutical remedies than many practitioners are aware of. He gives condurango as a stomach tonic—not because it is antagonistic to the cancer. Half an ounce of the bark is steeped in a pint of water; it is somewhat reduced by boiling, strained, and given in the dose of a dessert-spoonful just before meals. Tincture of *nux vomica* in five-drop doses may be substituted. Sometimes he gives just before meals a powder containing three grains of ammonium chloride, five of sodium bicarbonate, and two of Dover's powder.

To favor digestion, the patient is directed to take at the end of every meal a few swallows of a solution of hydrochloric acid in water, 1 to 1,000; at the middle of the meal, a "cachet" containing ten grains pepsin, and two each of maltine and pancreatin.

To prevent fermentations, a few grains of sulphur or naphthol are given after eating. Lavage of the stomach is sometimes indicated, especially when there are abundant acid vomitings, much pain and stenosis.

Vomiting is a common symptom, and is sometimes incoercible. Among the remedies which Robin proposes, is cocaine. Give five minutes before each meal, a teaspoonful of a solution containing fifteen centigrammes (two and one-half grains) to one hundred and fifty grammes (about five ounces) of water. Sometimes a teaspoonful of menthol water or chloroform or peppermint water will do as well.

A favorite prescription of his for the vomiting of gastric carcinoma is the following:

Picrotoxine	5 centigrammes
Hydrochlorate of morphia	5 centigrammes
Sulphate of atropia	1 centigramme
Cherry laurel water	10 grammes

M. Sig. Dose, two to eight drops a few minutes before the principal meals. An opium suppository may sometimes with good effect be employed in the morning on awakening.

For severe hemorrhages, the main reliance is on ergotine, employed subcutaneously, or in solution along with gallic acid and turpentine.

For the relief of pain, the main reliance must still be on subcutaneous injections of morphine. In such

a disease as this, the fear of making the patient a morphiomaniac need hardly be entertained.

For the pyrosis, a powder of magnesia, bicarbonate of soda, bismuth and opium is perhaps as good as any that can be prescribed. The obstinate diarrhea which attends many cases of gastric cancer will often yield quite promptly to an old-fashioned pill, consisting of calomel, ipecac and opium, one-sixth grain each, to be taken every six hours.

For the cachectic state, the glycono-phosphate of soda is recommended; this may be taken by mouth or introduced subcutaneously.

BICYCLING AND APPENDICITIS.

SINCE bicycling became popular, we have heard little else but praise of the exercise on the part of physicians. The bicycle has been the means of giving country air and sunshine to the city-penned shop-girls, compelled by their business to breathe more or less pure carbonic acid during long working-hours, has cleared the liver and loosened the bowels of the dyspeptic, expanded the lungs of the pale scholar, bent by over-study, and by its tonic effect upon the muscles of the thigh and pelvis has well-nigh done away with "female weaknesses" in women who ride.

Just as we are comfortably settling down, however, to a belief in the bicycle, not only as a safe and healthy exercise for almost every one without serious valvular heart lesions, but also as a cure for a large majority of the minor functional ills which flesh either is heir to or acquisitive of, we are roused from this sense of security by the reported observation that bicycling is a frequent cause of no less formidable a disease than appendicitis.

"More than one surgeon," writes the editor of the *Medical Press and Circular*, "on either side of the Atlantic, has commented upon the comparative frequency of this lesion in cyclists. Now that the non-cyclist is the exception, a large proportion of the cases must of necessity occur in persons more or less addicted to 'the wheel,' but there seems to be some ground for suspecting that, under certain circumstances, direct contusion of the appendix by an actively contracting psoas muscle, may set going the morbid process described as appendicitis. It is suggested that any special exertion, such as riding up hill, may expose the cyclist to the risk of twisting the appendix over the sharp, hard edge of the contracted psoas muscle. The immediate result is desquamation of epithelium over a crease in the mucosa, thus opening the door to infective agents. Some swelling ensues, leading to compression of the appendix within its inelastic sheath, and this is the starting-point of an attack of appendicitis."

Dr. Byron Robinson, of Chicago, has recently,¹ as a result of his observations at a large number of autopsies, adduced a relation between the peri-cecal

¹ Medical Record, November 28, 1896.

and peri-appendiceal adhesions so frequently found, even in cases in which there has been no attack of perforative appendicitis, and the mechanical trituration of the overlying bowel by the contracting psoas muscle.

If, as the slang phrase goes, "there is anything in this," then bicycling, an exercise which certainly requires very frequent and vigorous contractions of the psoas, would seem at least a reasonable cause for peri-cecal and appendiceal inflammation, even perhaps of occasional typical attacks of appendicitis.

In patients who have had an attack of appendicitis, cycling would be admirably adapted to the disturbance of adhesions, and the lighting up of another attack.

It is to be hoped and perhaps expected that fear of appendicitis will cause no great diminution in the popularity of bicycle exercise, but that pain in the right side in bicyclists may be carefully investigated by the physician, who should bear in mind the at least possible connection between the bicycle and appendicitis.

After all, there is the reassuring reflection that one has appendicitis without bicycling, and that one may bicycle without having appendicitis.

MEDICAL NOTES.

ITALIAN HONORS FOR BEHRING.—The King of Italy has conferred upon Dr. Behring, by virtue of his discovery of diphtheria antitoxin, the grand cordon of the crown of Italy.

INFLUENZA IN GALVESTON.—It is reported that influenza is epidemic at Galveston, Texas. Although there are very large number of cases, the disease is of a mild form, and very few deaths.

JENNER MEMORIAL.—A public movement is on foot in London to raise funds to establish some institution in connection with the British Institute of Preventive Medicine as a memorial to Jenner.

CESSATION OF THE "UNION MÉDICALE."—After fifty-one years of dignified existence, the *Union Médicale* ceases its publication with this year. The three principal editors, Richelot, Richardière and Eugene Rochard, join the editorial staff of the *Bulletin Médical*.

A NEW ELEMENT.—M. P. Barrière announces the discovery of a new element, which he calls "lucium" in the mineral monazite. It is reported that the announcement has been confirmed by other competent chemists, and that the atomic weight of the new element is 104.

THE GERMAN CONGRESS OF INTERNAL MEDICINE.—The Congress of Internal Medicine to be held at Berlin next June, will discuss chronic articular rheumatism, address by Bäumler; epilepsy, address by Unverricht, and exophthalmic goitre, address by Eulenberg.

PLAGUE REPORTED ON AN AUSTRIAN STEAMER.—It is reported in the daily papers, that an English lady, *en route* from Bombay to Trieste, on an Austrian steamer, is ill with symptoms of plague. The steamer is quarantined.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the two weeks ending at noon, January 13, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 214, scarlet fever 73, measles 226, typhoid fever 21.

NO SPITTING IN STREET-CARS.—The subjoined notice has, by order of the Board of Health, been posted in all the cars of the West End Street Railway Company, Boston: "The Board of Health adjudges that the deposit of sputum in the street-cars is a public nuisance, source of filth, and cause of sickness, and hereby orders that spitting on the floors of street-cars be, and hereby is, forbidden." Above this order is posted a copy of the statute stating that the fine for infringement of an order of the Board of Health is one hundred dollars.

LEAD-POISONING FROM METALLIC STOPPERS.—Cases of lead-poisoning having come to the knowledge of the Massachusetts Board of Health, among persons who had made use of carbonated waters and syrups put up in glass bottles with metallic stoppers, the Board has caused analysis of such stoppers to be made, with the result that percentages of lead were found varying from 50.7 to 3.5 in the stoppers used by 29 bottling companies. Twenty other samples contained three per cent. and less of lead.

NEW YORK.

DIPHTHERIA AND PUBLIC SCHOOLS.—An outbreak of diphtheria has occurred at Elmsford, a village near Tarrytown-on-the-Hudson, and in consequence the local Board of Health has ordered that the schools be closed and services in the churches discontinued. The disease is said to have been spread by a child who attended school while in the early stages of the affection, the true character of which was apparently not recognized.

MILK-BORNE SCARLET FEVER.—A localized epidemic of scarlet fever, in which the source of trouble has been traced to milk, is reported from East Orange, New Jersey. Within a very short time it was found that the disease had appeared in sixteen houses, with from one to four cases in each. The physicians in attendance reported the outbreak to the local Board of Health, and an investigation by Dr. Winthrop D. Mitchell, the health officer, brought to light the fact that all the families in which scarlet fever had appeared were supplied by one milkman. On further inquiry it was found that the son of this milkman had recently had a severe attack of the disease, and that while convalescent had been about the premises where the cows were kept and no doubt had assisted in the milking. It was therefore concluded

that the contagion had been transmitted by means of scales of desquamating epidermis which had dropped from the lad's hands into the milk; and at a meeting of the Board of Health held January 8th stringent measures were adopted to prevent a further spread of the disease. It is interesting to note that the origin of the outbreak from the milk supplied by the dairyman mentioned was proved almost beyond the possibility of a doubt by the fact that one of the patients who was attacked was a lady confined to the house, who at the time was on an exclusive milk diet and, as far as known, was in no other way exposed to the risk of contracting scarlet fever. A peculiar feature of the outbreak is that a large proportion of the cases have occurred in adults, from twenty to thirty-seven years of age, rather than in children.

THE LOW MORTALITY-RATE CONTINUES.—The mortality in the City of New York, while showing some little increase of late, is still unusually low for this season of the year. During the week ending December 26th but 603 deaths were reported, and in that ending January 9th there were 738. There has been a slight increase in the deaths from scarlet fever, diphtheria and measles, but the mortality from typhoid fever was the same in both weeks, seven. The deaths from pneumonia increased from 80 to 98, those from phthisis, from 83 to 99, and those from Bright's disease, from 47 to 64. During the week ending January 9th three deaths were reported from influenza.

Miscellany.

AN OUTBREAK OF CHOLERA IN AN OFFICERS' MESS.

"ON July 13, 1896," writes Hankin, in the *British Medical Journal* of December 26, 1896, "thirteen persons sat down to dinner at an officers' mess at Saugor, a station in the Central Indian provinces." Two days later nine of them were attacked by vomiting and diarrhea, which in these cases developed into typical cholera, and two of these died. Hankin does not explain how, considering the unlucky number, any better result could have been expected, but proceeds to relate the curious and highly interesting manner in which he found after much investigation that the cholera bacillus had gained an unbidden entrance to the dinner-party.

The drinking-water was exonerated by the facts, that the mess was provided with a Pasteur filter, and that few of the members ever drank water. None of the servants of the mess came down with cholera, except one who had eaten the remains of a chocolate pudding, and who died on the same day as did the two guests of his master.

Into the details of the exclusion of other methods of invasion we need not go. Suffice it to say that investigation of the method of preparing chocolate pudding showed that it was made of gelatine dissolved in water, with the addition of egg, milk, sugar, various coloring agents, and essence of vanilla to hide the taste of the cook's fingers. It was then strained through a

piece of muslin, and placed in a mould in ice. It will be seen that boiling does not enter into its preparation. Hankin found by experiment that the gelatine used in making the chocolate was an admirable culture medium for the bacillus. Now how did the original bacillus get in? An investigation of the habits of Indian cooks afforded an easy explanation.

"Every cook possesses a piece of muslin through which he strains all sauces, eustard, blanc-manges, etc. This muslin, owing to its frequent use, is apt to acquire a bad smell. If this becomes too pronounced, the food acquires a disagreeable flavor, and the cook is likely to be fined. In order to avoid this the muslin is occasionally sent to the wash, I suspect, even in cases in which the dish-cloths are never thus exposed to the risks of infection with the microbes of water-borne diseases. As has been shown above, the constituents of the chocolate pudding had been strained through such a piece of muslin."

It was found that a mess servant had washed these "dish-cloths" of muslin in a running stream just before the fatal mess, and that five or six cases of cholera had occurred in some huts near the place where the washing had been done and draining into the stream. The cholera bacillus was detected in the sand near the river bank where the dish cloths were laid out to dry. Thus the fatal number, thirteen, was exonerated and the cholera microbe found guilty of causing the death of two officers of Her Majesty's service and one servant.

Hankin found as a result of his experience during the summer, that numerous European officials and military officers died of cholera and enteric fever in India, while the private soldiers were singularly free from the disease.

"To the best of my knowledge," he writes, "in the whole of the Bengal Command during the present rainy season, cases of cholera among soldiers have only been reported from two stations, and in one at least of these places the infection appears to have been contracted while the men were on the march. I believe this remarkable immunity of the British soldier, as contrasted with the relative liability of the British officer and civilian official, is due to the strenuous efforts now being made by officers of the Army Medical Staff to sanitize the soldiers' cook-houses.

"The kitchens in India most in need of reform are those attached to the officers' messes of British regiments. These are private institutions not subject to official control. It is high time that officers of the Army Medical Staff should be invited to undertake the task of sanitating these kitchens. It will, I think, be clear from the facts described in this paper, that the complete prevention of cholera is rapidly becoming a matter for specialists. The ordinary mess president is no more a specialist than the average subaltern is an epicure. Together they produce and consume horrible delicacies that are often a severe strain on the digestion of their guests."

He further says:

"It is as unusual as it is to me unpleasant, to go out to dinner and then to criticise the *menu* in this way; but I hope it will be admitted that the occasion is one for plain speaking rather than for ceremony. When dining at an officers' mess the other day, I noticed that the soup was putrid; but my hosts, with sturdy appetites bred of healthy exercise, consumed it with perfect content. The whipped cream poured over the apple pie had the abominable taste of dirty dish-cloth, noticed, I believe, by no one but myself. My host had heard vaguely of my recent researches, with the result that the next item on the *menu* had the title *crème à la microbe*. It was chocolate pudding. After dinner I inspected the mess kitchen. To all appearance it

was perfectly clean, and the mess president pointed out to me with pride a long row of enamelled iron saucepans with which he had replaced the more usual degchies, apparently under the idea that they could be less suitable than the latter for the breeding of microbes.

"Nine or ten subalterns in this regiment have had enteric within my recollection, so the need of some precautions was obvious; but I very much doubt whether the mess president had chosen the precaution most necessary. Though in many cases, so far as he himself is concerned, the British officer can only be stimulated into sanitary zeal by attendance at a long series of funeral parties, his care of the private soldiers under his charge is altogether admirable."

The results of the efforts of the mess president to have his kitchen cleaned are amusing, according to Hankin's description, which is as follows:

"If the ordinary mess president attempts to improve his kitchen, he is likely to do more harm than good. For instance, he will issue orders that the floor is to be washed every day, instead of once a week. Under existing conditions, cleaning kitchens in Upper India is a dangerous process. Cooking the sahib's dinner is regarded as a somewhat unclean occupation by most natives. Mohammedans do not like it because we eat bacon, and Hindus look askance at the business because we eat beef. For these reasons native cooks in general are of rather low caste and low standing; hence they are apt to stand on what little dignity they have, and consider it beneath them to clean the floors of the kitchen in which they work; consequently the sweeper has to be called in to do the business. In Upper India there are no sewers. The sweeper is a man who fulfils the functions of a sewer; he is apt to carry about outside him what sewers in other countries carry about inside them — namely, dangerous microbes. I have elsewhere published an account of a very clear case in which I proved that the sweeper was introducing cholera microbes into the cookhouse because of his methodical habit of reserving one broom for clean work, such as sweeping out barracks, and another broom for dirty work, such as cleaning out latrines and cookhouses. Those who know India will agree with me that stopping this abominable custom may not be so easy as it appears on the surface. It is possible that the mess president would most readily achieve this object by insisting that the cook should sleep on the kitchen floor, if possible with his head in a degchie. The mess president would then have an assurance that he at present lacks, that neither the one or the other would be cleaned with the broom that is used for the servants' latrines."

Correspondence.

RAILWAY CAR HEATING.

BOSTON, December 26, 1896.

MR. EDITOR: — A recent canvass, made at random, with the object of ascertaining the views of the medical profession of Boston regarding artificial heating of passenger cars, reveals a practically unanimous opinion: it is excessive. Fifty-eight, of a total of sixty-one consulted, signed a petition addressed to the railroad commission, asking for a modification of the rules governing the heating of electric; one refused to sign because he thought no artificial heat should be employed in the street-cars of the city; one because he seldom rode in them, and consequently had never noticed excessive heat; and one because he was not prepared to say what temperature the heaters would effect, although of the opinion that the heat is often excessive. A diligent inquiry among laymen resulted in the same general conclusion, with but one exception.

The present rules require that artificial heat shall be employed in all outside temperatures below 50° Fahrenheit, and that not less than 50° or more than 60° shall be main-

tained inside the cars. This is obviously defective, in that it is based chiefly on inside temperature when thermometers cannot be hung where they will register with any degree of accuracy, and are not employed. Regulations are, therefore, subject to the caprice or idiosyncrasy of conductors and passengers.

The manager of the principal street-railway of Boston expresses a willingness and desire to operate the heaters by exact conditions of outside temperature as registered by the thermometer, and the railroad commission exhibit a commendable disposition to formulate such rules as will most contribute to the health and comfort of passengers. Apparently the matter is in a fair way for satisfactory change.

At least fifty of the physicians who signed the petition expressed regret that steam railroads were not included in the protest against excessive heating, as they considered them the greater offenders, some saying "the heat is often infernal," others that they "dreaded a railroad journey because of the heat and foul atmosphere of the cars."

To properly regulate the heating and ventilating of steam-cars is difficult. The railroad commission has nothing to do with the subject, unless in so far as it is charged with the duty of requiring all passenger-cars to be equipped for steam-heating; and railway officials claim that "it is impossible to maintain a healthful and satisfactory temperature in the cars so long as they are obliged by statute to use steam heat that can never be less than 212°; that proper ventilation is impossible so long as the public enjoy the right to open and close doors and windows at pleasure, or while there are as many different opinions on ventilating and heating as there are passengers in the car."

Every fair-minded man must at once admit that these conditions make it extremely difficult to formulate satisfactory rules governing the employment of artificial heat, to provide an ample supply of fresh air, and at the same time exclude disagreeable draughts. For many years railroad managers have labored in efforts to surmount these obstacles, recognizing their own interest and the public interest to be identical. They have expended large sums of money in experiments, with the object of making railway journeys as agreeable and comfortable as possible, but with unsatisfactory results both to themselves and the travelling public.

Good ventilation is possible with a variety of systems in use, if train-men and passengers permit them to be employed. This is often demonstrated in passing a stock train. Cars are immediately filled with an offensive odor, which almost as quickly disappears. The closing of ventilators is therefore the only reasonable ground of complaint of the foul atmosphere of the cars, which many persons prefer to endure rather than be subjected to cold draughts from open ventilators while in a state of active perspiration occasioned by the excessive heat of the cars. Under these conditions an extremely feeble current of air is recognized as an intense draught in contact with the moist surface of the body, due to rapid evaporation of moisture. In my office I have observed a difference of twenty-two degrees a number of times, between a wet and dry bulb thermometer hanging side by side, under the influence of very gentle fanning.

It is therefore obvious that the maintenance of lower temperatures in the cars will diminish the consciousness or appreciation of draughts. It would also lessen the foul odors uprising from dirty clothing in close proximity to steam-pipes, and the exhalations from diseased lungs and dirty bodies of passengers. A reduction, however, is not easy to accomplish while passengers have a voice in the management of heating and ventilating. One person rides to the train, and feeling chilled, wants ventilators closed and heat turned on. Another walks, and pronounces the same car excessively hot. The train-man cannot please both, so exercises his own judgment; that is just as likely to be faulty through an excess or insufficiency of food and clothing, or his general physical condition. The average passenger, reasonably fed and clothed, makes no complaint, but patiently suffers because of the extreme views of a few

who are always in evidence; and there appears to be no remedy except the adoption of rules that neither trainmen or passengers shall be permitted to violate.

Before deciding on what degree of temperature should be the maximum, tests should be made with thermometers in different parts of a car, for it is often painfully apparent that when a thermometer registers 70° on the wall of a car, the temperature where the passenger is seated is far above this, because of closer proximity to the steam-pipes.

It is unnecessary to affirm to readers of the JOURNAL that a low temperature is preferable on hygienic grounds to a high temperature; but until the public realizes that "taking cold" is not so much a consequence of being chilled, as it is a consequence of being heated in a foul atmosphere loaded with infectious inhalations from diseased lungs, it will be difficult to adopt a sufficiently low temperature to insure the most healthful conditions. Many recent observations in street-cars, with and without artificial heat, convince the writer that with the ordinary amount of clothing it is not desirable to heat the cars above 50°, that 60° is uncomfortably warm, and 40° uncomfortably cool for the usual short journey; but, when we remember that riding in carriages and sleighs in temperatures far below this point, is not attended with other than beneficial results, we must conclude it is better the temperature should be a little too low than a little too high.

Very truly yours,
HENRY J. BARNES, M.D.

DEATH-CERTIFICATES OF LIFE INSURANCE COMPANIES AND ENDOWMENT ORDERS.

DORCHESTER, January 2, 1897.

MR. EDITOR:—I would like to call the attention of your readers and the medical directors of life insurance companies to the important question of what constitutes a "satisfactory proof of death" to be filled out by the medical attendant on the demise of an insured person.

I bring this up because I believe that many companies ask questions they have no business to ask.

Any physician is perfectly willing to give a satisfactory proof of death; but when the company goes on, after getting it, and asks questions relating to the personal and clinical history of one's patient, it is calling for what no physician has any right to give. Such questions as the following, taken from a prominent life insurance company's certificate are what I object to:

10. Had deceased any other disease, acute or chronic, or had he ever had any injury or infirmity?

12. (a) Did deceased use stimulants or narcotics? (b) To what extent (whether daily or in what quantity)? (c) State whether, in your opinion, the disease or death was due to the use of stimulants or narcotics?

Or, again, from another company:

13. (a) State any other matters known or observed or learned by you pertaining to the medical history of the deceased? (b) or which in your judgment contributed directly or indirectly in any degree to the cause of death? (c) Is there anything material to the case which has not been brought out by above questions? If so, state same fully.

More could be added, but these illustrate my point.

One benefit order has, with its subdivisions into *a, b, c*, thirty-eight questions, of which six refer to proof of death and the rest are of such a nature as would help them dispute the claim.

No self-respecting and respected physician, who has the confidence of the families under his care, has any right to answer or to be expected to answer such questions. Refusing to answer them usually causes delay and inconvenience to the claimants.

A law requiring all life insurance companies and endowment orders doing business in this State to use as a certificate of proof of death an established set form, would be of great service, not only to the physician, but to the insured as well.

Very truly yours,
SAMUEL CROWELL, M.D.

CONGENITAL TUMOR OF THE VAGINA.

OAKDALE, MASS., January 6, 1897.

MR. EDITOR:—On the 1st of December, 1896, I attended Mrs. M. E. in her first confinement. The labor was normal in every respect, and the woman was delivered of a female child of six and one-half pounds. The following day I was told by the nurse that the child had passed no water, and that something was wrong "down there." I then made my first careful examination of the child. The vulva was considerably redder than the surrounding tissues, and upon separating the labia almost the whole inclosed space was found to be occupied by a mass projecting from the vagina. The meatus urethrae and clitoris were forced into the anterior commissure of the labia. The tumor was paler than its surroundings, and firm to the touch. There was a colorless, viscid discharge from the vagina, bathing the tumor and external genitals. A dull curette passed around the tumor showed it to be about one and one-half inches long by three-quarters of an inch through. It was attached to the posterior wall of the vagina by a pedicle about three-quarters of an inch from the orifice. Pressure upon the tumor caused a passage of water from the bladder through the meatus urethrae. During the following week the child passed urine normally, as it probably had during the first twenty-four hours.

A month later there is less redness of the vulva, the labia minora are in their normal position, the discharge is still present, and the vaginal orifice occupies about its proper share of territory, but projecting from it is still the tumor, apparently reduced in size one-third.

Very truly yours,
EDW. D. WILLIAMS, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 2, 1897.

Cities.	Estimated population.	Reported deaths in each.		Percentage of deaths from						
				Deaths under five years.	Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,892,332	667	229	11.85	18.15	1.95	1.05	5.85		
Chicago . . .	1,619,226	451	168	14.74	14.64	5.72	2.42	5.06		
Philadelphia . .	1,164,000	502	157	11.20	10.80	.20	2.40	6.40		
Brooklyn . . .	1,100,000									
St. Louis . . .	560,000	179	44	5.00	20.16		.56	3.36		
Boston . . .	494,205	250	70	11.20	20.40		2.55	6.40		
Baltimore . . .	496,315	196	65	6.63	15.81	.51	1.02	4.08		
Cincinnati . . .	336,000	169	—	3.68	20.24		1.84	—		
Cleveland . . .	314,537	98	43	2.10	13.00		2.00	—		
Washington . .	275,500									
Pittsburg . . .	238,617	95	33	11.66	14.84	2.12	1.06	6.36		
Milwaukee . . .	275,000									
Nashville . . .	87,754	32	3	9.39	18.78		6.26	3.13		
Charleston . . .	65,165									
Portland . . .	40,000									
Worcester . . .	98,687	32	13	6.23	40.69	3.13		3.13		
Fall River . . .	88,020	25	13	22.88	22.88	8.58		8.56		
Lowell . . .	84,359	34	13	11.76	5.88			2.94		
Cambridge . . .	81,519	28	6	10.71	14.28	3.57		—		
Lynn . . .	62,855	22	—	8.30	20.75			4.15		
New Bedford . .	55,254	25	9	—	12.00			—		
Springfield . .	51,534	21	4	9.52	27.56			9.52		
Lawrence . . .	52,153	8	3	—	—			—		
Holyoke . . .	40,149									
Salem . . .	34,437	11	6	9.09	—			9.09		
Brockton . . .	33,157	8	1	—	—			—		
Haverhill . . .	30,185	14	5	—	42.84			—		
Malden . . .	29,709	4	1	—	50.00			—		
Chelsea . . .	31,295									
Fitchburg . . .	26,394	6	2	—	—			—		
Newton . . .	27,422	7	0	14.28	14.28			14.28		
Gloucester . . .	27,663									
Taunton . . .	27,093	11	0	—	—			—		
Waltham . . .	20,877	9	3	—	—			—		
Quincy . . .	20,712									
Pittsfield . . .	20,447	6	3	16.66	33.33			—		
Everett . . .	18,578							—		
Northampton . .	16,738							—		
Newburyport . .	14,554	10	0	—	20.00			—		
Amesbury . . .	10,920							—		

Deaths reported 2,967; under five years of age 925; principal infectious diseases (small-pox, measles, diphtheria and

croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 313, acute lung diseases 585, consumption 347, diphtheria and croup 148, typhoid fever 50, diarrheal diseases 49, whooping-cough 20, scarlet fever 19, measles 14, cerebro-spinal meningitis 7, erysipelas 6.

From whooping-cough Philadelphia 6, New York 4, St. Louis 3, Chicago and Baltimore 2 each, Boston, Pittsburgh and Cambridge 1 each. From scarlet fever New York 8, Philadelphia 4, Boston and Cincinnati 2 each, Chicago, Pittsburgh and Providence 1 each. From measles New York 5, Chicago 4, Boston 2, Philadelphia, Fall River and Lynn 1 each. From cerebro spinal meningitis New York and Lynn 2 each, Boston, Lowell and North Adams 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,846,971, for the week ending December 26th, the death-rate was 17.0. Deaths reported, 3,545: acute diseases of the respiratory organs (London) 284, diphtheria 68, whooping-cough 64, measles 60, fever 32, scarlet fever 29, diarrheal 26.

The death-rates ranged from 11.0 in Croydon to 31.8 in Plymouth: Birmingham 17.9, Bradford 16.9, Gateshead 18.0, Hull 22.0, Leeds 18.7, Leicester 16.8, Liverpool 20.2, London 15.1, Manchester 19.5, Newcastle-on-Tyne 18.4, Nottingham 17.7, Sheffield 17.4, West Ham 15.6.

METEOROLOGICAL RECORD

For the week ending January 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr.*		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..27	30.80	12	20	4	57	51	54	N.W.	N.W.	9	6	C. C.
M..28	30.77	21	33	9	45	58	52	S.W.	S.W.	8	13	C. C.
T..29	30.40	33	40	26	53	58	54	S.W.	S.W.	13	13	O. O.
W..30	30.26	38	45	30	90	75	82	W.	S.W.	9	12	O. C.
T..31	30.35	35	45	25	65	47	56	W.	N.W.	12	14	C. C.
F...1	30.76	26	34	19	70	79	74	N.W.	E.	9	14	O. C.
S...2	30.62	38	47	28	73	84	78	S.W.	S.W.	10	10	O. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANU- ARY 9, 1897.

M. S. GUEST, passed assistant surgeon, detached from the "Massachusetts," January 9th, and ordered to the "Vesuvius," January 12th.

L. W. ATLEE, passed assistant surgeon, detached from the "Richmond," on relief and ordered to the Naval Hospital, Philadelphia.

W. F. ARNOLD, passed assistant surgeon, detached from the "Enterprise" and ordered to the "Richmond."

R. P. CRANDALL, passed assistant surgeon, detached from the "St. Mary's" and ordered to the Naval Hospital, Norfolk.

LEWIS MORRIS, assistant surgeon, promoted to passed assistant surgeon from June 27, 1895, and ordered to the "Essex."

H. M. WELLS, medical director, retired January 20th

J. R. TRYON, medical inspector, ordered to examination for promotion, January 11th.

G. P. BRADLEY, surgeon, ordered to examination for promotion, Washington, D. C., January 18th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING DECEMBER 31, 1896.

WASDIN, EUGENE, passed assistant surgeon. Granted leave of absence for three days from January 1, 1897. December 22, 1896.

WHITE, J. H., passed assistant surgeon. Directed to inspect unserviceable property at Stapleton, S. I., N. Y. December 29, 1896.

MAGRUDER, G. M., passed assistant surgeon. Granted leave of absence for nine days from December 23, 1896.

STEWART, W. J. S., passed assistant surgeon. To proceed from Washington, D. C., to Colonial Beach, Va., on special temporary duty. December 26, 1896.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday, January 21st, at 8 P. M., by DR. ABNER POST. Subject: "Late Hereditary Syphilis." The profession are invited.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will have a regular meeting at the Medical Library, 19 Boylston Place, January 20, 1897, at 8 P. M.

Eight to half-past eight o'clock: Short Communications by Drs. Ewald, Stone and White.

Half-past eight o'clock: Dr. H. N. Heineman, of New York, "The Schott Treatment of Heart Disease at Bad Nauheim."

Discussion opened by Dr. A. L. Mason.

February 17, 1897. Dr. E. G. Cutler: "Gastrodiaphany."

E. W. TAYLOR, M.D., Secretary.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The ninety-first annual meeting of the Society will be held January 26, 27 and 28, 1897, in Jermain Hall, Albany, commencing at 9.15 A. M., on the 26th, and ending at 1 P. M. on the 28th.

Communications relating to the presentation of papers or to any changes in the provisional programme, should be sent to the Business Committee: Seneca D. Powell, Chairman, 12 West 40th Street, New York; Willis G. Macdonald, Albany; Ernest Wende, Buffalo.

RECENT DEATHS.

WILLIAM SHEPHERD BEAUMONT, M.D., M.M.S.S., died in Jamaica Plain, January 7, 1897, aged thirty-one years.

DR. WILLIAM H. PANCOAST, of Philadelphia, died January 8th, after an illness of several weeks. He was born in Philadelphia in 1835, and was graduated from Haverford College in 1853. In 1856 he received the degree of M.D. from Jefferson Medical College. In 1874 he was made a professor in the Jefferson Medical College, succeeding his father in that position. He was elected president of the Medico-Chirurgical College in Philadelphia in 1886, and continued in that position until a year ago when he resigned. He was the first president of the International Red Cross Society of Philadelphia and was a surgeon in the Union Army in the Civil War. At the time of the death of the Siamese twins Dr. Pancoast secured their bodies and demonstrated that if the bond uniting them had been severed in their lifetime death probably would have resulted to both of them.

DR. A. J. FULLER, a leading physician of Bath, Me., died January 10th, aged seventy-four years. He was first vice-president of the American Medical Association and for eighteen years president of the Bath Board of Trade.

DR. THEODORE G. WORMLEY, the distinguished chemist and toxicologist, and professor of these branches in the medical department of the University of Pennsylvania, died on the 3d inst. of stomach trouble, after an illness of several months. He was born in Wormleysburg, Pa., on April 1, 1826, and in 1849 was graduated in medicine from the Philadelphia Medical College. In 1852 he was called to the chair of chemistry and natural sciences at Capitol University, Columbus, O., which he held until 1865, and was also professor of chemistry and toxicology in Sterling Medical College from 1854 to 1877. In 1877 he was called to the chair of chemistry and toxicology in the Medical Department of the University of Pennsylvania which he has since held.

DR. EDWARD PEARSON ELLIOT, first assistant in the Danvers Insane Hospital, died January 10th. He was a native of Boston and was graduated from Harvard College in 1875, and from the Harvard Medical School in 1882. He served as house-officer in the City Hospital two years, and studied abroad two years. He had held his position as assistant in Danvers during the past twelve years.

BOOKS AND PAMPHLETS RECEIVED.

Heredity, Its Significance in Life Insurance. By Thomas H. Rockwell, M.D. Reprint. 1896.

An Initial Report from the Neurological Laboratory of the Philadelphia Polyclinic. Under the direction of Aloysius O. J. Kelly, A.M., M.D. Reprint. 1896.

The Quantitative Estimation of the Rennet-Zymogen, Its Diagnostic Value in Certain Diseases of the Stomach. The Importance of the Saliva in Gastric Digestion. By Julius Friedenwald, A.B., M.D., Baltimore. Reprints. 1895-96.

Lecture.

THE CLASSIFICATION OF BENIGN TUMORS OF THE BREAST.¹

BY J. COLLINS WARREN, M.D., LL.D., BOSTON.

THE great frequency with which the breast is afflicted with cancer, makes any lesion of that organ a source of great anxiety to the patient and to members of the family. The importance, therefore, of a correct knowledge of all the growths of this region is such that it seemed to me that this subject would be a suitable one for one of the evening lectures of this winter's season.

The subject of this evening's lecture will therefore be a review of the different forms of tumor of the breast, more particularly the benign tumors, in order to prepare the way for the differential diagnosis between them and the malignant forms of disease of the breast.

In studying out this subject a little more exhaustively than I had hitherto done, I was struck with the lack of unison in the opinions of different writers on this subject. There seems to exist an imperfect knowledge of the pathology of the various diseases of the breast, more particularly the tumors, even among the writers of the highest authority. In going over the work, in sifting out the opinions of different authors, in summarizing them, and then in taking a general view of the whole situation, I think that I have arrived at conclusions which I should not have arrived at under any other circumstances.

We will begin at the development of the gland, and trace somewhat briefly the earliest forms of development of the gland, the period of full maturity, and the gradual decline and atrophy of it in advanced life.

The mammary gland is, as you know, an appendage of the skin; as one writer has expressed it, a sort of highly specialized sudoriparous gland. It begins as a slight outgrowth of the rete Malpighii into the cutis vera in the early weeks of fetal life, and at the period of birth it has already formed a number of radiating ducts with pear or club-shaped ends, some fifteen to thirty in number, radiating from the common point at which the outgrowth has started from the surface.

If we study the development in the embryo of mammals, we see some interesting features in the process of development which have a bearing on what we have to say about morbid growths later on. I have here three embryos of the pig of about one month's growth. An examination of the abdomen with a lens shows a faint continuous line running from the axilla to the groin on either side of the abdominal cavity, and, as the fetus grows, this line works up more nearly on to the front of the abdomen. The formation of the numerous udders, or of the mammary glands, takes place by a growth of this layer of the ectoderm, as it is called, and by a process of differentiation a thickening at three or four parts of the line occurs. Finally, we find that the line itself has disappeared, and in its place we have a row of nipples.

I have said that at birth the gland had a sort of stellate or radiating appearance, being composed of a series of ducts with pear- or club-shaped ends. An examination of them shows considerable activity within the tubes at the time of birth. There is a prolifera-

tion of the epithelium, a shedding of the epithelial cells and an accumulation of a certain amount of granular *débris* in the interior of these ducts at birth. It almost seems as if there were something akin to an inflammatory process going on in the breast at this period. This activity in the epithelium produces a dilatation of the tubes, so that there is a sort of ectasia, and finally it is so marked that it becomes at the end of the first year a cavernous structure lined with a pavement epithelium. No material change in the appearance of the gland takes place after this until the age of puberty is reached, and then we find, of course, an increase of growth again in the gland, and we notice this condition not only in the female sex, but occasionally also in the male. I have been on several occasions consulted by mothers of young boys about fourteen years of age, for a distinct swelling and tenderness of the mammary gland coming on about the age of puberty.

Comparatively few acini are developed at the ends of the ducts and smaller tubes at this period.

Outside of the ducts and tubes we find the development of a hyaline connective-tissue stroma, having parallel bundles of fibres, which is quite a marked feature; and this basement stroma is distinctly different from the connective-tissue stroma of the gland proper itself. It is quite rich in nuclei, more or less transparent, and different in its nature from the ordinary connective tissue which we get in the stroma of the mammary gland—an interesting point to remember, because it again has a bearing upon the development of certain morbid growths.

The next stage in the development is the development of the acini, and this takes place by a sort of budding process, a growing out into the surrounding connective tissue; and here we get the physiological homologue of true adenoid tissue, that is, a new development of typical gland tissue, by a growing out of little processes of epithelium, at first solid, and later containing spaces which represent a true gland growth. At the time of pregnancy this development of acini takes place at an enormous rate. After lactation is over the acini collapse, but they do not disappear; and of course they remain there to be distended again at the next period of lactation.

After the period of full maturity of the gland has passed, we come to the period of decline, which, of course, becomes more marked at the menopause; and we have there another important and interesting condition to study. We find then that the acini began to be absorbed and to disappear; and what we have finally left is merely an elongated tube which generally ends in more or less of a club-shaped extremity, and we have connected with the end histological structures which show the atrophied remains of previously existing acini of the gland. At this time also we often find a slight amount of desquamation of epithelium and granular *débris* in the interior of the tubes, as if this period of metamorphosis of epithelium was disturbed in its process of growth and decay, and was stimulated to a little greater activity at certain points than it had been before.

As the gland structures of the breast atrophy and disappear, connective tissue and adipose tissue come to take their place, and we finally have a breast containing merely the larger ducts, a small amount of fat and connective tissue, but little or no proper gland tissue.

¹ An Evening Lecture at the Harvard Medical School.

I think that you will agree with me that there is a certain parallelism in the development of the breast, as I have sketched it, and in the development of the different types of tumor at different periods of life. In the first place, I have spoken of the condition of the mammary gland at birth, and later on at the period of puberty, the great development of the gland, the peri-acinous and peri-tubular growth of the hyaline connective tissue, etc.; and we sometimes find that development occurring in a precocious and somewhat exuberant way, and the condition which is known as infantile hypertrophy illustrates that peculiar condition of the gland. I have here a photograph of a child with fully developed breasts and quite well developed figure, whose age at the time the photograph was taken was two years and seven months, a case kindly placed at my disposal by Dr. Marcy. The sexual instincts of the child were strongly developed. Another unusual form of development of the mammary gland is a condition known as gynecomastia, that is, development of a female breast in the male. Williams represents such a breast in a well-formed young man, and Henry describes the case of a man who had very well-formed breasts, and who assisted his wife to suckle a family of eight children.

I have here the photograph of such a case. This man evidently exhibited himself as half man and half woman. He has allowed the hair on one side of the body to grow and on one side of the lip. It is evident that he is a typical example of gynecomastia, having the ordinary figure of the man in every respect except in regard to the right breast.

Another form of malformation is that known as polymastia, and all I have to do is to recall to you the development of the milk line in the pig and in the lower mammalia to show how it comes about that this condition of polymastia or multiple breast occurs in certain cases. In this diagram I have indicated the line which you have seen, the milk line, and where the nipples would be likely to occur perhaps in the lower mammalia and possibly in man's earliest ancestors, as Williams has indicated in his monograph on the breast. Cases of breasts upon the thigh and back, of supernumerary nipples in these localities have been quoted, but it is probable that the majority of supernumerary breasts develop themselves along this line; and we see here in this case, which is an example not only of polymastia, but of diffuse hypertrophy, that we have the development of supernumerary gland tissue along just that line, and if we could have lifted up that breast in the photograph a little bit, we should have found beneath it a supernumerary nipple. This patient came under my observation at the hospital a year or two ago, when she was at about the middle of her pregnancy. The photograph was taken at that time. The second photograph was taken about the time of confinement in the lying-in hospital. After the confinement had taken place the breasts diminished very greatly in size. Dr. Anthony, of Bradford, afterwards took her through a second confinement, and found renewed enlargement of the breasts and subsequent subsidence. In her second confinement she was allowed to nurse the child, and the breast secreted an abundance of milk.

Diffuse hypertrophy is a condition which this patient also serves to illustrate, but really a more typical example was that which I have represented in my work on surgical pathology and which was published

by Professor Porter in the "Proceedings of the American Surgical Association," where the breasts were much more largely developed, and where he succeeded in removing by amputation both the breasts very successfully. The anatomical condition of diffuse hypertrophy of the breast seems to differ in different individuals. In some cases it appears to be simply an increase in the amount of glandular tissue. In other cases it seems to be an increase in certain constituent parts of the mammary tissue; and in the case of Dr. Porter, which was examined by Dr. Whitney, there was an interstitial growth giving rise to that cystic type of breast disease which we shall speak of presently, so that there seems to be a certain amount of tumor formation in such breasts. In the second case to which I have just alluded there did not seem to be any lobular growths which indicated any such form of growth, but a general diffuse enlargement of the breast—gigantism, if we may say so, of the mammary gland.

Now we will take up more characteristically tumor-like growths of the gland, and attempt to trace the analogy between them and the changes seen in the mamma at the different stages of its development and decline. I shall speak first of fibroma of the gland, which comes in the early period of the life-history of the adult mammary gland; and then of the cysto-adenoma of the gland, which comes in the period of the full development of the acinous portion of the gland, the more strictly glandular structures; and finally, about the cystic degeneration of the gland, which comes in the period of senile change and decline.

First, in regard to fibroma. If you remember, I called your attention to the fact that at the age of puberty there was a growth of hyaline tissue about the tubes and lobules of the gland. Fibroma of the gland, according to Billroth, is developed from that structure. These tumors appear in early life shortly after the period of puberty. There are two forms of fibroma, the solid and the cystic. In the solid forms, where there are no cysts, the average age is said to be about twenty-three years, and in the cystic forms about twenty-six years.

I will speak first of the cystic, which is, perhaps, the most common and most characteristic. I have here a diagram of that growth stained with a double stain of eosine and hematoxylin. The epithelium is stained purple, and the fibrous tissue pink; and we see in between these long slits, which are so characteristic of the cystic fibroma, or intra-canalicular papillary fibroma as it is sometimes called, this hyaline tissue. With the active growth of this tissue there is a stretching and distortion of the ducts of the glands, the acini having been but very imperfectly developed at that period of life, and these long narrow slits are thus developed. We see but little glandular structure in such tumors. These tumors reach about the size of an egg or a little larger, are more encapsuled, and when excised do not, as a rule, recur. They are generally single, but sometimes multiple. I saw yesterday a young lady operated upon three years ago for a tumor of this kind of the right breast, and find that she has another of the same character growing in the left breast. She is now about twenty-one years old.

Gross speaks of a solid fibroma of the breast, and I presume he refers to the little hard lobular tumors, about the size of a walnut, which Sir Ashley Cooper

has described as "chronic mammary." We make a section and we find none of the slits. We find a few fragments of gland-tissue, and in the interstices between the gland structure dense fibrous tissue. This is a comparatively harmless growth, does not become inflamed, increases to the size of a walnut and there remains. The patient experiences a little pain and tenderness at the period of the catamenia, but otherwise has no trouble. Lately, at the hospital, I had the opportunity of examining such a tumor which had been twenty years in the breast of a woman who came for another affection entirely, and she said she had experienced no trouble from it whatever.

We come next to a form of tumor which has to do more particularly with the gland structures of the breast; and here we find a tumor growth more distinctly in the middle period of life, the average age being about forty-three. Here we find very distinctly gland structures existing, and this is a section taken from one of these growths kindly prepared by Dr. Whitney and drawn by Mr. Kaula. You see these growths are somewhat polypoid or villous, and they have been called villous papilloma by some authors, and cystic adenoma by others. They are full of little spaces more like acini than tubes, though sometimes they become more oval and elongated like tubes and are lined with a layer of epithelium. It is evident that these tumors grow from small acini and very small ducts of the gland. They develop in different ways, according to different authors. Billroth suggests that there is a very active growth of epithelium, and quite a number of acini develop in which the epithelium afterwards breaks down and leaves cysts of considerable size. The stroma of the gland takes a comparatively small part in the development of the tumor; and so we see little of the connective tissue as compared with the great mass we see in the fibroma of the gland. Sometimes these cysts develop to a very great size; and here is one of the most marked types, which was removed at the hospital a few days ago, and we see one of these villous tumors developing in it.

Gross has almost denied that there is such a thing as true adenoma of the gland. He is very strict in his definition of what adenoma should be. He has seen, he says, but two examples of it himself, and has only eighteen examples of pure adenoma on record. I think that he has attempted to isolate too completely the gland structure from the other structures of the breast. You see that in so complicated an organ as the breast, when one part grows the other must grow to certain extent, and we get complicating and confusing pictures somewhat difficult to interpret; but if we hold fast to the point of origin of the growth we do not have that difficulty. If we hold to the acinus growth in the cystic adenomas, we shall have an ample explanation of the peculiar papillary character of the growth, which is not a papilloma any more than its surroundings oblige it to be, and therefore we should properly classify this as a true form of adenoma, modified of course to adapt itself to the structure in which it grows. This form of tumor appears at the time when the acini are in a most active stage of development, that is, in the forties. It is a softer tumor than the fibroma, and does not grow much larger. One of the characteristics is a sanæous discharge from the nipple. We can understand how that would occur in vascular growths; by the break-

ing-down process we should have little hemorrhages which would cause discharge from some neighboring excretory duct.

I pass by the lipoma, chondroma and osteomas of the gland as extremely rare forms of tumor, and tumors which have nothing in particular to do with the mammary gland, and come to the kind of tumor, or more properly disease, which we find in the declining stage of the gland; in that stage when the acini become atrophied and are replaced by connective tissue, and the tubes are somewhat dilated towards their extreme ends into club-shaped dilatations, and are lined with a somewhat thickened and desquamating layer of epithelium. The gland going through this process of atrophy, with substitution of connective tissue and fat for active gland structures, this disturbance of epithelium may easily become so altered in certain parts as to disturb the regular process of involution, and consequently constriction of the ducts leads to the formation of cysts. Now these cysts may be either single, confined to one lobe of the gland and growing to the size of a walnut, or they may permeate the whole of the gland. This is cystic degeneration, as it is sometimes called—a condition which exists probably in a slight degree in the majority of declining breasts. Some pathologists call this condition, of which I have an example here, chronic mastitis with retention cysts. This is a breast split open to show the whole interior of the gland; and you see here the whitish mammary tissue and these little cysts full of greenish material, and some again quite large, and as in this case so extensive that the whole breast had to be removed on account of the complete degeneration which had taken place. Some authors think this is a form of cysto-adenoma but there is no development of the glandular structures, as it belongs to the period when the parenchyma of the gland is atrophied and in a quiescent state, and when the gland itself is in a state of involution; and therefore it is to be looked upon rather as a degenerative process than an actively developing one. These cysts occur at about the time that malignant disease develops, and consequently they are the subjects of great solicitude to the patients suffering from them; but the characteristic symptom is the presence of a large number of little pea-like bodies diffused over the gland, sometimes in one breast, and sometimes in both breasts, accompanied with considerable pain, caused by a hyperæsthesia of the nervous filaments going to them.

I should like to say a word about the treatment of these cysts. When there is a single cyst a puncture will sometimes suffice for a cure, as the cyst will collapse and never fill again; but where the disease is more extensive and involving the whole of the gland, then it is perhaps necessary to remove the whole or portions of the gland. If the cysts do not enlarge, they may be allowed to remain, as they will probably give no trouble and many such a breast can be saved from the knife if a correct diagnosis is made. Why should these cysts have this peculiar color? The walls of the cyst being in a state of glandular irritation, the epithelium breaking down, the vessels become thrombosed through hyperæmia or perhaps constriction of their lumen, and little extravasations of blood take place, and we have hematoidin crystals and granules of fat and broken-down tissue that give them this peculiar appearance.

An affection which is likely to be mistaken for

this is one known as mastodynia or neuralgia of the breast. That sometimes accompanies this cystic degeneration of the breast, and sometimes is entirely independent of it. I think we see it at times with a certain amount of hyperemia, and perhaps a temporary enlargement of the breast without any actual structural change. These cases are extremely hard to manage, the patients becoming hypochondriacal; but the pain is usually not accompanied by any serious disease.

I have not said anything of chronic mastitis of the breast. I have left that to the last not to have it confused with any of the other affections mentioned. We may have an inflammation of the breast, and a chronic as well as an acute one. I shall say nothing about the acute inflammations. The chronic form is one which may occur and be accompanied by a considerable growth of connective tissue such as we have in the cystic degeneration. In chronic mastitis we find great growth of the interstitial tissue and destruction of the glandular structures. Billroth represents, and Williams copies from him, a form of shrinking mastitis which has all the appearance of atrophying scirrhus. Occasionally we do have a chronic inflammatory process of the breast going on to destruction of the breast. It may occur in early as well as late life. I remember a nursery maid who came to me twenty years ago with a lump in the breast. I removed it, and found no trace of malignant disease. I made the diagnosis of chronic mastitis. Presently she appeared with a similar lump in the other breast and I explained to her that she had not anything which it was necessary to remove.

Nevertheless, she had it burned out afterwards by a caustic process. She is still, so far as I know, in robust health. I think such cases are not very common, but they are to be taken into account in making a diagnosis of malignant disease of the breast.

I have not time to speak of tuberculosis or cold abscess of the breast. I think I have said enough to give you perhaps a little more intelligent idea of the origin of benign tumors of the breast and of the different types which we may expect to find at different periods of the life history of that organ.

Original Articles.

DEDUCTIONS FROM HOSPITAL WORK IN ABDOMINAL SURGERY, WITH A REPORT OF FORTY-FIVE CASES.¹

BY F. W. JOHNSON, M.D.,

Gynecologist at Carney, St. Elizabeth's and Woman's Charity Club Hospitals.

THE following forty-five abdominal operations were done during the spring of 1896, at the Woman's Charity Club, St. Elizabeth's and Carney Hospitals.

There were nine hysterectomies.

Of the forty-five, four died; two following suprapubic hysterectomy for carcinoma, and two following celiotomy for tubercular disease of the tubes and ovaries. The two deaths following hysterectomy were at the Woman's Charity Club Hospital.

One (Case II) died of sepsis. The operation was a long one, and the patient was much exhausted by it. On the right side the disease had extended outside the uterus, infiltrating the right broad ligament as far as

the ilium. Breaking-down carcinomatous tissue could be dug out with the finger. This was a fruitful source for the sepsis.

The other (Case IV) died from shock. She was very much exhausted from long-continued loss of blood, by a long and difficult operation, and by a mortal dread of the operation. She took ether very poorly. Several times during the operation the pulse and respiration stopped, and when I had finished she was cold, and I supposed she was dead. Four of us worked over her for two hours before she began to rally at all, but spite of all we could do she died in thirty-six hours.

In the two celiotomies for tubercular disease of the pelvic organs, death was caused by sepsis. One occurred at the St. Elizabeth's Hospital (Case I), the other at the Carney Hospital (Case II). In both cases it is presumable that they became infected by the pus that escaped into the peritoneal cavity from the ruptured tube. In Case I gauze drainage was used.

For suture material within the abdominal cavity, catgut was used as much as possible. By using an absorbable material for ligatures, we avoid the trouble which so often begins weeks or months after silk has been used in the abdominal cavity, and continues until the silk is gotten rid of through the line of incision, bladder or intestines. I have had it escape by all these routes. In one case the intestine became adherent to the knot of silk used in tying off the left tube and ovary. Long-continued suppuration, with severe pain, necessitated a second celiotomy. It was found that the silk knot had worked its way into the intestine, leaving a long fistulous track.

Resection of the diseased and perforated intestine was successfully done by Dr. S. J. Mixer. Now that small and medium-sized catgut can be made perfectly sterile without impairing its strength, there is no excuse for using silk. I do not think it is safe to trust those who make a business of sterilizing suture material. If you do trust suture material sterilized by others, you will sooner or later certainly come to grief. In the sterilization of suture material, eye-servants should never be employed.

I have found two reliable methods for making catgut sterile. Catgut prepared by either of these methods is perfectly sterile. Both Dr. J. H. Wright and Dr. E. A. Darling of the Harvard Medical School, have examined catgut made sterile by these methods, and have pronounced it free from bacteria. I have never had suppuration follow the use of catgut thus prepared.

In both processes the gut is soaked in the ether for several days. It is then cut into the desired length, each length being thoroughly stretched (the stretching prevents kinking and twisting, which is so very annoying). The gut is then soaked twenty-four hours in absolute alcohol, to take out as much of the water as possible. It is then covered with a solution of bicromate of potassium in absolute alcohol (15 grains to the pint), and remains in this twelve hours.

In Process No. 1 each length is coiled up, done up in waxed paper, and put in an envelope which is sealed. The sealed envelopes are put in a dry oven, and baked for one hour at a temperature of 100° C. This removes all the moisture, and thus prevents further heating, making the gut brittle. On the following day the sealed envelopes are baked three hours at a temperature of 140° C. The gut is now ready for use. The envelopes are kept in a glass jar.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, November 4, 1896.

An assistant tears open one end of an envelope, undoes the waxed paper without touching the catgut, and hands it to the operator. In this way the gut is touched by nobody, and touches nothing until picked up by the fingers of the operator.

I consider this by far the neatest and most satisfactory way.

In Process No. 2, which is the one recommended by Dr. R. T. Morris, of New York, the gut is placed in ether and alcohol, as in Process No. 1; then it is placed in a jar and covered with a 1 to 4,000 ethereal solution of corrosive sublimate, and kept in this for a week. With sterile forceps it is then put in a sterile jar and covered with a solution of bicromate of potassium in absolute alcohol (15 grains to the pint). After staying in this solution twelve hours it is transferred with sterile forceps to a sterile jar containing 1 to 4,000 alcoholic solution of corrosive sublimate. It is now ready for use.

The two objections to gut prepared by the second process are that the storage jar must be opened at every operation, and the consequent danger, though it be very slight, of infecting the contents of the storage jar, and the gut itself is slippery and difficult to tie.

Soaking it in the solution of bicromate of potassium makes it strong and durable.

In dealing with the broad ligaments, I have given up the Staffordshire knot, the interlocking suture, and the shoemaker stitch.

Where the broad ligament is thickened, a great deal of force is required to draw the ligature tight enough to stop the bleeding and prevent slipping. Only large-sized catgut will stand this strain; and I am afraid of the large-sized strands, as the best authorities agree that it is difficult to sterilize the centres. Puckering of the broad ligaments often causes discomfort and pain, and compression of the nerves in the stump often requires a second celiotomy.

Since last fall I have given up the above-mentioned methods of suturing except in a few cases where I used silk, and I have removed tubes and ovaries, or tumors, by the following method: The ovarian artery on one side is tied with a single strand of small catgut; then the broad ligament is cut with scissors, below and parallel to the ovary and tube, up to the horn of the uterus. Each artery is clamped as cut, or the arteries supplying the ovary and tube are tied in the broad ligament with fine catgut, below where the ligament is to be divided. The tube and ovary, which are now dangling from the horn of the uterus, are removed after ligating the tube at the uterine horn with fine catgut, the uterine peritoneum being brought over the cut end of the tube, thus making it extra-peritoneal. The cut edges of the broad ligament are then sewed together with an over-and-over suture of catgut from the ovarian artery up to the uterus.

By this method there is no puckering of the broad ligament, no pain from pressure of nerve by ligatures, no danger of hemorrhage, and, as all raw surfaces are turned in, diminished liability to sepsis and to the formation of adhesions. If this method secured only immunity from *secondary hemorrhage* it would be sufficient to put it in advance of *all others*.

Learning that Dr. Halsted, of the Johns Hopkins Hospital, had for over a year sewed all his hernia wounds with buried silver wire, covered them with silver foil, and secured healing by first intention in every wound, I determined to try this method in clos-

ing abdominal incisions and Alexander wounds. Tests have been made by Halsted and Bolton as to the effect of silver on the growth of pyogenic organisms. If a Petri plate be inoculated with *staphylococcus pyogenes aureus*, and a small piece of silver leaf be placed in the centre of the dish, the following will be noted: Outside of the leaf and completely surrounding it, a perfectly clear zone will remain; just outside of this there will be a zone of slightly impaired transparency, but the rest of the plate will become uniformly cloudy because of the growth of micro-organisms.

Dr. Bolton has studied the inhibitory action of various metals upon the growth of organisms. He found that cadmium, zinc and copper were more powerful than silver.

In one case of abdominal section, done six months ago, I used buried silver-plated copper wire in fastening together the recti muscles and fascia, and there has been no irritation as yet.

Pure silver, if sterile, will give less trouble than any other kind of suture material.

Dr. Halsted does not hesitate to use buried sutures of silver wire in sewing tissues on the borders of infected regions. If put in doubtful tissues, and suppuration takes place, instead of sloughing out as other suture material does, thus keeping the wound open for a long time, it becomes covered over with granulations, and does not delay the healing.

Desirous of securing union, such as would avoid as much as possible the liability to hernia and the necessity of wearing an abdominal supporter, I have used during the last spring at the St. Elizabeth's Hospital, the over-and-over suture of catgut for fastening the peritoneum, first drawing the omentum down over the intestines and spreading it out over the fundus of the uterus. Then, if adhesions take place, they will be between omentum and parietal peritoneum, and not between the intestines and the parietal peritoneum.

Then buried silver wire for the recti muscles and fascia, animal tendon or catgut for the tissues between the skin and the recti muscles, and a buried catgut suture for bringing together the skin.

Two layers of sterilized silver-leaf were placed on the line of incision and on this the dressing.

In only one case when the above method was employed did we have so much as a stitch-hole suppuration. This case was one of tubercular disease, and suppuration destroyed union by first intention for about two inches in the centre of the incision. This method of suturing was used when drainage was employed.

Abdominal supporters were dispensed with where the recti-muscles and fascia had been fastened with buried silver wire.

This same method of closing the wound was employed in the Alexander cases. For some time I have been fastening the round ligaments in the Alexander operations with silver wire. No. 30 silver wire, if pure, will tie like silk.

All raw surfaces were covered over with peritoneum or seared over with a Paquelin cautery, to prevent infection and adhesions.

Drainage was avoided if possible. When in doubt, it was used, but I find myself using it less and less. If the pelvis cannot be sponged dry, or if there is oozing, it should *always* be used. Iodoform gauze may be firmly packed as a plug into the hollow of the

sacrum against an oozing surface or against one or both sides of the broad ligament; but if put in for oozing, it should be removed in from twelve to fifteen hours.

If possible, a plug of gauze should never be used for *bleeding*. Bleeding should be stopped by ligature, by sewing raw surfaces together or by the cauterizer.

I prefer for drainage a large-sized glass tube with no holes in the sides, which if properly taken care of, is absolutely free from all danger. Sometimes gauze is packed around the drainage-tube. Gauze does not give such free drainage as the tube, must be used longer, requires a bigger opening in the abdominal walls, is more likely to cause hernia, a sinus is more apt to follow its use, and without anesthesia, causes severe pain on removal. Gauze soils the dressing and the edges of the wound. With the glass drainage-tube the dressings can be kept as sweet and clean as when put on.

By bacteriological examination I have found the secretion in the glass drainage-tube on the third day free from pathogenic bacteria.

Where the intestine, bladder, or ureter is found seriously injured by disease, or where either is severely injured in separating adhesions gauze drainage through the incision should be used for a few days. Drainage should be used if there is fluid in the peritoneal cavity antedating the operation.

Gauze drainage should be used if the intestine has been opened and if there has been fecal extravasation. No drainage is called for where a healthy intestine has been repaired.

If septic pus or fluid gets into the peritoneal cavity at the time of the operation I do not believe drainage or irrigation of *any* kind will prevent peritonitis or save the patient. Fortunately, in the large majority of cases, the pus and fluid in the tubes and ovaries is sterile, as I have had verified by repeated bacteriological examinations. In abscess of the ovary the worse the fluid looks and the more rotten it smells, the more likely it is to be sterile.

Irrigation was used but a few times. Spouging dry with sterile sponges was considered far better. If pus or fluid escape after the patient is in the Trendelenburg position with the pelvis well walled off, very little spouging is needed to keep the parts dry and clean.

If non-sterile pus or septic fluid escapes into the peritoneal cavity, irrigation, no matter how practised, does little except increase the chances of septic peritonitis and death by disseminating the poisonous material among the intestines.

At the St. Elizabeth's Hospital during the past spring it was the routine practice during my service to give by the rectum before the patient came out of ether one quart of modified Ringer's fluid. It should be given through a long rectal tube from a fountain syringe, and before the patient comes out of ether, else so large a quantity of fluid will not be retained. Dr. J. G. Clark has pointed out that normal salt solution given before the patient comes out of the ether relieves the intense thirst so common after celiotomy, and it pretty much does away with the post-operative use of strychnia, atropia, digitalis and alcohol. During the operation, if the pulse got weak or rapid, one quart of modified Ringer's fluid was given by the rectum as above described, into the outer aspect of the thigh, into the buttock, or under the breast, through a

large-sized needle and by a Davidson syringe, care being taken to keep the bulb of the syringe constantly under water thus preventing the injection of any air. Frequently a gallon of this fluid was used during an operation, and in a few severe hysterectomies for carcinoma eight quarts were injected.

The needle, after having been boiled in a soda solution is kept in alcohol.

The skin about the point of puncture is washed with soap-suds and then with alcohol.

Too much force should not be used in compressing the syringe bulb, else the cellular tissue will be torn and abscess may result.

If induration follows, the skin about the inflamed part is made clean, then a large piece of sterilized absorbent cotton is wrung out wet in absolute alcohol and fastened over the induration by rubber protective which has been perforated with small holes to allow of the slow evaporation of the alcohol. This is changed three times in twenty-four hours.

I know of nothing better than this to abort an ordinary abscess, the exudate often being absorbed in an incredibly short space of time.

Dr. Frank S. Locke, in the Physiological Department of the Harvard Medical School, first called my attention to his modification of Ringer's fluid. By adding chloride of calcium and chloride of potassium to normal salt solution the efficacy of the salt solution is much increased. They not only give the heart a better fluid to work upon, but they restore to the fluid in the vessels that coagulable quality which has been diminished or lost by hemorrhage. Dr. Frank S. Locke's modification of Ringer's fluid is prepared by adding three decigrammes of chloride of calcium and one decigramme of chloride of potassium to each litre of normal salt solution.

Codeia (half a grain) was given subcutaneously to every patient just as she was etherized. This diminishes shock by supporting the nervous system during the operation.

After the operation if there is much pain or restlessness two grains of codeia are given subcutaneously, and repeated every hour or two until relief. There is no danger in using this dose, and codeia will not constipate if it is pure. I have found after several years' hunt a manufacturer who every time puts on the market pure strychnia and pure codeia.

During my service in the winter of 1895 at all three hospitals my abdominal patients were made very uncomfortable by the routine practice of giving after every celiotomy eight grains of calomel in divided doses, followed two hours after the last dose by a large quantity of some saline. The first dose of calomel was given just as soon as the ether nausea had ceased. This was followed up by high turpentine enemas, enemas of molasses, or salts and glycerine, or soap-suds, until the bowels moved or gas had been freely passed.

This was done to get ahead of the dreaded paralysis of the intestine which was supposed to be the condition present when intra-abdominal trouble occurred after a celiotomy.

During this last spring nothing was given to move the bowels until the third or fourth day, unless the pulse went up to 115 or above, and stayed there some little time.

Twenty-four hours after each operation, unless gas had been passed, a high turpentine enema was given,

and, if needed, repeated every two or three hours. This was done for the patient's comfort.

No nourishment was given by the mouth for twenty-four hours.

The only change in technique was thorough scrubbing of the operator's and assistant's hands and the patient's abdomen with sterile brush and alcohol.

Every patient, beginning as soon as she entered, was given as a routine practice three vaginal douches a day of a two-per-cent. solution of creoline.

Just before each hysterectomy the vagina was made clean by washing it thoroughly with soap-suds, with a saturated solution of permanganate of potassium, with a saturated solution of oxalic acid, with a 1 to 1,000 solution of corrosive sublimate, and finally with absolute alcohol.

In Case II (Charity Club Hospital), under cocaine, bougies were passed into the ureters. This was done so that as much as possible of the base of the broad ligament could be removed without injuring the ureters. Unfortunately, carcinoma usually first extends outside the uterus at the junction of the cervix and the body just where we have but little room owing to the proximity of the ureters and bladder.

Many would think that this case was too far gone for a radical operation, but if there is even a ghost of a chance of giving even temporary relief, I believe in doing a suprapubic hysterectomy and removing just as much of the disease as possible. Your patient has a respite of a year or more without pain, and dies with less suffering and is less offensive and disgusting to herself and others.

Dr. Howard A. Kelly advises hysterectomy in all cases which have not passed beyond the limit of the palliative effect of the operation, even though there is no possibility of a cure, simply for the relief of the inevitable symptoms which must arise if the uterus is not removed.

In the *Johns Hopkins Hospital Bulletin* (July and August, 1895), Dr. J. G. Clark has an admirable article on "A More Radical Method of performing Hysterectomy for Cancer of the Uterus." I quote from him:

"For the radical cure of cancer of the uterus the same surgical rule obtains as in cancer of other regions, namely, total extirpation of the primary focus and as extensive areas of adjacent tissue as possible to insure the complete eradication of the disease.

"The faults common to all methods of removing the uterus are (1) the broad ligaments are cut too close to the uterus, and (2) too small portions of the vagina are removed.

"There are three essential steps in this operation which differ from those now employed: First, the introduction of bougies; second, the ligation of the upper portions of the broad ligaments, including the round ligaments and ovarian arteries, cutting them close to the pelvic walls, opening the two layers and dissecting the uterine artery out to its origin and ligating before exercising any tissue; and, third, the excision of a much larger portion of the vagina than usual."

In the *American Journal of Obstetrics and Diseases of Women and Children* (June, 1896), Dr. W. R. Pryor, of New York, in suggesting a more radical operation for malignant disease of the uterus where we have determined upon exsanguinating the uterus, bladder, vagina, deep iliac glands and obturator glands,

advises "the ligation of both internal iliac arteries." By these means he claims to be able to "make a bloodless dissection and more thoroughly than in any other way remove the disease." He advocates this method "in all cases of cervical cancer where the infection has extended to the pelvic glands, in all cases of recurrence after hysterectomy, and in so-called inoperable cases." He believes "this operation is perfectly justifiable, not as a curative procedure, but to lengthen life in a class of women who are doomed."

"After finding the bifurcation of the aorta, the finger runs down the right common iliac until its bifurcation is reached. The division of the common iliac is easily made out, and the examining finger is passed down the internal iliac artery for one inch. A careful search is now made for the ureter, which can usually be seen as a line of fibres beneath and somewhat paler than the peritoneum. It can be made to stand up prominently by gentle pressure for a space across the internal iliac artery, the finger crossing the ureter and constricting it, thus causing it to fill with urine.

"Having determined the location of the ureter, the peritoneum just at its side is picked up and nicked with scissors. Further dissection about the artery is done with the aneurism needle, which is gently worked around the vessel from above downward, the ureter being held aside.

"The ligature is then drawn under the artery and tied only tightly enough to occlude the vessel but not to rupture its coats. The peritoneum is now stitched over the ligature. Upon the left side the procedure is the same, only the rectum will have to be drawn to the right. The ovarian arteries are next tied close to the pelvic brim."

This is a bold procedure. Cleaning out the pelvis takes a long time, and some sloughing is liable to follow; but I believe time will show that it is, under certain conditions, the proper step.

In Case XI (Charity Club Hospital), the uterus, which a year previously had been ventro-fixated, silk having been used, was found suspended by a piece of omentum the size of a pen-stock — one end being attached to the parietal peritoneum at the point of fixation and the other to the fundus of the uterus. No silk could be found in either the abdominal wall or the fundus of the uterus.

At the present time, except in those cases where the question of future child-bearing is eliminated, the weight of opinion seems to be in favor of suspensio-uteri, as first done by Dr. H. A. Kelly, of Baltimore, ventral-fixation like vaginal-fixation having been condemned. I wish I were able, as Dr. T. A. Emmet says he is, to cure all these cases of retro-displacement by local treatment, mechanical appliances, and plastic surgery.

Case I (St. Elizabeth's Hospital) was a characteristic hospital case. She had had three attacks of pelvic peritonitis, morphine and poultices having been used to keep her comfortable until nature buried the seat of the disease with exudate and adhesions. When the patient or her friends get tired of this sort of thing, or an attack comes that is unusually severe, they discharge the attending physician or demand a consultation. We get the patient more or less septic, with the pelvic organs matted together, with the pelvic cavity shut off by adherent intestines, with ovaries converted into abscesses and often with large intra-extra peritoneal abscesses both in and out of the pelvis. If the

patient survives the sepsis and the operation, it is all right. It is no more than was expected of us.

Where the tubes and broad ligaments are the seat of tubercular disease, the uterus ought to be removed, as it is almost always infected; but in most of the tubercular cases I have had it was such a long, tedious, difficult operation to get out the tubes and ovaries that the uterus was left.

In two cases where it did not seem safe to remove the uterus at the first operation, a vaginal hysterectomy was done some months afterwards.

In one of the cases the uterus was shelled out through the vagina without clamping a vessel except two vaginal arteries.

In Cases IX and XVI (St. Elizabeth's Hospital), Dr. J. M. Baldy's operation for complete prolapse was done. The uterus had been outside the body for years, and was excoriated from chafing. Locomotion was difficult and painful.

Emmet's operation for cystocele was done at the same sitting with Dr. Baldy's operation. Then some weeks after Dr. Baldy's operation, the rectocele and ruptured perineum were attended to. The operation as devised by him is done as follows:

"The procedure is in all essentials a hysterectomy by amputation at or below the internal os. The points to be observed are: to include both the ovarian arteries and the round ligaments in the first ligature on each side of the uterus. To place this ligature as near the pelvic wall as possible, so as to leave but a small amount of broad ligament behind with the stump. To place but one other ligature on each side of the uterus, this ligature to include the uterine artery with as little other tissue as possible. This leaves both ligaments open. To amputate the uterus as low down on the cervix as possible.

"It will further be noted that the sutures include the sides of the cervical stump. It can readily be seen that the effect of tying these sutures is to lift up the stump of the cervix together with the vagina, and to bring it in close approximation with the ovarian stumps, doubling the opened broad ligaments together. Adhesions take place throughout the full extent of the double broad ligaments, and most surprisingly firm support is given from above to the vagina.

"The results accomplished are: The weight of the heavy uterus is removed, the over-stretched vagina is lifted high up and held firmly in place. The supports utilized are the natural supports of the uterus and upper portion of the vagina—the broad ligaments. The cervix remains a pelvic organ, as is natural to it.

"The plastic operations on the vagina I should judge to be absolutely essential as an adjunct to this as well as to any other similar procedure, for the reason that unless we remove the causes which produced the vaginal prolapse, we can hardly hope to escape a relapse, however well the work above may be conceived and executed. The class of cases to which this method is applicable is of course limited to those women in whom the question of future child-bearing is eliminated."

Dr. Baldy has performed the operation four times.

In Case I (Carney Hospital) after removing a hemioma the size of a cherry, with all diseased tissue from the right ovary, the remainder was left, the edges of the ovarian tissue being fastened together with fine catgut. The retention cysts in the other ovary were punctured.

The condition found in Case III (Carney Hospital) was interesting. Adhesions were found between the intestines up above the lower border of the liver, with no history of an attack of peritonitis. I think the condition was due to tubercle bacilli.

In Case IV (Carney Hospital) we had an excellent chance to see how the pelvis looks some months after a hysterectomy. In this case there were no adhesions. Everything was smooth, and there was no evidence by feel or sight of any return of malignant disease. The base of the bladder was especially examined.

Case VI (Carney Hospital) helps confirm the rule that a pregnancy in the outer third of the tube usually terminates in abortion, and a pregnancy in the inner third nearly always terminates in rupture. The rupture in this case was one inch from the uterus.

Dr. J. M. Baldy estimated that in Philadelphia 1,500 women had lost their lives on account of undiagnosed extra-uterine pregnancy.

All have heard of the English actress who dropped dead in the Paris café.

Two years ago, in a small village within thirty miles of Boston, a farmer's wife, a strong, apparently healthy woman, was seized with severe pain in the abdomen about noon-time. Operation was refused at 3 P. M., and she was dead at 6 P. M. On opening the abdomen, post-mortem, two quarts of blood were found.

To my knowledge, two women here in Boston have died within the past six months from the effects of hemorrhage from a ruptured tubal pregnancy. Both refused operation until it was too late. One died within fourteen hours, and the other lingered along for six days, after the rupture. The abdomen was opened in both cases; consequently the diagnosis was verified.

There seems to be a difference of opinion just when to operate in this class of cases. No surgeon should operate on a moribund patient. Do not wait for recurrence of hemorrhage, but wait until the patient is in a condition to satisfactorily undergo an operation. Then do not delay.

I have seen strychnia and a normal salt solution bring back a pulse that had gone at the wrist; and very soon it was 120, and of good strength, and we were able to open the abdomen.

Certain collected 249 cases, and found, of the 173 operated, 21.3 per cent. died; of 76 treated conservatively, 85.8 per cent. died.

Martin collected 914 cases. Of these, 278 were treated conservatively; 33 per cent. recovered, 67 per cent. died. Of the 636 cases operated on, 80 per cent. recovered, 20 per cent. died.

The shock in these cases is produced both by the loss of blood and by the presence of free blood in the peritoneal cavity. All blood should be carefully removed from the peritoneal cavity as far as safety and time will permit, as blood after being in contact with the air is no longer sterile.

In Case VII (Carney Hospital) a portion of one tube was left. In July, 1895, a left tube and ovary were removed for ruptured extra-uterine pregnancy. The fimbriated end of the right tube was adherent. The adhesions were separated, and that patient was confined August, 1896.

If the condition of the tube will allow of its being left, I believe in dissecting out all diseased ovarian tissue and leaving the healthy portions. By leaving a portion of healthy ovarian tissue, menstruation continues, and this is a safety valve for most women. The

menopause is not precipitated and the change of life is more natural and less exhausting. The younger the patient, the more desirable I think it is to preserve menstruation.

A CASE OF "IMPERATIVE IDEA" OR "HOMICIDAL IMPULSE" IN A NEURASTHENIC WITHOUT HEREDITARY TAINT.

BY MORTON PRINCE, M.D., BOSTON,
Clinical Instructor in Nervous Diseases, Harvard Medical School.

MENTAL obsessions, in persons otherwise sane, are well known to alienists, but I think the general practitioner, who is less familiar with this psychosis, will find the following case of interest, not only in itself, but as throwing an insight into the mental condition of criminals who have committed homicides without apparent motive. When some horrible murder has been committed under the influence of an obsession it is necessarily often not possible to learn from the accused the motive, or, perhaps more correctly, the antecedent psychical state which leads to the act; but by a study of milder forms of homicidal impulse which have been successfully resisted, we can learn to understand the meaning of the severer forms.

It is difficult for a layman to realize that a momentary irresistible homicidal impulse may suddenly arise in an otherwise sane person, without warning, out of a clear sky, without motive and even against the afflicted individual's inclinations and feelings, and then cease for the time being, leaving the person in a mentally normal condition until another paroxysm occurs. But to the alienist this is A B C knowledge. This fact is illustrated by the following case:

Miss A. B., forty-two years old; dressmaker. With the exception of some sort of dizzy spells, which will be mentioned later, she always enjoyed good, robust health up to last May. At that time she was subjected to considerable anxiety and mental strain at the time of the confinement of her sister, whose life was considered in danger. She helped hold her sister while being etherized and during the instrumental delivery. She seems to think this ordeal affected her health, for after this, her head felt hot and tired, and she felt generally tired all the time. This neurasthenic condition continued without other symptoms until July, when she gave up work and her present psychosis developed.

She has had a general supervision and care of the child since its birth. Her psychosis consists, or has consisted, for she is much better at present, of an *overwhelming fear* that she would kill the child, and an *impulse* to do this. Against this impulse she is obliged to use self-control and resistance. The way this comes on is interesting and instructive. The fear and impulse are not continuous, but come on paroxysmally without warning, at unexpected moments. When asked to give an example, she said, in substance, of the last attack: "I was walking across the entry when I suddenly felt a queer feeling, which is not a pain, in my head, here and here and here" (indicating the occipital, frontal and parietal regions). This feeling she describes as a "sudden stoppage," as if she "couldn't think any further." With this feeling comes, of a sudden, the fear (that she will kill the child) and

the impulse to *do*. As will appear she has other impulses besides the homicidal one.

Besides the pain in the head she has had a pain in the left side which has preceded or accompanied the fear and impulse, but is present at other times. These organic feelings seem to constitute a sort of aura.

This attack is of very short duration. It may be only momentary, and I should judge never lasts more than a few minutes. Sometimes she has even awakened at night out of a sound sleep with this fear. The intensity of the fear and impulse may be judged from the fact that she has never been willing to be left alone in the house with the baby (she objected to her sister coming to see me, as that would require her staying alone at home to look after the child), and that on her first visit she was very much alarmed at her condition, thought she was "going crazy," and was troubled and mortified that she should have such thoughts. Still, she has never doubted that she could control the impulse, but the fear has been a cause of great mental discomfort. She has always insisted that she would not yield to the impulse notwithstanding the effort required to control it. The thought that she should have such feelings has been very distressing, so that she dislikes to talk about them.

The mode in which she would kill the child has taken different forms, apparently according to the surrounding circumstances. Sometimes the impulse has been to kill it with a knife; at other times, when looking out of a high window, to throw it out; and again to throw it upon rocks and stones when these have been obtrusive by the wayside.

This homicidal fear, which arose in connection with a particular child, was afterwards associated with other children. When, for example, she made a visit, largely for her health, to a relative in a neighboring State, she found that she suffered from the same feelings when she was with this relative's children. She has never had the fear of killing herself or grown people. In seeking for the origin of this fear, the first exciting suggestion of the mental state, it would seem that it might with considerable probability be found in the following circumstance, if the patient's memory is to be trusted: She has had the responsibility of the care of the baby. One day, while carrying it, she stubbed her toe and nearly fell. At once a fear rushed through her mind of the terrible consequences that might have ensued if she had fallen and killed the baby. The thought of this aroused its associated fear. From this time the fear that she might harm it, with the awful consequences, arose in her mind. Later this fear took definite shape or concrete form, in connection with definite modes of killing. The impulse would seem to be secondary to and a psychological consequence of the fear.

There remains to be mentioned another symptom, which I have purposely not mentioned, because although on first thought an important one, yet I conceive that in this case it is merely an accidental symptom and not an integral part of the psychosis. This is *hallucinations of sight* which arise at the time of the attacks of homicidal fear and impulse. The hallucinations vary according to the form which the impulse takes. When the impulse is to kill with a knife, she *sees* knives and blood about her; when the idea is to throw the child on stones, she sees stones. At one time she saw "brains and blood" constantly. These hallucinations have been very vivid and prominent.

¹ "One of them (the medical experts) doubted whether homicidal mania, so-called is a recognized disease." Editorial in Boston Transcript, on the Bram trial, January 4, 1897.

As hallucinations are not an element in this psychosis as ordinarily met with, at first sight it might appear that we had to do with some one of the delusional insanities, but on inquiry I was able to find a simple explanation of these hallucinations, of which the following would seem to be the mode of genesis. This patient has always had the power of visualization to an extreme degree. She says she has always had the power of seeing as a vivid image anything she chooses by thinking intently of it. She illustrates this in my presence, on my asking her to think of her breakfast table² as it appeared that morning. She says she sees as vividly as in a dream or as an hallucination the table, the things on the table and the faces of the persons around it.³ According to her statement, whenever her mind is occupied strongly with an idea of an object, she is apt to have a vivid visual image of that object. A constant panorama of objects has thus, especially since her illness, passed before her. She makes light of the images not connected with her impulses as being merely the consequences of a faculty which she has always possessed, but the homicidal images have troubled her. These, I take it, are nothing more or less than samples of this visualizing power, and awakened by the particular fear present, so that she sees as hallucinations or visual images the objects concerned with her fear. There have been no hallucinations of the other senses, nor any tendency to internal questionings and doubts,⁴ which last are frequently associated with fears and impulses. Beside this homicidal impulse this patient has exhibited others; for example, to throw anything that happens to be in her hand when the attack comes on; to rush out of a street-car, and to jump off a bridge.

During the past week (January 4th to 11th), she has been constantly annoyed by coprolalia, that is, an impulse to use profane language. This impulse seems to be confined to a repetition of the oath, "God-damn." This comes into her mind without external cause, and as she says is quite as likely to arise while she is saying her prayers as at any other time. It distresses her because she says she has never sworn in her life, and she "is not that kind of a person." She has resisted this impulse in that she does not say the words aloud, but they come into her mind all the time. She has occasionally since the onset of the psychosis had this impulse.

In character, unless I am mistaken, this patient is the last person who would by nature have such homicidal or profane ideas. She is fond of children, and children are fond of her. Her moral nature is strong, and her disposition is naturally kindly and amiable. A large part of her suffering comes from the consciousness that she has such horrid feelings so foreign to her disposition. She is proud of her will-power and refuses to allow herself to be governed by an idea.

When her trouble was explained to her, so far as this was possible, she exclaimed that if that was the case she would overcome these morbid feelings by her own will-power, and would not be beaten by her "imagination," and she would do this without treatment. (For this reason it is difficult to keep her

under observation.) To overcome the fear of jumping off the bridge, she deliberately walked to the open draw and stood there while it was open. This she says cured that fear. She has frequently, when the fear of homicide was upon her, deliberately taken up the child and fondled it to overcome the feeling. At other times, I think especially at the beginning of the psychosis, the impulse has been too strong for this, and she admits having to use great self-control to restrain herself.

No evidences of hereditary taint are discoverable. Her father is said to have died of phthisis when she was fifteen years old. She is proud of the fact that all the members of her mother's and father's family were strong, sturdy characters, and insists that no member of either branch ever had any nervous disease, or was addicted to excesses; but I have no reliable information further back than the immediately preceding generation. She has five brothers and three sisters, all strong and well.

Patient is well developed and nourished, and muscularly strong. The only physical abnormalities discoverable are an internal strabismus of left eye, dating from childhood, old choroiditis of the same eye, absence of lobes to the ears. These can scarcely be regarded as degenerative stigmata.

She is at present moderately "neurasthenic," that is to say, suffers from various sensory disturbances, "nervousness" and exhaustion. Talking about herself brings on the two last, so that she objects to being interrogated. She exhibits also a sort of impulsive lack of self-restraint difficult to describe, but which gives the impression that she resents and is irritated by being questioned, but she denies this, excusing herself by saying that the examination makes her feel worse. With the exception of having frequently suffered in the past from pain in her head, she was perfectly well up to three years ago, when for three weeks she had dizzy spells. In these she used to fall down and be very sick at her stomach; at the same time she had an intense painful desire to micturate. No auditory or other symptoms. These attacks would last not over one hour. Recovered perfectly. Only change in herself since has been that she cries more easily over what she reads or hears, and she is not so ambitious; otherwise she was perfectly well up to onset of present illness last May.

The patient has shown marked improvement under treatment (mental therapeutics, electricity and forced feeding).

Clinical Department.

A CASE OF CANCEROUS DEGENERATION OF A LARYNGEAL PAPILOMA FOLLOWING OPERATION.

BY J. L. GOODALE, A.M., M.D.,

Assistant Physician to the Clinic for Diseases of the Throat in the Massachusetts General Hospital, Boston.

A. P., MALE, sixty-four years of age, with negative family and previous history, came in March, 1894, to the Throat Clinic in the Massachusetts General Hospital, in the service of Dr. J. Payson Clark, complaining of hoarseness of seven months' duration. Examination showed a pea-sized, sessile papillomatous growth situated on the free margin of the left vocal cord at the junction of the anterior and middle thirds.

² It will be remembered that Galton showed that this power of visualization was possessed by different people in varying degree. In some people it is normally highly developed, as in this patient.

³ It is interesting to note that the visual image was more vivid when her eyes were open than when shut.

⁴ Mickle has called attention to the three D's—Doubts, Dreads (fears), Deeds (impulses), as the three factors in this psychosis.

The tumor was removed by Dr. Clark and examined microscopically by the hospital pathologist, Dr. W. F. Whitney, who pronounced it a benign growth, being "a small vascular and fibrous mass covered by flat epithelial cells."

After the operation the patient escaped observation until April 22, 1895, when he returned to the clinic and stated that his hoarseness had persisted more or less but did not become marked until February, 1895, since which time it had rapidly increased. Examination showed the left cord and ventricular band transformed into a prominent, somewhat oval, reddened, roughly granular, rigid mass, encroaching on the lumen of the glottis, slightly moving on phonation. Right cord replaced by bright red granulations.

The larynx was excised *in toto* by Dr. M. H. Richardson. When laid open, it showed no extension of the disease below the cords or above the ventricular bands. Report of the pathologist, epidermoid cancer.

The patient died a week later from pneumonia.

I am indebted to Dr. Clark for kind permission to record the case.

RUPTURED OVARIAN CYST: OPERATION, RECOVERY.

BY J. ARTHUR GAGE, A.M., M.D., LOWELL.

Miss M., twenty-two, single, was at St. John's Hospital for operation on an ovarian cyst. At nine o'clock in the morning, after sitting up in bed, the cyst ruptured, and patient was found in collapse. This occurred during my absence from the city, and the operation was delayed till 3 P. M.

The abdomen was filled with the greenish, foul-smelling contents of a dermoid cyst that had escaped through a small opening in a necrotic area on the upper convexity above the umbilicus. The sac was removed, and contents washed out. The peritoneum was injected, and coils of intestine slightly adherent. All pockets were thoroughly cleaned, and six long strips of gauze carried among the intestinal folds to dependent parts and brought out of wound. It was necessary to inject one pint of salt solution into a vein to keep patient alive on the table.

The recovery was slow but complete, and wound has healed.

Medical Progress.

REPORT ON RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D.

THE IMPORTANCE OF BIMANUAL EXAMINATION OF URINARY BLADDER IN DIAGNOSING HEMATURIA OF VESICAL FROM THAT OF RENAL ORIGIN.

MR. HENRY MORRIS¹ calls attention to the above subject, especially in cases in which examination by the cystoscope is rendered difficult, or becomes useless on account of easily excited and free hemorrhage from tumors of the bladder; and he reports three cases illustrative of its advantages.

If the patient be anesthetized, and bimanual examination practised by inserting one finger into the rectum or vagina, and exerting deep pressure downward upon

the abdominal wall above the symphysis pubis, malignant, and often, also, benign growths of the bladder can be detected and located.

SERO-THERAPIE DE L'INFECTION URINAIRE.

Under this title Albarrau and Mossy² give a preliminary report of the results of their experiments to secure immunization against urinary infection which they consider to be due to the bacillus coli.

In the October number of the same journal is published a further report on the subject, which they presented at the Medical Congress at Nancy, August 6, 1896. The methods employed were by repeated inoculation with living cultures, or with maceration filtrates from the organs of animals which had died from the bacillus coli infection, or finally by alternate inoculations of these two of various animals, which had already been inoculated with bacillus coli.

Both prophylactic and curative results were successful with guinea-pigs, rabbits and dogs. Three months ago the writers made application of the treatment to the human subject.

This was practised by subcutaneous injection, and by injections into the bladder of a certain quantity of the serum; the results were favorable, and are to be reported in detail later by Professor Guyon.

They consider that this sero-therapy in the future will probably secure prophylaxis as well as successfully combat infection which has already developed, and may perhaps be used with advantage in connection with operations upon the genito-urinary organs.

REPORT OF SIX CASES OF BLADDER TUMOR.

Karstrom³ reports six cases of bladder tumor, in connection with which the following is a summary of the more interesting points:

(1) Fibromyoma of the urinary bladder. The patient was a woman fifty years of age. For a year has had frequent urination, and a feeling as of a foreign body in the bladder. During the first six months there was no pain or bleeding; after this time, however, pain gradually appeared, and hematuria soon followed. The urine became foul. The quantity of blood increased later, and finally became very large, the bleeding occurred as much when the patient was at rest as when moving about. Neither sand, calculi, nor bits of the tumor were ever found in the urine. An ill-defined tumor could be felt *per vaginam*. By digital examination of the bladder through the urethra a somewhat pedunculated tumor, about the size of a hen's egg, could be felt on the posterior wall.

Operation: Suprapubic cystotomy. A galvano-cautery snare was passed through the urethra, the base of the tumor surrounded by it, and the growth was removed almost bloodlessly. A second tumor, the size of a cherry, was found after the wound of the first operation had cicatrized, and was removed in the same way. The patient made an uninterrupted recovery. Microscopically the growth proved to be a fibromyoma.

(2) Alveolar myosarcoma. A man seventy years of age. Duration of symptoms two years. Passed bloody urine twice at the beginning. Painful urination soon followed, but there was no return of hematuria for nearly two years. Profuse bleeding then occurred. A tumor the size of an English walnut was felt by bimanual examination on the left side of the bladder just

² Ann. des Mal. des Org. Gen. Urin., Mal, 1896.

³ Centralblatt für Chirurgie, November 7, 1896, No. 45.

¹ Lancet, October 31, 1896, p. 1210.

above the prostate. The introduction of a sound brought about severe bleeding and suppurative cystitis.

Operation: Suprapubic cystomy. Rectal colpeurynter and Trendelenburg position. Bladder emptied of clots previously with Bigelow's evacuator. The growth, which had a broad base, was situated near the mouth of the left ureter. The growth was removed bloodlessly by a galvano-cautery snare. Bladder tamponed, and drained. Patient did well for some days, then acute infection of the pelvis of the kidney took place; from which he died.

Microscopical examination showed the growth to be as described by the heading.

(3) Papillomatous carcinoma. A woman of sixty-three years. Symptoms began three years ago. Painful urination, and from time to time hematuria, and occasional retention from large clots. Purulent cystitis. A portion of the growth only was removed, owing to the great extent of the bladder involved by it. It proved to be carcinoma with a papillary surface.

(4) Benign papilloma. A man sixty-five years of age. Symptoms began four years ago. There has been occasional hematuria since then; painful and frequent urination absent. No tumor elements were found in the urine. Tumor could not be found bimanually. Tumor was easily recognized by the cystoscope. It was situated near the orifice of the left ureter, and had a broad base.

The growth was removed by the suprapubic operation, with a galvano-cautery snare. Severe bleeding followed, which was stopped by cauterization of the site occupied by the tumor; bladder wound partly united by sutures and drained. Recovery.

(5) Benign papilloma. A man seventy-seven years old. Duration of symptoms four years. For six weeks vesical tenesmus; latterly hematuria; finally urinary retention. A large, lobulated tumor in the trigonum was easily seen by the cystoscope.

Suprapubic cystotomy. The tumor had a broad base. It was divided into two parts, each of which was tied off and then divided with scissors. The bladder drained after partial suture of the wound. Recovery.

(6) Carcinoma. A woman sixty-seven years old. For six months has had frequent and painful urination, and blood in the last part of the stream. A tumor was easily felt bimanually. Suprapubic cystotomy. A soft, friable growth. It was removed, together with the part of the bladder wall from which it grew, by an elliptical incision, the bladder wound being closed at once. The cystotomy wound was partially sutured, and drained. Uneventful convalescence.

THE INCREASE IN SIZE OF THE KIDNEY, AND POLYURIA IN THE ATTACKS OF INTERMITTENT HYDRONEPHROSIS.

Albarran⁴ begins a short but very interesting article by stating, as the accepted doctrine with regard to the series of phenomena occurring in connection with attacks of intermittent hydronephrosis, to be as follows, in the order of their occurrence: An obstacle to the outflow of the urine from the kidney; the accumulation of the urine in the renal pelvis; distention of the pelvis and the kidney due to this accumulation; the attack of pain; finally, the evacuation of the urine and the cessation of the pain. It is the retained urine that

causes the enlargement of the pelvis and of the kidney; and it is the sudden liberation of the urine which has been stored up in the pelvis which causes the polyuria.

Albarran believes, contrary to the above, that, in the early stages, at any rate, of the disease, the increase in the size of the kidney is due chiefly to congestion of the organ, and not to the retention of urine in its pelvis. In support of this view he adduces the following observations:

Complete retention of urine in the bladder causes an increase in the size of the kidneys by one-third of its volume. When this retention is continued, it causes interstitial ecchymoses in the parenchyma of the kidney, and may go so far as the formation of blood-clots in the pelvis. With complete ligature of the ureter there is great increase in the size of the kidney during the first hours, without any considerable collection of urine in the pelvis.

For clinical evidence Albarran reports an operation upon a patient who had had intermittent hydronephrosis for four years, during the attacks of which there was marked increase in the size of the kidney, and polyuria followed them. There was no sign of dilatation of the pelvis, or the kidney at the operation. The same experience was repeated in three other cases. He has also observed two cases of intermittent hydronephrosis with movable kidney, in which there was hemorrhage in connection with the attacks of pain, and in which at the time of operation there was no dilatation due to pressure, indicating that it had been due previously to congestion. Albarran notes, in passing, the failure of any one hitherto to observe this form of hematuria in connection with mobile kidney.

The polyuria which is so commonly observed after an acute attack, he considers to be dependent upon excessive secretion of urine by the kidney, and not upon an accumulation of urine in the pelvis, in support of which he cites cases in which the polyuria was marked (to the extent of a litre and a half of urine in less than an hour) in which there was but slight increase in the size of the kidney, and in which at a later time operation showed that there was no dilatation of the kidney.

THE VALUE OF RESECTION OF THE VASA DEFERENTIA IN PROSTATIC HYPERTROPHY.

Carlier⁵ reports the results of five cases of prostatic hypertrophy in which he practised resection of both vasa deferentia, to the extent of eight centimetres, between two ligatures.

The shortest period since the operation in any case was six months. In none of them had there been any improvement of the dysuria, but the urine in three cases from being cloudy had become clear. The latter fact he attributed to rest in bed and hygienic measures, and not to the operation.

Bosquet⁶ reports one case in which he performed resection of the vasa deferentia, with exactly the opposite result. The patient was a man of seventy-seven years. Six months ago he had his first attack of threatened urinary retention, which has been repeated twice since; on the last occasion, ten days ago, actual retention took place. Since then he has been regularly catheterized, and has been unable to urinate spontaneously.

⁴ Ann. des Malad. des Orgs. Gen. Urin., Novembre, 1896, No. 11, p. 987.

⁵ Loc. cit., p. 1056.

⁶ Loc. cit., p. 1059.

On examination the prostate was found to be the size of a fetus head at term. Catheterization was extremely painful and difficult. Resection of the vasa differentia was performed on the 14th of April, 1896. On the third day afterward catheterization was easier, and the patient urinated voluntarily. On the fourth day a false passage was made by the passage of a sound by a student; a catheter was tied in and allowed to remain three days, at the end of which time the patient was again able to urinate spontaneously. At the end of a month voluntary micturition was performed satisfactorily, and the prostate had diminished two-thirds in size.

DISINSERTION OF THE RECTI MUSCLES IN SUPRAPUBIC CYSTOTOMY.

By this term Desnos⁷ means the dissection of the insertion of the recti muscles from the upper margin of the symphysis pubis, as a preliminary step to intra-vesical operations. He suggests it as a substitute for the transverse division of the recti, practised by Trendelenburg and others, because of the objections to the latter, which are the frequent failure of the wound to unite, and the consequent weakening of the abdominal wall. The operation is proposed for those cases especially in which it is important to have an unusually free approach to the bladder.

He describes his operation as follows: The usual longitudinal incision is made, but is prolonged below to within one centimetre of the penis. The incision is carried through the soft parts to the symphysis, the insertion of the recti muscles on either side, together with the periosteum, are then divided to the extent of one and a half centimetres, along the upper margin of the symphysis. The periosteum and the tendinous insertion of the muscles are then lifted from the anterior surface of the symphysis for the same distance as above mentioned, which, when they are drawn aside freely, exposes the anterior surface of the bladder. After intra-vesical operation has been finished, the muscular insertions and periosteum are drawn together again and united by two or three sutures. The operation has been successful with the author.

The last four articles were presented at the meeting of the French Urological Society, October, 1896.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR meeting Wednesday, October 28, 1896,
DR. GEO. H. WASHBURN in the chair.

DR. F. W. JOHNSON read a paper on

DEDUCTIONS FROM HOSPITAL WORK IN ABDOMINAL
SURGERY, WITH A REPORT OF FORTY-FIVE CASES.¹

DR. CUSHING: I have been very much interested in this paper. It is a valuable contribution. It is a little difficult to discuss it as it takes in so much—almost a treatise on gynecology. Considering some

questions as nearly as I remember in the order in which they were taken up, one of the most important was of the value of the Clark operation for cancer of the uterus in comparison with the older vaginal hysterectomy. I have seen some of these operations, and they impressed me as very severe, requiring a long time, a very long time; and as we know, the patient who has cancer of the uterus which has gone into the broad ligament is not usually able to stand a severe operation as well as a woman with fibroid or something of that kind. It is admitted, I believe, that in the cases in which the broad ligament is really invaded there is practically no chance but what the disease will come back. Now, it seems to me we have to consider, not only the patient herself, but the status of surgery and the possibility of getting other women to submit to operation at the proper time. I think it is better that one woman if her cancer has got into the broad ligament should be allowed to die, with the dictum that she ought to have applied earlier for advice, than that half-a-dozen others should be frightened out of operation from the fact that the one had died from operation, or having been through all that painful experience, was not at all relieved. I do not think I shall be accused of undue timidity or hesitation in operating, but I think there is that side of the question. It was well impressed on me by my preceptor, Dr. James R. Wood, in the old times, that we have to consider the effect on surgery and on the community as well as on the patient. I have not seen enough in this thorough so-called Clark operation to make me incline to substitute it for vaginal hysterectomy or to use it where the broad ligaments are invaded; nothing more can be said for it than for the Krasky operation of turning back the sacrum and getting at the uterus there.

In regard to the sterilization of catgut, I am very glad that Dr. Johnson has adopted this material for intra-abdominal work, has become converted to its use and advantage. I have used it for several years in that way, and in the past have had some experiences which have led me to think the catgut may have been the cause of infection, but I could not be sure. I have had a good deal to say here in the last ten years as to the best method of preventing sepsis. Gradually results have got better, until I have not had sepsis for a long while. Part of the improvement I attribute to the better preparation of catgut, part to the better ventilation, and the greatest part to the more thorough disinfection of my own hands. The first method I used for preparing catgut was by soaking it in various solutions, and chromicizing it, but I could not avoid the idea that the presence of the chromium in the catgut was in itself a source of irritation. The method I use now is something which I got from Zweifel in Leipzig in 1890, sterilizing each strand separately by heat in a tube. This method of the envelope is a beautiful one. I use a tube. The catgut is kept in ether so that it is thoroughly degreased, or whatever the proper word is, and cut into lengths, and each length put into a clean tube and baked for two hours at 140° C. It must be thoroughly dried first, for if there is any moisture in it it will spoil the catgut. If it is dry it tans it. I put it in 95-per-cent. alcohol with five-per-cent. glycerine. That soaks into the catgut and makes it supple enough for use. Paraffine paper seems to have the same effect and that is also an excellent way. One

¹ See page 52 of the Journal.

⁷ Loc. cit., p. 1069.

of the three things I have improved in getting rid of the sepsis is not having the catgut in a receptacle where it has to be used more than once. I used to have it in a jar, several strands together. The method of having each strand separate is the correct one. I have used catgut a good many years now and I fail to find any trouble within the last five years attributable to catgut. I use it for all intra-abdominal work without exception.

About the buried silver wire I fully appreciate the advantages, but still I have some doubts about leaving buried things in the body which are liable to give trouble at a subsequent day. Edehold was trying to convince us a few years ago that it was the proper thing to use buried silkworm-gut in the abdominal wall. Presently he came out with a paper and said that 10 per cent. of his cases finally suppurated. We may find the same thing with silver wire. Ten years ago I sutured a patella with silver wire and that has never given any trouble. Some time afterwards I sutured the ankle-joint and that did give trouble and finally the wire had to be removed. Some one told me of a case where a hernia came on after a wound was sewed in this way with a row of buried stitches and the hernia came on leaving all the sutures at the side; so that we cannot get perfect security even from that, although it is a most promising field if we can have something that guards against hernia.

I should only wish to make one suggestion, that I do not think vaginal fixation of the uterus should be thrown overboard so unceremoniously because some bad results have been reported. It has been used very extensively and a few cases have been reported where in subsequent pregnancy there was trouble in the development of the uterus, but I have found in a great many cases it was not necessary to do such a thorough operation as is done in Berlin, where the whole uterus is dragged out in front of the bladder and organic union between the decorticated anterior surface of the uterus and the fascia is made, so that the whole thing grows together as one solid mass. If the uterus is brought up and fastened without opening the peritoneum at all and the cervix fastened back, in a great many cases the malposition of the uterus will be relieved. I am speaking of retroversions and not of prolapse. In regard to Dr. Baldy's operation I do not see that it gives much greater suspension than vaginal hysterectomy where the broad ligaments are pulled down and fastened in the angles of the wound. If there is a prolapsed uterus and in removing that we bring the ligaments down we have the uterine artery tied off and the upper part of the broad ligament brought down, the uterus being removed, then these ligaments dip down and are fastened with sutures in each corner. The same effect can be got operating from above and leaving the cervix, by fastening the top of the broad ligament into the angle of the cervical stump. It is a question of preference which any one does. Some of these women who have prolapses are fat and it is a very bad place to make an abdominal incision. It is not comfortable to do hysterectomy from above, it is a long operation with somewhat more shock than operating from below.

DR. ENGELMANN: We are not as yet in a position to so completely discard vagino-fixation as Dr. Johnson would have us do: the operation has proven satisfactory as far as fixation of the organ is concerned, the

uterus is securely held in the position given, I may say more so than by any other method; but more than by other methods, as time has shown, is its functional activity interfered with—miscarriage and life-endangering labor have been too often observed as a sequence to vagino-fixation, and for this reason I would discard the operation for functionally active uteri during the childbearing age as is now generally conceded; but after the menopause it must be considered equally with other methods and in connection with vaginal salpingo-oophorectomy I take it to be the method of choice. The resulting evils being due in a great measure, as Dr. Cushing has said, to the very unnecessary fixation of the entire corpus uteri to the vaginal wall. These may be to some extent avoided by attaching only the lower portion of the body; a certain mobility is thus retained. Other methods have their disadvantages as well. The functions are less liable to be interfered with, but fixation is also less firm, and one of the dangers attending ventro-fixation recently emphasized by Jacobs at the Geneva Congress, is the dragging down of the peritoneum by the constant traction of a heavy uterus until the organ is suspended from the abdominal wall by a thin band, like a pedunculated growth. Four such specimens were demonstrated, one with a suspensory band over four inches in length.

The shortened round ligaments, too, are likely to yield, so that, by reason of the firm fixation secured, vaginal hysteropexy with all its disadvantage must still be retained for the non-childbearing woman.

Dr. Johnson's method of catgut sterilization must yield good results, I am sure, but we have now a variety of procedures, all equally safe, if judiciously carried out and each operator will retain that method which has given him good results, which he has mastered and perfected. Even some of the older methods, if rightly applied, yielded a safe material, so I have for many years used the original Kocher method, even throughout that still comparatively recent period when catgut was decayed and almost abandoned as unsafe and not with certainty sterilizable.

The sterilized gut, as obtainable in the market, was indeed unreliable, but that which I myself imported and prepared answered all requirements, this I attribute in the main to the time allowed, four months at least in the alcohol, glycerine, sublimate solution, with repeated changes of fluid. Later I boiled it in alcohol instead of leaving it for twelve hours in the stronger preparatory fluid before placing it in the permanent solution.

It is not so much the method, as the manner in which it is carried out, upon which we must rely for a safe and satisfactory material.

DR. CUMSTON: The question of catgut and absorbable ligatures is a very important one, and, had I known that the subject was to be introduced into the discussion, I would have brought some specimens of catgut prepared after my method. I wish it to be distinctly understood that the method of which I shall speak is only original with me, in this sense, that it is a combination of processes, and each process has been used by its author, but no one has combined them together in my manner.

While in Geneva this summer, I saw some catgut as used in Kocher's clinic, which can be boiled after first soaking it in a solution of formalin, which renders the catgut suitable for boiling. I carried out

some experiments in Geneva, and have worked on the question for some time since I have come home; and, after considerable time spent in this direction, I would formulate the following manner of preparing catgut, so as to render it absolutely sterile.

But, in the first place, I would insist on one very important point, and that is that the quality of the gut should be of the very finest. I think that in a great many cases the catgut which has been sterilized after the various methods advocated by authors and that employed at the Johns Hopkins Hospital, and in which a success has not been obtained, was not good.

I prepare it as follows: In the first place I came to the conclusion that in order to have a gut which can be properly sterilized, the fat must first be removed entirely. For this purpose I tried soaking it in ether, and found that at least twelve days were necessary in order to remove the fat completely, and that it was also necessary to change the ether three or four times during the time. I then discarded using ether, and I now employ a solution of one to two hundred solution of nitrate of silver, which was advocated by a Russian surgeon, whose name I do not now recollect, and I leave the gut in this solution for two hours. I found that the fat was sufficiently acted upon after it had been in this solution for two hours, as it became quite black in color, showing that it was thoroughly attacked by the nitrate of silver. The gut should then be washed for about three hours and then wound on spools, after which it is placed in a four-per-cent. solution of formalin, in which it is left for thirty-six hours. To make a solution of four per cent. you take one part of commercial formalin, which is a forty-per-cent. solution, and add nine parts of distilled water. After soaking in formalin for thirty-six hours, the gut is removed, placed in a basin, and washed for twenty-four hours in running water, after which it is removed and placed in a Schimmelbusch sterilizer and boiled for twenty minutes. The spools are then placed in a tube containing either an alcoholic solution of iodine, to which a little glycerine is added, or, as I prefer, the following: naphthol beta, one part; absolute alcohol, seventy parts; and glycerine, thirty parts.

If the catgut employed is of good quality, I fully believe that this method will render it perfectly sterile, because the boiling-point of water being higher than that of alcohol, the gut is submitted to a much higher temperature, and we all know that it is generally considered that any instrument or dressings which have been boiled for fifteen minutes, may be considered as surgically aseptic.

DR. JOHNSON: I think the operation for carcinoma by suprapubic hysterectomy has come to stay. At the Johns Hopkins Hospital they are having excellent results. They take out the uterus, both broad ligaments, and all the glands at the bifurcation of the iliac vessels, and, if necessary, remove one-half to two-thirds of the vagina all in one piece.

In 37 cases of cancer of the cervix, the results at the Johns Hopkins Hospital were as follows: 10 per cent. died from the immediate effects of the operation; 38 per cent. died with recurrence; five per cent. were not heard from; and 43.2 per cent. were still alive after a period of one to five years.

This is very good showing and it seems to me that this operation will be done more and more for carcinoma of the uterus.

In reference to the buried-wire sutures, the fascia is brought together in this way: A figure-of-eight suture is passed between the edges of the divided fascia every inch and a half. When the wires are drawn tight and twisted, the fascia is brought together in the median line, and firmly secured and protected by the silver sutures.

Each time I sterilize catgut I do not use it until each lot has been tested by the bacteriologist and I am told it is absolutely sterile.

In vaginal hysterectomy with suspension of the vagina by the infundibulo-pelvic ligaments for the cure of complete prolapse of the uterus, the vagina is not suspended so high or fastened so securely as in Dr. Baldy's operation. In Dr. Baldy's operation the ovarian arteries are tied as close to the pelvic wall as possible, and thus remain as fixed points to which the stump of cervix, with the attached vagina, is drawn up and fixed by heavy silk sutures.

NEW YORK NEUROLOGICAL SOCIETY.

STATED Meeting, November 5, 1896, DR. B. SACHS, President.

REVISION OF THE NEW LUNACY LAW.

The President appointed on the committee charged with this matter, the following: Drs. G. M. Hammond, C. W. Jacoby, N. Allen Starr, C. L. Dana, and Joseph Collins.

A CASE OF ACUTE MULTIPLE NEURITIS, OR ANTERIOR POLIOMYELITIS, WITH INVOLVEMENT OF THE FACE.

DR. L. STIEGLITZ presented a boy, six years of age, who had come to the clinic of Dr. Starr on October 13, 1896. He had been healthy up to September 28th, at which time the right side of the face was noticed to be paralyzed. Five days later, there was an attack of vomiting and high fever. On the second day of the illness, the power of the left arm was lost, and two days after this, the power of the right arm was also lost. Motion of the arms caused pain. At no time was there any trouble with micturition or defecation. There had been no sore throat previously, and no history of poisoning by alcohol, or by the metallic poisons. The boy was found to be very anemic and thin, and his temperature was normal. The pupils responded well to light and accommodation. There was no disturbance of vision or hearing. There was complete facial palsy of the right side of the face, but the left side was unimpaired. The tongue protruded without deviation. Electrical examination showed gradually diminished excitability of the right facial nerve to both currents. On the right side of the face there was partial reaction of degeneration. The sense of taste was unimpaired on both sides. There was complete reaction of degeneration of the paralyzed muscles of the right arm and shoulder. The left quadriceps femoris was found to be weaker than the right. None of the other muscles of either leg showed the least loss of power, and there was no disturbance of sensation throughout the body. The paralyzed muscles were tender on pressure. There had been a gradual recovery of the motor power in the affected muscles. On making the diagnosis one had to choose from three conditions, namely:

(1) acute infectious multiple neuritis, with involvement of the facial nerve; (2) acute anterior poliomyelitis, with involvement of the right facial nucleus; and (3) the ordinary Bell's palsy.

At first, he had been inclined to look upon the case as one of multiple neuritis, but the distribution of the paralysis did not accord at all with the symmetry considered to be characteristic of multiple neuritis. Again, the greatest paralysis was in the upper arm; the only muscle paralyzed in the lower extremity was one quadriceps femoris. The distribution of the paralysis seemed to be almost pathognomonic of infantile spinal paralysis. The only feature interfering with the classification of this case as one of anterior poliomyelitis was the presence of facial palsy. Such cases were decidedly rare, but they had been reported. The speaker concluded that his case was one of acute poliomyelitis, associated with a coincident Bell's palsy of the ordinary type.

DR. M. ALLEN STARR said that he had examined the case very carefully at the clinic, and coincided entirely with the diagnosis made by Dr. Stieglitz, that is, that there were present two independent affections.

DR. TERIBERRY said that the boy still complained of considerable pain when the right arm was moved. One would hardly expect to find such a sensory condition at this stage if the case was one of poliomyelitis. He inclined rather to the view that the case was one of multiple neuritis. Taking this view of the case, the face palsy would coincide with the rest of the condition.

DR. C. W. JACOBY said that the emphasis laid upon the sensory symptoms would certainly lead one to think that the neuritic symptoms preponderated; hence he saw no reason to classify the case in either one or the other category. The case corresponded very closely with those described as combined cases of poliomyelitis and neuritis.

DR. STARR said that in his experience pain was a common symptom of anterior poliomyelitis. In not a single febrile case, seen by him in the last four years, had pain been absent. We must, of course, separate the febrile from the afebrile cases. In the latter class the pain was not ordinarily present. He had now under his care a little girl who had the attack last August, and still she suffered a great deal of pain even at present. In this case the distribution of the paralysis was thoroughly characteristic of anterior poliomyelitis.

DR. EDWARD D. FISHER thought that the distinction should be made in the pain. The pain in the cases of neuritis was found especially along the course of the nerve, whereas the pain in the cases of poliomyelitis was more in the muscles, or upon movement of the muscles.

The PRESIDENT said that he had already published the statement that pain was a particularly significant symptom in the early stages of anterior poliomyelitis. Children in the early stages of this disease almost always show pain to a marked degree, and it was often very difficult in practice to make the distinction alluded to by the last speaker. He had now under his care a child who was exquisitely tender, although now in the sixth week of the disease. On the other hand, he believed that the two conditions might occur in the same patient, and he could see no absolute necessity for these strict clinical classifications in every case.

DR. STIEGLITZ said that the prognosis depended

very much upon the exact diagnosis, and hence, these distinctions were of practical importance. The case he had presented had no paresthesia, and the nerve trunks were no longer sensitive to pressure, although the muscles still exhibited some sensitiveness.

COMPRESSION OF SPINAL CORD BY A HYDATID CYST.

DR. PHILIP MEIROWITZ presented a man, fifty-seven years of age, suffering from compression of the spinal cord, or rather who was now in the post-compression stage. In 1882, he had a severe attack of inflammatory rheumatism, and it was nine months before he had been entirely well. From 1883 to 1887 the extremities were the seat of pain, apparently rheumatic in character. In 1889, a small tumor developed to the right of the lower part of the spine. In 1893, a second tumor appeared in the lower part of the right dorsal region, and shortly after this a third swelling made its appearance between these two. He subsequently developed weakness in the lower extremities, and difficulty in evacuating the bladder, but there had been no dribbling of urine. He experienced a sensation of coldness in the lower extremities, and on the body up to the umbilicus. The sexual functions had been gradually lost. On May 15, 1896, the examination showed a large swelling, consisting of three tumors in the lower part of the back, to the right of the vertebral column. This tumor was distinctly fluctuating. The man walked at this time with extreme difficulty. Sensation was diminished in certain areas, but in no place was it entirely lost. The patellar reflexes were markedly exaggerated. There was a diminution of electrical contractility in the muscles. A clear, colorless fluid was drawn off from the spinal tumor, and microscopical examination showed the hooklets of the echinococcus. Dr. Samuel Lloyd operated upon the case on June 13, 1896, with the most gratifying results. The speaker examined the man again on October 11th. At that time the paraplegia had entirely disappeared, and he was able to walk long distances without assistance. Tactile sensation was still slightly diminished. The functions of the bladder were much improved, as were also the sexual functions.

DR. S. LLOYD said that the tumor had extended from the middle of the scapula down across the sacrum. A tumor the size of a fetal head dipped in toward the abdomen on the right side. A point of interest in the case was the diagnosis. As the cyst was a multilocular one, he had not been able to accept the diagnosis that had been previously made of cysto-sarcoma, and owing to the localization of the metastases he had been led to doubt the diagnosis of multiple sarcomata. Another possible condition was a large hydro-nephrosis, but the diagnosis had been settled by microscopical examination. It was probable that the cyst had not originated in the spine, but had extended into the spine. The point of entrance of the tumor into the spine was between the laminae of the eighth and ninth vertebrae. This exactly corresponded with the localization made by Dr. Meirowitz. One old cyst and three smaller ones were removed from the cord at that point, but no effort was made to explore further on account of the already extensive operation demanded.

THE PATHOLOGY AND TREATMENT OF MIGRAINE.

DR. C. A. HERTER read a paper with this title. The treatment to be advocated, he said, was a depar-

ture from that usually followed, although not original with him. The typical migraine paroxysm seemed to be almost always associated with nutritive disturbances, which should be considered as part of the migraine paroxysm. Too much attention, he thought, had usually been given to the relief of the pain. There were many features in a typical attack of migraine indicating gastro-intestinal disturbance. During the period of marked headache there was usually no great evidence of intestinal derangement, although there was often at least slight constipation. The feces generally appeared normal. The urine passed during the period of marked headache was exceedingly scanty, high colored, of high specific gravity and acid. Apparently the quantity of uric acid was diminished, and the excretion of urea and the chlorides was regularly diminished, due chiefly to the temporary abstinence from food. The ingestion of food often caused severe nausea and vomiting, but sometimes it was significant that it caused a return of the hemicrania. There was a rapid transition from the period of diminished excretion to that of increased excretion — sometimes within twenty-four hours. Usually after a severe migraine paroxysm, the urine was increased in amount on the second and third days after the headache. The uric acid was increased and the extractives also. In seven different patients he had had an opportunity of examining the contents of the stomach in the paroxysm. In these cases there had been evidence of complete arrest of gastric digestion. In one case he had found considerable undigested food in the matter ejected from the stomach nearly nine hours after dinner. There was also evidence that not only the secretory but the motor activity of the stomach was diminished or temporarily arrested. It was probable that the secretory activity of the small intestine suffered in a similar manner.

The first step in the treatment of migraine seizure should be the washing out of the stomach with water at a temperature of not less than 105° F. The chief effect of this treatment is to relieve the pain, and it occasionally aborts the attack. The best results are obtained when the stomach washing is done just at the beginning of the attack of headache. The effect of lavage is better where the stomach contains food, but it should be employed in any case. Where lavage was inconvenient, the patient should drink hot water. While the results were marked and rapid, the *rationality* of the method was not so apparent. It was possible that in migraine the tolerance of the nervous system is suddenly exhausted, and hence the removal of a relatively small quantity of toxic material from the stomach may be sufficient to decidedly influence the attack. After the stomach washing, the patient should be given a rapid-acting cathartic. His observations would seem to show that in migraine intestinal putrefaction was not an important factor. It was desirable to avoid severe purgation on account of the undue irritation produced. The cathartic should be aided by a hot soap and water enema, and this should be given even though there had been a recent stool. If this active treatment were begun within the first hour of the headache, it not only markedly relieved the pain, but often cut short the paroxysm. When the headache returned, it was more easily treated after these initiative steps. Antipyrine he has found unreliable, and apt to cause severe digestive and vasomotor derangement. Phenacetin, in doses of ten

grains, repeated if necessary, was usually useful. Antifebrin, in doses of five grains, relieved the pain still better, but sometimes acted unpleasantly by depressing the heart. The best of all seemed to be ammonol. This was claimed to be a mixture of an ammonia salt with antifebrin. Black coffee, without sugar, he had found often very efficacious, and the same might be said of citrate of caffeine. Where the face was regularly much flushed, ergot sometimes acted well, but usually this preparation was not easily retained. He would not care to use nitro-glycerine except in cases in which there was distinct flushing of the face. Local applications could only be regarded as feeble adjuncts to the ordinary treatment. It was a pernicious practice to give one of the antipyretics mentioned, and not insist upon temporary rest and quiet.

The speaker said that although it might be safely assumed that there was a toxemia present in severe attacks of migraine, we must admit our utter ignorance of the nature of this toxemia. It was probable that in health the albumoses were absorbed only to a very slight extent. When introduced into the circulation in animals they were found to be much more toxic than peptone. In sufficiently large doses the albumoses were invariably fatal. It was possible that substances identical with, or closely allied to these substances formed from the digestive process, might be absorbed into the circulation without further change. It was possible that in migraine there was absorption of pathological albumoses, more toxic than in health. The rapidity with which the headache might be produced in migraine by the ingestion of proteid food would seem to indicate that the attack was brought on by unorganized ferments rather than by bacteria. He could not believe, however, with Haig, that migraine was due to an excess of uric acid, or its salts in the blood. Rachford had claimed that migraine was due to poisoning with hypoxanthine, but so far his observations had not been confirmed by others, and they should therefore be considered only as highly suggestive. The theory of toxemia, however, did not explain the unilateral character of many of the symptoms of migraine, and some other phenomena. We must admit, as in epilepsy, that there was an inherited tendency in the nerve cells which rendered them excessively sensitive to the action of such poisons. To this must be added another important factor — fatigue. He was inclined to believe that the digestive derangements and the toxemia always preceded the headache, although doubtless at the height of the attack the nervous and digestive conditions reacted upon one another. In this connection, it should be mentioned that sexual excitement was often a marked exciting cause of migraine. In the intervals of the attack, the closest attention should be given to the nutritive disturbance present. Milk should constitute the proteid food of at least one meal a day, and red meat should not be allowed more than once a day. Many of these patients cannot tolerate fruits any more than gouty individuals. He had known a number of most intractable cases of migraine surprisingly improved by a change to out-door life. Horseback riding and bicycle riding he believed to be the best forms of exercise for these persons.

DR. M. ALLEN STARR expressed his hearty approval of the paper, and particularly of the therapeutic considerations embodied in it. During the past two

years he had given the Rachford method of treatment a careful trial in several cases of migraine. The results had been exceedingly good, even in some very obstinate cases in which all the recognized methods of treatment had proved of little value. He had found a few cases in which muriatic acid given at the time of the paroxysm, would arrest it. The "Rachford salt" consists of ten parts of phosphate of sodium, four parts of sulphate of sodium, and two parts of salicylate of sodium, of which one drachm was to be taken in the morning. As this dose was not sufficient to cause purgation, he hardly knew to what to ascribe the benefits derived from this treatment. Rachford had insisted upon the necessity of coating the pill of permanganate of potassium in such a manner as to have the pill remain undissolved until it reached the intestine. By means of keratin coating he had had capsules prepared, containing permanganate of potassium and salol. Regarding the diet, he said that it seemed to him very essential to restrict the quantity of red meat. He had found abdominal packs and abdominal massage quite useful in cases of migraine.

DR. MARY PUTNAM JACOBI said that a few months ago she had tried on a very severe case of migraine the washing out of the stomach, and had been able in that way to arrest an attack which was unusually severe. In this case, the stomach was entirely empty at the time of the washing. The relief was so marked that since then the patient had insisted upon washing out her stomach.

DR. FREDERICK PETERSON said he was inclined to accept the toxicemic theory of the origin of migraine. He had used the Rachford treatment in a number of cases, and had found it unusually successful. One or two patients had rebelled against the Rachford pills on account of the irritation they produced.

DR. L. STIEGLITZ said that he could not accept the view of the toxins giving rise to migraine coming from the alimentary canal. The periodical cases of migraine often vomited repeatedly, and yet the attack was unrelieved. The hypodermic injection of a small dose of morphine at the onset of the attack often aborted the attack, and as the morphine acted in the opposite way to the treatment advocated by Dr. Herter and Dr. Rachford, the theory did not seem sufficient to explain the phenomena observed. There seemed to him to be a very close connection between epilepsy and migraine. One patient, in his practice, had attacks of migraine every eighteen days; it was difficult to believe that the alimentary canal became disturbed and gave rise to toxemia so regularly.

DR. JOSEPH COLLINS said that in a recent case, that of a woman of thirty-five or forty years, the complaint was of an acidity or soreness in the entire alimentary canal, and of unpleasant sensations connected with micturition and defecation. The paper just presented was exceedingly instructive, as it described most clearly certain clinical features not often emphasized in the text-books. He felt with the last speaker that there was a very close genetic connection between migraine and epilepsy. The speculations on the action of the albumoses did not seem to coincide with the treatment advocated in the paper, and also by Dr. Rachford. He had tried the Rachford treatment quite faithfully for two years, but had been unable to find it any more beneficial than the other methods of treatment. He would also say that he had not found ammonol of any use whatever. He had obtained good

results, however, from a combination of fifteen grains of phenacetin, ten grains of salicylate of sodium and five grains of salicylate of caffeine. He had also found a combination of tincture of gelsemium, tincture of belladonna and acetate of potassium very useful in migraine, especially in cases in which the bladder symptoms mentioned were present.

DR. CHARLES H. BROWN said that he had seen a dose of twelve grains of ammonol in one case cause extreme and dangerous prostration, and he had not observed any benefit from its use in other cases. In the patient referred to, there had been no unpleasant effects observed from the use of antipyrine, antifebrin and phenacetin. In many cases of migraine the polyuria preceded the headache by twenty-four or forty-eight hours, from which it would appear that there was something else besides the toxemia in the etiology of migraine.

DR. WILLIAM HIRSCH said that the chief objection to the toxemia theory of migraine was the occurrence of unilateral symptoms, and the fact that one side of the body alone would be affected time and again. He recalled a case in which a temporary hemiplegia during migraine had finally become permanent hemiplegia. This could only be explained by repeated vaso-motor spasms, leading to a permanent change in the cortex. At the present time, he had under observation a lady who suffered from migraine at each menstrual epoch. The case had proved very obstinate to all the usual methods of treatment, but had yielded best to treatment during the intervals, with large doses of the bromides—just as one would treat a case of epilepsy.

DR. HERTER, in closing the discussion, said that notwithstanding the criticisms that had been made of his treatment, he had the greatest confidence in it, for although ordinarily not very sanguine in therapeutics, he had seen the most gratifying results from its employment. Of course, the patient must be taught to wash out the stomach and attend to the other measures promptly without waiting for the arrival of the physician. As a rule, patients did not vomit until the paroxysm had been well established, and absorption was probably going on through a large extent of the intestine, and hence, it was not surprising that the eliminative treatment advocated by him did not accomplish much when employed so late. Many of his medical friends had agreed with him that ammonol was a most useful drug for relieving pain, and he had not heard of any unpleasant effects from its use. He believed that toxemias gave rise to hemiplegia much more commonly than was usually supposed; hence this would explain Dr. Hirsch's case. It was the rule for polyuria not to appear until the headache had passed, although occasionally it would persist for a number of weeks.

THE mortal remains of Louis Pasteur, which have lain in the cathedral of Notre Dame since the funeral a year ago, were removed to their final resting-place at the Pasteur Institute, December 26th.

CONGENITAL ABSENCE OF BOTH PATELLÆ.—Bristow, of Brooklyn, in the *Medical News* of January 2d, reports a case of this curious condition occurring in a child of two and one-half years, the subject of double pes varus. Skiagraphs of the knees taken from the front and side give an excellent illustration of the deformity.

Recent Literature.

Modern Greek Mastery, A Short Road to Ancient Greek. By THOMAS L. STEDMAN, A.M., M.D. New York: Harper & Brothers. 1896.

The chief aim of this little book is, as the title states, to teach Greek as a living language. The author in his preface deplores the unnecessary time spent in acquiring ancient Greek by the time-honored method of minutely mastering the intricacies of the grammar before the language itself has any meaning to the student. He points out that a knowledge of modern English is necessary to a satisfactory understanding of Chaucer and the early English writers, and that modern and ancient Greek are even more closely similar than modern and ancient English. Incidentally the literature of modern Greek will well repay the student, and in travelling in the Orient and Eastern Mediterranean countries, a knowledge of modern Greek will be of the greatest value. He considers that the adoption of modern Greek as a language for international congresses is the best solution for the difficulties which are due to the polyglot character of these assemblages.

With regard to the first contention that the best road to a working knowledge of a language is through actual use and conversation, there can be no doubt that it is true. A residence in a country where the language is spoken is admitted to be the quickest method of acquiring a practical and idiomatic use of that language. The lack of this actual residence and daily use is what this little book aims to supply, and doubtless does in some degree. If the book conscientiously studied will give a working knowledge of modern Greek, it will certainly be far easier for the student to master ancient Greek, and his knowledge of the latter will be of the living and conversational, rather than the dead and grammatical, sort.

The book seems a step in the right direction in the teaching of the classics. The advisability of the adoption of modern Greek as a language for international congresses, however, admits of question.

A Treatise on Obstetrics. For Students and Practitioners. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, Clinical Professor of Obstetrics in the Jefferson Medical College of Philadelphia. In one very handsome octavo volume of about 600 pages, with 217 engravings and 30 full-page plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1896.

The modern character of this work is shown by the large number of original photographs, including several skiagraphs. The Röntgen rays have, however, added nothing as yet to our obstetrical knowledge.

There is much to be learned from the actual photographs of normal and abnormal deliveries, but one is rather surprised to see a child delivered by the breech by an attendant with arms covered with shirt sleeves.

On page 225 there is a confusing picture, apparently from a photograph, entitled "Bringing the head upon the pelvic floor, normal breech labor." Here, judging from the way the feet point, the back is uppermost, as is proper; yet the infant is possessed of groins and penis on this upper surface.

Some of the other photographs are decidedly con-

fusing, and those showing the application of the forceps contain a surprising number of hands in a small space, nine appearing in Fig. 163.

The photographs are all characterized by great modesty, thus distinguishing them from other recent obstetric photographs, the faces being all draped, except in the case of one negro patient. The abdomen as well as the face is covered with a sheet in those showing palpation, the result being quite obscure.

The arrangement of the chapters and subjects is at times perplexing. Turning to Eclampsia, we find only four and a half pages on this interesting subject, but concealed under the heading of Foxemia of Pregnancy, in another part of the book, some fourteen pages of great interest are added to this subject. In the same way various forceps operations are described and figured in the first section, together with a brief description of version. In the second section forceps operations in abnormal pelves are described, but in the third section we find all the operations described and figured in detail.

There seems to be no account of the symptoms and management of hydatidiform mole.

Symphiseotomy is carefully described, and the author asserts that where this operation is properly performed under antiseptic precautions, the symphysis unites firmly and well.

Rather more space is given to the diseases of infancy than is usual in obstetric works, although these sections are far from complete. Under Rickets one is surprised to find the statement that if the mother is rachitic it is reasonable to suppose the child will also share her malady, and a large fetal head is therefore expected.

Section seven is on the "Jurisprudence of Obstetrics."

Aside from these criticisms the work is one of practical value and interest to students and practitioners alike.

Essentials of Physical Diagnosis of the Thorax. By ARTHUR M. CORWIN, A.M., M.D. Second edition, revised and enlarged. Philadelphia: W. B. Saunders. 1896.

The popularity of Dr. Corwin's little book is shown by the appearance of a second edition, which has been enlarged by the addition of a section setting forth the signs found in each disease of the chest. The criticism which was made in these columns on the previous edition is equally applicable to this, that the method of instruction which it pursues is faulty in that it appeals to the memory of the student rather than to his reason by presenting a series of apparently independent facts instead of showing the logical connection between the diseased condition and the signs by which it is manifested, while in the effort at condensation much has been sacrificed in clearness.

Anatomical Atlas of Obstetric Diagnosis and Treatment. By OSCAR SCHAEFFER, M.D. With 145 Illustrations. New York: William Wood & Co. 1896.

This volume is one of a series published by Wood, of medical hand-atlases. It contains about 65 plates with 145 illustrations. The plates are the full size of the book, four and a half by seven and a half inches, and the descriptive matter for each plate is to be found on the page facing it. The plates are colored; some of them, as the anatomical dissections, elaborately

colored. They were made under the writer's direction by Mr. C. Krapf, the draughtsman to the Munich University. Many of them are excellent; but one misses, particularly in the plates of abnormal pelves, the fine photographic reproductions to be found in so many recent obstetrical works.

The latter half of the book, some 176 pages, consists of text in brief, often tabular form, giving the symptomatology and therapy of normal and abnormal labor. Under the heading "Drugs Employed in Obstetric Practice," one is surprised to find a table of 63 drugs and preparations, with doses and indications.

For use as a text-book the work is necessarily incomplete, this incompleteness being aggravated by the absence of an alphabetical index.

A Handbook on Leprosy. By S. P. IMPEY, M.D. M.C., late Chief and Medical Superintendent Robben Island Leper and Lunatic Asylums, Cape Colony, South Africa. Philadelphia: P. Blakiston, Son & Co. 1896.

This handbook has been prepared by one who has had abundant opportunity for familiarizing himself with leprosy, as it is met with in South Africa. The book pretends to be simply a practical aid to those who have had no previous acquaintance with the disease, and to these it will prove helpful. The writer's view is in general a sound one, as the theory of heredity is regarded as essentially disproved, and the active agency of the bacillus lepræ, and the consequent contagiousness of the malady are treated as settled facts. The accentuation of a form of syphilitic leprosy, and the possibility of a cure during the early stages by means of erysipelas are certainly views that offer a target for adverse criticism as the author has expected, and the weight of scientific authority will not be found on his side. We were much interested in examining the thirty-six photographs of lepers in various stages of the disease that are appended, and believe that a very fair idea of leprosy may be obtained from their study.

Syphilis in the Middle Ages and in Modern Times. By DR. F. BURET. Translated from the French, with notes by A. H. OHMANN-DUMESNIL, M.D. Philadelphia: F. A. Davis Company. 1895.

This volume constitutes No. 15 in the Physicians' and Students' Ready-Reference Series. It is a compilation of various facts concerning the existence and transmission of syphilis during the period mentioned, presented in many places in a somewhat theatrical manner. It is not improbable that evidence of value to the antiquary or the historian of syphilis may be contained in these pages, but it is difficult to understand why a collection of anecdotes and facts chiefly resurrected from the remote past of venereology, should be regarded as a useful or suitable subject for the "ready reference of physicians and students."

The Treatment of Phthisis. By ARTHUR RANSOME, M.D., M.A. (Cantab), F.R.S. London: Smith, Elder & Co. 1896.

Although devoted in the main to the treatment of phthisis, the introductory chapters of the book on the etiology, contagiousness and prevention of the disease, deserve attention as embodying Dr. Ransome's views on subjects which have been discussed not always with temperance, and on which his wide experience gives him a right to speak authoritatively. He con-

cludes with Hirsch that contagious transmission of phthisis plays but a subordinate part in the spread of the malady, nor has he yet found any satisfactory proof of infection, direct or indirect, in any well-ventilated house in this country; and this in spite of close contact, as in the attendance of a wife upon her husband, or in the nursing, and sleeping together of near relatives and friends. Moreover, experiments with tuberculous sputum show that when it can be exposed to sufficient light and air to deprive it of virulence before it can be dried up and powdered into dust no danger of infection need be dreaded. It is only where there is sufficient organic material in the air, derived from impure ground air or from the reek of human bodies, that the tubercle bacillus can retain its existence and its virulent power. Long lived though it be under these conditions it is rapidly disinfected by the natural agency of fresh air and sunlight, so rapidly, that when these agents are present even in comparatively moderate degree, the tuberculous material cannot reach its dangerous state of dust before it is deprived of virulence.

The subject of treatment is very thoroughly taken up; but the author has wisely confined himself chiefly to measures of which he has had personal experience. His recommendations are therefore made with conviction, and have thus additional force which should do much to fulfil his hope that the contents of the book "will increase the courage of the physician in the face of this terrible malady and will also provide him with arms with which he may successfully combat it."

Diseases of the Eye. A Hand-Book of Ophthalmic Practice for Students and Practitioners. By G. E. DE SCHWEINITZ, A.M., M.D. Philadelphia: W. B. Saunders. 1896.

In 1892 Dr. De Schweinitz's hand-book of ophthalmic practice for students and practitioners who desired to begin the study of ophthalmology was so favorably received that a supplementary edition was necessary two years later. Now, in 1896, the book again appears, after having been subjected to a thorough revision, and the interpolation of special paragraphs which for various reasons have not formerly appeared.

Instead of the bibliography there has been substituted a complete description of the method of determining corneal astigmatism by means of the instrument of Javal and Schiötz; unfortunately, however, the cut of the instrument which has been introduced to illustrate the method is of the model of 1889, with its unwieldy disk; and as there is another model of more recent date now obtainable, this introduction of the ancient form might be somewhat misleading.

A cut of Dr. G. F. Stevens's tropometer has also been introduced, together with an explanation of its use. The purpose of this instrument is to determine the absolute rotation of the eye, for he believes that excessive tension upon vertically acting muscles may often induce convergence and divergence independently of anomalous action of lateral muscles, and thus hopes to be able to explain certain cases of heterophoria.

The chapter entitled "General Optical Principles" has been carefully revised by Dr. Edward Jackson, and although it contains much that is elementary in its nature, it can be occasionally re-read, with profit. A chapter on "Normal and Abnormal Refraction"

has likewise received attention from Dr. Jackson, and is valuable even to the student of general medicine.

The specialist will find that the time spent on that part of the section which refers to the production and the increase of myopia and to the application of lenses for the correction of errors of refraction has not been wasted. The mention of Retinoscopy, brief as it is, will be found to be an able exposition of this objective method of determining refractive errors.

The chapter on "Operation" comprises nearly one hundred pages, and therein are described the usual methods of procedure. The successive steps are given with great clearness, and the illustrations leave little to be wished for in point of excellence.

The remainder of the volume, which is especially taken up with the discussion of diseased conditions of the eyeball and the surrounding parts, contains about everything one would expect or even wish for in a book of this sort. The classification of the various diseases is rational; the clinical descriptions are characterized by brevity and clearness, and the many sensible suggestions regarding treatment will prove a convenience when in doubt. It is noticed, however, that the classical separation into croupous conjunctivitis and the diphtheritic variety has been retained, that is, the easily to be removed membrane being characteristic of the former, and the infiltration characteristic of the latter, although cases have been lately noticed in which the membrane was easily removed and indicated the croupous variety while really containing many Klebs-Löffler bacilli. Although the different methods of treating these conditions have been gone into with great care, the most recent by antitoxin is merely mentioned.

The subject-matter, although compact, is not unpleasantly so; the illustrations are many and of a high degree of merit; and there seems to be no reason for supposing that this hand-book of ophthalmology will lose its well-deserved appreciation. W. D. H.

The Student's Medical Dictionary. Including all the Words and Phrases generally used in Medicine, with their Proper Pronunciation and Definitions, based on Recent Medical Literature. By GEO. M. GOULD, A.M., M.D., author of "An Illustrated Dictionary of Medicine, Biology and Allied Sciences," etc., formerly editor of the *Medical News*. President (1893, 1894) American Academy of Medicine. With elaborate tables of the Bacilli, Micrococci, Leucomains, Ptomaines, etc., of the Arteries, Ganglia, Muscles and Nerves; of Weights and Measures, Analyses of the Waters of the Mineral Springs of the United States, etc. Tenth edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co. 1896.

This new edition of the "Student's Medical Dictionary," the previous editions of which have met with so favorable a reception, has been rewritten so as to make an entirely new volume. The aim of the revision has been to make the book more perfectly represent the recent rapid progress in medical science. It is especially adapted to the wants of medical students, and correct and brief definitions are given of all the terms likely to be found in medical text-books. The pronunciation of the terms has been carefully and plainly expressed.

The book is of convenient size, and admirably adapted to the purpose for which it is intended.

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THE PLAGUE.

SINCE the epidemic of plague in the Canary Islands in 1852 this disease has been a stranger to Europe and the Western Hemisphere, if we except the insignificant outbreak in Southeastern Russia on the right bank of the Volga in 1878. It is only at long intervals that we hear anything of this pest; and in the minds of most people plague is associated with the so-called Black Death of the Middle Ages, with a destruction of twenty-five per cent. of the European population, with the names of Boccaccio and of De Foe. And yet plague has undoubtedly been endemic, and not infrequently epidemic, for a long period of time in Southeastern China, in Mesopotamia, in parts of Persia and in parts of Asia Minor. That Europe has been so free from it, and that civilized mankind has ceased to think of it as a dreadful or possible pestilence, is a tribute to the improvement in modern living.

Still, twenty-five years ago plague forced itself upon the notice of epidemiologists and public health officials by a series of active epidemic outbursts in Persian Kurdistan, in Mesopotamia on the lower Euphrates, in Arabia, in Southwestern Persia, on the borders of the Caspian Sea, and finally in Southeastern Russia, as has been said, where it was stayed. In the second outbreak in the Euphrates Valley in 1876, 20,000 persons are estimated to have perished, and in Bagdad alone it found more than 5,000 victims.

Since 1878 plague once more retired into the obscurity of its Asiatic haunts, until the sudden outbreak in Canton and Hong Kong in 1894. The mortality among the natives was very great, but scarcely any Europeans were attacked except some British soldiers who were set to cleaning out the filthy native huts. The only European civilian who contracted plague at this time, is said to have been (strange irony of fate!) the individual whose function it was to prepare the disinfectants for public use. This outbreak, however, was made memorable by the discovery and differentiation of the characteristic micro-organism of the disease. This

important addition to our still imperfect knowledge of plague was made June 14, 1894, by Kitasato, the Japanese bacteriologist, who was trained in Koch's laboratory and was a collaborator with Behring in the evolution of diphtheria antitoxin. A second epidemic of plague developed in Hong Kong in 1896, when Europeans fared less well than during the previous one.

And now Europe is compelled to give its quick thought and attention to this filth disease of woful history, by its pestilential development in the great commercial city of Bombay, and in other towns on the northwestern coast of India, which are in direct communication by the Suez Canal with European ports. There is reason to think that plague in some form has been present in Bombay since July or August, 1896. With the spread of famine in this part of India the present condition of things at Bombay is evidently most deplorable. Hundreds are dying every day, the city is being depopulated by death and flight, and the infection is spread through the surrounding country. The terrible experiences of Europe in the Middle Ages are being re-enacted, under somewhat similar conditions, in our own time.

The population of the famine-stricken portion of India is stated at 90,000,000. The average annual income of the Indian laborer has been put at eight rupees, about seven shillings English, whilst the average Briton is estimated to spend ten pounds annually upon food alone. What must be the fate of such a people when attacked simultaneously by famine and plague; by famine which creates misery and apathy, and by plague which lives and thrives upon these creatures of famine!

The labor agitator, the socialist and anarchist may well pause and reflect how far and how fast the race has travelled under reviled conditions in the Western Hemisphere!

With a vigilant application of modern sanitary methods and quarantine regulations the danger to Western countries is probably very slight. The Marine-Hospital Bureau at Washington has already put in force the former cholera restrictions, as against plague-infected ports. The government authorities of France, Italy and Austria are on the alert; and Italy has called an international conference at Rome to consider the situation.

It is to be sincerely hoped that from the present epidemic may at least come some increase of positive knowledge in regard to plague. How closely does it resemble anthrax, and how closely typhus; is the poison propagated in the soil, is it miasmatic; is it spread by animals, and by which animals besides the rat; is it contained in the excretions as well as in the blood and tissues; is it infectious by the skin, by the lungs, by the alimentary canal; what is the period of incubation; is there a pestis minor or benign plague, with a longer incubation, which may develop into the malignant disease of the great epidemics? To these and other questions, we may hope for, we may even demand, positive answers.

THE TREATMENT OF PUERPERAL CONVULSIONS.

THE subject of puerperal eclampsia has always interested physicians, and has been a favorite topic of discussion at medical meetings. Puerperal convulsions are fortunately infrequent, but when they do occur, they make a deep and lasting impression on the medical attendant, who rightly regards this as the most serious complication of labor.

The elderly practitioner, whose note-book contains the record of some fatal cases, gladly receives suggestions from his junior and inexperienced *confrère* as to how he might have saved all his patients, and at his next case of eclampsia, assisted by said junior as consultant, he is perhaps again destined to realize the uncertainty of therapeutics in this formidable malady.

One fact should be borne in mind — all kinds of treatment have succeeded and all have failed, and there is no method that can be called American, or English, or Dutch, or French. It was an error when at the recent Congress of Gynecology and Obstetrics at Geneva, Charpentier spoke of *veratrum viride* as the medicament of choice of American physicians. It is, on the contrary, true that very few American physicians place much reliance on this drug for the cure of eclampsia. There are many factors in the disease and many indications to meet, and the question must ever be in any particular case, What is the predominant indication?

In most cases this indication must be to arrest or to modify the violence of the convulsions. The physician had not had the care of the case before, and the convulsions have come on during labor, have become general, and threaten the very existence of the patient. Naturally he thinks of his anesthetic — of his hypodermic syringe. Most physicians at the present day resort at once to full anesthesia by ether or chloroform (the latter is more used abroad, as being more prompt in its action). There are, however, many, who, like Dr. Byers, of Belfast, at the above-mentioned Congress, rely on hypodermic injections of morphine to control the nervous hyper-excitability. It is evident that if subcutaneous injections of morphine are used in these cases where the cerebral congestion and coma are often so marked, the utmost circumspection must be employed, for the contrast is plain between the fugaciousness of the chloroform anesthesia and the long duration and intensity of that produced by morphine. There is an accumulating weight of testimony in favor of pushing the anesthetic till full relaxation is obtained, and of again resorting to it when any threatenings of convulsions appear. While the patient is under the anesthetic, there will often be an opportunity to apply forceps and terminate the labor. This will of itself have an effect in opposing the continuance of the convulsions. Where the os is not dilated, attempts may be made to produce full dilatation during the chloroform anesthesia (by digital manipulation, Barnes' dilators, etc.): these will often be effectual. Some late authors (and notably Mangiagalli,

of Milan¹⁾ regard the evacuation of the uterus as so urgent a point that they would not wait for dilatation of the cervix when the parts are contracted and rigid, but they would prepare the way for speedy delivery by multiple incisions on the os and cervix. These incisions were first proposed by Dührssen.

There is still an important indication to be met in puerperal eclampsia, that of diminishing the toxicity of the blood, the first cause of the eclampsia. This indication is a hard one to fulfil, and requires time; the most that can be done is to resort to purgations. Tarnier prescribes one drop of croton oil in a table-spoonful of castor oil, some have proposed jaborandi; and warm baths, the baths of course being impossible of administration when the patient is in convulsions. It was partly to meet this indication that bleeding was formerly resorted to, and there is, in fact, even now much authority in favor of free bleeding in eclampsia, it being supposed that several ends are thereby accomplished besides reducing the toxicity of the blood, namely, an unloading of the engorged veins of the cerebro-spinal system, and a lowering of the reflex excitomotivity.

There is only one point more to which we shall allude in connection with the treatment; these patients are generally albuminuric, and an early resort to a milk diet will materially diminish their chances of becoming eclamptic.

An able article on "The Pathology of Eclampsia" has appeared in the *Lancet* for January 7, 1897, by Dr. John W. Byers, who took part at the Geneva convention above mentioned. He says that eclampsia is a disease full of surprises, cases the most benign in appearance frequently turning out badly; while, on the other hand, the reverse is often true. After summing up the various causes which have been advanced, he decides that the toxemic or blood-poisoning theory is the only one that can now be scientifically defended. The convulsions are due to a poison arising from ordinary tissue metamorphosis, elaborated in part by the mother and in part by the fetus. Providing that this poison does not accumulate in too great an amount, and that the eliminating organs are working properly, it is got rid of without any bad effects. If, however, any of these organs (liver, kidneys, intestines) get overworked, then the poison is not eliminated, and its increased accumulation affects the nervous centres, causing the eclampsia. Leyden describes a condition of the kidney as peculiar to pregnancy: the kidney is large and pale; the cortex is yellowish and dull; there is a loading of fat about the convoluted tubes. The change in the kidneys and liver may be in the form of a parenchymatous degeneration, produced, it may be, by the poison in its circulation through them. It is in this way that the presence of albuminuria is of such importance clinically. The presence of a source of irritation in the uterus is also an element of great importance. Winckel has shown that when the fetus dies during pregnancy, the danger for the

mother is entirely overcome or much diminished. Others, as Pasquali, have called attention to this point. It must not be forgotten that the fetus in its development forms excrementitious products which must be eliminated by the mother in addition to what she has to get rid of as the result of metabolism in her own system. Chambrilont, of Bordeaux, showed in a series of experimental researches that the toxicity of the blood is increased in the fetus as well as in the mother when the latter has presented symptoms of eclamptic intoxication.

This toxemic theory, Dr. Byers thinks, is of the utmost practical value, because when the physician acts upon it as a good working hypothesis, it assists him in the prophylaxis of eclampsia. It teaches him the enormous importance of the eliminating organs in pregnancy, and when these show any sign of not acting properly, he at once puts the patient on a diet, such as milk, which gives her the least to do, and which French observers think has the power of getting rid of a quantity of the toxin; and also by hot baths and purgation he encourages these organs to act more freely.

MEDICAL NOTES.

PLAGUE REPORTED AT HAMBURG.—It is reported that the steamer *Pirrie* has arrived in Hamburg from Bombay having had seven cases of illness and one death, the mate, during the voyage. Plague is suspected. The steamer has been quarantined.

FRENCH PRECAUTIONS AGAINST PLAGUE.—The French Committee of Public Hygiene has given special instructions to the medical officers of health in Marseilles and other ports to exercise the utmost vigilance with regard to ships coming directly or indirectly from Bombay. They are directed to carry out minute individual inspection of all the sailors and of all passengers, especially of all natives of India.

QUARANTINE REGULATIONS AGAINST PLAGUE.—Surgeon General Wyman of the U. S. Marine-Hospital Service has issued an order reimposing at all foreign ports and places infected or suspected of being infected with plague the quarantine regulations which were enforced in regard to cholera in 1894. Passengers and crews who have been exposed to infection are to be detained for a period of not less than fifteen days from the last possible exposure.

THE PLAGUE IN BOMBAY.—There is no abatement in the ravages of the plague in this disease- and famine-stricken city. The death-rate is very high, and serious damage is done to the large British commercial interests in this, the principal commercial port in India. A rise of freights to Bombay was the first effect of the quarantine. The mill operatives and their families are leaving the city, thus adding a quarter of a million of famine-stricken and unemployed poor to the country districts. It is estimated that 500,000 people have fled from the city as a result of the epi-

¹ Reports of the Second Congress of Gynecology and Obstetrics, held at Geneva, September 5, 1896.

demic, and that the population is reduced more than one-half. Surgeon-Major Manser, senior physician to the native hospital, died of plague on January 6th. According to the *Times* of India, the weekly death-rate is 200 per 1,000. Many victims refuse medical treatment, regarding the plague as a visitation from God. The plague is also raging at Kurrachee, an important seaport in the northern part of the west coast of India. Owing to false returns the mortality is probably under, rather than over-estimated.

WHERE HISTORY REPEATS ITSELF.—The announcement at the meeting of the Standing Committee of the Corporation of Bombay on September 23d by Dr. Viegas, that bubonic plague had broken out on the Port Trust Estate, and that the disease had prevailed in the locality for a fortnight to such an extent that about a hundred men had died, was naturally received with concern by the public in Bombay and of India generally. The view that Dr. Viegas was mistaken in his opinion was eagerly adopted, and a controversy ensued. Unhappily, however, subsequent events showed that Dr. Viegas' statement, as regards the presence of the plague, was only too true, and now there is a consensus of opinion that the disease prevailing in Bombay is true bubonic plague. It is remarkable that no disease has raised so much controversy as to its existence when it first appears in a locality. In every outbreak history repeats itself, and fortunately for Dr. Viegas, he lives in an enlightened age, or else he might have met with the fate of the physician, who, in the early state of the terrible pestilence at Naples in 1556—where later 6,000 died in a day, and only 50,000 survived out of 290,000—pronounced it to be the plague and was imprisoned for his audacity by the Viceroy.—*Indian Medical Gazette.*

VON BERGMANN'S SIXTIETH BIRTHDAY.—The sixtieth birthday of this eminent surgeon and teacher has recently been celebrated in Berlin. Von Bergmann is a Russian subject, as he was born at Riga, but of German parents. It is reported that when at the German Surgical Congress a Russian claimed him as a countryman, he repudiated the claim with warmth and decision. Sixteen years ago he was appointed to succeed Langenbeck, as the first Professor of Surgery at the University of Berlin and Director of the first Surgical Clinic. We learn from the daily papers that Von Bergmann has just been summoned to St. Petersburg to operate upon the Czar, and remove a "bony excrescence in the region of the cranium," perhaps an exostosis.

CHOLERA IN ENGLAND.—The transport ship *Nubia* arrived at Plymouth, England, on January 9th, with several cases of cholera on board, among the British troops as well as the Lascar sailors. Three of the soldiers and two sailors died at sea, and another death occurred the day after the arrival of the vessel. The ship was disinfected, and the sick were removed to the hospital ship. On the following day two more of the soldiers were stricken,

AGAINST ANTIVIVISECTION LEGISLATION.—We have received a copy of a memorial (Fifty-fourth Congress, Second Session, Document No. 31) presented to the Senate by Mr. Cockrell from a joint committee of the medical and other scientific societies and educational institutions of the District of Columbia, protesting against the proposed legislation embodied in Senate Bill 1552, entitled "A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia," and presenting their views on the same.

THE ASSOCIATION OF MILITARY SURGEONS OF THE STATE OF OHIO.—In response to a call of the Surgeon-General of the State, the medical officers of the Ohio National Guard met in the retiring-room of the House of Representatives, in the State House, Thursday afternoon, December 17, 1896. A constitution and suitable by-laws were adopted, forming the "Association of Military Surgeons of the State of Ohio," with active members consisting of the medical officers of the Ohio National Guard, associate members consisting of ex-medical officers of the Ohio National Guard and ex-medical officers of the United States Volunteer Service, and honorary members. The following officers were elected: President, Brigadier-General J. E. Lowes, Surgeon-General of Ohio, Dayton; Vice-President, Major L. T. Guerin, Surgeon Fourteenth Infantry, Columbus; Secretary, Major H. M. W. Moore, Surgeon First Light Artillery, Columbus; Treasurer, Major Frank Bain, Surgeon Second Infantry, Kenton. Lieutenant-Colonel William E. Waters and Captain James E. Pilcher, of the Army, were elected honorary members.

A FOOT-BALL PLAYER DIES OF TETANUS.—On November 23d, says the *Lancet* of December 5th, a member of the Royal Arsenal Foot-Ball Team at Kettering, England, sustained a compound fracture of the left radius and ulna. First aid was rendered by bystanders, and the wound was subsequently syringed and dressed with iodoform by a local surgeon. On the following day the wound was carefully syringed and dressed by the surgeon to the club. Four days later symptoms of tetanus developed, the wound was cleaned and scrubbed out, and the surgeon injected "all the tetanus antitoxin that he could get." No improvement followed, and the next day a surgeon who was called in consultation amputated the arm at the elbow. "More antitoxin was obtained and injected and the patient was kept absolutely still, as even swallowing a mouthful of water brought on a convulsion." Death took place on the 28th after a slight convulsion. It seems that the attending surgeon was able to obtain on the day the symptoms developed, only sixty centimetres of antitoxin serum, which was given in divided doses in twenty-four hours.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, January 20, 1897, there

were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 118, scarlet fever 54, measles 108, typhoid fever 23.

THE BOSTON SOCIETY FOR THE ADVANCEMENT OF PHYSICAL EDUCATION.—At the annual meeting of the Boston Society for the Advancement of Physical Education held January 13th, Dr. Clarence J. Blake was re-elected for the ensuing year. Dr. George W. Fitz proposed systematic anthropological measurement of the children in the Boston public schools—with a view of recording changes and peculiarities in growth. Dr. Hartwell, superintendent of physical instruction in the public schools, said he was heartily in favor of the idea. The members of the society concurred with the proposition made by the committee on statistics.

OUR STREETS AND OUR HEALTH.—The condition of the streets, especially of the macadamized streets, in certain parts of Boston this winter has been most trying to the health and happiness of those forced to frequent them. The inhalation of vast quantities of dust is bad enough, but dust mixed with pulverized dung is still worse. We recognize the difficulties inherent in the climate and the season of the year. But there will be no satisfactory relief from this state of things or reasonable mitigation of it, until the care of the streets is under one head and is conducted as a business enterprise divorced from politics. When will that be?

DEATHS FROM ILLUMINATING GAS.—Seven deaths from accidental inhalation of illuminating gas were recently reported in one day in Boston, and from December 1st to January 19th there were twenty deaths, more than the total number of deaths during the year beginning December 1, 1894, which was seventeen. In the year beginning December 1, 1895, there were twenty-nine deaths. A large number of deaths from the same cause is also reported from New York City.

BEQUESTS TO HOSPITALS.—By the will of the late Mrs. Ann Vose, a trust fund of \$387,966 was left upon the death of her daughter Mrs. Ann Dickinson, to be divided among local public charities, chiefly hospitals. The recent death of Mrs. Dickinson has made this fund available, and the trustees of the will are to give the Boston City Hospital, the Massachusetts Homeopathic Hospital and the Children's Hospital a considerable sum upon the condition that they each erect with the money a permanent building to be designated by the name of Vose or Ann White Vose. The amount which is to be given to each of these hospitals is to be limited by the trustees in their judgment, having regard to the whole amount of the money at their command, the other objects of the will, and the estimated cost of the buildings. The Boston Lying-in Hospital is to be given \$15,000. The surplus remaining the trustees are to apply to these institutions in the parts set against their names: Massachu-

setts General Hospital, 30 parts; McLean Asylum for the Insane, 30; Home for Aged Women, 30; Home for Aged Men, 30; Children's Mission to the Children of the Destitute, 20; managers of Boston Port and Seaman's Aid Society, 10; Massachusetts Institute of Technology, 25; Boston Asylum and Farm School, 15; Industrial Aid Society for Prevention of Pauperism, 10; Benevolent Fraternity of Churches, 10; Boston Female Asylum, 15; New England Hospital for Women and Children, 25; Perkins Institution and Massachusetts School for the Blind, 10; Boston Provident Association, 10; Boston Children's Friend Society, 20; Museum of Fine Arts, 25; Boston Young Men's Christian Union, 10; Massachusetts Charitable Eye and Ear Infirmary, 15; Massachusetts Society for the Prevention of Cruelty to Animals, 10, and the Home for Aged Colored Women, 5; Gwyne Temporary Home for Children, 10; Barnard Memorial, 10.

NEW YORK.

SEMI-CENTENNIAL OF NEW YORK ACADEMY OF MEDICINE.—The New York Academy of Medicine will celebrate its semi-centennial on Friday evening, January 29th, with exercises at Carnegie Hall.

MR. MORGAN'S GIFT TO THE LYING-IN HOSPITAL.—It is announced that Mr. J. Pierpont Morgan, the banker, has offered the sum of one million dollars to the Society of the Lying-in Hospital of the City of New York for the construction of a new building to take the place of the one now occupied by it, which was formerly the residence of the Hon. Hamilton Fish, at the corner of Second Avenue and 17th Street. The gift is made conditional on the fulfilment by the Society of two conditions—first, that it shall provide sufficient money to support the new hospital in a liberal manner, and, second, that the plans for the building shall meet the approval of Dr. James W. Markoe. Provisional plans have already been submitted by the architect of the Academy of Medicine Building for a ten-story building of granite and brick; with a frontage of 184 feet on Second Avenue and a depth of 83 feet, and it is proposed that the new hospital shall be the finest of its kind in the world. It is said that Mr. Morgan first intimated to the Board of Governors of the Lying-in Hospital about two years ago that he had such a gift in contemplation, and since then he has defrayed the travelling expenses of five of the physicians connected with the institution, who were requested to make a thorough examination of the best lying-in hospitals in this country and in Europe. One of these physicians, who went abroad for the purpose mentioned, is Dr. Markoe, and it is explained that the second condition referred to was imposed for the reason that it is owing to him that Mr. Morgan became interested in the work of the Society.

POLICEMEN ON BROOKLYN BRIDGE.—The recent resignation of one of the police force of the Brooklyn Bridge on account of the state of his health, has

called attention to the dangers attending police duty in that exposed position. The figures of this department show that 43 out of 104 policemen have died of pulmonary or rheumatic disease during the thirteen years that it has existed, and that, while there have been four dismissals for incompetence or neglect of duty, only 22 men of the original number now remain on the bridge force.

DEATH OF DR. T. T. JANEWAY. — Dr. Thomas T. Janeway, of New York, a relative of Dr. Edward G. Janeway, died suddenly on January 15th in Bermuda, whither he had recently gone to recuperate from the effects of over-work. He was a son of Col. John H. Janeway, a well-known army surgeon who was honorably retired in 1893, and was born in Princeton, N. J., in 1860. He was educated at the Philips Academy, Andover, Mass., and coming to New York to study medicine, entered the office of Dr. Willard Parker. He was graduated from the College of Physicians and Surgeons in 1885, and then became assistant to Dr. Daniel M. Stimpson, the son-in-law and associate of Dr. Parker. He remained in partnership with the latter until last autumn, when he moved to an uptown location.

Miscellaneous.

THE SEGREGATION AND SUPERVISION OF THE TUBERCULOUS.

A VERY important supplementary report on the subject of pulmonary tuberculosis, prepared by Drs. H. M. Biggs and T. Mitchell Prudden, pathologists to the Health Department, who have previously done much good work in this field, has just been made public by the Board of Health.¹ The report is too long to give in full, but the following extracts will serve to show its general purport:

Some idea of the enormous sanitary importance of the subject is obtained by reference to the records of the department showing the reported cases and deaths during the past year. . . . It may be safely assumed that from failure to properly dispose of the sputum of consumptives from thirty to fifty inhabitants of this city daily become infected by tuberculosis, and of these about one-half later die from the disease. All this suffering and death, in view of modern scientific knowledge, we know to be largely preventable by the efficient enforcement of simple, well understood, and easily applied methods of cleanliness, disinfection and isolation. . . .

We fully believe that with proper regulation tuberculosis may be restricted within the narrowest bounds, and eventually, perhaps, almost exterminated. This is not the idle dream of sanitary enthusiasts or theorists, but is a conviction founded upon the most thorough and conclusive experimental investigations, which have been amply confirmed by practical experience. In order to make possible such restriction in the prevalence of this disease, it is necessary that the Health Department shall assume a more complete and com-

prehensive control. This requires, first, the adoption of such measures as shall make possible the general sanitary supervision of pulmonary tuberculosis under well-defined conditions and regulations, differing in many respects from those applied to other more readily communicable diseases; second, the possession of such facilities for the care of the poor suffering from it as shall make possible the removal, when necessary, of those who are dangerous sources of infection.

From the beginning of this work the officials of this department have encountered, in the utter lack of proper facilities for the care of consumptives, an obstacle to practical success so great and so disheartening that we feel impelled to urge our conviction that the grave responsibilities which rest upon the Health Department in this matter cannot longer be adequately sustained without the immediate establishment, under its direct control, of a hospital for the care and treatment of this disease. . . . The best medical opinion forbids that persons suffering from pulmonary tuberculosis be treated in association with other classes of cases in the general medical wards of general hospitals. The special hospitals for the treatment of pulmonary tuberculosis now existing in this city are not free public hospitals, and are quite unable to meet the demands upon them by the poor. . . . The Department of Public Charities is not able to provide separate accommodation, excepting to the most limited extent, even for advanced cases, and as a result actual isolation does not exist in any of the municipal institutions. In every one of the institutions of the Department of Charities and the Department of Correction consumptives are found occupying beds in the general wards of the various hospitals, associating with healthy prisoners in the cells and in the greatly overcrowded workrooms of the workhouse and the penal institutions. Many of these cases, as we know from careful investigation, are sources of actual danger to their associates. . . .

There is no disease with which we have to deal in which our knowledge justifies more completely the conviction that it is absolutely preventable and that it can be stamped out by the efficient enforcement of the simple measures referred to. These measures, furthermore, involve no hardship to the individual, and when we recall that even with a reduced death-rate nearly six thousand persons died during the year 1896 in this city from tuberculosis, the vital importance of the subject is evident. We would, therefore, respectfully recommend:

First, That such action be taken by the Health Board as seems necessary and proper to at once secure the provision of hospital accommodations, under its charge, for the care of the poor suffering from pulmonary tuberculosis, who, as active sources of danger to the community may properly come under its supervision.

Second, That an amendment be made to the Sanitary Code declaring that tuberculosis is officially considered a communicable disease and formulating regulations under which its sanitary surveillance shall be exercised.

Third, That all institutions in this city which admit and treat cases of pulmonary tuberculosis be subjected to regular and systematic inspection by officials of this Board, and that specific regulations be established for the conduct of such institutions, to accord with the proposed amendment to the Sanitary Code.

¹ This report recalls a previous report from the same source in November, 1893, and the discussion at a special meeting of the College of Physicians of Philadelphia in January, 1894.

Fourth. That the scope of the measures designed for the education of the people in regard to the nature of pulmonary tuberculosis, and the methods to be taken for its prevention, be enlarged, and a closer sanitary supervision be maintained over individuals suffering from this disease in the densely populated tenement districts and in the crowded workshops and public buildings of this city.

MEMORIAL TO MICHIGAN MEMBERS OF CONGRESS, RELATIVE TO A PERMANENT CENSUS SERVICE OF THE UNITED STATES.

At the regular meeting of the Michigan State Board of Health, at Lansing, January 8, 1897, the following preamble and resolutions were unanimously adopted:

OFFICE OF THE SECRETARY OF THE STATE BOARD OF HEALTH, LANSING, January 11, 1897.

Whereas, The bill "to provide for a permanent census service" reported to Congress by Hon. Carroll D. Wright, will be of great usefulness to the sanitary service of this State, as follows: (1) by providing a more frequent statement of population, thereby affording a basis for reliable vital rates and the more accurate calculation of intercensal populations, upon which such rates depend; (2) by providing means for ascertaining, for the first time in the history of the census, a reliable representative death-rate for the State which will be comparable with those of other States and countries, Michigan being now a so-called non-registration State; (3) if Michigan shall become a registration State by act of the present Legislature for the immediate registration of deaths, by providing an annual comparative compilation of its data in connection with those of other registration States, thereby greatly increasing the usefulness of the Michigan Statistics, therefore be it

Resolved, That the Michigan State Board of Health, at its quarterly meeting held at Lansing, January 8, 1897, urgently recommends the passage of the bill for a permanent census service, on the ground of the improvement that will result therefrom to the sanitary interests of the country; and further

Resolved, That a copy of this resolution be sent to each Senator and Representative from Michigan in Congress, with the request that they labor for the passage of the measure.

HENRY B. BAKER, *Secretary*.

Correspondence.

EDWARD P. ELLIOT, M.D.

BUTLER HOSPITAL, PROVIDENCE, R. I.,
January 12, 1897.

MR. EDITOR:—The announcement, this morning, of the death of Dr. Edward P. Elliot, the first assistant physician at the Danvers Lunatic Hospital, comes as a great shock to all who knew him, and with especial force on his colleagues in the field of mental medicine. Endowed by nature with a brilliant intellect and educated in the most thorough manner for his profession, Dr. Elliot easily took rank with the ablest men engaged in psychiatric work. His personal qualities endeared him to his associates, and his modesty was such that the real extent of his abilities was fully known only to those who knew him best.


Others will elsewhere pay a fitting tribute to his memory, but I cannot refrain from the expression of my deep personal grief at the loss of a valued friend and associate and a still deeper sense of sorrow at the greater loss to the medical profession which the too early death of Dr. Elliot occasions.

Sincerely yours,

W. A. GORTON, M.D.

METEOROLOGICAL RECORD

For the week ending January 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermo- meter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'lh'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8,00 A. M.	8,00 P. M.	Daily mean.	8,00 A. M.	8,00 P. M.	8,00 A. M.	8,00 P. M.	8,00 A. M.	8,00 P. M.	
S... 3	30.46	46	53	40	79	84	82	S.W.	S.W.	12	10	O.	C.	.69
M... 4	30.15	46	54	38	78	100	89	S.W.	E.	6	7	O.	R.	
T... 5	29.65	48	60	23	96	87	92	S.E.	W.	12	15	C.	C.	
W... 6	29.76	32	39	26	81	87	84	W.	S.W.	7	20	C.	C.	
T... 7	30.26	31	37	25	72	61	66	W.	N.	10	7	C.	C.	
F... 8	30.39	23	27	19	77	64	70	N.	N.	16	20	O.	F.	
S... 9	30.14	24	30	17	64	52	58	N.	N.	12	8	O.	C.	
														

* O., cloudy; C., clear; F., fair; G. fog; H., hazy; S., smoky; R., rain; T., threat- ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 9, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	738	223	11.85	16.95	1.20	1.05	5.55	
Chicago	1,019,226	482	205	13.65	25.20	5.4	3.73	4.62	
Philadelphia	1,164,000	513	142	12.40	22.00	5.0	3.40	6.40	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	179	52	6.16	16.80	2.12	—	2.80	
Boston	494,005	222	49	9.45	14.40	—	1.80	4.05	
Baltimore	496,315	191	65	8.84	9.88	.52	1.56	4.68	
Cincinnati	336,000	133	—	5.23	18.75	—	2.25	2.25	
Cleveland	314,637	73	—	5.48	5.48	—	1.37	1.37	
Washington	275,500	—	—	—	—	—	—	—	
Pittsburg	238,617	81	24	8.61	18.45	—	1.23	2.46	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	20	15	15.00	30.00	—	—	—	
Charleston	65,165	—	—	—	—	—	—	10.00	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	37	12	5.40	37.80	—	—	2.70	
Fall River	88,000	41	17	4.41	41.48	2.44	—	—	
Lowell	84,359	31	12	9.09	16.15	—	3.23	3.23	
Cambridge	81,619	22	6	8.80	8.30	—	4.15	4.15	
Lynn	62,355	20	—	15.00	5.00	—	—	10.00	
New Bedford	55,254	28	6	3.57	10.71	—	—	—	
Springfield	51,534	15	2	6.66	6.66	—	—	6.66	
Lawrence	52,153	16	12	—	18.75	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	13	4	—	13.58	—	—	—	
Brockton	33,157	6	3	16.66	33.33	—	—	16.66	
Haverhill	30,185	6	1	16.66	16.66	—	—	16.66	
Malden	29,709	11	3	18.18	45.45	—	9.09	9.09	
Chelsea	31,295	14	3	—	14.28	—	—	—	
Fitchburg	26,394	17	4	—	23.52	—	—	—	
Newton	27,422	8	0	—	—	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	11	1	—	9.09	—	—	—	
Waltham	20,877	4	1	—	25.00	—	—	—	
Quincy	20,712	7	4	14.28	28.56	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	5	1	40.00	20.00	—	—	40.00	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	7	1	14.28	14.28	—	—	14.28	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,064; under five years of age 898; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 317, acute lung diseases 558, consumption 366, diphtheria and croup 140, typhoid fever 54, diarrheal diseases 44, scarlet fever 23, measles 16, whooping-cough 16, erysipelas 13, cerebro-spinal meningitis 7, malarial fever 4.

From scarlet fever New York 11, Boston 4, Melrose 3, Chicago 2, Philadelphia, Cincinnati and Clinton 1 each. From measles New York 8, Boston, Fall River and Melrose 2 each, Chicago and Quincy 1 each. From whooping-cough Philadelphia 9, New York and Pittsburg 2 each, Chicago, St. Louis and Boston 1 each. From erysipelas Baltimore 3, New York, Chicago, Cleveland and Pittsburg 2 each, St. Louis and Lowell 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,846,971, for the week ending January 2d, the death-rate was 22.3. Deaths reported, 4,634: acute diseases of the respiratory organs (London) 348, whooping-cough 106, measles 97, diphtheria 93, scarlet fever 53, diarrhea 47, fever 40.

The death-rates ranged from 16.6 in Bradford to 31.8 in Plymouth: Birmingham 24.7, Bolton 20.8, Bristol 17.2, Croydon 16.8, Huddersfield 21.3, Hull 22.7, Leeds 25.3, Leicester 19.7, Liverpool 25.7, London 20.8, Manchester 24.9, Newcastle-on-Tyne 19.4, Nottingham 28.6, Sheffield 20.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 2, 1897, TO JANUARY 8, 1897.

Leave of absence for one month is granted MAJOR JAS. C. MERRILL, surgeon, U. S. Army.

CAPTAIN ROBERT B. BENHAM, assistant surgeon, U. S. Army, retired from active service by reason of disability.

CAPTAIN EUGENE L. SWIFT, assistant surgeon, U. S. Army, has been granted further extension of sick leave absence of two months.

Leave of absence for two months, to take effect on or about January 18, 1897, is granted by the Secretary of War to MAJOR PHILIP F. HARVEY, surgeon, U. S. Army.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 16, 1897.

J. C. WISE, medical inspector, relieved from duty at the Museum of Hygiene.

J. R. TRYON, medical inspector, ordered to examination for promotion, January 11th.

G. P. BRADLEY, surgeon, ordered to examination for promotion, January 18th.

A. C. H. RUSSELL, surgeon, ordered to the "Lancaster," per steamer of January 27th.

C. T. HIBBETT, surgeon, detached from Norfolk Navy Yard, February 1st, and ordered to the "Independence."

F. W. OLCOTT, passed assistant surgeon, detached from the "Independence" on reporting of relief and ordered to the Puget Sound Naval Station.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lectures will be given on Thursday evenings, January 28th and February 4th, at 8 P. M., by PROF. J. J. PUTNAM. Subject: "The Newer Views of the Nature, Causes and Treatment of Epilepsy." The profession are invited.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, January 27, 1897, at 8 P. M.

Papers: D. F. Rouayne, M.D., "A Report of a Case of Suppurating Ovarian Cysts; Operation and Treatment."

E. L. Twombly, M.D.: "Vaginal Myomectomy."

F. W. JOHNSON, M.D., *Chairman*.

C. H. HARE, M.D., *Secretary*.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 25th, at 8 o'clock.

Dr. Clarence J. Blake will read a paper on: "Intratympanic Disease as a Factor in the Causation of Auditory Vertigo." The following gentlemen have been asked to take part in the discussion: Drs. J. J. Putnam, J. O. Green, Walton, Crockett, F. L. Jack.

Dr. W. M. Conant will read on: "Gall-Bladder Surgery." Discussion by Drs. M. H. Richardson and J. W. Elliot.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

APPOINTMENTS.

DRS. ARTHUR L. CHUTE, WM. P. COWES and SIDNEY A. LORD, have been appointed district physicians to the Boston Dispensary.

RECENT DEATH.

JOHN JAMES SAVAGE, M.D., M.M.S.S., died in Lowell, January 12, 1897, aged twenty-four years.

BOOKS AND PAMPHLETS RECEIVED.

The Medical News Visiting List, 1897. Philadelphia: Lea Brothers & Co. 1896.

Acute Rheumatic Iritis, with Cases. By A. Britton Deynard, M.D., New York. Reprint.

The Non-Hereditary of Inebriety. By Leslie E. Keeley, M.D., LL.D. Chicago: Scott, Foresman & Co. 1896.

Transactions of the British Orthopedic Society. Volume I, Sessions 1894-95. Published by the Society. 1895.

Leprosy and the Charity of the Church. By Rev. L. W. Mulhane. Chicago and New York: D. H. McBride & Co. 1896.

Transactions of the Colorado State Medical Society, Twenty-sixth Annual Convention, By-Laws and List of Members, Denver, June, 1896.

The Medical Record Visiting List and Physician's Diary for 1897. New revised edition. New York: William Wood & Co. 1896.

Anatomical Atlas of Obstetric Diagnosis and Treatment. By Oscar Schaeffer, M.D. With 145 illustrations. New York: William Wood & Co. 1896.

Transactions of the American Dermatological Association at its Twentieth Annual Meeting held at the Hot Springs of Virginia, September 8, 9 and 10, 1896. Reprint. 1896.

Transfusion, Infusion and Auto-Transfusion; their Comparative Merits and Indications. An Improved Surgical Bed. By August Schachner, M.D., Ph.G., of Louisville. Reprints. 1896.

Notes on Inguino-Scrotal Cysts. On the Treatment of Fractured Shafts of Bone in Children; Simple, Complicated and Compound. By Thomas H. Manley, M.D., New York. Reprints. 1896.

The Surgery of the Chest. By Stephen Paget, M.A. Oxon., F.R.C.S., Surgeon to the West London Hospital and to the Metropolitan Hospital. Illustrated. New York: E. B. Treat. 1897.

History of a Case, in which Five Years Previously a Piece of Steel was Successfully Removed from the Vitreous Chambers by Means of an Electro-Magnet. By Charles A. Oliver, A.M., M.D., Philadelphia, Pa. Reprint. 1896.

Report of Two Fatal Cases of Hematuria, One in Male, from Spinal Injury, Traumatic; One in Female, from Primary Epithelioma of Trigone of Female Bladder, Pathological. By Thomas H. Manley, M.D., New York. Reprint. 1896.

The Microscopical Proof of a Curative Process in Tuberculosis; or the Reaction to Tuberculin Evidenced by Blood Changes Hitherto Unrecognized. My Latest Improved Binocular Stethoscope. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1896.

The Practice of Medicine, A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University, etc. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1896.

Over the Hookah, The Tales of a Talkative Doctor. By G. Frank Lydston, M.D., Fellow of the Chicago Academy of Medicine, The Southern Surgical and Gynecological Association and the American Academy of Social and Political Science. Illustrated from the author's designs by Mr. C. Everett Johnson. Chicago: Fred. Klein Co. 1896.

Ophthalmic Operations as Practised on Animals' Eyes. By Clarence A. Veasey, A.M., M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic; Chief Clinical Assistant to the Ophthalmological Department, Jefferson Medical College Hospital, etc. With 56 illustrations. Philadelphia: The Edwards & Docker Company. 1896.

Essentials of Physical Diagnosis of the Thorax. By Arthur M. Corwin, A.M., M.D., Demonstrator of Physical Diagnosis in Rush Medical College, Attending Physician to the Central Free Dispensary Department of Rhinology, Laryngology and Diseases of the Chest. Second edition, revised and enlarged. Philadelphia: W. B. Saunders. 1896.

Twentieth Century Practice, An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume VII, Diseases of the Respiratory Organs and Blood, and Functional Sexual Disorders. New York: William Wood & Co. 1896.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections in Photo-Lithochromes, from models in the Museum of the Saint Louis Hospital, Paris. With explanatory wood-cuts and text by Ernest Besnier, A. Fournier, Teneson, Hallopeau, Du Castel, Physicians to the Saint Louis Hospital, with the co-operation of Henri Feulard and L. Jacquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P., Assistant Physician to, and Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part V and VI. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders. 1896.

Original Articles.

NOTES ON DERMATITIS VENENATA.¹

BY JAMES C. WHITE, M.D., BOSTON,
Professor of Dermatology in Harvard University.

I DESIRE to present to the Association some brief notes on the occurrence of forms of dermatitis venenata produced by certain substances which were not included in my work on this subject published in 1887, because not previously met with by me. Some of these instances have been already published,² and will only be referred to by title; the others are new to my own experience, and of them I find no reference in medical literature.

Inflammation of the skin induced by external agencies is of frequent occurrence, as illustrated by the following figures taken from the reports of my clinic at the Massachusetts General Hospital during the last seven years. In this period 20,000 new patients affected with skin diseases have presented themselves, among which were 360 cases of undoubted dermatitis venenata. Of those occurring within the past two years the exciting causes were recorded as follows: rhus, 30; iodoform, 5; articles of clothing, 5; washes of unknown nature, 7; mosquito poison, 5; kerosene, 4; furniture polish, 3; tincture of iodine, 3; chromic acid, 2; caustic potash, 2; carbolic acid, 2; caustic lime, vapor of acid, balm of Gilead, mustard water, pyocottannin, croton oil, tincture of arnica, arsenic, tincture of guaiacum with vinegar, of each one. In 35 the particular cause was not ascertained.

An analysis of the etiology of the cases extending over the seven years would have without doubt added many other irritating agents to this list, but this will suffice to illustrate the great diversity of their nature. The large proportion of unascertained causes recorded is interesting, and may be explained in various ways:

(1) The lack of observation in patients. You all know how well-nigh impossible it is to get from a great majority of persons of all classes satisfactory information as to the minutiae of their doings of a few days back only. When, therefore, in your investigation of the cause in a case of dermatitis venenata it becomes important to learn just where the patient has been, what he has done, and with what substances he has come in contact during the week preceding the beginning of the attack, one gets little assistance ordinarily from his replies. It is so customary for the patient to positively deny having been in this or that suspected situation, warranted by the appearances of the case, and later to return and say, "Oh, I forgot that I had done so and so," that I am accustomed to inform my class that, as a rule, they need not expect to learn the nature of the exciting agency in any case until the second visit. When it comes to being conscious of and later to remembering the chance breaking of a twig by the roadside, the sitting for a moment on a stone wall, perhaps, and the hundred habitual incidents of daily life, any one of which may possibly be connected with such dangers, it is not strange that the data for a satisfactory diagnosis are not generally supplied by the patient.

(2) Then we must consider how great is the number of substances ordinarily employed in the arts, with the irritating properties of which the workman is wholly unacquainted, so that he is not at all upon his guard against them. Managers do not always, I regret to say, instruct their employees as to the necessary precautions in such cases. Nor does the physician make himself sufficiently acquainted with the processes and materials employed in the arts and trades, to recognize the nature of many such cases which come to him for relief, and to warn the patient against renewed dangers.

(3) Nor must we forget the constant discovery of new chemical compounds and their introduction into manufactures of many kinds, substances of which we do not even know the name, far less their composition or properties. For such novel causes of dermatitis venenata we must always maintain an expectant attitude. And new physical forces are constantly being employed in the daily work of life, with the possible dangerous effects upon those engaged in the manipulation of which we should make ourselves familiar. As an instance, we have all, no doubt, seen a considerable variety of cutaneous changes exhibited by those who are engaged in the various applications of electricity in the useful arts, not only the result of the agencies employed in its generation, but of the direct action of the mysterious power itself.³

It is not surprising, therefore, that we so often fail to discover the immediate causes of artificial dermatitis.

Moreover, in considering the question of this or that plant or other substance as the exciting cause of an evidently artificial dermatitis, with which the patient has been in contact, we must always bear in mind the idiosyncratic vagaries of the human skin. Just as the individual stomach will not tolerate articles of food which are eaten with impunity by all mankind, so there are individual integuments which are thrown into local excitement by contact with substances which are handled by all other persons without harm. Even plants which "poison" the great majority of persons who touch them, like the venomous species of rhus, fail to produce the slightest irritation upon thorough application to the skin of a favored few. It is impossible to explain such individual susceptibility and exemption. We have to be satisfied with a word—idiosyncrasy. But we must always be prepared to recognize the working of such a law, and be justified accordingly in suspecting the commonest plant or other substance in any individual case we have to investigate.

And now let me call your attention to a brief description of some cases of dermatitis venenata hitherto commonly unrecognized.

PARSNIP—PASTINACA SATIVA.

A woman came to my office with hands and wrists greatly swollen, and the dorsal surfaces of the former thickly occupied by a papular-vesicular efflorescence in process of development. There was much heat and itching. Two days previously she had washed five bushels of recently dug parsnips and wiped them with a cloth. On the following day the inflammation began. The affected skin was of a peculiar lurid color. No other explanation of the dermatitis was apparent. As she lived at a considerable distance from Boston no subsequent observation of the case was possible.

³ See Journal of December 3, 1896, for an account of severe dermatitis produced by exposure to Röntgen rays.

¹ Read at Meeting of American Dermatological Association, September 8, 1896.

² On *Primula obconica*, Garden and Forest, February 29, 1889; Boston Medical and Surgical Journal, May 1, 1890. On Poisoning by "Violet Water," Boston Medical and Surgical Journal, December 12, 1889.

Speaking of this case to my class, one of the students informed me that he had seen men and boys present a vesicular dermatitis of the hands and wrists after weeding parsnips. As many as three or four of a gang would be affected.

Very few of the umbelliferous plants contain principles capable of exciting cutaneous irritation. In my book on dermatitis venenata I mention but three: *ferula gabaniflua*, the source of galbanum; *thapsia garganica*; and *heracleum lanatum*. The latter (cow-parsnip) is closely allied to edible parsnip in its botanical features, and its leaves when applied to the skin may produce vesication. Our garden parsnip (*pastinaca*) runs wild, it is well known; and its root is described as then degenerating in esculent properties and becoming poisonous. It may be that both foliage and root retain under cultivation properties which are irritating to some skins.

HAMAMELIS VIRGINIANA.

Can hamamelis produce inflammation of the skin?

I was consulted by a man at the hospital, who had applied to his shoulder, on account of rheumatism, a mixture of laudanum and hamamelis. The whole upper chest, upper arm, and neck were occupied by large vesicles, oozing areas, and confluent papules. No other applications had been made. Of course, there is no certainty as to the composition of preparations labelled hamamelis, and it is not impossible that some of the principles of laudanum may be irritating to the skin of some persons, although I have never known it to act in this way.

Witch-hazel is used to such an enormous extent as a household external remedy that cases of cutaneous irritation should be familiar to us all, if it were possible of exciting it except in the rarest instances. One manufactory in Boston is said to use a ton and a half of leaves and three and a half tons of bark a year in the preparation of the "extract." It must be placed in the suspected class.

OLEUM CASSIAE.

I would record here an instance of inflammation of the skin excited by oil of cassia, which was presented by our associate, Dr. Greenough, at a meeting of the Boston Dermatological Club. I take the liberty of mentioning it in his absence.

The patient was a girl engaged in dipping wooden toothpicks in oil of cassia for the purpose of giving them an agreeable odor. A few days after entering upon this occupation her hands began to show signs of irritation, and she was obliged to leave it after a fortnight, at which time she was exhibited to the society by Dr. Greenough. The hands then smelt strongly of cinnamon. Their dorsal and lateral surfaces and the front forearms were greatly inflamed, and occupied by vesicles and oozing areas. The face was red and blotchy, and the lower abdomen was reported to be affected in a similar way, no doubt by prolonged contact with the hands during sleep.

Cinnamic aldehyde, the essential principle of cassia bark and flower buds, produces no irritating action upon the integument, so far as I have hitherto known. The possible presence of adulterants in substances which are only rarely the cause of dermatitis should be borne in mind as an explanation of such action. Petroleum compounds have been found in commercial specimens of the oil.

HOP HORNBEAM—OSTRYA VIRGINICA.

I beg your attention to the following note from Charles Sprague Sargent, Professor of Arboriculture and Director of the Arnold Arboretum, Harvard University. He writes: "Do you know about the stinging properties of the hairs which grow at the base of the fruit of the hop hornbeam? On my hands they cause an irritation which does not entirely disappear for several hours. I find no reference to this fact in any of the books to which I have access."

This small tree, growing in all parts of the United States, attracts notice through the resemblance of its pendulous fruit to hops, and its wood is much used on account of its hard quality. I was not aware of such irritative properties, and should be pleased to hear if members of this Association have knowledge of such. It may be another explanation of some of the many cases of dermatitis which we so often meet with and cannot refer to contact with any well known poisonous plant, although confident that they are due to some such cause.

ANILINE BLACK.

An account of several cases of dermatitis in members of the Boston Fire Department produced by wearing black shirts.

On June 22d, a fireman presented himself at my clinic with bands of dermatitis around the neck, wrists and lower nates, hips and upper thighs. The penis was also inflamed. The appearances were those of infiltrated erythema of a brilliant red color, decidedly elevated above the general surface, occurring either in uniform areas of considerable extent, or in smaller, discrete circular patches, varying in size from a pea to a dime. The latter lesions were sharply defined and somewhat resembled those of urticaria rubra, although not fugitive. There was no sign of vesiculation or excoriation upon the affected areas. The bands of inflammation around the neck and wrists were from two to three inches in width, and were abruptly defined above and below. The central lower affected region was some five or six inches in width, and was not so sharply outlined. The penis was greatly swollen and reddened, and twisted upon itself. The subjective symptoms were not as intense as might have been presupposed, a mild degree of burning and itching only. There was no associated disturbance of the general economy.

The peculiar distribution of the appearances suggested at once the artificial nature of the dermatitis, and as it was apparent that it was sharply limited to parts where the collar, cuffs and flaps of the outer shirt projected beyond the lines of the undershirt, inquiry was directed to the former garment. It was learned that some two or three weeks previously the Fire Department had issued new black cotton shirts as part of the prescribed summer uniform. They were worn over an undershirt, and had a rolling collar, projecting cuffs, and were considerably longer than the latter. It was learned also that another fireman in the same house was similarly affected.

The symptoms had not developed for ten days or thereabouts after the shirts were first worn, and this proved true in the other cases subsequently treated. During this earlier period the weather had been exceptionally cold for the season, and it was not until this was followed by a period of excessive heat that the inflammation of the skin developed. Then it was

that the portions of the shirt in direct contact with the parts above indicated became moistened by perspiration and actively irritating.

The attention of the Fire Department was called to the case, and inquiry was instituted with regard to the possible existence of other instances. During the following few days three other firemen appeared at the clinic in a similar condition. The appearances were wonderfully identical in all of them: uniform areas of perfectly smooth, elevated infiltration of varying extent, with sharply defined abrupt borders, occupying portions of the trunk, especially where the underclothing was pressed in closest contact with the integument. In one of the later patients the parts affected were the same as in the first instance, but in the others large areas upon the trunk were intensely inflamed, and it was learned that the wearers were profuse sweaters and that their undershirts were saturated with perspiration in consequence of their ardent occupation. In no instance did the inflammation extend below the lower level of the garment on hips, buttocks and thighs. In three of the patients the penis was affected.

Two shirts were issued to each man, and each was worn for a week without washing. It was during the wearing of the second shirt, that is, during the intensely hot weather of the second week, that the cases developed. In a subsequent instance a shirt which had been washed retained undoubtedly its irritative properties. In two of the cases the affected areas on the arms passed later, in consequence of continued friction and scratching, into a true eczematous condition.

During the period of observation of the affection among the firemen an out-door laborer came to the clinic presenting similar cutaneous manifestations, which had appeared a few days after wearing a black shirt made apparently of the same material. In this case, too, the dermatitis was sharply limited to the regions covered by the garment.

June 26th, a shirt belonging to one of the firemen most seriously affected, one which had been worn a few days before the outbreak and which had been thoroughly moistened by the underlying shirt, and which had not been washed, was sent to Prof. William B. Hills of Harvard University for analysis. His report follows:

BOSTON, July 13, 1896.

DEAR DOCTOR:—I have completed my analysis of the black shirt which you left with me a fortnight since, and have not been able, using about a square foot of the material, to detect any metal other than iron; antimony, arsenic and chromium are absent. The compound of iron commonly used in the manufacture of aniline black is the chloride, and this is supposed to exist in the fabric in some sort of combination with the pigment.

It would seem that the irritant action of this material is due either to the iron compound, or, more likely, probably to the coloring-matter itself, or to some other organic material entering into the composition of the coloring matter, or employed in fixing the color upon the fabric.

I suspect that some of these cases of eczema are due to the pigments themselves; but, so far as I know, the action of these is unknown. I do not think their action has been studied experimentally. It has been customary to attribute the effects to arsenic, antimony, etc., especially in cases in which the compounds of these metals are present in the fabric, and to let the matter rest there. In this case something else is evidently the offending material.

I do not know of any facts warranting an opinion that iron has the same irritant action that arsenic, antimony and chromium have in the combinations used in printing

and dyeing; and, it seems to me, we must look upon the pigment itself, or upon some other organic constituent of the fabric, as the *probable* cause of the trouble.

Yours truly,

WILLIAM B. HILLS.

THE TREATMENT OF DISABLED JOINTS RESULTING FROM THE SO-CALLED RHEUMATOID DISEASES.¹

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

DURING the past few years it has been my fortune to see a large number of patients with reference to the treatment of stiff or deformed joints which have resulted from the so-called rheumatoid diseases; and from a careful study of the cases certain points have been suggested in regard to the diagnosis and the treatment which seem to me to be of enough importance to be brought before this Society for discussion.

My apology for presenting a subject in which there is so little general interest is that the impression made upon me by seeing so many of these helpless cripples has been most profound; and it is my chief desire and hope that by the discussion of the subject here a more definite understanding of the disease may be obtained, and that it may be possible to hold out more encouragement to those afflicted with diseases than which none that are non-mortal can be worse.

The cases, as they have been seen, have varied greatly, both as to the extent of the disease and the degree of deformity. In some of the mildest only one or two joints have required treatment, while in the worst cases almost every joint in the body has been affected, the condition being not unlike that seen in the pitiable subjects who are exhibited as ossified men and women in our cheap museums. Most of the cases have been seen at the Carney or the Good Samaritan Hospitals; and I am indebted to the members of the staff of both hospitals for referring the cases to me, and for their aid in carrying on the treatment.

All cases have been excluded in which the joint disability resulted from acute inflammatory rheumatism, and also all cases in which the trouble developed in connection with gonorrhea, typhoid fever, or the other infectious diseases. In these cases the treatment is more definite and the prognosis more or less certain. Only those cases have been considered in which the diagnosis of rheumatoid arthritis, or some of its synonyms, had been made by the physician in charge, and in which the diagnosis was borne out by the pathological changes which it was possible to study clinically. Among all the cases which were grouped under this head, there were two distinct types, which presented entirely different features, and which were affected so differently by treatment that a brief description of their distinctive features is necessary before any report of the treatment can be given. Please understand that the classification is purely a clinical one, and is not based, as should be the case, upon a careful bacteriological and pathological study. Such work is being carried on, but as yet the observations are too few from which to make any deductions. It is for this reason that I have not attempted to suggest new names, but have used those which have long been employed, giving them perhaps a somewhat different meaning.

¹ Read at the Surgical Section of the Suffolk District Medical Society, November 4, 1896.

One of the two types I have called "rheumatoid arthritis," and the other "osteo arthritis." Both terms are incorrect; but they may, perhaps, serve until more advanced work has determined the cause of the disease and the exact nature of the morbid anatomy.

The cases designated by the term "rheumatoid arthritis" are less frequent than those of "osteo arthritis," but develop more rapidly and lead to much more permanent crippling. Rheumatoid arthritis seems to be essentially a disease of atrophy, and is characterized by a spindle-shaped swelling of the joints during the acute and the subacute stages, which afterwards subsides leaving the joint smaller than normal. In the fingers the line of the joint is smaller than the rest of the finger, instead of larger as is normal, due to the atrophy of the ends of the bones and the articular structures. The skin over the joint is also much atrophied, the normal wrinkles being obliterated. The deformities are due, except when the disease has come on very early in life before the bones have ossified, to muscular atrophy or the continued unvaried position of the affected part. They are usually deformities of flexion or extension, there rarely being any lateral distortion, such as is common in joints affected by the other type of the disease.

The patients have been chiefly women, and the disease has developed at two distinct periods of life, at adolescence and from middle life to old age. In the former the disease runs a more acute course, more of the joints are involved at one time, and nearly all of the affected joints become firmly ankylosed as the inflammatory process subsides. The disease of middle life or old age is much less acute than in adolescence, developing more slowly, with rarely more than two or three joints inflamed at a time. With these cases it has taken from four to five or six years for the disease to develop, while with the younger patients, one, two or three years have shown the disease well advanced. Firm ankylosis is much less frequent in the disease occurring after middle life. The joints may be partially ankylosed and the function much impaired, but the destructive process is less marked than with the younger patients.

Fig. I shows the appearance of the fingers, with the spindle-shaped enlargement about the joints, as is seen during the acute or subacute stage of the disease. This swelling is due almost entirely to change in the soft parts and peri-articular structures, the bone being but little if any involved, as is shown in the radiograph, Fig. II. It is seen in this that there is considerable swelling about the joint, but the appearance of the bone is normal, except that the line of the joint is somewhat indistinct, due to the change in the cartilage.

Figs. III and IV illustrate the same condition after the acute symptoms, with the swelling, have subsided. The atrophy of the joint is plainly shown, the joint line being the smallest part of the finger. In both patients the finger joints were ankylosed. Fig. III represents the hand of an old person, while Fig. IV is the hand of a young woman. The contrast between this condition and that represented by Fig. V is certainly very evident.

Osteo arthritis is much more common than rheumatoid arthritis, but rarely leads to permanent crippling, and is characterized by a proliferation of the cartilage, with the formation of osteophytes, at the ends of the bones. This is essentially a disease of middle life or old age, and the joint disability is due to the mechanical

presence of the masses of bone or cartilage. The distortion of the part is due also to the presence of this hypertrophied tissue, and as the growth is rarely equal upon the two sides of the joint there is almost always some lateral deformity. The joint is usually more or less flexed, owing to the presence of the osteophytes or cartilage on the dorsal aspect of the joint. These rarely if ever occur in the flexure of the joint, so that hyperextension is never seen as in rheumatoid arthritis. In osteo arthritis the joint is larger than normal, as is shown in Fig. V, the reverse of rheumatoid arthritis. The change in the bone is shown in Fig. VI.

The most common form of osteo arthritis is that seen so frequently in both men and women in the form of Heberden's nodes (Fig. V), at the phalangeal articulations. While this in the large majority of cases may interfere with the use of the joint to a certain degree, it does not cause serious trouble. If, however, an injury is received, the hypertrophy of the cartilage and the formation of the osteophytes goes on much more rapidly, and may very seriously disable the joint. This, it seems to me, is a point of much importance, and explains in part why seemingly simple injuries in middle-aged or old people often result in long confinement and permanent impairment of the use of the joint. In such cases a much more serious prognosis should be given.

In support of this statement, the following cases are reported in considerable detail:

CASE I. Miss E. M., sixty-five years of age, a nurse by occupation, was referred to me at the Carney Hospital by Dr. J. C. Warren. For many years the finger-joints have been enlarged, but she has been able to do her regular work and aside from this has been very well.

About two and a half years ago the patient fell into a cellar-way, receiving a small scalp wound and a severe contusion of the right knee. The left knee and right arm were considerably strained, but not as severely as the right leg. The left arm escaped entirely. Because of the injuries she was taken to the Massachusetts General Hospital, where she remained for two or three weeks, and was then transferred to the St. Luke's Convalescent Home, where she remained for six or eight weeks. After this she was as well as ever for a few months, but then began to be troubled with needle-like pains in the knee-joints, chiefly the right. These pains were quite constant, and grew worse, so that it was more and more difficult for her to be about.

A year and a half after the injury the right knee commenced to catch occasionally on walking. This grew worse, so that the patient was frequently thrown down by "the locking of the joint." Because of this and the feeling of insecurity and helplessness which it produced, the patient was referred to the Orthopedic Clinic at the Carney Hospital.

When first seen, in July of this year, the right knee was considerably swollen, partly due to synovial fluid and partly due to thickening of the ends of the bones. Several loose pieces of cartilage were easily felt. In the left knee there was somewhat the same condition, but less marked, and, while some loose bits of cartilage could be felt, they were evidently still attached to the synovial membrane. Some thickening of the bones at the right elbow could be felt, and the thickening of the humerus at the shoulder was very marked. The left arm was apparently per-



FIG. I.



FIG. IV.

FIG. III.



FIG. V.



FIG. II.



FIG. VI.

FIG. I.

Rheumatoid arthritis, showing the spindle-shaped enlargement of the first phalangeal articulation, as is seen during the acute and sub-acute stage of the disease.

FIG. II.

Rheumatoid arthritis, showing no change in the outline of the bones in spite of the marked spindle-shaped enlargement of the joints. The line of the first phalangeal joints in the index and middle fingers is less distinct than normal, due to the atrophy of the cartilage and the ankylosis of the joint.

FIGS. III, IV.

Rheumatoid arthritis, after the spindle-shaped swelling has subsided, showing the constriction at the joint due to the atrophy, instead of the nodular enlargements as seen in "osteo-arthritis." Fig. III is the hand of an old person. Fig. IV, a young person. All of the joints in both of these hands were still.

FIG. V.

Osteo-arthritis, showing the nodular enlargements (Heberden's nodes) at the second phalangeal articulations.

FIG. VI.

Osteo-arthritis, showing the bony deposits upon and enlargement of the second and third phalanges, causing the lateral distortion.

FOLD
OUT

fectly normal. The Heberden nodosities were present at the phalangeal articulations of both hands.

The patient was admitted to the hospital, and a few days later the right knee-joint was opened by Dr. Balch, and three loose cartilages, as large as hickory-nuts, were removed. At this time the joint was carefully explored, and the rim of new-formed cartilage could be seen as well as felt, and in some places it was quite nodular, showing plainly the origin of the loose bodies.

The subsequent history has been uneventful. There has been no more locking of the joint, although it is probably only a matter of time before some of the other pieces break off and cause trouble.

CASE II. Miss J. A., eighty years old, has always been well and strong, except for trouble with the hands, supposed to be "rheumatism."

Two and one-half years ago the patient was struck by a carriage and knocked down, producing a severe contusion of the right hip and knee, and which confined the patient to bed for a few weeks. After this she was about as well as ever until a few months later, when occasional sharp, needle-like pains were noticed, chiefly in the right knee. This grew steadily worse, the function of the joint becoming more and more impaired and walking more and more difficult. It was because of the pain and the lameness that the patient sought treatment.

Upon examination, the right knee was considerably swollen, the swelling being partly synovial, but chiefly due to the thickening of the bones. The right patella was fully twice as wide as the left, and the rim of cartilage, which had been thrown out at the edge of the articular surface of the femur, was so distinct that it could be pinched between the fingers. What was apparently a similar condition was present at the hip.

None of the other joints showed any signs of active increase of the articular structures. The Heberden nodes at the finger-joints were quite marked, and the thickening was enough to produce considerable lateral deformity.

In both of these cases the change in the joint is apparently produced by a single severe trauma, but the same condition may result from a series of comparatively slight injuries. I have seen one or two cases in women, who were dressmakers, and who were complaining of trouble in the knees, which was apparently due to trauma received by dropping on to the knee or knees in fitting dresses.

The following case is reported more fully to still further emphasize this fact:

Mrs. L. B., seventy years of age, has been well, except for "rheumatism" of the hands, until the past five or six years. Since then she has been unable to continue her occupation, that of putting down carpets, because of the trouble with the knees, kneeling being almost impossible.

Upon examination, both knee-joints were enlarged, the enlargement being due partly to synovial distention and partly to thickening of the bone and cartilage. Both patellæ were fully twice their normal width, the edges being irregular. There was a large nodular thickening about the end of the femur, apparently a rim of new-formed cartilage. There were several pieces of loose cartilage which could be easily felt. The other joints, aside from the nodes on the fingers, showed no change.

The trouble with the joints in this case was prob-

ably due to the constant bruising received in dropping on to the knees in the patient's occupation of carpet-laying.

These cases are reported thus carefully to suggest at least, if not to prove, that what seem to be simple injuries of joints, occurring in persons having a tendency to osteo arthritis, as shown by the enlargement of the phalanges, are followed in many cases by a more or less rapid increase of the cartilage of the injured joints, even though this special joint may have shown no evidence of the osteo-arthritic change before. The increase in the cartilage is at times sufficient to render the joint useless, and the liability to this condition should be borne in mind in giving a prognosis in apparently simple joint injuries.

We must turn now, to that which is properly the subject of this paper, the treatment of the joints disabled by these diseases. The general treatment, including forced diet, stimulating bathing and massage, as well as the medicinal treatment, is of much importance, but more properly belongs to the realm of general medicine, and has been quite fully described in the general text-books and the magazine articles. In these articles, as well as in the works on surgery and even the works on orthopedic surgery, the surgical or mechanical treatment of these conditions is either passed over entirely, or, if it is mentioned, it is in the most superficial way and with the most discouraging prognosis.

In the cases which I have treated, no new or brilliant methods have been employed; and if the results have been any more encouraging or satisfactory than those of other writers, it has been due partly to the classification of the cases, and partly to a most careful and persistent attention to all of the details of treatment.

It is evident at once that the two forms of the disease, or possibly the two diseases, which differ so essentially in their clinical aspects, should require different modes of treatment. In the one, a disease of atrophy characterized by firm ankylosis of the joints, more active methods can be used than in the other class, in which any trauma or forceful movement would cause a more rapid development of the hypertrophied tissue, and greater impairment of usefulness.

In neither case should a complete restoration of the normal functions of the joints be expected. Both forms represent what are considered incurable diseases, and the improvement following the treatment, is improvement in degree only. The patient may still be a cripple, but instead of being absolutely helpless she may be able to take care of herself.

For the cases designated as osteo-arthritis, all manipulation of the joint or forcible correction of the deformity should be most carefully avoided, and the joint protected and immobilized as much as is possible or practicable. The presence of the newly-formed cartilage mechanically interferes with the motion, so that in each movement of the joint, the bones strike against some portion of this new tissue. This constant irritation acts as a stimulus and causes a more rapid development of the cartilage and a still greater impairment of the joint. Forcible manipulation would not only increase this irritation, but would possibly dislodge some of the cartilage, forming a loose body, which in its turn would cause more irritation to the joint. Rest and quiet for the joint is of the first importance, not necessarily an entire disuse of the part, but use in

such a way that the joint is injured as little as possible. If complete immobilization is desirable, the plaster-of-Paris or the leather splint give the best results; but in the majority of cases some motion may be allowed, and a jointed splint, permitting certain degrees of motion, or even the flannel bandage applied over several thicknesses of cotton, will give all the needed support.

The result of free motion is not only to increase the development of the cartilage, but from the internal trauma which results, a subacute synovitis follows, and this at times from the distention of the capsule and the consequent loosening of the ligaments, causes considerable annoyance. Aspiration of the joint in this condition has been very satisfactory.

In the cases of rheumatoid arthritis the affected joints should be used as little as possible, and never manipulated until the inflammatory process has entirely subsided. If treatment be undertaken before this not only will the individual joint be made worse but the disease as it shows in the other joints will be made more acute. Up to this time the treatment should be wholly general.

After the evidences of active disease in the joint have disappeared, more definite measures should be taken to preserve or restore the motion. If, as is frequently the case, there is complete ankylosis, the patient should be etherized completely so that the muscles are entirely relaxed, and the joint flexed first and then extended through the extreme normal limits. This should be done but once and the joint put absolutely at rest. Any malposition of the bones should be corrected at this time. The free manipulation of the joint, the so-called "pump-handle" manipulation should never be attempted in these cases, it being followed by acute pain and swelling, and practically always, so far as I have observed, resulting in an even firmer ankylosis than before.

After the joint has been bent once, always with the flexion first, it is immobilized, and not disturbed for three days. The dressing is then removed, and motion attempted by the patient, no force being allowed. The dressing is then reapplied as carefully as before. At first scarcely any voluntary motion will be possible, but the attempt should be made twice each day, the joint being kept perfectly quiet between times.

This treatment should be continued for several weeks and the dressing not entirely removed until the muscular spasm has disappeared. In the first few weeks when this spasm of the muscles is so marked decided benefit results from the use of hot-air baths. The temperature of the air should be from 250° to 275° F., and the bath should be used for a half-hour each day. This not only relieves the muscular contraction but is claimed to stimulate the secretion of the joint fluid.

After the spasm has disappeared more active measures should be attempted. The patient should be given more active work and massage, and passive manipulation should be used.

In following this course of treatment very little pain results and what there is, is commonly referred to the muscles, probably the result of use after long inaction. There should be very little if any joint effusion as the result of the forcible breaking up of the ankylosis, and rarely any ecchymosis.

A movable joint should be the result in the large

majority of cases, but the degree of motion will vary according to the joint involved, the amount of displacement of the bones, and the character of the adhesions. The more complicated the joint the less satisfactory will be the result. In the knee it will depend very largely upon the patella. If this can be freed and kept free the motion will be good, but, if it becomes adherent, a considerable amount of motion may still be present as the result of the stretching of the patella tendon, but the voluntary control of the joint will be much less perfect, and a splint will probably be necessary.

In the articulations in which the tendons lie close to the joint, as at the wrist, the restoration of motion will be more difficult than where the joint is more protected.

The prognosis as regards the hip joint is very good, and in one case in particular normal motion has resulted.

In the ankles and in the joints of the fingers and toes, the results have been fairly good. The chief difficulty at the ankle, consists in gaining the dorsal flexion. The joint is invariably ankylosed with the foot extended, the position at times having existed for years. During this period the calf muscles contract, and it is this shortening which limits the flexion. To meet this condition, the traction shoe devised by Dr. Shaffer, has been of great help and is to be used after the spasm has disappeared, when the passive manipulation is desirable.

The knee-joint is almost invariably found flexed, with some dislocation backwards of the tibia, and with this subluxation there is usually an outward rotation of the leg and foot. To meet this condition, the joint is first flexed as much as possible, the patient being etherized, and then by means of the genu-clast, described in another paper,² the bones are brought forward into their normal position. It is impossible to accomplish this replacement of the bones, when the deformity has existed for any considerable time, with the hands alone.

The different cases, as they are seen, present so many different features as to the number of joints affected and the degree of disability; and the possibilities of treatment and the results of treatment vary so much in the different cases or the different joints, that it is impossible to form any statistics, or to make any more than general deductions from a series of such cases. Each case must be considered by itself, and rather than burden you with a detailed account of each patient, which would be not only wearying but of little value, I have selected two or three of the worst cases for detailed report, feeling that this will show, more clearly than any statistical table, the nature and extent of the improvement which is to be expected in these cases.

CASE I. Miss L. G., thirty-three years of age. Thirteen years ago patient began to have trouble with "rheumatism." The disease has gradually progressed, one joint after another becoming involved, so that during the past six years the patient has been absolutely helpless, confined to her bed and dependent upon others for every detail of personal care. During the past five years there has been little or no change in her condition.

When first seen, a year and a half ago, nearly all of the joints of the body were ankylosed. There

² See Boston Medical and Surgical Journal, September 7, 1893.

was slight motion in the left shoulder and a few degrees at the left elbow; but aside from this, the joints of the arms and hands, with the exception of slight motion in one or two fingers, were entirely useless. In the left hip the motion was quite free; but aside from this, there was little if any motion in the joints of the legs and feet.

For the past year and a half, during which time the patient has been under my care, she has been etherized twice. At each time the adhesions in a number of the joints have been broken up, and this has been followed by constant gentle manipulation. Between the manipulations the joints have been protected with splints, and these continued until the patient was able to control the joint herself.

The improvement has been considerable. The patient is still much crippled; but instead of being absolutely helpless, she can take care of herself. She is able to go about the room without assistance, and with the aid of crutches can go up and down stairs. Besides this she is able to take quite considerable walks out of doors.

The condition of the special joints is of interest. The hips have nearly the normal amount of motion. The knees can be fully straightened; the right can be flexed to a right angle, while the left has about half of this motion. The motion in the feet and ankles is quite free. There is about one-half the normal amount of motion at the shoulders. In the elbows there has been no improvement, but the hands and fingers are decidedly better so that the patient has been able to make several patterns of Danish lace, by which she hopes to partially support herself.

CASE II. Mrs. D., seventy years of age. For the six years previous to 1892, the patient had been entirely confined to her bed, or to a wheel-chair because of "rheumatism," which had gradually developed. Both legs were involved, the knees being chiefly disabled, so that walking or standing erect was impossible. The hands and arms were considerably affected; but with the exception of the fingers, the joints were not ankylosed.

During the past four years the patient has been under my care at intervals. At the first the joints were manipulated without ether, and the contraction of the knees partially overcome with splints and extension. In two months she was able to walk with two canes, and soon after this the wheel-chair was discarded altogether. It was possible for her to go up and down stairs, and to go freely about her room.

Two years ago, in the depression caused by the death of a daughter, there was an exacerbation of the disease, which lasted with more or less severity for fully a year. Since then the treatment has been continued, and she is once more able to be about her rooms, using one or two canes.

These two cases represent the two extremes as regards the time of onset of the disease, the first patient being a young woman, and the second a woman quite advanced in life. In the younger patient the disease had been more acute and rapid in its development, and more joints were disabled as the result. Because of this and, as the youth of the patient made it possible, more active treatment was carried out than in the other case. Ether was given twice, and the joints freely manipulated. In the second case, because of the age and the general condition of the patient, the manipulating of the joints was entirely carried on

without an anesthetic, the progress being much slower than in the first case. Both cases are much better than before the treatment, and both have been able, after a long period of confinement to bed or a wheel-chair, to be up and to walk about, either without any support or with the aid of cane or crutch.

CASE III is another instance of the disease of the later period of life; but as it occurred in the early part of this period, it was possible to carry on a more active treatment.

Mrs. R., fifty-eight years of age, has been crippled with "rheumatism" for the past eight years, and for five years has been confined to the bed or chair, walking or standing erect being impossible.

The patient was first seen by me about eight months ago. At that time, both knees were flexed at a right angle and both joints partially ankylosed. The patellæ were firmly adherent, so that extension of the legs was impossible.

There was some motion at the ankles but the tarsal and phalangeal joints were stiff. The arms were somewhat affected, none of the joints being firmly ankylosed, but there was a restriction of the motions in nearly all.

The patient has been etherized twice. The patellæ were dislodged and the knees straightened with the knee apparatus (mentioned above), and the joints of the feet and toes were manipulated and the adhesions broken.

At the present time she is able to go about her rooms using crutches and wearing a pair of caliper splints to support the knees. There is a steady improvement, and during the next year, I feel sure that she will be able to do very much more.

In these and in the other cases the progress has been checked and the treatment stopped, at times, by the starting up of the disease in some new joint, or by an exacerbation of the disease in some joint in which the disease had been comparatively quiescent. In no case, however, has the disease reappeared in the joints which were being manipulated. Apparently when the disease disappears from the joint, and the joint structures are so disorganized that it becomes ankylosed, that joint is no longer affected by the disease. That the acute manifestation of the disease in the other joints, is partly, at least, due to the treatment is not improbable.

CONCLUSIONS.

Of the cases classed as rheumatoid arthritis two types are described, clinically, which for convenience, are designated rheumatoid arthritis and osteo arthritis. The differentiation between the two types is of the utmost importance in the treatment.

Rheumatoid arthritis is much more acute than the other; it occurs in middle and advanced life, but early in life as well. During the acute stage the joints show a spindle-shaped swelling, which finally subsides, leaving the joint much atrophied, and usually ankylosed.

For these cases the joints should be manipulated after all acute symptoms have disappeared, and the character of the manipulation is of much importance. Cases are reported showing the results of treatment in this class.

Osteo arthritis is a much more chronic condition, occurring only in middle life or old age, and is characterized by a proliferation of the articular cartilage,

with the formation of nodes about the joints. These cases should not be manipulated, as any injury or undue violence results in a more rapid development of the cartilage. It is this tendency which explains the impairment of function which so often results after comparatively simple injuries to a joint. Protection and immobilization in such cases is of importance.

NOTES ON ACTINOMYCOSIS.¹

BY HERBERT B. MCINTIRE, M.D., CAMBRIDGE, MASS.

THE disease now known as actinomycosis has long been recognized in various parts of the world as a disease not infrequently occurring in cattle. So long ago as 1833 it was carefully studied by Dr. Dick, and was locally known in England as "cycers." In Germany it seems to have more frequently attacked the tongue, and was then called "Holz zunge," while a dozen other names were given more or less descriptive of the disease. Occasional cases occur in this country, and are known among farmers as "lumpy jaw." It was not until 1876 that a scientific investigation of the disease was made. Bollinger made a careful study of many cases. He examined the fungus which had already been noticed by earlier observers, and brought the subject before the scientific world. He submitted specimens to the Botanist Harz, who described and classified the fungus and gave it its name. This disease was undoubtedly observed in man long before this time, but not until 1878 were the first observations published by J. Israel. In 1885 Dr. Harley reported the first case observed in Great Britain. He reported this as a "case of tubercular disease resembling actinomycosis." Not until after six cases were examined post-mortem in England was one recognized during life. Following this many specimens which had long been in museums and described under various names were examined and found to be genuine cases of actinomycosis.

The first two cases observed in America were reported by Dr. John B. Murphy to the Chicago Medical Society in 1885.² Both cases were of the jaw and recovered.

Actinomycosis is a chronic disease due to a local infection with the ray fungus. This may enter the body by the respiratory tract, by the gastro-intestinal canal, by the mouth or rarely through the broken skin. Once introduced the disease extends to adjacent tissues and is carried by the blood-vessels to different parts of the body, in this way starting new centres of infection.

Boström, followed by other experimenters, made cultures of the fungus. Johnes and Ponfick inoculated cattle by injections into the peritoneal cavity, but Ponfick failed to convey the disease to animals by feeding them on the infected tissues. Dr. D. E. Salmon in his investigations for the United States Government placed twenty sound animals in the midst of a herd having discharging sores, and compelled them to eat from the same feeding-boxes. At the end of four months not one of these animals had contracted the disease. Although two or three cases are on record which were supposed to be due to direct contagion, it now seems probable that men and animals contract the disease from the same

source, namely, the cereals. It seems likely that the fungus exists in some other form upon grain, and only develops into its now recognized form when introduced into animal tissues. In most cases it has been impossible to discover the source of infection. Soltman describes the case of a boy who swallowed an awn of barley. This was afterwards found in an abscess behind the sternum and was surrounded by nests of ray fungi.

The pathological conditions, methods of staining and microscopical appearances of the fungus have been recently treated of by Dr. F. B. Mallory in a valuable paper.³ I wish to acknowledge my indebtedness to this paper for helping me in the diagnosis of the case which I shall report to-night.

I make the following quotation from Professor Crookshank's report on actinomycosis published in the report of the Department of Agriculture to Parliament in 1888. It may be of help in making a diagnosis where the necessary staining solutions and a high power objective are not at hand. He says:

"The fungus can be detected by the naked eye in the discharge. On spreading this on a glass slip the largest tufts of the fungus were found to be about the size of the head of a small pin. They had a distinctly sulphur-yellow color by reflected light, but appeared yellowish or greenish-brown by transmitted light. Examined with an inch objective they had the appearance of more or less spheroidal masses of a pale, greenish-yellow color. After pressing down the cover-glass the grains flatten out like specks of tallow. On again examining with the same power they were found to have fallen apart into a number of irregular and sometimes wedge-shaped fragments of a faintly brown color, affording a characteristic appearance. By preparing another specimen and covering it with a cover-glass without completely flattening out the grains, the spherical, oblong and reniform masses of which the tufts were composed were recognized with a one-sixth inch objective as the familiar rosettes of clubs which are observed in cattle."

The prognosis in cases affecting the mouth and skin is generally favorable. Over half of the cases reported have recovered. In lung and intestinal cases little is to be expected without the future throws some new light on the disease. Two lung cases have recovered by opening spontaneously through the chest walls. The treatment is as yet largely experimental. Thomassen claimed that by charging the blood with iodine the further development of the fungi may be prevented and the disease cured. This he did by the administration of large doses of iodide of potash. Professors Oestertag and Meunier support this treatment.

Dr. Salmon, Chief of the Bureau of Animal Industry, has tested the iodine treatment extensively in cattle. He stated in his report that "the effect of the medicine by far exceeded the expectations. With a few exceptions, they all showed wonderful improvement. Under the effect of a twelve- to fifteen-gram daily dose, those large fetid ulcerating granulomas would dry up and shrink, most of them disappearing altogether."

Meunier treated a case occurring in the cervical region of a man with 25 grains a day of potash iodide, and the patient was quickly cured. Locally the treatment is becoming more conservative. Formerly extensive excisions of the indurated tissues were made,

¹ Read before the Cambridge Medical Improvement Society.

² New York Medical Journal, vol. xli, p. 17.

³ Boston Medical and Surgical Journal of March 28, 1895.

which now seem unnecessary. "Schlange emphasizes the relatively great tendency of actinomycosis to a spontaneous cure when the fungus may readily reach the outer skin, and there be thrown off as a foreign body or sequestrum, as in the neck and on the cheek. In those fairly numerous cases, it was sufficient to make a simple incision and scrape the softened points. Where the process extends into the deeper tissue layers, it may be necessary to render possible the spontaneous extrusion of the fungus by laying bare to a large extent the diseased region." The fungi are destroyed by exposure to oxygen. Various disinfectants are also useful, such as carbolic acid, tincture of iodine, peroxide of hydrogen, methyl-violet, etc.

I was called to see Mr. W. on March 2, 1895. He gave me the following history: Age fifty-one years, a veteran of the Civil War, native of Cambridge, of healthy American parentage. Nearly his whole life since the war had been passed in Cambridge and in Boston, and the last five or six years he had been in a hat store. During this time he had been abroad twice to buy goods, visiting France and Germany. The last trip was made two years before. He had had no severe illness, but for several years had been somewhat of a dyspeptic. For some months he had been "running down," and for the past three or four weeks he had suffered from pain starting in the gastric region and extending to the left. This and a swelling which he had noticed to the left of the stomach caused him to call a physician. He had also lost strength and failed in general health and appetite. The patient was in bed. His face showed signs of pain. His color was good, and he looked well nourished. The respiratory movements of the left side were much restricted. The respiratory murmur was indistinct over the lower half of the left lung. No dulness on percussion or change in voice sounds could be made out. In front was a swelling, the lower and inner border of which was well defined by the cartilage of the eighth, ninth and tenth ribs of the left side. It extended up to the nipple. The surface was not reddened. The swelling was evidently outside the ribs, and had a peculiar feeling of firmness as though it were bound down very firmly. There was marked pitting on pressure. The stomach was much distended with gas, so that the whole area of the swelling was tympanitic. Bowels constipated. No cough. Respirations 24, pulse 72, temperature 99.2°. During the next few days patient remained about the same. The condition of the stomach improved under a careful diet and *nux vomica*. Radiating pains continued in the left side. The temperature was slightly elevated.

On March 14th Dr. Hildreth saw the case with me. The pain was more localized near the centre of the swelling, which had become reddened. Here the inflammation had gone on to breaking down of the tissues, and there was a boggy place the size of a half dollar. The respiratory movements of the left side were even more restricted, and slight dulness could be detected over the lower lobe.

On the 18th Dr. Hildreth again saw the case with me. Ether was administered. An incision was made over and parallel to the seventh rib. At a depth of one-half inch a cavity was found. This was about two inches in length and one in width. It was filled with a grayish, granular, cheesy mass—probably less than one ounce in quantity. The incision was enlarged to the full length of the cavity. This was carefully

scraped out with the finger and a curette, and examined for any sinus. This was the more carefully done, as we had expected to find caries of the rib. However, nothing was found; and after washing the cavity with corrosive-sublimate solution, it was packed with iodoform gauze. The induration and hardening of the tissues was well shown in the subsequent dressings, for on removing the packing the lips of the external wound did not tend to close. For two weeks following the operation the patient's condition remained about the same. The pain was relieved, but the temperature rose to 100° at night, with a pulse of 90. The respirations were 25 when in bed.

Early in April a few drops of pus were found on the dressings, and in this were seen some peculiar yellowish granules. At first I thought this due to the iodoform gauze, but with plain sterilized gauze the same granules were seen. My suspicions were aroused; and on April 5th I prescribed iodide of potash in eight-grain doses, three times a day, and watched the discharge. This was so slight that no satisfactory specimens could be obtained, but I believed that I found the ray fungus. On April 19th I handed a small specimen to Dr. Cogswell, and asked him to search for actinomycetes. His report rendered the diagnosis certain. The iodide was now increased to 45 grains daily, and this was continued in increasing doses up to 90 grains a day. The wound was washed out with corrosive-sublimate solution, permanganate of potash or peroxide of hydrogen.

By May 1st the patient seemed to be rather improving. He was up a part of the day. He walked slowly and drawn over to the left side. The respiration, always rapid, became much more so on exertion. The area of dulness over the back of the left lung had increased. The respiratory murmur was heard very faintly. The voice sounds were heard more distinctly than over the sound lung. There was slight cough. On May 25th measurement of the chest during moderate inspiration showed the left side to be one inch the smaller (15½ inches). I now found a slight swelling over the twelfth rib of the left side, about four inches from the spine. This gradually increased, and by June 10th had become red and boggy. Strong objection was made to any farther operation although the pain had become severe. With a hypodermic syringe I injected into this boggy mass 15 minims of a five-per-cent. solution of permanganate of potash. This was followed by marked relief from pain.

On June 12th the patient began to cough, and after several hours began to raise large quantities of thick, tenacious, white expectoration. This came in such quantities as to cause intense feelings of suffocation. Probably eight or ten ounces were raised during the night. Following this both cough and expectoration almost ceased. I could find no nests of actinomycetes in the expectoration, nor were they found later on microscopical examination by Dr. Cogswell.

By June 21st the swelling in the back had again become very painful. Near its centre had appeared a fluctuating tumor the size of a horse-chestnut. This was very red and dotted with 30 to 40 white points looking like a carbuncle. On lancing, this discharged about an ounce of pus which contained the characteristic fungi.

During the remainder of June and July he was fairly comfortable. The front wound still discharged a little, and both openings had a tendency to bleed. Slight

fever continued, but he was able to get up a part of the day. He laid on the piazza, and took up his old habit of smoking. Appetite fairly good. The sore on the back was gradually changing its position, by healing of the first openings and the forming of new ones farther from the spine.

During August, while I was away on my vacation, Dr. S. E. Wyman took care of the case, and no particular change was noticed. As I looked back over the case I could see that the patient had lost strength and flesh.

During September the yellow granules entirely disappeared from the front opening, and this healed. The discharge from the back had increased but contained fewer nests of actinomyces, and was thinner. During the most of the time since early in April he had continued to take the iodide, and had borne it well. For the past two or three months a little morphia was required to procure rest.

On October 6th he was taken with severe pain in the right side of the chest, and friction sounds were found. His condition became such that no thorough examination could be made. The necessary dressings were changed with great difficulty, and he gradually sank, dying on the 18th of October.

No autopsy was allowed. This is much to be regretted, as the disease is yet so rare. I have carefully examined the vital statistics of Massachusetts so far as they are accessible, and cannot find a case of death reported from this cause.

In this case I believe the infection took place through the bronchial tubes. I am satisfied that the iodide of potash had no control over the progress of the disease.

THE STERILIZATION OF CATGUT BY BOILING ALCOHOL.

BY RALPH C. LARRABEE, A.B., BOSTON.

THE peculiar word *catgut* is said to be derived from an obsolete term *kitgut* or *kitstring*, the word *kit* meaning a fiddle. Catgut is made from the intestines of sheep. These are first passed between rollers to remove their contents, then macerated in a solution of potassium hydrate, scraped and again rolled.¹ This removes everything but the submucous layer and of this layer alone catgut consists. The intestinal tube retains its integrity, so that, till the final steps of twisting and drying, it can be inflated throughout. Sometimes the whole tube is used, sometimes it is split and only the half away from the mesentery is employed. Each finished strand consists of several tubes twisted and dried together, the number depending on the size. Most of our catgut is probably imported, but there are a few factories in the United States.

Especially where the intact tube is used, the bacteria originally inside the gut are still enclosed in a firm animal membrane. To a much greater degree than those found in silk they are protected from the action of antiseptics. Maceration and putrefaction play an important part in the preparation of catgut. There is every opportunity for the presence of all the bacteria of putrefaction as well as for those which, normally or abnormally, may be found in the intestines of living sheep.

¹ A. W. Booth: Therapeutic Gazette, x, 810, 1894.

The flora of catgut consists mainly of non-pathogenic organisms. According to Koch the pus-producing bacteria are seldom found. The germ almost invariably present is the hay bacillus (*B. subtilis*), non-pathogenic. In a large series of cultures made by Lauenstein,² bacillus subtilis was almost always found, while occasionally was found the micrococcus tetragonus, staphylococcus albus, and "a large coccus." The potato bacillus (*B. mesentericus vulgatus*) non-pathogenic, is also frequently present. It is said that the tetanus bacillus occurs in the intestines of herbivora.³ It is not improbable that some specimens contain anthrax spores, as our catgut comes largely from abroad. If an animal once had anthrax, the spores would be quite certain to appear in catgut made from its intestines. In point of fact, however, actual cultures generally show only non-pathogenic forms. Nevertheless, several epidemics of wound infection, rightly or wrongly attributed to improperly sterilized catgut, have occurred in Germany and one at least in this country. The resistant character of many of the bacteria found is great. Though cultures rarely if ever show tetanus or anthrax, one must always bear in mind the possibility of their presence and adjust his methods of sterilization accordingly.

Chemically, catgut contains water (23 per cent.) and fat (7.5 per cent.). In many methods of sterilization these substances must be removed. A large part of the remaining bulk consists of collagen, which, under the action of hot water and presumably in the wound, becomes gelatin.

The great advantage of catgut, and an advantage possessed in like degree by no other suture material, is its ready absorbability. Its great disadvantage is its difficulty of sterilization; none of the usual methods can be used. This is especially unfortunate in a material designed to be absorbed in the wound.

In estimating the value of any method of sterilizing catgut two criteria are to be regarded: first and foremost, its germicidal efficacy; second only to this, its effect on the quality of the gut. The method must also be reasonably simple and reasonably cheap.

Of the many ways proposed to render catgut sterile, that of boiling in alcohol seems to have the greatest merit for simplicity of apparatus and ease of obtaining the material. Boiling in 95-per-cent. alcohol has been used in at least two hospitals in this city, and has given clinical results, on the whole, satisfactory. But at the Children's Hospital cultures of a bacillus like that of tetanus, though probably non-pathogenic, have been obtained from gut so prepared. I boiled specimens of Sizes 0 and 1 catgut in 95-per-cent. alcohol for one hour, and in each case obtained cultures of a bacillus which I could not identify with any known pathogenic organism. It will be seen that as a germicide ordinary alcohol has little power. It will probably kill the pus organisms, but not the more resistant germs whose presence there is reason to fear. Boiling in alcohol under pressure gives better results, but requires apparatus not commonly at hand.⁴

Recently Saul⁵ has published experiments showing better results obtained with simple modifications of the method. He boiled catgut, previously disinfected by heat and reinfected with anthrax, in several differ-

² Archiv. f. klin. Chirurg., 50, 323, 1895.

³ Répin: Annales de l'Institut Pasteur, viii, 170, 1894.

⁴ Répin: Loc. cit.

⁵ Untersuchungen über Catgut-Disinfection, Archiv. für klin. Chirurg., lvi, 98, 1896.

ent alcohols, namely, methyl, ethyl, propyl, isobutyl and amyl. None of them, not even amyl, boiling at 132° C., would kill the bacteria when used absolute for three hours. The addition of water increased their sterilizing power up to 20 per cent., which is the largest amount of water that can be used without injury to the gut. Boiling 80-per-cent. ethyl alcohol killed anthrax in an hour.

Saul also found that if catgut was boiled in a five-per-cent. solution of carbolic acid in absolute alcohol, three hours were not enough to kill anthrax-bacilli dried upon it. But the same amount of carbolic in 90-per-cent. alcohol would kill in less than ten minutes of boiling. He accordingly recommends the following method: The catgut, rolled or fastened on glass plates, is put in a tight receptacle with a condenser and immersed in

Absolute alcohol	850
Deliquesced carbolic acid	50
Water	100

It is then boiled gently for fifteen minutes. The method he said did not impair the strength or quality of the gut. Its great simplicity and brevity make it desirable to know more of its results.

Unfortunately, Hofmeister⁶ reports several cases where this method was used in which post-operative abscesses followed. Bacteriological tests showed the gut to contain staphylococci. These results are not a little surprising and puzzling. Many have found gut boiled in 95-per-cent. alcohol good enough for most purposes and all agree that the addition of water increases the sterilizing power. It is hard to think that the carbolic acid would decrease it. Hofmeister does not report having used any special means of bacteriological testing, probably his cultures and Saul's were made in about the same manner. Yet the gut which he used, when it reached the patient, contained organisms which Saul's did not. As both were put through the same process, it would seem that Hofmeister's gut must have been reinfected after sterilization, in storage or handling.

There is one other possibility. Saul experimented, as I have said, with gut previously disinfected and reinfected with anthrax bacilli. Possibly the alcohol-carbolic solution reached these, as they were only on the outside, but could not affect germs in the deeper layers. It seemed to me that experiments must be done with the organisms present in the catgut when it was made. It also seemed desirable to determine what difference was made by the size of the catgut and to test its strength when sterilized and preserved in various ways.

The apparatus which I used was similar in principle to that used by Dr. H. J. Hall.⁷ The gut to be tested was cut into short pieces and put with the alcohol-carbolic solution of Saul into a flask with a long glass tube for a condenser. The temperature was then raised in a water-bath till the alcohol had boiled for the desired length of time. Cultures were made by dropping the bits of gut, with sterile forceps, into bouillon and leaving them in the thermostat for a week, after which, if there was no growth, they were considered sterile. Many of the cultures were watched for over two weeks in order that the bouillon might thoroughly soften and penetrate the specimens. It may be objected that the bits of gut might carry enough

carbolic acid to inhibit growth. It was found, however, that the coarser sizes which would carry the greatest amount of carbolic, were the ones from which the growths invariably appeared when the boiling was too brief. I obtained thus several luxuriant growths from large samples of the coarsest sizes in very small amounts of bouillon. I used gut from four different sources. My results may be tabulated as follows. The figures represent the number of cultures, positive or negative.

SAUL'S SOLUTION—ALCOHOL AND CARBOLIC ACID.

Size	00	0	1	2	3	4	5	Boiled.					
								15 min.	30 min.	45 min.	1 hr.	1 1/2 hr.	2 hr.
								3	3	3	3	3	3
								3	3	3	3	3	3
								3	3	3	3	3	3
								2	1	3	2	2	2
								1	3	2	2	2	2
								1	4	1	5	5	5
								1	1	1	6	6	6

It will be seen that up to Size 2 fifteen minutes was enough to sterilize, and that up to Size 4 thirty minutes was sufficient. Four out of five specimens of Size 4, boiled thirty minutes, gave negative cultures. Ten cultures from the two largest sizes and several from the smaller, boiled forty-five minutes, were negative. In all, six cultures out of forty were positive, these being from the largest sizes boiled only fifteen and thirty minutes.

These results show a fact not brought out by previous experiments with this solution, that the amount of boiling needed to sterilize catgut depends very largely on the size of the gut, but that even the largest sizes can be rendered sterile if they are boiled long enough.

From the bouillon cultures I made cover-glass preparations and gelatine cultures. Some of the latter resembled anthrax, but inoculation into a guinea-pig proved that they were not. Dr. A. K. Stone kindly examined the cultures and slides and in his opinion, they "resembled those of no known pathogenic organism."

To compare approximately the power of this solution with that of alcohol I experimented briefly with Sizes 0 and 1. I found that with Size 0 fifteen minutes of boiling in Saul's solution were enough to sterilize, but an hour in 95-per-cent. alcohol was not. Size 1 was sterilized in ten minutes by boiling in Saul's solution, but not in an hour by 95-per-cent. alcohol.

I also tested the tensile strength of gut prepared by Saul's method and preserved in various ways, by finding what weight the sample, always knotted, would sustain. Three sizes were used, 0, 2 and 4, and for each size the various experiments were made with samples from the same piece. Each of the following results is the average of three tests:

- (1) Raw catgut, 15 $\frac{3}{4}$ pounds.
- (2) Gut coiled in rings, boiled fifteen minutes in Saul's solution and tested after several hours' drying, 11 $\frac{3}{4}$ pounds.
- (3) Wound on glass tubing, boiled forty-five minutes and dried for several days, 14 $\frac{1}{2}$ pounds.
- (4) Wound on glass tubing, boiled forty-five minutes and preserved in Saul's solution for several days, 14 pounds.
- (5) Wound on glass tubing, boiled forty-five minutes and preserved dry for six weeks, 12 $\frac{3}{4}$ pounds.
- (6) Wound on glass tubing, boiled forty-five minutes and preserved in Saul's solution for eight weeks,

⁶ Beitrag. z. klin. Chirurg. xv, 836, 1896.

⁷ Warren: Surgical Pathology, Appendix.

10 $\frac{1}{2}$ pounds. One of the samples used in this test broke at such a low point that it was probably due to an accidental imperfection in the gut. The strength of the other samples was about the same as for the corresponding sizes tested dry.

According to these figures, the gut keeps its strength better when wound on pieces of glass tubing than when simply coiled. This is because the coils allow the gut to shrink and untwist. In the smaller sizes coils are converted, during boiling, into mere snarls. The larger the tubing the better. Short pieces of glass tubing are better than spools, as they permit the catgut to be wound in a single layer. It is desirable to do this that the solution may come in free contact with all parts.

The method is so simple that long preservation is neither necessary nor desirable. Whether preserved dry or wet, a certain per cent. of the strength is gradually lost. That preserved dry seems to be a little stronger; but when preserved wet it is more flexible, and will probably be found easier to work with. Wet or dry, it is not at all slippery and appears to the eye unchanged.

To summarize: Sanl's method is safe and convenient when used as follows:

(1) Wind the gut in a single layer on pieces of large glass tubing.

(2) Place in a tightly-stoppered flask with a condenser consisting of a glass tube at least five feet long and penetrating the cork. Boil by means of a water-bath in Sanl's solution (absolute alcohol 850, carbolic acid 50, water 100) for forty-five minutes. For the largest sizes one hour is safer, and for the smallest thirty minutes are enough.

(3) Remove the condenser, insert a sterilized stopper and preserve in the same flask and solution used for boiling; or, pour off the solution, insert a sterilized cotton stopper and preserve dry.

In conclusion I wish to thank Dr. H. C. Ernst, who kindly allowed me to work in the Bacteriological Laboratory of the Harvard Medical School.

Medical Progress.

REPORT ON NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D.

TREMOR.

LAMARCO¹ opened a discussion upon tremor, at the Congress of French alienists and neurologists at Nancy, by stating that a portion of the body trembled when it described rhythmical oscillations on either side of its position in equilibrium. He classified them as tremors during rest (the type of paralysis agitans) and tremors on voluntary movements (the type of disseminated sclerosis); or again, as slow tremors (three to five per second, as in paralysis agitans and senile tremor), medium tremors (six to seven per second, as in disseminated sclerosis), and rapid, vibratory tremors (eight to nine per second, as in exophthalmic goitre and general paralysis). Tremor of the hands is found in 40 per cent. of normal persons; it does not differ from emotional tremor, and is of the neuropathic type; a similar vibratory tremor is seen in 34 per

cent. of hysterical patients, 85 per cent. of neurasthenics, 20 per cent. of epileptics, and 25 per cent. of the insane. It is therefore of great symptomatic value in neurasthenia. The finer tremors of the tongue and eye-lids often escape observation; if instruments of precision were used to detect tremor the percentages would be larger. Tremor is often associated with other abnormal movements; it may co-exist with chorea, or a mercurial or saturnine tremor may be transformed into an arrhythmical movement. In alcoholism, general paralysis or sclerosis tracings often show that the rhythm of the tremor is altered, in a transition to arrhythmical movements. There are also transition forms between the tremors during rest and those during movement; mercurial tremor exists in repose, and takes on a special form on motion; in paralysis agitans tremor may be produced only under the influence of muscular effort; senile tremor may be provoked by muscular contraction, may exist in repose, and be increased or suppressed by motion. Hereditary tremor may not differ essentially from senile tremor, and the tremor of sclerosis may be seen in meningitis or hemiplegia. A given tremor, therefore, does not always correspond to definite lesion because certain forms are ill defined. Tremor may be only an unimportant episode or a symptom of great value. We cannot yet distinguish between tremor as a functional symptom and as a symptom of a focal lesion. A vibratory tremor is common in health, and the similar tremors of emotion, neurasthenia and exophthalmic goitre may be only an exaggeration. The tremor of paralysis agitans is the only one which seems characteristic. The "epileptoid trepidation" of ankle clonus is, however, of very great value as indicating sclerosis of the lateral pyramidal tract.

Croq thought that many of the so-called normal persons manifesting tremor might be neurasthenic, alcoholic or hysterical. Paralysis agitans and hysteria might co-exist, producing two forms of tremor. Sabrazès and Cabaunes found vibratory nystagmus in hysteria, of spontaneous origin, much more rapid than in disseminated sclerosis, sometimes accompanied by internal strabismus, persisting on distant vision and checked or produced by suggestion. Parizot had found by delicate instruments that tremor is universal and physiological, the amplitude of the vibrations being the only distinguishing feature. Bernheim claimed that all forms of tremor was cured or relieved by suggestion except that of paralysis agitans. Parant regarded tremor of the tongue as a favorable sign in melancholia.

TIC DOULOUREUX.

Dana's successful method of treating the severe forms of trigeminal neuralgia by drugs and regimen without resorting to surgical interference has already been mentioned in the JOURNAL.² Ewart³ has also urged the efficacy of suitable medical treatment. The lack of unanimity in the pathological reports shows that the trouble is not due to a simple mechanical pressure, capable of relief only by surgical means, and the success of the operation of removal of the Gasserian ganglion, shows that the trouble is, as a rule, of peripheral origin, that is, that the peripheral sensory neuron is alone involved. While this operation, and

¹ Revue Neurologique, August 15, 1896.

² See JOURNAL, cxxxv, 21, July 2, 1896.

³ British Medical Journal, November 21, 1896.

perhaps this operation only, is an effectual method of relieving the pain, the risks are still so great as to render it a last resort, and consequently any method of relief by medical means is much to be desired. Ewart argues that in all cases there is a functional or constitutional factor in the production of the trouble, and in some of them this factor is paramount. In one class of cases he thinks that a gouty connection is well established, the trouble occurring in those obviously gouty, or those in whose family gout has often occurred, or those who have previously suffered from visceral affections probably of gouty origin. The presence of gouty disturbances may often be overlooked, but careful search will usually indicate it. The special indications for treatment are sedative, restorative, alterative and tonic. Sleep is essential, and sufficiently strong narcotics should be given to produce it; morphine and chloral are especially recommended. The restorative methods include mental and bodily rest and suitable nourishment. Rest in bed is indicated in all severe cases. Nourishment is essential, but it must be adapted to the tenderness of the mouth and the weak digestion. A modified vegetable diet and a diminution of the nitrogenous foods are desirable. Alcohol is, as a rule, to be avoided. If dyspepsia be present it should be relieved, if possible; but it is often helped by alterative remedies. The most efficacious alteratives are the salts of iodine, and mercury. Iodide of potassium may often be combined with the tincture of iodine, and the addition of mercury often gives relief where the iodine and its salt have failed.

The tonic measures depend less upon drugs than upon hygiene and moderate muscular exercise. By these methods of treatment Ewart has obtained brilliant success in a number of severe cases, which he reports, where other forms of treatment and even surgical operations on different branches of the nerve had failed. All his reported cases, which had been sent to the surgeon for operation, improved and lost the pain for a time. How far operation may be postponed or ultimately avoided is still a question, but if the symptoms can be checked once it is possible that they may also be checked again at any relapse. In this country the influence of gout is naturally less considered. The chief points of harmony in the methods employed by Dana and Ewart seem to be in the use of rest in bed and of mercury and iodide of potassium. These drugs alone, without the rest, are sometimes of remarkable efficacy in cases where there is no probability of syphilis. Ewart has given iodide of potassium in moderate doses, six to ten grains, at times with the addition of twenty to thirty drops of tincture of iodine. Larger doses, from half a drachm upward, are usually tolerated, and seem to be more efficacious.

ANTERIOR POLIOMYELITIS.

Medin⁴ has made a careful study of 93 cases of infantile paralysis occurring in Stockholm; of these 43 occurred in an epidemic in 1887, and 21 in an epidemic in 1895, the other 29 occurred sporadically in the intervening period. He considers the chief cause of the disease to be a specific infection, but, while the transmission from one person to another is certainly possible, he holds such transmission to be extremely rare. He found no predisposing causes,

except that it is most common before the age of four; there is no special difference in frequency between girls and boys. The epidemics occurred at the same period, late summer and early autumn, when cholera infantum is most common, but this affection was not especially common during the epidemics. In only a few cases was there a prodromal stage. Most cases began with fever, but sweating was rare; somnolence was somewhat commoner, dyspeptic conditions were very common, intestinal catarrh, constipation and also retention of urine. He noticed frequently pain and tenderness, especially in the legs. Convulsions in the initial stage were more rarely observed than is generally supposed, contractures were never seen, and deep sighing and the hydrocephalic cry were very rare. In two cases, after the fever had subsided, it recurred. In 1887, 28 of the cases were typical anterior poliomyelitis, and in 1895, 13. In some of these cases the thoracic and abdominal muscles were affected on one side. Of 50 cases the legs were affected in 45, the arms in 14, the face or the eye muscles in four. Multiple neuritis in an acute form was seen six times in the epidemic of 1887 and at least twice in 1895. It usually came on suddenly, without prodromes, and was attended with initial fever lasting a few days. Pain occurred early and cutaneous hyperesthesia, which in one case went on to total anesthesia, was occasionally observed. Acute transitory ataxia, due probably to changes in the peripheral nerves, was seen in five cases. The medulla was frequently affected; in eight cases there was facial paralysis, and one of these cases which terminated in death showed degeneration in the facial nucleus. Abducens paralysis was seen in six cases and hypoglossal paralysis in five, in two of which the autopsy showed changes in the hypoglossal nucleus. In three cases there was accessory paralysis. Two cases died with symptoms of acute dyspnea, and the autopsy showed changes in the vagus nucleus. In three cases there were symptoms pointing to disturbance in the oculo-motor nuclei. Acute polioencephalitis was observed in both epidemics, an indication that this trouble is due to the same infection as the spinal form. Medin thinks it not improbable that acute polioencephalitis in its acute stage may occur at the same time as poliomyelitis or some other local process in the nervous system, and that infantile paralysis is not always and exclusively a spinal disease. The prognosis is worse when the disease is located in the lumbar cord, and better when in the cervical cord, and it is more favorable in multiple neuritis than in poliomyelitis. The younger the child is the worse the prognosis and the more significant the results. The autopsies showed signs of general infection: in the brain there was only hyperemia, in the cord were signs of an intense inflammatory process proceeding from the vessels in the whole anterior horn, degeneration of the ganglion cells and nerve fibres, with secondary degeneration in the lateral columns, and degeneration of the bulbar nuclei. He considers the disease as independent and individual and he would separate from infantile paralysis all paralytic affections which occur in connection with other infectious diseases.

LANDRY'S PARALYSIS.

Bailey and Ewing⁵ have made an elaborate study of this affection in so thorough a fashion as to remove

⁴ Nord. med. Ark., N. F. vi. 1; Ref. in Neurol. Centralblatt, December 15, 1896.

⁵ New York Medical Journal, July 4, 11, 1896.

much of the obscurity which has so long hung about it. They report a case in a woman of thirty-six, which conforms exactly to Landry's clinical type. The woman had acute ascending paralysis, which in six days had involved all the limbs, and in ten days proved fatal; it caused death by invasion of the bulbar nuclei, without marked sensory impairment, without involvement of the bladder and rectum, and with retained faradic excitability of the muscles. The autopsy showed congestion and edema of the lungs, acute degeneration of liver and kidneys, and acute hyperplastic splenitis; the nervous system macroscopically was normal. Microscopically, however, extensive changes were found involving the whole cerebro-spinal axis, affecting chiefly the gray matter of the brain and medulla and the anterior horns of the spinal cord. The character of the lesion was that of an acute exudative inflammation, with marked cellular infiltration of the circumvascular sheaths, degeneration of the ganglion cells, and obliteration of other structural elements. After an exhaustive study of the literature they insist on adhering to Landry's original definition of the affection as an ascending paralysis which pursues a rapidly fatal course without sensory symptoms, holding that it forms a clinical entity too distinct to warrant enlarging it so as to include cases in which sensation was decidedly affected or completely lost, and in which the disease was distinctly subacute or chronic, with intervals of improvement. By including such cases the doors are thrown open to a multitude of cases of neuritis, and Landry's paralysis becomes a disease of frequent occurrence and heterogeneous character. Landry held that there were no lesions in the nervous system, which was corroborated by Hun in 1891, but the use of more delicate methods of research have modified this opinion. In 28 out of 44 cases lesions were demonstrated in the central nervous system alone, or in the central and peripheral nervous system. In 16 cases where no lesion at all was found, the nerves were not examined in six, and in none were the modern stains, notably Nissl's, used. The writers conclude that acute ascending paralysis is an acute toxemia in which the poisonous agent affects chiefly the nervous system. The commonest seat of the lesion is in the spinal cord and in the medulla, and it may be present in the cortex and in the nerve roots. When in the spinal cord the lesion is that of acute anterior poliomyelitis — namely, an acute exudative inflammation, following the distribution of the central branch of the anterior spinal artery, with cellular infiltration of the circumvascular sheaths, degeneration of ganglion cells, loss of structural elements, and with or without degeneration of the anterior roots. The lesions in other parts of the cerebro-spinal axis are of a similar nature. The evidence that the lesion of typical Landry's paralysis may exist in the peripheral nerves alone is based upon a single case reported twenty years ago by Dejerine. When the lesion affects the peripheral nerves there are increase of neuroglia cells and degeneration of nerve fibres. It is at present impossible to deny that acute ascending paralysis may run a fatal course without leaving demonstrable histological changes in the nervous system. It is certain the cases with negative pathological report did not present the marked vascular lesions of acute anterior poliomyelitis, but it seems probable that in these cases there were changes in the ganglion cells demonstrable by delicate methods. Bacteriological examinations have been undertaken in a

few cases, with the result that staphylococci, streptococci and other bacteria have been occasionally found. Absolute demonstration of the dependence of the disease upon specific bacteria, by producing similar symptoms in animals after inoculation of pure cultures, are still lacking, but the disease is undoubtedly of toxic and very probably of bacterial origin.

CEREBRAL COMPRESSION.

Neumayer⁶ has studied the histological changes in the cerebral cortex which follow pressure, a subject to which thus far little attention has been paid, except with regard to pressure upon the spinal cord. Neumayer introduced foreign bodies between the skull and the dura in rabbits, by making a very small trephine opening in the skull, taking especial care to avoid hemorrhage or any injury to the membranes, and enlarging the opening with bone forceps. Sterilized leaden bullets were then carefully introduced, and kept in position by the introduction of a soft sterilized wax. The pressure thus produced was continued for variable periods and then the animals were killed and the brain cortex examined by various methods. Three animals were killed within twenty-four hours. The cortex showed signs of degeneration in the nerve cells and fibres of the most superficial layers, the layer of tangential fibres and the layer of small pyramidal cells. Three other animals were killed after the pressure had lasted from one to ten days. The degenerative changes had in these extended deeper, but were of the same nature. A new condition was also present in the superficial layers, an increase of the supporting tissue at the expense of the nervous elements and thickening of the pia. Five animals were examined after the pressure had continued from ten to sixty days. There was a progressive decrease in the nervous elements, even in the deeper parts of the cortex, with increase of the supporting tissue, but in the superficial layers the degenerative and productive phenomena seemed to have come to a standstill. These changes were all fully developed at the end of thirty days, and the only further change at the end of sixty days was apparently a slight thickening of the pia. These experiments show, therefore, that the greatest changes from persistent mechanical pressure are caused in the early period. Consequently any operative interference should be undertaken as early as possible, before the nervous elements wholly disappear, in order that restitution to a healthy condition may be most likely to be obtained.

(To be continued.)

New Instruments.

A NEW THUMB SPLINT AND A NEW INTERNAL ANGULAR SPLINT.

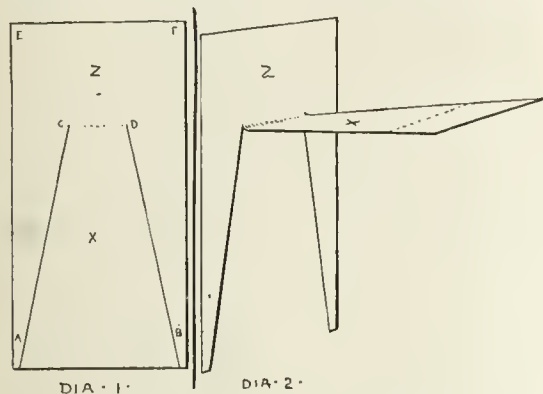
BY VIVIAN DANIEL, M.D.,
Ex-House-Surgeon, Boston City Hospital.

WHEN we consider the relative usefulness of the thumb to the hand and its other fingers, its proper immobilization after reduction of fractures and dislocations of its bones becomes a matter of considerable importance. To this end various splints have been contrived which, however, take a great deal of time and ingenuity to make and which are difficult to keep

⁶ Deutsche zeitschrift für Nervenheilkunde, viii, 167, 1896.

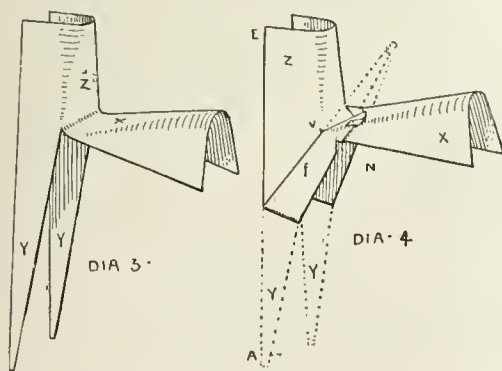
in place by the ordinary means of adhesive plaster and bandage. Moreover, they are not adapted to correct bandaging, and the operator cannot satisfactorily localize his bandage pressure so that it may hold in place the reduced bones or fragments and thus correct their tendency to deformity.

A simple tin splint which seems to answer all requirements and which has been in constant and successful use at the Boston City Hospital for over a



year was devised by the writer. It can be made in five minutes by any one possessing ordinary mechanical ability, as follow:

A piece of tin varying in size according as the hand is large or small, but which for the average adult's hand should be eight inches long by four inches wide, is cut as indicated in Diagram 1, namely, from the corners A and B to the points C and D, the distance of C and D from the end E-F corresponding to the length of the thumb as measured from its web, and the space between C and D equalling slightly more than the thickness of the thumb at its base.

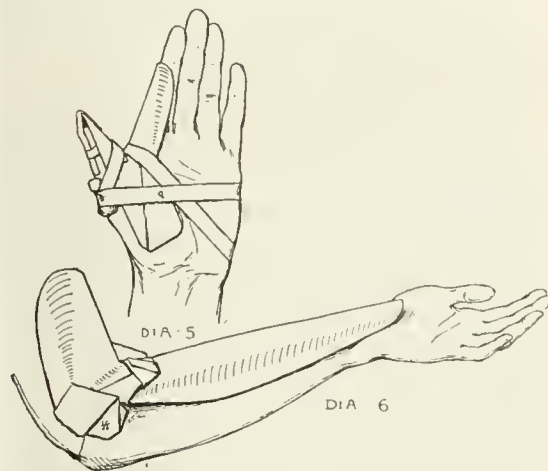


These cuts make for us the segments X and Z. Next bend the portion Y to slightly less than a right angle with Z with the result shown in Diagram 2. The angle thus made corresponds to that formed by the forefinger and thumb when the latter is in complete abduction.

Diagram 3 shows the next step, and is self explanatory, the tin now being moulded into two grooves, into which the thumb and forefinger are respectively to fit.

Diagram 4 shows the disposal of the parts Y and Z, these being doubled upon themselves so that when fully bent the edge A-E cuts the angle V. The

pointed ends are now turned down over the back of X and "tied in a knot." This serves to keep the thumb portion Z at the required angle with X and makes the flanges ff, which when the splint is applied form coaptation for the muscles of the ball of the



thumb. To more firmly fix our angle and make the splint as unyielding as if soldered or riveted, a small nick should be cut in the flanges ff at N and the resulting corner turned under the edge of X.

The splint is now made, and after tapping all overlying portions of tin into close apposition, it is trimmed into the shape shown in Diagram 5. Here we see the splint applied. Adhesive plaster P retains it firmly in position and crosses the back of the thumb at the seat of displacement of its bones, holding there a pad to keep them in place.

As can be seen, the splint fits like a glove and over it the most approved method of bandaging can be practised and pressure localized at will.

By making the portion Z slightly longer than the thumb and applying strips of adhesive plaster to the anterior and posterior surfaces of the latter, as shown in Diagram 5, extension can be applied and effectively maintained by turning the plaster over the end of Z and sticking it to its anterior surface.

This device constructed on a larger scale with a heavy grade of tin forms a very serviceable internal angular splint. It is made in the same way as if intended for the thumb but an additional fold is made in the flanges ff which disposes of them and at the same time strengthens the angle V. After trimming to fit the arm it is ready for use as shown in Diagram 6.

NOTE.—In making the thumb splint the portion X is likely to be longer than the forefinger; it should be shortened to suit after the first two cuts are made.

POLITICAL MEDICINE. — As there seems to be some indication that the Venezuelans are not quite prepared to consider that their difficulty with England is ended, it is of interest to note that the *Medical Age* says that "An Up North Democrat, wrote Senator Roach: 'All the fools around here are talking about the Monroe doctoring, and nobody knows what it is, and I don't know it myself; but if the government is giving it away, send me what you can.'"

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, November 4, 1896,
DR. M. H. RICHARDSON in the chair.

ANATOMICAL SPECIMENS.

DR. M. H. RICHARDSON: I wish to show first an x-ray photograph of a tumor of the thigh. It shows an interesting thing about the growth which was diagnosed osteo-sarcoma of the femur. Unlike some of the cases in which the diagnosis of osteo-sarcoma has been made, the bone is not affected or affected very little. You will see the femur passing through the tumor. There are what seem to be concentric layers of bony tissue outside the dark shadow of the femur. This amputation was performed October 21st. I have not heard from the microscopic examination.

I would like to show two specimens of the vermiform appendix I have recently removed. Although the subject of appendicitis may seem a little stale, most of us, I think, will admit that we do not know all there is to be known about it. The first is a case of removal in the interval of health. The chief symptoms were pain in the epigastrium, gradually becoming localized in the right side. During the pain the right testicle was retracted; the urine contained a trace of albumin and other things from which the urinary chemist made the diagnosis of oxaluria and chronic passive congestion. The diagnosis lay between an oxaluria or calculus in the right kidney, trouble down in the right ureter or chronic appendicitis. I operated with fear and trembling. On the whole, I thought the trouble was appendicitis. The chief reason for operating was that the man's business takes him to remote parts of this country and Europe, and I thought it would do no harm to take out the appendix the danger being so slight. We have now taken out 95 or 96 without a death.

This was a very thick, club-shaped appendix, adherent to a coil of small intestine near the bladder and adherent near the cruro-genital nerve; and I think the attacks of pain in the testicle were due to irritation of that nerve. It had to be dissected out its whole length. There was no question of the diagnosis. The diagnosis was made by Dr. Whittier and Dr. McKay.

Here is a sketch of the same, which shows the appearance accurately. That case, and the second one which is shown here, is evidence to prove the truth of the proposition that in every case in which the appendix is diseased it should be removed; I mean to say that in every case in which there has been one attack of appendicitis the appendix should be removed in the interval following that attack, as a rule. This does not apply to acute appendicitis. This young man, a coachman, nineteen, was taken eight weeks ago with an attack of appendicitis not very severe, but an undoubted attack. Night before last he was taken with severe abdominal pain, high pulse, but not an especially high temperature. The perforation was near the cecum. The abdomen was filled with turbid serum, the pelvis with sulphuretted hydrogen.

DR. PRESCOTT tells me the specimen of tumor of

the femur was malignant endothelioma starting from the lymph-spaces.

DRS. M. H. RICHARDSON and H. A. LOTHROP read a paper on

GUN-SHOT WOUND OF THE KIDNEY.

DR. J. E. GOLDTHWAIT read a paper on

THE TREATMENT OF DISABLED JOINTS RESULTING FROM THE SO-CALLED RHEUMATOID DISEASES.¹

DR. F. C. SHATTUCK: Dr. Goldthwait has well characterized these cases as "discouraging." Every one present must have deeply stamped on his memory cases of the kind which have come under his observation and many a village throughout the country has its hopelessly crippled subject of this disease, an outlet for the neighboring sympathies of the community. Almost my earliest pathological remembrance is of a case of the kind in a New Hampshire village, a bedridden woman whom, as a child, my father occasionally took me to see. The disease has long been an opprobrium to medicine, some of its victims are examples almost of living death, and this contribution of Dr. Goldthwait, showing what combined skill and patience can do, seems to me very important.

The terminology of the affection deserves a word. Arthritis deformans appears to me by far the best name in that it is eminently descriptive, carries with it no pathological theory, and conveys no suggestion of rheumatism, as do the terms rheumatic arthritis and rheumatic gout. A practical danger connected with the use of these latter terms is that thus some excuse seems to be given for the administration of anti-rheumatic remedies or procedures which, in so far as they are lowering, are apt to be distinctly harmful.

The diagnosis is well marked, indeed in most cases, is not difficult. But in some of the more acute and earlier forms of arthritis deformans the differentiation from true rheumatism may not be so easy. And we do see some cases in which the two affections are combined. There is now in my hospital ward a young woman in the seventh month of pregnancy. She gives the history of two attacks of acute rheumatism, has aortic and mitral disease and one hand shows highly typical lesions of arthritis deformans with extreme ulnar dislocation at the metacarpophalangeal joints.

The spindle-shaped swelling; the localization, pretty symmetrical in a considerable number of small joints; the persistency of the lesion which does not flit from joint to joint; the predilection for women, often young; pronounced muscular atrophy; clammy fingers and debility — these are all important diagnostic points. I have not been able to verify, perhaps from lack of experience, the observations of Spender, of Bath, who considers a quick, hard pulse and yellowish pigmentation about the forehead as premonitory symptoms.

As regards treatment, the avoidance of all debilitating agencies of whatever kind is of the last importance if we wish to delay the progress of the disease. I have thought the use of the hot sand bath for the hands, when swollen and painful with acute outbreaks, of distinct service.

I will now pass round two radiographs, one of a normal hand, the other of the hand of a young girl now under my care suffering from an acute form of arthritis deformans. The thickening about the phalangeal

¹ See page 79 of the Journal.

joints distinctly leaves the outline of the articular surfaces as compared with the normal hand. This young girl has been helpful about the ward and has thus contracted typhoid fever. She is now in the third week and it is interesting to note that the improvement in her hands, which had set in before she took the fever, has been much more rapid since the advent of the febrile process.

DR. GOLDTHWAIT: As Dr. Shattuck has mentioned the pathology I will pass around these specimens I found in the museum, which illustrate the two conditions.

DR. PAINTER: During the last two months I have been examining from the bacteriological point of view the fluids obtained by aspiration of some of these cases of rheumatoid arthritis. Though I am not prepared at present to make a report on these cases I would simply recall to those who are interested in the bacteriology of the subject and its pathology, some of the work that has been done by Dr. Blaxall in the laboratory in the Society of Preventive Medicine in England. He has examined the fluid from some 18 or 20 cases of rheumatoid arthritis referred to him from the baths at Bath, in England, and he has found in every single case a bacillus which seems to be pathogenic of the disease. He met with considerable difficulty at the beginning of the investigations. The organism did not take up the ordinary stains which were well known to the bacteriologist, neither did they grow on the culture media at his disposal, and consequently the start in the study of the bacteriology of this subject was made under considerable disadvantage. However, after repeated experimentation he found that the difficulty was in the minuteness of the organism and in the difficulty of taking up the stain due to the presence of the synovial fluid, and after modifying to some degree his ordinary method he succeeded in getting a stain with the aniline methylene blue after an exposure of some three or four days. So far as the cultural methods are concerned the difficulty seems to be in the opacity of many of the media and the very delicate growth of the organism so that he had to use very clear and rarified culture media in order to obtain a growth. After this technique had been perfected he had no difficulty whatever in cultivating the organism and in obtaining the same organism from these cultures stained by the method he had already demonstrated. So far as inoculation of animals is concerned some experiments have been undertaken which are said to go to prove that this organism injected subcutaneously into rabbits produces a disease in them, in a way analogous to the so-called rheumatoid arthritis. He also succeeded in obtaining from the blood near these joints in persons suffering from this disease the organism which he had found in the joint fluids.

DR. FITZ: I think this community ought to feel particularly grateful to a physician who like Dr. Goldthwait is willing to give his time, patience and skill to the treatment of this class of cases, especially as they occur generally among those not able to pay in proportion to the value of the services rendered.

I may be allowed a word with reference to the classification of these affections and a suggestion as to the easiest way of avoiding confusion in terminology. Dr. Goldthwait groups his cases under rheumatoid arthritis and under osteoid arthritis, but the distinction fails of support on anatomical grounds, and perhaps he will bear me out in admitting that the clinical characteris-

tics will vary somewhat in connection with the differing nature of the anatomical lesions. In the group of cases of rheumatoid arthritis there is undoubtedly bone-formation in a certain number, consequently an osteo arthritis exists, whereas in the class of cases designated osteo arthritis, deformity of the joint is so conspicuous as to call for the term arthritis deformans as suggested by Dr. Shattuck.

It seems to me desirable for the present to hold to the terms rheumatoid arthritis or arthritis deformans and rheumatic arthritis, it being of course, understood, that there is no demonstrable relation, in the great majority of cases, between what is called acute articular rheumatism and rheumatic arthritis and rheumatoid arthritis. In certain cases, undoubtedly, repeated attacks of acute articular rheumatism will leave chronic inflammatory processes in the joints affected.

The term, chronic rheumatic arthritis, is best retained for the class of cases represented by the spindle-shaped swelling in the vicinity of the joint which, in considerable part, is due as well to inflammatory exudation outside the joint as to increased quantity of fluid in the joint. This class of cases in time may result in loss of cartilage and actual obliteration of the joint by fusion of the bones, as seen more particularly in the vertebral joints. This is the class of cases occurring especially in persons under middle age, and is often associated with a great degree of immobility of the joint. It is desirable to restrict the term rheumatoid arthritis to the class of cases associated with extensive growth of cartilage and bone, often projecting as outgrowths and with eventual disappearance of cartilage and eburnation of bone. In these cases there is often a considerable degree of spontaneous dislocation, and perhaps the formation of false joint; and although the mobility of the joint is impaired to considerable extent, it is usually more freely movable than in chronic rheumatic arthritis. This is the variety seen more often in old people especially affected in the large joints of the body.

The pathology of these varieties of chronic joint inflammations is exceedingly obscure and the researches of the bacteriologist will be awaited with interest, although without much hope.

DR. GOLDTHWAIT: The case to which Dr. Shattuck referred and which Dr. Richardson will remember, was a man whom I saw two years ago because of ankylosis of both hips, knees and all the joints of the knees and ankles. At that time I classed the case as one of rheumatoid arthritis. In seeing him a few days ago and going more carefully into the early history of the condition I was not able to throw out the possibility of the typhoid as the cause of the trouble. He gives a history of acute sickness some few months before the joint trouble came on, and to be perfectly sure, and to eliminate all cases but those which seemed to me to be purely rheumatoid arthritis, I threw this out. The man is now well and earns his living as a travelling salesman.

CLINICAL RECORDS. — At an East-end Hospital a man was brought in terribly smashed. A new house-surgeon having examined him, said to his wife, "I fear your poor husband is dead." "No, I ain't," said the supposed corpse. "Hush, John, be quiet," said the wife, "the gentleman must know better than you what's the matter with you." — *St. Thomas's Hospital Gazette*.

Recent Literature.

The Diary of a Resurrectionist, 1811-1812. To which are added an Account of the Resurrection Man in London, and a Short History of the Passing of the Anatomy Act. By JAMES BLAKE BAILEY, B.A., Librarian of the Royal College of Surgeons of England. London: Swan, Sonnenschein & Co., Limited. 1896.

This interesting and curious little book might better be called "An Account of the Resurrection Man in London, etc., to which is added the Diary of a Resurrectionist," as the diary is printed at the end of the book and occupies less than a quarter of the bulk of the volume. The account of the resurrection man gives a vivid picture of the straits to which teachers of surgery and anatomy were put to secure a meagre and very expensive supply of anatomical material.

The book is illustrated by photographs of the mortsafes of iron and stone which were erected over graves in the cities of England and Scotland to secure their contents against riflers. The surgical teachers of that day were forced by the necessity of procuring anatomical material, to deal with these thieves and ruffians, and the price of a dead body was often as high as sixteen guineas. The teacher was often forced to go bail for his providers when arrested for body snatching, pay their fines, or support their families during their confinement in jail. Gruesome accounts of sanguinary fights between rival gangs of body-snatchers over newly-made graves are given, and many curious facts regarding this traffic in dead bodies.

The diary itself gives a laconic account of the transactions of the worthy who wrote it, including the prices paid, the teachers to whom the bodies were delivered, and the nights he and his partners got drunk. The object of such a man in keeping a diary would be interesting to know. A photographic facsimile of a page in the diary is given.

The book is handsomely printed and bound.

Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie et l'idiotie. Par BOURNEVILLE, médecin de Bicêtre. Volume XVI, 8vo, pp. lxxi, 254. With 31 illustrations and 8 plates. Paris: Aux bureaux du *Progrès Médical*. 1896.

Beside the usual reports and statistics of the service of idiotic, epileptic and backward children at Bicêtre during the year 1895, the present volume contains a considerable number of clinical and pathological reports. Several cases are reported of idiocy due to meningitis of various forms. In one case of microcephalic idiocy, double craniectomy was performed without notable improvement in the mental condition. Among the cases of greatest interest are those of myxedematous idiocy, due to congenital absence of the thyroid gland, considerably benefited by the ingestion of sheep's thyroids into the stomach after the administration of thyroid juice and the subcutaneous injection of liquid thyroid had proved ineffectual.

"MODERN GREEK AS THE UNIVERSAL LANGUAGE," is the title of a paper by Dr. Franklin Bache Stephenson, U. S. Navy, which appeared in the December, 1896, issue of *The Alleghany Literary Monthly*, published at Meadville, Penn.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JANUARY 28, 1897.

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THE COMPULSORY NOTIFICATION AND ISOLATION OF PULMONARY TUBERCULOSIS.

IN last week's JOURNAL (p. 74), an abstract was given of a supplementary report on the subject of pulmonary tuberculosis, made to the New York City Board of Health by the pathologists of the Board, Drs. Biggs and Prudden. A previous report had been rendered in November, 1893.

As a result of this supplementary report, the Board of Health, at a meeting held January 19th, enacted an addition to the Sanitary Code, which officially declares pulmonary tuberculosis an infectious and communicable disease. The new section of the code prescribes that it shall be the duty of every physician in the city of New York to report to the Sanitary Bureau the name, age, sex, occupation and address of every person suffering from this disease, who has come under his observation for the first time, within one week of such time. Also, that it shall be the duty of the authorities of every public or private hospital or dispensary to report in the same way every case treated in such institutions. Finally, that it shall be the duty of every person with this disease, and of every person in attendance on such cases, and of the authorities of public and private institutions, to observe and enforce all the sanitary rules and regulations of the Board of Health for preventing the spread of pulmonary tuberculosis. The new law renders physicians and laymen alike liable to punishment for misdemeanor when any part of the section is violated. An important feature of the law also provides for the isolation of patients in aggravated cases.

In order to facilitate the restriction of tuberculosis, the Board of Health has ordered the preparation of a map, showing every house in which there is a case of the disease, and also every house in which a death has occurred from it.

Following this extension of the Board of Health's Sanitary Code, at a meeting of the New York Academy of Medicine, held January 21st, Dr. Irwin H.

Hance read a paper entitled, "A Further Study of Tubercular Dust." The paper was based upon experiments made by the reader at the request of Dr. Biggs. Dust was collected in hospitals, dispensaries, tenement-houses and public conveyances, and healthy guinea-pigs were inoculated with a solution in which it was introduced. Three out of four guinea-pigs inoculated with dust taken from a tenement-room in which a phthisical woman had lived and died, died with well developed tuberculosis; while four guinea-pigs inoculated with dust taken from a room where a patient with tuberculosis lived, but who observed the regulations of the Board of Health showed no sign of disease. At the end of 57 days the animals were killed, and no trace of tuberculosis was discovered in them.

As to the dust collected from street-cars, of sixteen guinea-pigs inoculated with dust from dirty places, five died; of twelve inoculated from clean places, two died. Five more when killed showed signs of tuberculosis. One in five cars examined was found dangerous to the health of the travelling public.

Having demonstrated the existence of tubercular dust in the waiting-room of a dispensary, Dr. Hance went on to say: "The proof of its existence in this one case, demands greater care on the part of the managers of such institutions, where so many children are brought to be treated for other diseases, and while waiting their turn, subjected to a real danger." In speaking of tenement-houses, he said: "The result of the experiments shows that the seeds sown by the Board of Health are bearing fruit. All the cleanly apartments were found free from infection. This proves the wisdom of granting the Board of Health power and authority to order such cleaning and renovation of tenements as is required."

This question of compulsory notification and official supervision of pulmonary tuberculosis was discussed at much length at a special meeting of the College of Physicians of Philadelphia, called for the purpose in January, 1891. Its adoption was opposed at that time by several physicians to whose opinions much weight must be given.

The provisions lately adopted by the New York City Board of Health are undoubtedly in a measure revolutionary, and may, we fear, prove somewhat extreme and in advance of public and of medical opinion.¹ We cannot but think, however, that they are in the line of future progress in the application of medical and sanitary science.

Laws are only useful in so far as they can be enforced and enforced with less loss and injury than is entailed by their absence. The useful and possible enforcement of the regulations under discussion will depend very greatly upon the tact, discretion and good judgment of those entrusted with carrying them out. The working and the results of these regulations in New York will be watched everywhere with much interest.

Pulmonary tuberculosis is only one of several im-

portant diseases in which the bacteriological laboratory is invading the former domain of the clinical practitioners. Diphtheria is another. The question of diagnosis, of isolation, of treatment in the large sense, is decided to-day in the laboratory rather than at the bedside. There is a danger of being too ready with these new-found weapons, of expecting too much from them; but there is also the danger of rejecting them because they are new. The general practitioner may be a very desirable check upon the enthusiastic bacteriologist, but the practitioner, the hospital clinician, the bacteriologist, should all co-operate cordially and heartily together and carry the general public along with them by example as well as by precept.

There is work for all, and distinction to be gained from good work by all, but there should be no room for jealousy and no time for hindrance.

RABIES IN ENGLAND.¹

THE British Board of Agriculture has issued a report of their proceedings, under the Diseases of Animals Acts, for the year 1895, in which considerable information relative to the prevalence of rabies will be found interesting to medical men. Tables are presented and a colored map indicating the comparative prevalence in different counties. Lancashire and the West Riding of York appear to have been the most seriously affected.

The animals attacked with the disease were dogs, cattle, sheep, swine, horses, deer and cats, but mostly dogs. The number of dogs attacked in the past eight years was as follows: 1888, 160; 1889, 312; 1890, 129; 1891, 79; 1892, 38; 1893, 93; 1894, 248; 1895, 672. Out of this large number in 1895 (672) 273 were said to be stray dogs, that is, dogs which, during the time when they were affected with rabies, had wandered into districts remote from their homes.

Previous reports had shown that it was this particular class of dogs which perpetuated rabies; and as it is quite impossible to prohibit or regulate the movements of dogs in the same manner as other animals, it is obviously hopeless to expect that the disease can be suppressed unless measures are universally adopted for the seizure of all ownerless dogs.

In 1889, with the view of checking the progress of this terrible disease and possibly of extinguishing it in the districts where it was prevailing, orders were passed imposing the muzzle upon dogs in those districts. Local authorities and dog owners protested loudly, and the general public appeared altogether indifferent; but the Board, in the face of persistent opposition, maintained the order in the affected districts till 1892, when, in deference to the generally expressed wishes of local authorities, the order was finally withdrawn, leaving further action in the hands of each local authority. The measures taken by the Board,

¹ Editorial in *Journal*, May 28, 1896; also, "Prevention of Tuberculosis," *Jas. B. Russell, M.D.*, Glasgow.

¹ Annual Report of Proceedings under the Diseases of Animals Acts of 1894, etc., pp. 110. London, 1896.

however unpopular at the time, had materially decreased the amount of the disease, and as a result the number of cases among dogs had fallen in 1892 to 38. After the withdrawal of the order, the number of cases increased more than seventeenfold, the number reported in 1895 being 672. *

The Board further says: "There can be but little doubt, and it can hardly be too often repeated, that, if in every instance where a dog has been certified to be rabid, all other dogs that have in any way been associated with the diseased animal were as far as possible traced and promptly destroyed, and the requirement of the muzzle was strictly enforced over a wide area for a period of, say, six months, the disease need never become prevalent; and if these measures could be accompanied with effective precautions to prevent the re-introduction of the disease from abroad there seems no reason to suppose that the dire scourge might not within a moderate period be entirely eradicated from the country."

It is instructive to compare with this weak and vacillating policy of the British authorities, the rigorous muzzling measures now pursued in Berlin where hydrophobia is consequently entirely suppressed.

MEDICAL NOTES.

MORTALITY FROM PLAGUE AT BOMBAY.—The latest report from Bombay places the total mortality up to date, from plague in that city, at 10,000.

PRECAUTIONS AGAINST PLAGUE.—As a result of the conferences held by the Imperial board of health upon the question of the bubonic plague in Bombay, German health officials have been sent to Vienna and Rome to arrange preventive measures against the introduction of the disease into Europe.

AN ENORMOUS FIBROID TUMOR.—At the November meeting of the Section on Gynecology of the College of Physicians of Philadelphia, Dr. C. B. Penrose reported an operation for the removal of an edematous fibroid tumor of the uterus, weighing eighty-seven pounds. The patient died four hours after the operation, probably from sudden relief of pressure upon the vascular system. — *American Journal of Obstetrics.*

THE GERM OF YELLOW FEVER.—It is stated in a dispatch to the *London Times* that a young Italian physician, Dr. Guiseppe Santarelli, of Montevideo, now director of the Uruguayan National Institute of Experimental Hygiene, has discovered the microbe of yellow fever. He was led to investigate the subject by passing through an attack of the disease himself at Rio de Janeiro. A description of the microbe found has been sent to the Royal Academy of Medicine, Rome.

UNPAID DOCTORS' BILLS.—The British Medical Protection Society, among other duties, undertakes the collection of over-due fees and accounts of its members. During the past five years application for the overdue fees of the members have been made, amounting in all to a sum of no less than £46,376 12s. 6d. Of

this amount, £25,870 5s. 6d. was collected without the necessity of resorting to legal compulsion. But even the first named immense sum, as the *Medical Press and Circular* remarks, cannot represent probably more than a proportional part of the unpaid indebtedness of the public to the British medical profession, for it is hardly to be supposed that each member of the profession, to who is owed fees which he cannot obtain, is a member of the British Medical Protection Society. In this country physicians have no such means either of having bills collected for them, or arriving at an estimate of their total amount; but there is every reason to suppose, on the basis of individual experience, that the proportion of unpaid bills to the total is as great in America as in Great Britain.

FOUND DRUNK.—When the police in Denmark find any one in the streets drunk and incapable they take him in a cab to the station, where he gets sober under a surgeon's care. On recovering sobriety the police take him home. A bill for the services of the cabmen, the surgeon, and the police agents for special duty is then presented to the host of the establishment where the patient took his last drink. In Turkey, if a Turk falls down in the street while intoxicated and is arrested, he is sentenced to the bastinado, which punishment is repeated as far as the third offence. After the third bastinadoing he is considered to be incorrigible, and is called "Imperial," or "privileged" drunkard. If arrested after that he has only to give his name and address, and state that he is a "privileged" drunkard, when he is released and conducted home, the bill for these kindnesses being rendered to him for payment next day. — *British Medical Journal.*

SURGEON-MAJOR PARKE.—A memorial statue of Surgeon-Major Parke, who, it will be remembered, was the surgeon of Stanley's African expedition, has recently been unveiled in Dublin. In commenting upon the occasion the editor of the *Medical Press and Circular* pays this tribute to the character of Parke, whose devoted, unselfish and untiring service to the members of this expedition won for him the respect and admiration of his nation: "No man, as we believe, courted notoriety less than he, no man gave himself less trouble to push for promotion, and no man made less effort to acquire expertness in the blowing of his own trumpet, an accomplishment to which many, if not most men, owe their progress in life. Moreover, when he had achieved honor and celebrity, was flattered by every one and petted by great people, his modest and ingenuous spirit rose superior to the weaknesses which such conditions commonly bring out. The superiority of manner and condescending drawl assumed and improved upon by the ordinary pushing self-seeker were not found in Parke, nor had he occasion to clear the way for further advancement by kicking down the ladders which had raised him. He was a gentleman in mind and a hero in spirit, and the testimony of his nation's approval and admiration was well-deserved."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, January 27, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 126, scarlet fever 43, measles 97, typhoid fever 8.

A NEW DISPENSARY.—The new dispensary of the New England Hospital for Women and Children, at No. 29 Fayette Street, Boston, was opened to patients on January 25th.

BOSTON CITY HOSPITAL CLUB.—The annual meeting of the Club will take place at Young's Hotel, Boston, on the evening of Wednesday, February 3, 1897, at half-past five o'clock. The annual dinner will follow immediately upon the adjournment of the business meeting.

THE BOSTON LYING-IN HOSPITAL.—At the annual meeting of the trustees of the Boston Lying-in Hospital, which was held last week, all the officers were re-elected. The trustees' report showed that in the last year 2,242 patients in confinement were taken care of by the hospital staff, being 224 more than in 1895, and 678 of these were cared for in the wards of the hospital. The percentage of deaths was less than one-half of one per cent. Nineteen nurses received diplomas during the year, and six physicians received the hospital training. The expenses of the hospital were more than \$20,000. These expenses have to be met in large measure by voluntary contributions and subscriptions, and more money is needed, as the work increases from year to year. Subscriptions for a larger amount will be needed this year, if the hospital is to continue its valuable work, and such may be sent to George von L. Meyer, Treasurer, 89 State Street, Boston, or to the hospital, 24 McLean Street, Boston.

SUITS FOR POISONING BY GELSEMIUM.—Two suits are in progress before the Superior Court, at Worcester, against a "cancer doctor," who has an office in Boston, one to recover \$1,025 paid him by Joseph A. Battles, of Fitchburg, for medical attendance upon his wife, and another for causing the death of the latter by negligence and unskilful attendance. Drs. Hitchcock and Fish, of Fitchburg, who were called to attend Mrs. Battles just before her death, found her in a collapse, and found a medicine bottle in the room, the contents of which proved, on analysis by Dr. Edward S. Wood, of Boston, to be a preparation of gelsemium. The accused had been treating Mrs. Battles for cancer since last March.

NEW YORK.

THE FIRE AT BELLEVUE.—The building occupied by Bellevue Hospital Medical College, situated within the grounds of the hospital, was severely injured by fire on January 20th. The entire upper portion of the building was destroyed, and the lower portion so completely flooded with water that all it contained was ruined. Much valuable apparatus and many rare specimens were lost. There was a marked ab-

sence of excitement among the patients of the hospital, and the strictest order was maintained throughout. The lectures of the college will be continued in the Carnegie Laboratory Building, across the street, which was not reached by the fire.

PRECAUTIONS AGAINST PLAGUE.—Health Officer Doty has made application to the Legislature for a special appropriation of \$5,000 to carry out precautions against the entrance of the plague into this country through the port of New York. In the meanwhile Dr. Joseph N. Senner, Emigration Commissioner, has accepted from the United States Government the disinfecting plant erected at Sandy Hook at the time of the cholera outbreak in 1892, at a cost of \$75,000, and is now making arrangements for the transfer of the apparatus to Ellis Island.

RECORDER GOFF'S GRACIOUS ALLUSION TO MEDICAL EXPERTS.—The annual banquet of the Medico-Legal Society was held at Hotel Marlborough on January 20th. Among the speakers was Recorder Goff, who made a violent attack upon medical experts, whom he kindly characterized as "mountebanks and charlatans."

DEATH AT ONE HUNDRED AND EIGHT YEARS.—Alexander Freeman, a negro, died at Sailors' Snug Harbor, Staten Island, on January 22d at the reputed age of 108. He was a native of New York City, and there is reason to believe that the extreme age given is not an exaggeration.

ANNUAL REPORT OF THE POST-GRADUATE HOSPITAL.—The twelfth annual report of the New York Post-Graduate Hospital, just published, shows that during the year 1,895 new house patients were treated. Of these, 729 were infants, and 1,166 children and adults. The increase in the number of patients over the previous year was 160; 20,084 patients were treated in the dispensary, to which 75,153 visits were made; and the district physician attended 527 patients at their homes.

A CLERGYMAN VIOLATES THE HEALTH LAWS.—The Dutchess County Grand Jury has indicted the Rev. George D. Silliman, rector of a prominent Episcopal church in Albany, for wilful violation of the health laws, in removing his sick son from St. Stephen's College at Annandale in defiance of the quarantine established by the Health Officer Dr. H. L. Cookingham, of Red Hook. The son, while a student at the college, was on December 5th attacked with diphtheria. The diagnosis, made by the local physician in attendance, was accepted by Health Officer Cookingham, who closed the college, isolated young Silliman, and quarantined the rooms. The quarantine was maintained for a week, when Dr. Silliman came from Albany and asked permission to take his son home. Notwithstanding that the request was refused, he hired a carriage and conveyed the young man to the neighboring station at Barrytown, on the Hudson, whence he travelled with him by train to Albany.

Miscellany.

THE LABORDE METHOD OF RESUSCITATION.

AN experimental study of the method of resuscitation by rhythmical tractions on the tongue, which was advocated by Dr. Laborde about a year ago as an effective method in cases both of submersion and collapse during anesthesia, and was the subject of much discussion at the French Academy of Medicine, has been made by Dr. Hanbold, of New York.¹

Five experiments were tried. In the first, which may be considered a severe test of the method, a dog was quickly killed by a large amount of chloroform, and as soon as the heart had stopped beating, rhythmical tractions on the tongue were begun, and continued for two hours, with a negative result. The second experiment was the submersion of a dog in the water for fifteen minutes. The dog ceased struggling after a minute and ten seconds. Traction on the tongue for two hours failed to revive him. In the third trial two dogs were submerged for three and one-half minutes. One was left to himself, and the other, after two minutes had elapsed, was subjected to rhythmical tongue traction as before. The fourth experiment was practically a repetition of the preceding, and was also negative in its result, although both dogs struggled to within fifteen seconds of the time they were removed from the water, and muscular tremor was present for some minutes after they had been removed, indicating, perhaps, that very little stimulus to the heart or respiration would have been sufficient to cause functional activity.

In the fifth experiment an attempt was made to imitate the conditions present in an accidental death from inhalation of chloroform for anesthesia. A dog was chloroformed until anesthesia was produced, and then the chloroform was increased until respiration ceased, and then removed. The heart was still acting, and continued to act more or less irregularly for one minute and forty-five seconds after the removal of the drug. Tongue tractions were continued for an hour with no result whatever. The writer sums up his experiments as follows:

"It will be seen from the foregoing observations that the method of resuscitation was given tests of considerable variance as regards severity. While it is true that in Experiment I a large amount of chloroform was administered, and in Experiment II the animal was submerged for fifteen minutes (a considerable period of time), still, in face of the contention by Laborde that persons that have been submerged for an hour have been resuscitated by this method, these tests would seem to be fair enough. But further than this, it will be seen that in Experiments III and IV the animals were submerged for three minutes and a half, and then left to themselves for two minutes, making a total of five minutes and a half only, and still resuscitation was not achieved. Indeed, in Experiment IV there was the muscular tremor already alluded to; surely here resuscitation should have been successful. And last of all, Experiment V, it seems, can well be called a fair test. Without recapitulating the entire observation, attention is called to the fact that tongue tractions were begun *immediately* after the heart ceased acting, and that no time was allowed to elapse as in the other observations. As a matter of

fact, the observations here recorded leave little doubt that the Laborde method of resuscitation leaves much to be desired, and that it is not to be employed to the exclusion of the other methods now in use.

THERAPEUTIC NOTES.

FORMALIN AN APPROXIMATE SPECIFIC FOR RINGWORM.¹—An interesting editorial note has appeared in *Guy's Hospital Gazette* calling attention to a recent paper by Mr. Alfred Salter, on the treatment of ringworm by formic aldehyde, or formalin. This treatment is now so well known in Guy's, and has had such a conspicuous success, that it should be part of the ordinary practice of every old Guy's man. There seems no doubt that it is the almost specific treatment for the disease, especially in obstinate and hitherto incurable cases. And yet this discovery arose from the annoying fact that the inventor's cultivations of the ringworm microbe were all killed one night through his having left the stopper out of the formalin bottle.

FOR DYSPEPSIA AND VOMITING IN TUBERCULOUS SUBJECTS.²—Dr. Barth recommends this formula:

R	Prepared chalk,	} āā	3. grains.
	Calcined magnesia,		
	Manganese dioxide	1.5 grains.	
	Powdered belladonna . . . . .	.15 grains.

M. For one dose, to be taken after eating. If there is severe pain, 15 of a grain of powdered opium may be added.

THE TREATMENT OF PIRENO-GLOTTIC SPASM IN SUCKLINGS.³—Vergniaud gives a drop or two of chloroform by inhalation during the spasm, and prescribes the following:

R	Tincture of musk	20 drops.
	Tincture of belladonna	10 drops.
	Cherry-laurel water	120 grains.
	Syrup of orange	300 grains.
	Lactucarium water	1,500 grains.

M. S. Five or six teaspoonfuls to be taken twice a day.

NEPHRITIS.⁴—Pulverenti gives ergotin in the following prescriptions:

R	Ergotini	5 gm.
	Ac. gall.	8 gm.
	Extr. et pulv. rad. ratanh. q. s. ut ft. pil. tr. viginti.	
S.	Take one pill four times a day.	
R	Ergotini	2. gm.
	Ac. gall.	4. gm.
	Saccharini . . . . .	.05 gm.
	Muc. gumm. arab.	200. gm.

M. S. Teaspoonful twice a day.

A PRESCRIPTION FOR ATONIC ULCERS.⁵

R	Iodol	.	.	.	.	.	.	2 parts.
	Vaseline,	} āā	.	.	.	.	.	10 parts.
	Laoline.							

M. To be spread thin on aseptic lint and applied.

FACIAL ERYSIPELAS.⁴

R	Acid Carbol.	} āā	2.0 gm.
	Tr. Iodi.		
	Alcoh. abs.		
	Ol. Terebinth	. . . . .	4.0 gm.
	Glycerini	. . . . .	6.0 gm.

M. D. S. External use. Wash the affected parts with the mixture every two hours.

INFLUENZA.⁶—Pepper recommends

R	Quin. Sulph.	. . . . .	3.0 gm.
	Pulv. Digit.	} āā	1.0 gm.
	Pulv. Scill.		
	Extr. Op.	. . . . .	0.3 gm.
	Extr. Glycyrrhizæ	q. s. ut ft. pil. tr. triginta.	

S. Take one pill four times a day.

¹ The Therapist, London, November, 15, 1896.

² Gazette hebdomadaire de médecine et de chirurgie, October 15th.

³ Journal de clinique et de thérapeutique infantiles, 1896, No. 29;

Wiener klinische Rundschau, October 25, 1896.

⁴ Semaine Médicale. ⁵ La Presse Médicale. ⁶ Medical Record.

¹ New York Medical Journal, January 23, 1897.

LARYNGISMUS STRIDULUS.⁷

R. Kali Citratis	7.00 gm.
Syr. Ipecac.	15.00 gm.
Tr. Opil deod.	xx gtt.
Syr. Simp.	15.00 gm.
Aq. Dist.	ad 120.00 gm.

S. One teaspoonful twice a day (for older children).

Correspondence.

GLION, CANTON VAUD, AS A HEALTH-RESORT.

PARIS, January 10, 1897.

MR. EDITOR:—In these days when health-resorts are a necessity to the invalid, I should fail in my duty if I did not bring to the notice of physicians the village of Glion in Switzerland.

Glion is situated 900 feet above Montreux in the Canton Vaud on Lake Geneva, and lies 2,270 feet above sea-level. The beauty of the outlook from this charming spot is very unusual in its exquisite variety. Experienced travellers unite in the opinion that the scenery about Glion is more picturesque than that of any other place in Switzerland. Walks about Glion are so numerous that the pedestrian cannot soon exhaust their delights. Every direction gives one a new and fascinating combination of lake, snow, mountain, forest, stream, field and garden. Walks through dense pine woods are a special benefit.

There are several hotels and pensions which will satisfy any purse, whether plump or lean; but the hotel to be most highly recommended is the "Victoria" kept by Kipler Brothers. The unexceptionable table, cleanly rooms, excellent beds, pure drinking water, scientific drainage, good service, circulating library, tennis court, billiard room, a daily orchestral concert, evening dances and amusements leave nothing to be desired. One can live at this hotel at rates not exceeding fourteen and averaging from eight to ten francs per day. It has an immense piazza sheltered by awnings for sunny weather. Another piazza, 150 feet in length, has a roof and abundance of easy chairs. Being open to the air upon one side and looking out upon a fine garden, it serves admirably for promenades or for an air-bath during rainfall. It is here that the excellent orchestral concerts are given.

A striking peculiarity of Glion is the quality of the air, not merely because it is pure and sweet in the ordinary sense, but because of its extraordinary cleanliness. It is then almost superfluous to point out what refreshment and purification one's blood undergoes during a stay of weeks in this delicious air.

Many a neurasthenic invalid has become vigorous in Glion and a chief incentive to this letter is the value of the Glion climate in this class of cases. A gradual and certain increase of vigor, of moral tone, of objective interest, of normal appetite and nightly sleep is the result of a summer spent in Glion. Tranquillity replaces psychical unrest. The daily walk is prolonged without undue fatigue and a day arrives when the former invalid is surprised by the discovery that a comparison of present with former conditions shows that she has become another and a healthier creature.

Glion has done much, also, for weak and faulty digestion. Cases of chronic dyspepsia and of irritable stomach are sent to Glion, with the logical expectation that health will be restored, and this hope is usually realized. The physicians of Aix-les-Bains, after their patients have completed a course of baths, send them to Glion to complete their cure. A need of refreshment, of restoration from fatigue and the effects of overwork would naturally meet with full satisfaction in this admirable climate.

Weather in Glion is much like weather in other elevated places in Switzerland. There is sometimes more rain than one would wish, and there are cool days; but, upon

the whole, visitors are perfectly satisfied with all meteorological conditions, for compensations are manifold. The roads are so hard and so few of them are level that walking is agreeable almost directly after a fall of rain.

Caux and the Rochers de Naye are places situated several hundred feet above Glion, which is connected with these resorts by a railway. Each of them possesses a good hotel and a superb view. They serve as points of interest for excursionists but do not offer the attractions to be found in Glion, nor are they equally favorable for the classes of cases which I have mentioned.

In order to reach Glion a ticket should be taken for Territet, the station at which passengers for Glion should leave the train or lake steamer. If tickets be purchased at a long distance from Territet it may be that none for this place can be obtained. In that case a ticket for Montreux will answer. Montreux lies only five minutes from Territet and the supplementary fare of a few centimes may be paid on the train. In any case, however, the traveller should insist upon having his trunks checked to Territet. Approaching by steamer there is no trouble of this nature.

Having left train or steamer, one crosses the street and takes a car by the funicular railway for Glion. Upon his arrival he will find at the station a porter from the "Victoria" to which he walks in four minutes, his luggage following upon the hotel wagon. To go to Glion in June would not be too early and unless one be very sensitive to cool mornings and evenings the invalid may remain until September 30th.

H. O.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 16, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	700	222	10.64	16.10	1.51	.70	4.76	
Chicago . .	1,619,226	451	135	19.14	18.70	11.44	1.54	3.96	
Philadelphia . .	1,164,000	510	156	6.27	8.72	.39	1.07	3.23	
Brooklyn . .	1,100,000	—	—	—	—	—	—	—	
St. Louis . .	500,000	163	42	4.27	15.86	.61	—	3.05	
Boston . .	491,205	212	60	12.22	19.27	—	2.35	5.17	
Baltimore . .	496,315	197	62	9.18	16.83	.51	1.02	6.12	
Cincinnati . .	336,000	145	—	8.97	11.04	—	1.38	5.62	
Cleveland . .	314,537	73	—	8.22	6.85	1.37	1.37	5.43	
Washington . .	275,500	106	10	7.52	16.92	—	1.88	1.88	
Pittsburg . .	238,617	—	—	—	—	—	—	—	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	87,754	29	8	3.45	31.05	—	—	3.45	
Charleston . .	65,165	49	13	—	6.12	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	31	14	12.92	21.91	—	—	6.46	
Fall River . .	88,020	—	—	—	—	—	—	—	
Lowell . .	81,359	32	11	12.52	18.78	—	—	6.26	
Cambridge . .	81,519	29	13	6.90	31.05	—	—	3.45	
Lynn . .	62,355	23	9	13.05	8.70	—	—	8.70	
New Bedford . .	55,254	23	7	17.40	13.05	4.35	—	13.05	
Springfield . .	51,534	11	1	—	9.09	—	—	—	
Lawrence . .	52,153	19	6	21.04	15.78	5.26	—	15.78	
Holyoke . .	40,149	—	—	—	—	—	—	—	
Salem . .	34,437	11	4	—	—	—	—	—	
Brookton . .	33,157	10	2	10.00	10.00	—	—	10.00	
Haverhill . .	30,185	4	1	—	—	—	—	—	
Malden . .	29,709	6	1	—	16.66	—	—	—	
Chelsea . .	31,295	12	4	8.33	25.00	—	—	—	
Fitchburg . .	26,394	10	5	20.00	20.00	—	—	20.00	
Newton . .	27,622	5	0	—	—	—	—	—	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . .	27,093	13	2	—	13.58	—	—	—	
Waltham . .	20,877	4	1	25.00	25.00	—	25.00	—	
Quincy . .	20,712	4	1	25.00	—	—	—	—	
Pittsfield . .	20,447	—	—	—	—	—	—	—	
Everett . .	18,578	6	3	33.32	—	—	—	33.33	
Northampton . .	16,738	—	—	—	—	—	—	—	
Newburyport . .	14,554	3	0	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,966: under five years of age 871; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 338, acute lung diseases 495, consumption 356, diphtheria and croup 148, diarrheal diseases 74,

⁷ Medical Record.

typhoid fever 36, scarlet fever 22, whooping-cough 20, measles 13, cerebro-spinal meningitis 13, erysipelas 12.

From scarlet fever New York and Boston 6 each, Philadelphia 4, Chicago and Baltimore 2 each, St. Louis and Cincinnati 1 each. From whooping-cough New York 7, Philadelphia 5, Chicago 3, Cincinnati, Washington, Lowell, Cambridge and Melrose 1 each. From measles New York 6, Philadelphia 3, Chicago 2, Boston and Cincinnati 1 each. From cerebro-spinal meningitis New York 4, Washington and Worcester 2 each, Philadelphia, Boston, Lynn, Chelsea and Quincy 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending January 9th, the death-rate was 19.4. Deaths reported, 4,084: acute diseases of the respiratory organs (London) 379, diphtheria 103, whooping-cough 98, measles 85, scarlet fever 53, diarrhea 40, fever 36.

The death-rates ranged from 10.8 in Croydon to 23.6 in Liverpool: Birmingham 21.4, Bolton 23.2, Brighton 12.5, Cardiff 16.9, Gateshead 20.1, Hull 15.8, Leeds 23.2, Leicester 15.1, London 18.5, Manchester 22.7, Newcastle-on-Tyne 22.1, Nottingham 19.9, Plymouth 23.0, Salford 19.6, Sheffield 20.7.

METEOROLOGICAL RECORD

For the week ending January 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S..10	29.82	36	43	30	65	70	68	S.W.	N.W.	9	14	O.	C.
M..11	29.74	35	40	30	74	79	76	S.W.	W.	6	6	F.	C.
T..12	29.89	30	30	9	75	60	68	N.W.	N.	8	12	O.	C.
W..13	30.29	16	27	6	76	45	59	N.W.	N.	12	8	C.	O.
T..14	30.28	23	28	18	57	63	60	N.W.	S.W.	5	4	O.	O.
F..15	30.27	28	31	24	73	88	78	N.W.	S.E.	12	18	O.	O.
S..16	30.26	34	43	24	88	75	72	N.W.	W.	4	28	N.	C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall.  Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 18, 1897.

H. LAMOTTE, assistant surgeon, detached from treatment at Naval Hospital, Philadelphia, and ordered before retiring board, Washington, January 26th, then home and placed on waiting orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING JANUARY 15, 1897.

BAILHACHE, P. H., surgeon. Detailed as chairman, Board for examination of officers for promotion and candidates for appointment as assistant surgeon. January 4, 1897.

STONER, G. W., surgeon. Detailed as member, Board for examination of officers for promotion and candidates for appointment as assistant surgeon. January 4, 1897.

KALOCH, P. C., passed assistant surgeon. Detailed as recorder, Board for examination of officers for promotion and candidates for appointment as assistant surgeon. January 4, 1897.

COPER, L. E., assistant surgeon. Relieved from waiting orders and directed to proceed to San Diego, Cal., and assume command of Service. January 11, 1897.

GARDNER, C. H., assistant surgeon. To report at Bureau, February 3, 1897, for examination for promotion. January 6, 1897. Granted leave of absence for fifteen days on completion of examination for promotion. January 11, 1897.

BLUE, RUPERT, assistant surgeon. To report at Bureau, February 3, 1897, for examination. January 5, 1897.

OAKLEY, J. H., assistant surgeon. To report at Bureau, February 3, 1897, for examination for promotion. January 5, 1897.

SPRAGUE, E. K., assistant surgeon. To report at Bureau, February 3, 1897, for examination for promotion. January 5, 1897.

PROCHAZKA, EMIL, assistant surgeon. To report at Bureau, February 3, 1897, for examination for promotion. January 5, 1897.

SOCIETY NOTICES.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The next regular meeting will be held at the Medical Library, 19 Boylston Place, on Wednesday, February 2d, at 12 M.

Attorney-General H. M. Knowlton and U. S. District Attorney Sherman Hoar will address the Society on "The Duties of a Medical Examiner."

Dr. William F. Whitney will read a paper on "Identification of Seminal Stains."

The members of the profession are cordially invited.

JULIAN A. MEAD, M.D., Secretary.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, February 3, 1897, at 8 o'clock.

At 8 P. M., "The Treatment of Old Dislocations of the Shoulder-Joint," by F. B. Lund, M.D.

At 8.20 P. M., Discussion by Drs. C. B. Porter, J. W. Elliot and G. H. Mouks.

At 8.50 P. M., Presentation of pathological specimens by Prof. W. T. Councilman.

At 9.10 P. M., "Sprains and their Treatment," by Douglas Graham, M.D.

At 9.30 P. M., Drs. R. W. Lovett and J. G. Mumford will also read short (five to ten minutes) papers on this subject.

Discussion.

PAUL THORNDIKE, M.D., Secretary.

TRI STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI.—The fifth annual meeting of the Society will meet in St. Louis, April 6, 7 and 8, 1897. A large number of valuable papers will be read. Dr. Joseph Price, of Philadelphia, will hold the Surgical Clinic, Dr. James T. Whittaker, of Cincinnati, the Medical Clinic, and Dr. Dudley Reynolds, Ophthalmic Clinic. Dr. G. Frank Lydston, of Chicago, will entertain the members with an original story during one of the evening sessions.

G. W. CALE, JR., M.D., Secretary,

4403 Washington Boulevard, St. Louis.

RECENT DEATH.

CHARLES A. STARK, M.D., died at Marshfield, Mass., January 22d, aged thirty-five years. Dr. Stark was a native of Manchester, N. H., and a graduate of the Dartmouth Medical School. He was for a time connected with the staff of the New Hampshire Insane Asylum, and then went South, practising his profession in Louisiana and holding the post of division surgeon on the Illinois Central Railroad. In 1889 he was compelled by failing health to return to the North and in the following year established himself at Marshfield, where he acquired an excellent practice. He only gave up active practice when the progress of his last illness enforced retirement. He married, in 1886, Miss Harriet O. Walker, of Chelsea, who, with a son, survives him. He was a great-great-grandson of General John Stark. Dr. Stark was a member of the Massachusetts and New Hampshire Medical Societies.

BOOKS AND PAMPHLETS RECEIVED.

Annual Report of the Board of Health of the City of Portland. 1895-96.

A Study of Types of Respiratory Movements. By G. W. Fitz, M.D. Reprint. 1896.

The Route of Respired Air through the Nose. By R. Kayser, Breslau. Reprint. 1896.

Remarks on the Causes of Glaucoma. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1896.

The Effect of Early Optic Atrophy upon the Course of Locomotor Ataxia. By Pearce Bailey, M.D., New York.

Quinsy; the Differential Diagnosis and Treatment. By J. Homer Coulter, A.M., M.D., Ph.D., Chicago, Ill. Reprint. 1896.

On the Mode of Procedure under the New Luncacy Law of the State of New York. By Ralph Lyman Parsons, A.M., M.D. Reprint. 1896.

Professional Education in the United States, with Statistics of Professional and Allied Schools. Washington: Government Printing Office. 1896.

Tenth Biennial Report of the Board of Trustees of the State Charitable Institutions of the State of Kansas, for the Two Years ending June 30, 1896.

A Study of the Changes Produced in the Kidneys by the Toxins of the Staphylococcus Pyogenes Aureus. By John Lovett Morse, A.M., M.D. Reprint. 1896.

Three Cases of Plastic Nasal Surgery—for Saddle-shaped Nose, Removal of Entire Nose, and Arched Roman Nose. By W. W. Keen, M.D., Philadelphia. Reprint. 1896.

Original Articles.

INSOLATION.¹

BY HENRY JACKSON, M.D.,

Assistant Visiting Physician of the Boston City Hospital.

DURING the heated term of last August it was my good fortune to have under my care at the City Hospital several cases of insolation; as they offered many points of interest to me, I feel that a short discussion of the subject may not be out of place in this Section.

The common terms "sunstroke" and "insolation" (derived from the verb "insolate," meaning to expose to the rays of the sun) are not wholly appropriate, as many cases of the most severe forms of this disease are developed in persons exposed to great heat in attics or overheated rooms, though entirely shielded from the direct rays of the sun. The term "thermic fever," though etiologically more comprehensive, is not in common use in our city, and I therefore choose the word "insolation" as the title of my paper.

As the result of exposure to severe heat, we may have two different diseases produced, namely, heat exhaustion and thermic fever.

The cases of slight prostration, headache and malaise produced by heat may be classified as the mildest types of heat exhaustion. During the hot week many persons that had been overcome by heat were brought to the hospital in the police ambulance; yet they were perfectly conscious, had a normal temperature, and after a short period of rest were allowed to go home, as their symptoms were not sufficiently severe to warrant their admission considering the overcrowded condition of the hospital. Several cases were admitted that were unable to leave the hospital on account of severe headache, dizziness and exhaustion, though when they reached the hospital, at all events, their temperature was not elevated.

As the result of exposure to heat, profound collapse, with loss of consciousness and relaxation of the whole muscular system, may be seen. In such cases the temperature is subnormal and the pulse rapid. The condition is comparable to profound collapse as seen in serious surgical accidents. I have not had any experience with cases of this form, though Dr. H. C. Wood speaks of this form of heat exhaustion as not uncommon in Philadelphia. The treatment suitable for cases of collapse from exposure to heat is the same as that for collapse from any other cause, namely, vigorous stimulation and the application of heat externally.

A third form of disease, the result of exposure to great heat is described, namely, a continued fever which may simulate typhoid fever. Dr. Guiteras has especially called attention to this disease, and expressed the opinion that many cases of so-called typhoid fever in Florida are really cases of insolation of this type. I report to-night one case of continued fever that I believe was due to the results of long exposure to great heat.

In summary, then, we may say that, as a result of exposure to excessive heat, we may have four distinct diseased conditions:

- (1) Exhaustion, with normal temperature.
- (2) Collapse, with subnormal temperature.
- (3) Intense fever combined with furious acute symptoms.

(4) A continued fever with symptoms suggesting a continued fever similar to typhoid.

In 1895 Dr. C. F. Withington published a valuable paper on "Heat Prostration" in the sixth series of the Medical and Surgical Reports of the Boston City Hospital. In this paper he analyzed one hundred cases. Two-thirds were the result of exposure to the direct rays of the sun, and one-third to exposure to indirect heat. In the latter class were included workers in sugar refineries, iron foundries, bake-shops, furnace-rooms and stables. Of the 100 cases, 28 died and 72 recovered. In this series the highest recorded temperature was 111.5°, and the highest temperature with recovery 109.5°. In 84 cases there was loss of consciousness, and convulsions in 30. Dr. Withington noted that the pupils did not respond to light and were usually contracted, though at times dilated. This accords with the statements usually found in the text-books, though in all my severe cases, with a single exception, the pupils were contracted to a pin-point size. A secondary rise of temperature after the fever had been reduced by cold was not unusual. Of great practical importance is the fact that in the cold bath there may be a fall of temperature to a point far below normal, accompanied by symptoms of serious collapse. Therefore in using a bath the rectal temperature must be taken frequently; and when the thermometer registers 102° the patient should be removed from the bath, as the temperature usually continues to fall after the patient has been returned to his bed. In six autopsies quoted by Dr. Withington the chief pathological lesions were sub-endocardial and pulmonary hemorrhages, hyperemia and edema of the meninges, and a fluid condition of the blood as a whole.

Through the kindness of my colleague, Dr. Sears, I am able to report 22 cases that entered our two services: 18 men, three women, and one boy of fifteen years.

METEOROLOGICAL RECORD.

According to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps, August 6-13, inclusive:

Date.	Cases	Thermometer.			Relative humidity.			Weather.	
		Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.
T...	6	65	69	65	91	96	94	Cloudy.	Cloudy.
F...	7	77	90	61	95	74	84	Cloudy.	Clear.
S...	8	75	80	64	95	76	86	Clear.	Clear.
S...	9	82	92	72	68	79	74	Fair.	Clear.
M...	10	2	86	95	76	70	70	Cloudy.	Clear.
T...	11	5	82	89	76	62	64	Clear.	Clear.
W...	12	12	82	89	75	68	71	Clear.	Clear.
T...	13	2	76	81	70	74	79	Fair.	Fair.

One case entered some time after the heated term had passed by, the case of continued fever.

Eleven of the cases were mild; 10 were severe, with hyperpyrexia; and one was the case that I have mentioned as belonging to the type of continued fever due to heat. Seventeen of the cases were the result of direct exposure to the rays of the sun, and five were prostrated by indirect heat. Of the latter, three

¹ Read before the Clinical Section of the Suffolk District Medical Society, November 18, 1896.

were laundresses, one a baker and one a stableman who was working in the loft of a stable on Portland Street. Two of the severe cases suffered from indirect heat.

Five of the 22 cases died, namely, 50 per cent. of the cases severe enough to warrant one to make an unfavorable prognosis, 11 of the cases being evidently of a mild type.

Two of the cases entered on the fourth day of the heated period, five on the fifth and 12 on the sixth day; two were entered on the morning of the seventh day, but properly they should etiologically be entered as belonging to the sixth day, as they were both night-workers and were brought in in the early morning, after the temperature had been already lowered by a fresh east wind.

It is evident from this list that the ultimate cause of the prostration is to be found rather in prolonged heat than in the excessive heat of a single day. Most of the cases entered two days after the acme had been reached. These data are in accord with our practical experience that sunstrokes are not usual as the result of one or two days of excessive heat such as usually occur every summer.

During this period the humidity was not high and the weather was clear; the same may be said in a general way of Dr. Withington's series of cases. They did not occur in weather with a relatively high humidity. In Germany where sunstroke is rare amongst civilians, soldiers are not infrequently overcome by the heat during forced marches, or in military manœuvres during hot, moist weather when the soldiers are burdened by heavy clothes and knapsacks. I remember Kussmaul said that he had not seen sunstroke except under such conditions.

The cases which I have to report I divide as follows: Mild, eleven cases, five without fever and six with low temperature; ten severe cases, with hyperpyrexia; one case continued fever.

FIVE CASES WITHOUT FEVER.

One of these cases was unconscious on entrance, two were conscious though dazed, one complained of severe headache and dizziness, and one was simply exhausted. In none of the cases were the pupils contracted, nor was there in any of them any loss of pupil reflex. One of the cases complained of abdominal pain, and had cramps in the hands. In all, the conjunctivæ were congested. In four of the cases where a history was obtained prodromal symptoms of lassitude, prostration, headache, and, in two instances, fainting, had preceded the extreme depression which caused their removal to the hospital. In only one case was there a distinct history of a cessation of sweating before the onset of more unfavorable symptoms. One had worked in a bake-shop on the last hot night of the series, and fainted twice before he was brought to the hospital with a normal temperature, though no baths had been given outside of the hospital.

All left the hospital in two or three days apparently well.

SIX CASES OF MODERATE FEVER.

Four of these cases were perfectly unconscious on entrance; while two were semi-conscious, though much dazed and roused only with difficulty. In five of the cases the pupils were equal and reacted perfectly; in one the pupils were contracted. In all the conjunctivæ were injected. Prodromata were more

marked than in the preceding series. One had complained of vomiting and marked prostration for two days before the onset of unconsciousness; three had severe headache and general malaise; again, one only noted and spoke of a cessation of sweating. The range of temperature was from 100° to 104°; in all there was a slight elevation of temperature on the second day, the temperature being normal on and after the third day. In the case with contracted pupils there was retraction of the head, and an occasional convulsion of the whole body. In the other cases no untoward symptoms were noted except moderate headache and weakness. The only treatment employed was sponging with cold water.

All were discharged on the second or third day after defervescence. Two were laundresses; the others worked out of doors.

TEN SEVERE CASES.

One case entered moribund, death taking place in the bath given shortly after entrance; of this case I can only report that the temperature was 111° in the rectum. In the other nine cases the following symptoms were noted: In all there was profound unconsciousness, with stertorous respiration. In all there was marked rigidity of the whole body and the extremities were extended with difficulty, becoming immediately flexed when not forcibly held. In all the pupils were contracted to a pin-point in size, and did not react to light or other stimulus; the conjunctivæ were deeply injected, and in two cases the eyes were rotated sharply upwards. In eight cases there were general convulsions, frequently recurring. Profuse, involuntary dejections and vomiting were seen in five cases, and noted as absent in two. Albuminuria and casts were found in three cases, and noted as absent in only one instance. In all the cases the pulse was rapid and poor, being several times imperceptible at the wrist. Râles were heard throughout the chest in each case examined. I give the range of temperature with the result in each case:

106°	Death, 7th day, jaundice and pneumonia.
105°	Death in a few hours.
108°	Recovered.
110°	Death, 14th day, edema of pia.
110°	Recovered.
110°	Death in four hours.
111°	Entered moribund.
102°	Recovered (ice-bath at station-house).
109°	Recovered.
109.5°	Recovered.

CASE I. Temperature 106°. Baker. Entered on evening of August 10th. Temperature fell rapidly after ice-water baths, and toward morning he was semi-conscious. During the next few days jaundice developed, and he was delirious. The liver was enlarged. August 16th, consolidation of the lower lobe of the left lung, and death the next day.

CASE II. Temperature 105°. Was put in a cold bath, and removed when the temperature was 101°. He was wrapped in blankets, rubbed vigorously, and stimulated; but he failed to respond. The temperature fell to 93.6°, and he died in a few hours.

CASE III. Temperature 108°. Temperature soon fell under use of ice-cold packs, and in a few hours he was conscious. No untoward symptoms. Eloped on fourth day.

CASE IV. Temperature 110°. Boy of fifteen. Mentally deficient, and a resident of an institution. Profuse vomiting and involuntary dejections. Temperature fell rapidly under ice-cold sponging and packs. He never recovered consciousness. There was marked rigidity of

the neck, trunk and extremities: constant vigilance and occasional twitchings of face and legs. Death on the fourteenth day. Autopsy: Much edema of the pia. When the calvarium was removed the brain looked as if covered with a thick layer of wine jelly.

CASE V. Temperature 110° . Temperature fell quickly to 102° under ice-cold packs and sponging. He was then wrapped in blankets and rubbed vigorously. The temperature fell further to 99° , but rose again to 103° in the evening. There were several severe convulsions. There was moderate fever for several days, but no further untoward symptoms.

CASE VI. 110° . Death in four hours. Convulsions.

CASE VII. 111° . Moribund.

CASE VIII. 102° . Ice bath at the station. Convulsions, otherwise quick and uninterrupted recovery.

CASE IX. Temperature 109° . Was left in cold bath until the temperature reached normal. On removal the temperature continued to fall, reaching 93.6° . During the next two weeks the man was very weak, delirious at times, and the temperature normal or subnormal. On August 26th he was unable to walk alone, and the gait was ataxic; the muscles were flabby, knee-jerks present. Through September he was confined to the bed, but gradually recovered his strength and on October 8th he could walk alone.

CASE X. Temperature 109.5° . Was placed in an ice bath and kept there until the temperature reached 102.5° . After removal the temperature fell lower, to 98.6° . During the evening there were convulsions and a secondary rise of temperature to 107° . He was conscious the next morning; and except for a moderate fever for four days no other symptoms developed.

All of the cases were treated by external application of ice-water, some by full baths and others by pouring cold water over the body as they lay on rubber sheets in bed. In all cases the importance of stopping the application of cold by the time the temperature reached in the rectum 102° was fully emphasized. In those cases that I watched personally I felt that the cold baths were much more efficacious when the superficial circulation was stimulated by the alternate use of vigorous friction and wrapping the patients in woolen blankets for short periods. In addition to the application of cold, the patients were stimulated by the subcutaneous use of brandy and sulphate of strychnia. Sulphate of morphia apparently had a beneficial effect in controlling the convulsions.

The clinical phenomena of severe cases of sunstroke all point to a direct and profound disturbance of the nervous system—coma, contracted pupils, convulsions—all symptoms suggesting some direct effect upon the brain as a whole, rather than discrete focal lesions. In Case IV, the boy, the clinical symptoms strongly suggested some pathological process in the meninges, and the autopsy confirmed the clinical diagnosis, showing that the disturbing factor was an extensive edema of the pia.

Two main theories may be advanced in explanation of the nervous phenomena which follow severe sunstroke; they may be the direct result of pathological changes produced in the brain and meninges, or they may be dependent upon the poisonous action of some toxin set free in the body as the result of the disturbance of the heat equilibrium. I have been unable to find many reports of the post-mortem appearances found after sunstroke, but such as I have found suggest that we may find sufficient cause for the clinical symptoms in the lesions of the brain and meninges.

ONE CASE OF CONTINUED FEVER.

Woman, age twenty-four. Entered my wards August 26th. No items of importance in her family or previous history. On one of the hottest days of the hot period she went in bathing at South Boston Point and stayed four hours in the water. Her head was not protected, and she says she did not wet her hair. Severe headache followed. Five days later a doctor was called who found her temperature 103.8° . She became delirious; had severe headache and backache; pupils regular and small. The pulse was occasionally irregular. The temperature continued, but gradually fell, reaching almost the normal point when she entered the hospital. She entered the hospital, as she was much annoyed by any noise. Typhoid fever was considered, also meningitis, which was suggested by the intense headache and the focal signs in the pupils.

I found the following condition: Herpetic eruption on the lips (rarely if ever seen in typhoid). No enlargement of the spleen. Abdomen negative. Urine negative. She had much headache and seemed weak. After entrance to the hospital there was no fever, and she gradually improved without the occurrence of unfavorable symptoms.

Before she entered the hospital she had symptoms evidently pointing to meningitis, according to the account given me by the doctor who saw her in consultation. I believe that those symptoms were the result of lesions produced by sunstroke.

THE TEACHING OF CLIMATOLOGY IN MEDICAL SCHOOLS.

BY ROBERT DE C. WARD, BOSTON,
Instructor in Climatology in Harvard University.

The time has come when climatology should be generally taught in our medical schools. It is a subject of great importance to medical men, and one about which they should all have some rational information. In the hope of arousing the interest of the medical profession and perhaps also of provoking further discussion of the subject, the present paper is herewith presented.

The intimate relations existing between atmospheric conditions and health have been the theme of comment and investigation from the days of the earliest writings on medicine and on meteorology down to the present time. From the statement made by Hippocrates over two thousand years ago, that "Whoever wishes to study the healing art properly must do this—first, he must attentively consider the seasons of the year," down to the most recent articles in the last numbers of our medical journals, there will be found abundant proof that medical men have been and are fully alive to the important influences which climatic conditions have on disease. The last few years, especially, have witnessed a remarkable increase of interest in this meteorologic or climatic side of medicine, both on the part of medical men themselves and on the part of meteorologists also. The present activity along these lines seems to be largely, if not wholly, due to the fact that meteorology is itself so young a science that it has not been able, until recently, to offer as its contribution to medical or sanitary climatology anything like systematic and reliable

climatic data from different parts of the world. Medicine, on the other hand, has been so busy with its own new discoveries, that it has not had the time to collect these data for its own use.

The remarkable development during the past few years of our knowledge of the bacterial origin of many diseases, has emphasized more than ever before these close relations between medicine and atmospheric conditions. We now know that the development and preservation of pathogenic bacteria depends to a considerable degree on weather conditions, and we know also that the status of our own bodies, which makes us liable to, or immune from, the attacks of these micro-organisms, depends likewise largely on these same conditions. We know that it is not altogether chance which determines the prevalence of one disease in winter and another in summer; which limits some diseases to one zone and some to another; which induces more or less severe outbreaks according to the character of the season.

It has been too much the custom among physicians—and no one seems more willing to acknowledge this than themselves—to send patients away from home to a different climate in the hope that the change might prove beneficial, when they themselves knew but little concerning the new climate except perhaps that, as a whole, it was drier or warmer than the old one. It certainly cannot be said with justice that such physicians have been to blame in the past when, acting on the best information obtainable, they have conscientiously recommended a new climate to a patient, when it may afterwards have proved that this change was the most disastrous thing that could have been suggested. Such mistakes have been inevitable in the past, for physicians had no means of securing the necessary information, and, furthermore, in many cases they really did not know how many meteorological data are necessary in order that a complete understanding of any climate may be had. The knowledge which not a few physicians have regarding the effect of climate on disease does not go much beyond a realization of the influence of a dry or a moist climate on various stages of phthisis. It cannot be too strongly emphasized that climate has important relations to many other diseases, such as cholera, influenza, yellow fever, paludal and nervous diseases, etc. In the case of convalescence from sickness it often becomes necessary to recommend a change of climate, and every climate is not equally beneficial in every case.

There would be no occasion for writing the present paper were there not some suggestions to offer that point to a way out of the present difficulties. The rapid advance of climatology during recent years, an advance made possible by the extension of meteorological observations to places not previously provided with instruments, has put the climatologist in a position to furnish medical men with reliable and more or less complete meteorological data from nearly all parts of the civilized world. A more careful and systematic study of climate in its relation to health and disease is therefore more possible to-day than ever before. The physician needs two things in order that he may know the effect of climate in causing and curing disease. He must be in possession of accurate data as to the various climatic elements of any place. And he must know what physiological effects these different elements have on the human body. The

information needed under the first head the well-equipped climatologist is ready to furnish. There is no longer any reason on this score for delaying the teaching of climatology in our medical schools.

With a view to ascertaining the feeling of the faculties of our medical schools and colleges on this matter, and also in order to see just how much climatological instruction is now being given in these institutions, the writer sent out, on November 16th last, a circular letter, addressed to the deans or secretaries of a considerable number of our leading institutions of this class all over the United States. In this letter the following questions were asked:

A. What instruction, if any, in meteorology and climatology is now being given in the institution under your charge? (In answer to this question I should be glad to have information as to the number of hours occupied in such instruction; the year of the medical course in which it is given; a general outline of the course or courses, and the name of the instructor.)

B. If no such instruction is now being given, do you consider such course or courses desirable and practicable in your institution?

C. In what portion of the medical course should this instruction come? And how many hours a week, or a term, should be given to it?

D. If considered impracticable to have such instruction given as a part of the regular medical course, would it be advisable to have it given during the regular college, or later school years?

The results accomplished by this letter have been most satisfactory, and the writer is much indebted to the gentlemen who have so cordially answered his inquiries and have shown such interest in the scheme. As was confidently expected, the general sentiment of the majority of those from whom replies were received is decidedly in sympathy with the suggestion that climatology should be taught in our medical schools, and, as was also anticipated, there is a considerable feeling against adding any additional burdens in the way of new studies to the already overburdened medical course. As regards the present teaching of meteorology and climatology in these institutions, very little is done in the great majority of cases. A few lectures on these subjects are given in some of the schools, in connection with the work in hygiene, therapeutics, practice or bacteriology, but, with very rare exceptions, no special course in climatology seems to be provided.

We come now to the question, What should the instruction in climatology provided for our medical students include? The first answer naturally is, As much of the subject as possible. It would be well if every medical man could spare the time to master some such book as Davis's "Elementary Meteorology" (Ginn & Co., Boston, 1894), at once the most concise and the most scientific of the newer text-books of meteorology, and, if he could add to that a general knowledge of Hann's "Klimatologie" (Stuttgart, 1883), a veritable store-house of information on climatic matters. It is certainly not to be expected that any such extended course as is embraced by these two books will be introduced into our medical schools at present. In view of the great diversities in the arrangement of the medical courses in our different schools, and of the greater or less opportunities of introducing a course in climatology into the medical curriculum, it is not thought possible or even necessary, to present here anything like a definite outline of such a course.

The writer ventures, however, to suggest a very brief summary of what he believes a general course in climatology might well include in order to be most useful to medical men.

The main object in the work should be to teach the student what climate really is — how many factors are concerned in it; what its controlling influences are; why, for example, the winter climate of the southern coast of California is so unlike that of the southeastern Atlantic-coast States, or why Cape Town has different climatic conditions from those of Montevideo; what data must be at hand if an accurate knowledge of any climate is to be had. The common impression among all classes is that climate is a simple thing; that if the mean annual temperature and rainfall are known, and a little something as to the humidity, that is all that is necessary. Nothing could be further from the truth than this.

Climatology proper cannot be understood without an elementary knowledge of meteorology. The general facts as to the composition of the atmosphere and its physical properties should be made the starting-point; and in order that a proper appreciation of the value and meaning of climatic data may be gained, every one should become familiar with the construction and use of the ordinary meteorological instruments. These include the wet and dry bulb and maximum and minimum thermometers; the aneroid and mercurial barometers; the self-recording barometer or barograph, the rain gauge, the anemometer, the sunshine recorder, etc. Actual use of these instruments, the determination of the dew-point, relative and absolute humidity, the reduction of the barometer readings to sea-level, the determination of mean temperatures, pressures, and similar reductions, will be found to give a training in practical meteorological work that will prove of great value. This "laboratory work" is of great importance and should not be omitted.

The broad facts as to temperature, pressure and wind distribution over the earth's surface can be learned from the isothermal and isobaric charts in the text-book, and a study of these should precede any more detailed work that may be done later on special climates. In a short course, adapted to the use of medical students, no careful study of the general circulation of the atmosphere need be attempted, but the control of the general wind system of the globe over rainfall, with the important climatic results thus brought about, need special emphasis. Owing to the importance of atmospheric humidity from a medical standpoint, more attention might well be given to that subject than to most others, but perhaps the most important part of the whole study concerns the control of our weather by cyclones and anti-cyclones. A careful study of the daily weather maps, from day to day, supplemented by the text-book, will very soon impress upon the mind of the student the chief facts in our ordinary weather changes. Without such knowledge our weather and its changes from hot to cold, and wet to dry, mean nothing. With this understanding, we are far better fitted to appreciate the climates of other places.

For this preliminary work, thus very briefly outlined, perhaps ten lectures would suffice. The laboratory work with the instruments and on the weather maps, should run parallel with the lectures. The best text-book, as already stated, is that of Professor Davis, and the "Instructions to Volunteer Observers," issued by

the United States Weather Bureau (obtainable on application to the Chief of the Weather Bureau, Washington, D. C.), will be found useful in the instrumental work. It would, of course, be very desirable to have every medical student complete a full course in elementary meteorology, together with laboratory work, before going on to the further study of climatology, but that is hardly possible owing to the time which such a course would occupy.¹

After some preliminary training in meteorology, there should follow a course in climatology proper, of which the following may serve as a rough outline: The astronomical relations of earth and sun; the changes of the seasons; the control of our temperatures by the sun; climatic factors (temperature, humidity, rainfall, cloudiness, wind pressure, composition of the atmosphere), and the data which should be given for each factor — as, for example, in the case of temperature: (a) mean annual, (b) mean monthly, (c) mean annual range, (d) mean monthly range, (e) mean diurnal range for the several months, (f) absolute and mean annual extremes, (g) absolute and mean monthly extremes, (h) mean diurnal variability, (i) average dates of first and last frost, (j) average number of days' without frost, etc.; controls of climate (latitude, altitude, distribution and influence of land and water, ocean currents, proximity of mountain ranges, rainfall, prevailing winds, soil, vegetation); the climatic zones and their general characteristics; the physiological effects of temperature, humidity, pressure; the distribution of disease geographically and climatically; acclimatization.²

In this part of the work the most useful reference books are Hann's "Klimatologie," a new edition of which is promised shortly, and van Bebbber's "Hygienische Meteorologie" (Stuttgart, 1895), a short and concise volume specially adapted to the use of medical men. Hann's work is divided into two parts, of which the first treats chiefly of the controls of climate and the climatic elements, and the second concerns the climates of the different parts of the world. Van Bebbber's book considers the composition of the atmosphere and the climatic elements in their physiological aspects, and discusses the relations of the climatic zones to health and disease. Hirsch's well-known "Historical and General Pathology" will be found useful in treating of the geographical and climatic distribution of disease. With the assistance of the books already mentioned, any teacher may prepare a general course in climatology. In them will be found the essentials, and the course may be made longer or shorter as occasion requires.

A medical man ought to know how to interpret climatic tables. He should understand thoroughly what data he needs, and he should be able to supply any missing data from his own observations, if necessary. There are many facts in regard to a new climate that should be known before delicate patients are sent there for their health. It is not enough to know the mean annual rainfall. This should be supplemented by data as to the monthly rainfalls; the probability of rainy days in every month; the kind of precipitation (whether general rains, lasting for some

¹ In Harvard University the course in elementary meteorology (Geology I) is a half course, and includes about forty lectures, besides laboratory work occupying one to three hours a week for about fifteen weeks.

² In Harvard University the course in general climatology (Geology 19) is a half-course, and includes three lectures a week for about fifteen weeks.

hours at a time, or thunderstorms, giving a heavy precipitation in an hour). A very useful addition is separate rainfall records for night and day, so that it may be known whether the patient will be able to be out during the day and enjoy the sunshine, or whether the general occurrence of the rain by day will keep him indoors most of the time. This point has been brought out by a recent writer in the *Lancet*. So, also, it is well to be informed regarding the prevalence of fog, and regarding its character, whether it is a sea fog, or a land fog; whether it is a general one, or is found only in the valley bottoms at night. Important temperature data, not generally considered by medical men, are the absolute extremes of heat and cold likely to be met with, and the average change of temperature from day to day (mean diurnal variability). The diurnal distribution of cloudiness is an important factor. Whether the cloudiness is greater in the morning, afternoon or night may be of great consequence in some cases, for if the morning and early afternoon are most cloudy and the night clear, some delicate patients might be obliged to stay indoors all day, and might not be benefited at all by the change in climate.

Such instances might be multiplied almost indefinitely. It may be asked at once, Are such complete climatic data available for most places? They certainly are not yet; but the remedy for this state of things lies in the hands of the physicians, for as soon as there is a general demand for additional data, such data will be forthcoming. Our Weather Bureau has always shown itself willing to meet the demands of the people in every possible way. Its recent active interest in the sanitary aspect of climatology is the best possible proof of this. As far as the United States is concerned, our Weather Bureau can be relied upon to furnish physicians with all information of which it is itself possessed, and to take steps to acquire any desired information which it has not.

It can hardly be expected that a brief course, such as is possible in our medical schools, will fully equip the student in climatology. At best it can only partially equip him. But it can at least give him access to the literature that may help him should occasion require; and this, if it accomplishes nothing else, is sufficient warrant for giving such a course. At present comparatively few medical men know where to go for such information. Some of the most important books have already been mentioned. In addition, the following will be found useful:

"Meteorology, Practical and Applied," by J. W. Moore. London: Rebman, 1894. 8vo, pp. 445. A readable book, written by a physician, and containing chapters on "Acute Infective Diseases" and on "The Seasonal Prevalence of Pneumonic Fever."

"Elementary Meteorology," by R. H. Scott. International Scientific Series, 1889. 8vo, pp. 410. This is one of the standard text-books.

"American Weather," by A. W. Greely. New York: Dodd, Mead & Co. No date. 8vo, pp. 286. This volume deals chiefly, as its name implies, with American meteorology, and is especially useful if general climatic information is sought concerning the United States.

"Die Klimate der Erde," by A. Woeikof. Jena: Costenoble, 1887. 8vo, pp. 396, 422. This is in two parts, the first treating of general climatology, and the second of the special climates.

More or less information as to climate is, of course, to be found in the books on hygiene, and medical men do not need to be reminded that in the "Index Medicus" will be found many references to articles on various subjects connected with medical climatology. Most of these articles are on the relation of special climates to special diseases, or concern the physiological effects of some one element, such, for example, as diminished pressure, and do not treat of the general aspect of the study.

A very complete bibliography on acclimatization will be found at the end of the admirable paper under that title, by Prof. Wm. Z. Ripley, in *Appleton's Popular Science Monthly* for March and April, 1896.

In seeking definite information as to the climate of any part of our own country, or any other, it is always best to write to the chief office of the Weather Service for the desired data, rather than to trust chance reports on local climates, unless such reports are issued by physicians or associations of recognized standing. So many circulars containing climatic statistics have been published for advertising purposes that great care is necessary in making a proper selection.

As already stated, it is impossible to lay out any definite course which might answer for every institution. There seems to be a pretty decided majority of the deans of our medical schools in favor of having some instruction in climatology given in their institutions. As to how such instruction should be given, is the question; whether as a part of the regular course, or as a voluntary subject. In the opinion of the writer it would be best at the outset, in most cases, to have the course a short one, at which attendance would be voluntary. Then, if the students showed a disposition to take the course it might easily be extended. He believes further that the subject is of sufficient importance to stand by itself, independent of any other. It would certainly be well for any instructor who wished to do so to speak of the effects of climate in any lectures on hygiene, or therapeutics, or bacteriology. Each man would probably wish to treat the subject differently from any other instructor, because he would see it especially in its relations to his own branch of medicine. But the broad general facts as to climate, which can be and ought to be taught independently of their bearing on any special diseases, should be considered in a separate course. Whether that course shall come in the first, or second, or third, or fourth year; whether it shall be voluntary or required; whether long or short, must be settled in each institution for itself. That the subject is one of prime importance in the education of a medical man none will deny. And that it should be generally taught in our medical schools is acknowledged on all sides.

SMOKING AT MEDICAL MEETINGS. — The Physiological Society of London, we learn from the *British Medical Journal*, has been the only learned society in that city which has allowed its members to smoke at its meetings. The Council of the Harveian Society has lately proposed that smoking be permitted at the meetings, except those at which the presence of patients is required. The object is apparently to increase the attendance at the meetings. Whether the society will approve the proposal or not remains to be seen.

LUMBAR PUNCTURE.¹

BY A. H. WENTWORTH, M.D.

I HAVE been asked by the chairman to make a few remarks on lumbar puncture. I shall allude briefly to some of the difficulties of the operation, and also emphasize the importance of a systematic and careful examination of the fluid. In a certain number of cases in which lumbar puncture is performed one fails to obtain any fluid. In some cases this may be explained by the fact that the point of the needle is not in the spinal canal; or that after several minutes spent in endeavoring to find the canal with the point of the needle, the lumen of the latter becomes occluded by a blood-clot; or that one of the nerves of the cauda equinae may act as a valve across the opening in the needle; or most important of all, the point of the needle may be in the spinal canal but lying between the dura and the bone and not in the subarachnoid space.

The first of these difficulties is overcome by noting the depth to which the needle has penetrated; the direction which it has taken and whether the point of the needle is free, or fixed. By passing a sterile wire through the needle, *in situ*, a blood-clot can be forced out, if the wire is large enough to almost fill the opening in the needle. By withdrawing the needle for a short distance the third difficulty should be overcome. In several cases, I have convinced myself that the needle was in the spinal canal and that there was no blood-clot obstructing its lumen, but from the depth to which the needle had penetrated and the direction which it had taken I suspected that it was outside of the dura on the left side. After withdrawing the needle a short distance and thrusting again, with the point directed toward the median line, the fluid has flowed freely. In one case, punctured, at the time of autopsy, there appeared to be no fluid in the spinal canal. This was not a case of meningitis.

The pain of the operation is solely that of puncturing the skin. This has been ascertained by observing infants and children during the operation and by questioning the latter as to the degree of pain.

The importance of arranging the patient properly should not be overlooked. The patient should lie on the side, with the uppermost shoulder depressed, so that the spinal column presents directly toward the operator. In this way the operator can control the direction taken by the needle because he thrusts directly forwards. The knees should be drawn up to obtain as much convexity of the back as possible in order to separate the spinous processes.

The examination of the fluid should be as carefully performed as in any bacteriological examination. The microscopic examination of cover-glass preparations of the sediment, previously fixed and stained, should never be neglected and the character of the exudation should be noted.

Cultures should always be made from the fluid on blood serum as soon as possible after its withdrawal, and, when possible, a guinea-pig should be inoculated with some of the fluid. Tubercle bacilli are rarely numerous in the spinal fluid from cases of tubercular meningitis and their recognition is oftentimes difficult. The inoculation of guinea-pigs is the surest means of determining if tubercular meningitis is recovered

from. A recent case in which I performed the operation illustrates this: one typical, and two or three doubtful tubercle bacilli were found. A guinea-pig was inoculated, and after thirty-nine days, was killed, and not a sign of tuberculosis could be found.

Inoculations should be made as soon as possible after withdrawing the fluid. If fibrin has already formed it is well to break it up with a sterile wire at the time of inoculation, because the tubercle bacilli are retained in its meshes.

In making cultures from the fluid it is not safe to depend upon the quantity of fluid which can be obtained in the loop of a platinum wire. In several cases I have failed to obtain a growth of pathogenic bacteria because enough fluid was not used. It is best therefore to withdraw one to two cubic centimetres of fluid from the test-tube by means of a sterilized hypodermic syringe and to squirt the fluid over the culture medium. In order to carry out so thorough an examination, it is, of course, essential that every precaution should be used to prevent contamination of the fluid. The patient's back and the operator's hands must be thoroughly cleaned and the needle sterilized. One or more sterile test-tubes, plugged with cotton, are essential. These tubes should be sterilized by dry heat to 150° C. This may be done rapidly by passing the test-tube back and forth through the flame of an alcohol lamp or Bunsen burner until the cotton in the inside of the tube turns brown.

Microscopic examination of the sediment is essential because cloudiness may be caused by dust; by cotton fibres and the dust adhering to them, and by the products of bacteria in cases of septicemia. One or two drops of blood in the fluid will also cause a diffuse cloudiness.

The cloudiness in meningitis, which is caused by cellular exudation, is diffuse and very finely divided. A clear fluid containing small white particles should not be mistaken for it.

Finally, the diagnosis of meningitis at autopsy should never depend upon a macroscopic examination. A case recently autopsied showed no evidence of exudation in the meninges macroscopically. The cerebrospinal fluid, withdrawn during life, contained a great many polynuclear leucocytes. The microscopic examination of the brain and cord showed a well-marked and extensive encephalitis and myelitis and beginning meningitis.

REMARKS ON WIDAL'S "CLUMP REACTION" IN TYPHOID FEVER.¹

BY R. C. CABOT, M.D.

THE credit of the reaction is originally due to Pfeiffer, of Berlin, but this particular application to the diagnosis of typhoid was made by Widal, of Paris, in July of this year. The reaction is for diagnostic purposes. It consists in this: if to a bouillon culture of typhoid bacilli be added the blood serum of a typhoid patient in the proportion of one part of serum to ten parts of the bouillon, a certain reaction takes place which I am to demonstrate to you, namely, an aggregation of the bacilli into groups with a gradual loss of motility, the loss of motility being subsequent to the aggregation into groups and

¹ Read before the Clinical Section of the Suffolk District Medical Society, November 18, 1896.

² In explanation of a demonstration before the Clinical Section of the Suffolk District Medical Society, November 18, 1896.

not its cause. Such a clumping of the bacilli appears a very simple physical process, and it seems as if many other diseases and conditions might produce the same thing. In the last three months I have been attempting to test this and I have tried it in 160 cases, 71 being typhoid and the remainder various other diseases. I have never found anything like a clump-reaction in any disease but typhoid. In 70 out of the 71 typhoid cases I got the typical reaction.

As to the exact way of making this test, I have here a twenty-four hour culture of typhoid bacilli which were originally cultivated from the spleen of a case of typhoid, and subjected to all the tests for the identification of Eberth's bacillus. This culture should be fresh; if over twenty-four hours old the reaction does not always work.² Of that culture I take ten drops with a sterilized medicine-dropper and put them into one of these three-inch test-tubes; then to that bouillon culture I add one drop of serum from the blood of a typhoid patient. The serum is obtained by taking about twenty drops of blood from the ear or finger of a typhoid patient in the ordinary way. Sterilization of the skin is unnecessary because the whole process is done in fifteen to thirty minutes, affording no opportunity for other bacteria to grow. Milk out about twenty drops of blood into a small test-tube, and let it run down the side. The first time I tried this reaction I was disappointed because I could not get the serum to separate. Instead of rising to the top as serum always had done in my previous experience, the serum staid at the bottom, owing to the fact that the edges of the clot stuck to the glass so that the serum was pinned down under the clot. I now separate the edges of the clot from the side of the tube at once with a sharp stick or any pointed instrument so that the serum at once works up. In that way you can get the serum immediately. A drop of this serum is then added to the bouillon culture (ten drops). If the serum is from any disease other than typhoid, no effect is produced upon the bacilli within half an hour. In some cases they seem to be rather more motile than before the serum was added; they do not tend to agglutinate or cling to each other; But if you are dealing with a case of typhoid fever, the bacilli are agglutinated in the way I shall demonstrate. This reaction is not as far as I can ascertain applicable in the early diagnosis of typhoid fever. It is of value in the late diagnosis, and sometimes lasts for weeks after the normal temperature has been reached; it has been reported as long as six months after the cessation of the disease. In the differential diagnosis of such affections as septicemia, meningitis, tuberculosis, pneumonia, the reaction seems to be very helpful.

The reaction can be obtained from the milk of nursing women who happen to be affected with typhoid fever, and occasionally from the urine, but is not reliable because the urine from some normal persons gives the same reaction. The reaction seems to be remarkably simple. It is very easy to see and in marked cases it becomes visible to the naked eye; the clumps become so large that they fall to the bottom leaving the upper portion of the tube clear. The reaction takes place more promptly and effectually in virulent cultures recently obtained from the autopsy. Dr. Wright gave me this morning a culture from the case

of typhoid fever autopsied yesterday and the reaction was remarkably prompt.

I have under this microscope a drop of bouillon culture of typhoid fever to which has been added serum from a case of tuberculosis simulating typhoid fever so closely that the diagnosis was for a time in doubt. On the other side I have the serum of a case of typhoid fever mixed with bouillon culture in the same way. In the first you see the bacilli discrete, in the second they are in clumps. This reaction can also be performed in the majority of cases with the dried blood. I have tried this in thirty cases and it has failed in four. A few drops of blood are dried on a piece of paper, the paper cut out round the drops and the dried blood soaked in a bouillon culture of typhoid bacilli at the bottom of a test-tube. Johnsson's experience³ seems to indicate that the whole blood, dry or fresh, has more clumping power than the serum alone.

Clinical Department.

THE CAUSE OF BOWING OF THE LEFT FORE-ARM IN RACHITIC CHILDREN.¹

BY J. S. STONE, M.D., BOSTON.

THE two cases which I briefly report are of interest solely from an etiological standpoint.

CASE I. L. F., aged fourteen months, of Jewish parentage, was brought to the out-patient clinic at the West End Nursery on July 8, 1896. She was breast-fed, but also had always been given whatever she



CASE I.

CASE II.

wanted to eat, including tea, coffee, cake and candy. She had never had any illness, except a cold during the preceding winter. She was in fair general condition, though presenting well-marked evidences of rickets of a moderate grade. The radial epiphyses were considerably enlarged. The anterior fontanelle admitted a finger. There was no marked rosary or bowing of the legs.

¹ Read, by invitation, before the Warren Club, November 3, 1896.

³ New York Medical Journal, January 16th.

² Widal (Presse Médicale, October 4, 1896), has lately obtained the reaction with old cultures, and even with dead bacilli.

The left forearm presented at the junction of the upper and middle thirds of the shafts of both the radius and ulna, an angular backward bowing of about forty degrees, a little greater in the radius than in the ulna. The motions of the elbow were normal, excepting that the deformity slightly increased pronation and limited supination. The right forearm was normal.

The mother associated the deformity with a fall from a chair four months previously. This gave rise to no symptoms, however, for several days, when the deformity was observed. At that time the child was just beginning to walk. Careful inquiry showed the great improbability of green-stick fracture, which the deformity at once suggested.

CASE 11. M. E. C., aged two and one-half years, of Irish parentage, was brought to the out-patient clinic at the Children's Hospital, in the service of Dr. Lovett, through whose courtesy I report the case. As a baby she had been healthy, and was breast-fed. At nine months she had diarrheal troubles, followed by whooping-cough. For a year she had been rachitic. She had a square head with a closed fontanelle. There was marked retraction of the sides of the chest, a considerable rosary, a prominent abdomen and slightly enlarged spleen. The radial and tibial epiphyses were markedly enlarged. There was slight anterior and outward bowing of both tibiae at the junction of the middle and lower thirds of the shaft. The curves of both clavicles were exaggerated. There was the long rachitic curve of the spine. The left radius and ulna were bowed backwards, the deformity causing a sharp angle of about forty degrees just above the middle of the shafts of the bones. There was no limitation of motion. The right radius and ulna were normal. The deformity was first noticed as the child was beginning to walk. There was no history of any injury whatever.

The accompanying photographs show the nature and cause of the deformity. Each mother was right-handed, and in helping her child to walk, grasped its left hand and wrist. The bones of the forearm bent exactly where her little finger pressed against them.

Medical Progress.

REPORT ON NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D.

(Concluded from No. 4, p. 90.)

SEROUS MENINGITIS.

QUINCKE has reported⁷ ten additional cases in confirmation of his former views upon this affection. Among the causes of the affection he reckons injury to the head, persistent mental over-exertion, acute and chronic alcoholism, acute febrile diseases and pregnancy, otitis media, influenza, and exposure to wet and cold. In two cases the large size of the head led him to suspect that a certain amount of internal hydrocephalus had been present from childhood. In three of his cases the trouble was chronic from the start, of gradual onset, and subject to exacerbations; in four others the onset was acute. The symptoms are indicative of increased intracranial pressure. In some cases there is moderate fever, at least in the initial

stages, but in others there is no rise of temperature at all. Headache is a constant symptom, and vomiting and vertigo are very common. There are often loss of memory, mental hebetude and stuporous conditions, with apoplectic seizures and periods of unconsciousness. The cases of sudden onset may begin with an apoplectic seizure or loss of consciousness. Motor inco-ordination, weakness and even paralysis may supervene. Involvement of the motor cranial nerves is occasionally met with, and changes in the optic nerve in the nature of swelling, hyperemia, venous enlargement and optic neuritis of a low grade are common. These changes may lead to complete blindness. The pulse is often slow. In the majority of his cases Quincke performed lumbar puncture, finding a marked increase of the intraspinal pressure, and a clear or slightly turbid fluid, of a low specific gravity, containing some albumin but no tubercle bacilli. This procedure often gave very marked relief. In one case of purulent otitis, with pain and tenderness in the head, mental hebetude, uncertain gait, nausea, irregular pulse, fever, mild optic neuritis and hemiparesis, an abscess was suspected and trephining was performed, but no abscess was found. The autopsy showed a considerable degree of intracranial pressure, with flattening of the convolutions; the brain was moist and filled with punctate hemorrhages, and there was much thrombosis of the veins with a region of softening in the right lower lobe. Two months before, the patient had had an attack of headache, nausea and faintness, with some slighter changes in the optic nerve, which had been relieved by mercury. This was thought to be a serious effusion, which by pressure led to venous thrombosis starting in the choroid plexus. Some of the cases, especially in anemic young women, begin suddenly, without fever, run an acute course, and often terminate favorably. Here it seems doubtful whether the meningeal effusion, which has been demonstrated by lumbar puncture, is really of an inflammatory nature, and Quincke suggests that it may be due to an exudation such as often occurs in other parts of the body, an angioneurotic hydrocephalus. In other cases the trouble may become chronic or after a protracted duration, recover, leaving behind some permanent disability, as blindness from the optic neuritis. Even the chronic cases, however, may eventually recover, after ten months in one case, but here blindness and other disabilities may be left. Recurrences are common. Two of the ten cases terminated fatally. The diagnosis is still difficult, the trouble being most often confused with tumor and purulent meningitis. The optic neuritis is less marked than in tumor, and the fever and spinal rigidity less than in purulent meningitis. Lumbar puncture may aid in excluding the latter. The cases do best under mercury, and lumbar puncture often gives temporary if not permanent relief.

TETANY.

Sarbó⁸ has sought in vain for a single cause for tetany. Frankl. Hochwart considered it to be of infectious nature on account of its epidemic-endemic occurrence, its development with febrile symptoms, its occurrence in the prodromal stage and in the course of typical infectious diseases, the occurrence of hallucinatory confusion in its course, its co-existence in several members of the same family or household, and the fact that in some years very many, and in other years

⁷ Deutsche Zeitschrift für Nervenheilkunde, ix, 149, 1896.

⁸ Deutsche Zeitschrift für Nervenheilkunde, viii, 242, 1896.

very few cases were seen. The infectious nature of the trouble, however, has not yet been proven bacteriologically or experimentally. Its occurrence after the removal of goitre, in rickets and pregnancy, etc., indicates that there is no specific micro-organism which causes the disease, since it is hard to believe that other causes beside the specific agent, if there were such an agent, would produce it. It is more probable that it is dependent upon a general disturbance of nutrition. It is well known that tetany may develop in the course of various infectious diseases, typhoid, scarlet fever, diphtheria, malaria, etc., after poisoning by various substances, ergotine, alcohol, chloroform, etc., and after the intoxication from thyroidectomy. It may also develop in cases of gastric dilatation, perhaps as a result of toxins absorbed in this condition. Sarbó in a study of the changes in ganglion cells after phosphorus and morphine poisoning, found that the changes were the same with each poison, and concluded that the poison produced a general disturbance of nutrition which resulted in disease of the ganglion cell. Schaffer found the same changes in the ganglion cells after poisoning from lead, arsenic and antimony, and Pandi after poisoning from cocaine and antipyrine.

These changes were most pronounced in the ganglion cells of the anterior horns of the spinal cord. In other affections with marked changes in nutrition, notably rickets, and also pregnancy and lactation, tetany is very common. There is, finally, a group of cases in which no poison can be detected, but which are characterized by an epidemic occurrence. In these epidemics it has been found that cobblers and tailors have been most frequently attacked, which speaks against a specific infection. Oppenheim thought that in the case of cobblers there might be some poison in the leather. Sarbó concludes that in many cases the cause of tetany is a general disturbance of nutrition, excited either by different poisons, or by physical conditions, or by disease affecting the whole organism. In regard to the seat of the disturbance in tetany, Sarbó refers to Herbert Spencer's molecular theory of nervous action, and shows that the nerve fibre acts chiefly as a conductor of motion, while the ganglion cell acts in strengthening such motions by exciting greater molecular changes. The excitation of pronounced muscular movements after slight irritation, such as is seen in tetany, indicates that the disturbance is in the cells rather than in the fibres. We have an increase of the normal muscular tonus, which is regulated by the cells of the anterior horns, and is lost in destructive disease of these cells. Moreover, the poisons which cause tetany also give rise to changes in these cells. Weiss found such changes in some cases of tetany. This theory of a central origin of tetany is confirmed by the bilateral character of the symptoms, by the fact that the spasm may arise from reflex irritation, pressure on a nerve-trunk causing contraction on the opposite side, and the existence of ankle clonus. Vasomotor symptoms hint at an implication of the medulla, and hallucinatory confusion and disturbances of consciousness point to an involvement of the brain. The cramps, Chvostek's phenomenon, and the mechanical and electrical hyperexcitability point to an involvement of the motor cells in the cord, but the sensory hyperexcitability, the paresthesiæ and the trophic disturbances indicate that the sensory and trophic cells are also affected, and the psychical symptoms show that the cortical cells are also involved. Tetany, there-

fore, is to be regarded as a disease of the cells of the central nervous system.

RAYNAUD'S DISEASE.

Calmann⁹ discusses the question as to whether Raynaud's disease, symmetrical gangrene of the extremities, is always to be referred to some organic lesion of the nervous system, or whether it may not occur as a purely functional disease. The reported autopsies have shown structural disease of the nervous system, notably neuritis, and Bervoets has shown by experimentation on animals that section of the sciatics gives rise to changes in the arteries, thickening of the arterial walls with contraction of the lumen, atrophy of the muscular layer, and the formation of aneurisms. Later symmetrical gangrene developed, which Bervoets thought due to the vascular changes. Calmann reports two cases. In the first there was paralysis of the legs with atrophy, loss of sensibility, absence of knee-jerk and paralysis of the sphincters. Three months before death there developed paroxysms of edema of the legs, gangrene on the backs of the feet and erythromelalgia. The autopsy showed a sarcoma involving the third and fourth lumbar roots. A second case showed symptoms of a tumor compressing the cauda equina, with edema, pallor and lividity, at first paroxysmal, but later stationary. In spite of these cases and the reported autopsies, Calmann claims that we cannot set aside the cases which present the symptoms of Raynaud's disease, where the most exhaustive methods of clinical research fail to give any evidence of any organic nervous disease. He cites four other cases where, in addition to the usual symptoms of Raynaud's disease, the patients suffered from many extremely painful felons, especially on the hands. Symptoms of syringomyelia and leprosy were wanting. He concludes that the changes caused by Raynaud's disease furnish especially favorable conditions for the development of pyogenic organisms and the production of felons. In three cases changes were found in many parts of the skin corresponding to those of scleroderma. He considers the two affections to be due to a single cause, which in many cases is a functional affection of the nervous system. When Raynaud's disease occurs as a symptom of organic disease of the cord, it seems to be less intense.

In support of this opinion it is to be remembered that Lévi,¹⁰ on the basis of two cases of his own and a careful study of other reported cases, has maintained that there is a form of Raynaud's disease and erythromelalgia which may be purely hysterical, arising from some lively emotional disturbance, which may begin quite acutely, and may even go on to gangrene. Minor¹¹ has also reported a case in a telegraph operator, nervous and debilitated, who was at work at the telegraph key during a severe thunder shower. She had always feared a shock under such circumstances, and after a severe thunder-clap she became much frightened. She developed a typical hysteria, and swelling, cyanosis, and finally gangrene of the fingers of the right hand, with a weaker pulsation of the arteries in the right hand. Fuchs¹² has also reported a case of Raynaud's disease with felons and scleroderma, and holds with Calmann that the two affections are due to the same cause.

⁹ *Jahrbücher für Psychiatrie*, xv, 43, 1896.

¹⁰ *Archives de Neurologie*, January, February, March, 1895.

¹¹ *Neurologisches Centralblatt*, July 15, 1896.

¹² *Loc. cit.*, August 1, 1896.

Camillo¹³ reports the case of a child a year old, who, after a four days' fever with convulsions, possibly influenza, had a macular bluish-red eruption which disappeared in twenty-four hours. This was followed by the appearance of violet spots on various parts of body which soon became black, and on the hands and feet developed into large bullæ with sanguinolent contents. These were not perfectly symmetrical. Later a typical gangrene developed. The vessels in the gangrenous parts removed were enormously dilated, with intact walls and complete thrombosis. Slight and presumably secondary changes were found in the nerves. The gangrene was attributed to thrombosis, which, in its turn, was due to a slowing of the circulation, from disturbances of the vasomotor innervation. He considers that all the theories of Raynaud's disease which assume an organic change in the blood-vessels or the nervous system are inadequate, and that a functional disturbance of the spinal vasomotor centres is the basis of the trouble. This functional disturbance causes vascular spasm, and this in turn thrombosis and gangrene. Neuritic and arteritic processes serve only as predisposing factors. Raynaud's disease forms a group which includes the cases where these processes occur, and also the cases of symmetrical gangrene of diabetes. The trophic centres may also be in a condition of abnormal irritation. We can thus understand why gangrene may occur without previous local asphyxia or syncope. The central disturbance of function is sometimes autochthonous, but more frequently it depends upon abnormal sensory irritations coming from the extremities to the vasomotor and trophic centres which are also abnormally irritable, so that these irritations, which would not act on normal centres, set free abnormal reflex disturbances. In these mild cases he has carefully tested the vascular reflexes, finding no increase, but a remarkable instability of the vascular tonus, such as does not occur in health.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, November 18, 1896, the President, DR. W. F. WHITNEY, in the chair.

DR. HENRY JACKSON read a paper on

INSOLATION.

DR. LOCKE: After listening to the admirable account of certain cases of sunstroke which we have just heard, I hope a short consideration of the powers with which nature has endowed us to withstand the extremes of heat and cold, which a residence in Boston accustoms one to, will not be altogether unwelcome. At the outset it cannot be too clearly borné in mind that the life of a human being can only be continued by means of a continuous generation of heat, while on the one hand life can only persist if this generation of heat does not raise the temperature of the body beyond a certain definite limit, and on the other hand, the loss to the external medium of the heat generated in the body must be so graduated that the temperature

of the body does not fall below a lower limit, a fall below which is as unfavorable to the life of the organism as is a rise of its temperature above the upper limit. The means whereby the regulation of the temperature of the body is carried on, can be easily grouped under two heads: variations of the rate of loss of heat, and variations in the rate of production.

Heat is lost to the body in three ways: First, by heating the liquid and solid excreta; that, of course, takes a very small amount, calculated to be about five per cent. of the whole amount of heat lost by the body. Then heat is lost in warming the air taken into the lungs and expired again, and in saturating, or practically saturating this air with aqueous vapor. This has been fairly reliably calculated to take about 15 per cent. of the whole amount of heat lost by the body. The remainder, some 80 per cent., is lost through the skin, partly, of course, by conduction, and radiation and otherwise, by the evaporation of the perspiration. Then we come to the regulation of the body temperature by variations of the rate of heat production. The evidence for the existence of a mechanism by which this is carried on, is mostly indirect and depends not on measurements of the variations of the amounts of heat produced, but by measurements of the amount of chemical change going on in the body, as shown by changes in the amount of oxygen inspired, used up by the organism, and by changes in the amount of carbonic acid produced, and here we come upon a very interesting contrast established by the work of Pflüger and his pupils between the action of variations of external temperature upon the cold-blooded frog and on the warm-blooded mammal. If the temperature of a frog is raised, the amount of carbonic acid produced by the animal, and the amount of oxygen consumed are increased, that is to say, a greater amount of chemical change takes place in him. If, on the other hand, the temperature is lowered, the opposite effect is produced, that is to say, a frog behaves exactly as would a mixture of reagents in the chemist's retort, heat exercising its action in increasing the amount of chemical change going on, and cold diminishing it. But in the case of the warm-blooded mammal, the opposite effects are produced. Within certain limits a rising temperature lessens the amount of chemical change, lessens the combustion going on; a falling temperature on the other hand increases the amount of combustion. There is obviously, of course, here a purpose. There must exist in the case of the warm-blooded animal some mechanism, whereby a falling external temperature is responded to by an increased combustion in the body tending to counteract its influence, and there can be no doubt that this mechanism is a nervous one. If, for instance, the mammal be curarized, it is found that he responds to external temperature exactly in the same way as does a cold-blooded animal. Curare, of course, cuts off the nervous impulse from the muscles, the voluntary muscles, and we have abundant evidence that it is the muscles especially which generate most of the heat produced by the body. If, then, the connection of the muscles with the central nervous system be severed, this can no longer exercise its regulating influence upon the muscles, and they behave under variations of temperature as do the tissues of the cold-blooded animals, the combustion in them being increased by a rising temperature, and a falling temperature having the reverse effect. In the same way, if instead of

¹³ Rivista clinica, 1896, Ref. in Neur. Centralblatt, September 15, 1896.

cutting off the nervous impulse at the point where the end of the motor nerve comes in contact with the muscle substance, we cut it off higher up by dividing the cervical cord of the mammal, we find he behaves in the same way as does the cold-blooded animal, so that it would seem that the part of the central nervous system which presides over the central mechanism regulating heat production, must be higher than the cervical cord. More than that, it is not with absolute clearness at present established. The existence of various so-called centres in the brain has been claimed, the destruction or stimulation of which produces various changes in heat production and in the body temperature, but although, no doubt, effects on the body temperature and on heat production are produced by lesions of various parts of the brain, yet it cannot be said that the knowledge we possess is so clear and definite as to aid much in understanding the mechanism of heat control in the body.

Aronsohn and Sachs have shown that if a certain small area in the optic thalamus near the median line be injured with a needle, that a rise in the body temperature takes place of 3° or 4° C., which lasts some hours. They have shown this is not an effect due to destruction of nervous tissue, the same effect being produced by careful weak faradic stimulation. Of course this is a suggestive piece of work, but does not help one to understand very clearly the processes actually going on in the body in relation to heat control. The same remark applies to the work of Wood and Ott, in Philadelphia, who have shown that in the dog an increase of heat production accompanies the destruction of parts of the cerebral cortex in the neighborhood of the crucial sulcus.

The information I have hitherto been able to give you is about all I think that is at present clearly known with relation to the mechanism of heat control in the body, and we have now to inquire within what limits, especially in relation to the question of sunstroke upper limit, does this mechanism do its work properly. Rosenthal has in this relation performed some experiments on the rabbit which have considerable interest. He found if he kept a rabbit between the temperatures of 51.8° and 89.6° F., that the rabbit was able to maintain its normal temperature; between 89.6° and 96.8° F., the temperature of the rabbit rose to 105.8° to 107.6° ; but there the animal entered upon a condition of balance and the temperature remained steady, the rabbit being able to continue with this increased body temperature in a fair state of health for several days. The temperature 89.6° to 96.8° is a little higher than the heat of the skin of the rabbit. If the temperature of the external medium was raised to between 96.8° and 104° , speedy death took place, but successful treatment was possible by lowering the temperature of the external medium in time. The engineer, Stapf, who directed the work of the St. Gotthard tunnel, made some interesting observations on his workmen in regard to the influence of increased external temperatures. Many of them were exposed for long periods to the temperature 86° F., in an atmosphere saturated with moisture; and under these conditions they were in a state of continued fever (their temperature being 104° F.), while, nevertheless, enjoying fairly good health. So that up to within a certain upper limit the organism can accommodate itself very fairly to an increased temperature. But what causes especially are those which bring about

the break-down shown so clearly in cases of sunstroke, at any rate, those in which the temperature is considerably raised? First of all comes, of course, that where a man is brought into a medium, the temperature of which is as high or higher than that of his skin, not of his body generally, which of course is higher, the loss of heat from the body by means of conduction and radiation ceases to take place; the man can only cool himself down by the evaporation of his perspiration. That, of course, is an important loss to his powers of heat control. In addition to that, we have to bear in mind that although the organism can by means of the nervous mechanism control the amount of heat production, diminishing, if need be, this heat production to a certain extent, there is a limit beyond which this diminution cannot go; because, of course, further diminution beyond this limit would be followed by cessation of life through too greatly diminished metabolism, and therefore, however warm the external medium, the human body must still continue to add its heat, so to speak, to that of the external medium. In this connection the bad effects of exercise which have been well brought out to-night may be mentioned, because, obviously, if a man is obliged to continue active exercise while exposed to a high external temperature, the lowering of his temperature by means of diminution of heat production is practically impossible. He has to keep on producing heat by means of his muscles thrown into increased activity by the forced exercise, and one important power of keeping his body temperature down is lost to him. Next, one has to take into consideration the exhaustion of the thermotaxic mechanism. This mechanism is nervous, and, like other nervous mechanisms in which at any rate ganglion cells enter, can be exhausted; so that a man exposed to a temperature sufficiently prolonged may, although able for a certain time to maintain himself in it, at last break down completely. And now there is another action of a high external temperature to be referred to, that very severely tells upon the organism exposed to it, and due to the fact that once the power of heat regulation begins to fail, once the temperature of the organism begins to rise, then the muscles, and of course the other tissues of the body as well, but especially the muscles which are the thermogenetic tissues, *par excellence*, act in exactly the same way as do the tissues of the frog I mentioned earlier. In spite of the lessening of the nervous impulses reaching the tissues, due to the thermotaxic mechanism, and tending to lessen their metabolism, they are bound to respond to their rising temperature by an increase of chemical change going on in them. This very response raises again their own temperature, and again they are spurred on to increased activity, so that we have here an avalanche-like and almost suicidal mechanism on the part of the organism, especially dangerous when the power of heat-loss is seriously interfered with. From all that has been said it will be seen then that we are not altogether without an explanation of the phenomena of heat stroke, at any rate of those phenomena which takes place in the form associated with a high rise of the body temperature.

With regard to those forms of heat stroke in which the body temperature is not raised, there has been a theory put forward by Maas, which I think merits a certain amount of consideration. It is that the bad effects in these cases may be essentially due to the loss of fluid to the organism, consequent on the enormously

increased perspiration taking place under increased heat—to an anhydremia, as Maas calls it. Another source, in addition to this, of the various troubles in these cases of sunstroke without increased temperature may exist in the fact that the thermotaxic mechanism, the mechanism controlling heat production, may go too far; it may so depress the activities of the tissues of the organism, especially of the muscles, that they are left in an utterly helpless condition; and thus may be explained these forms of prostration apart from a greatly increased temperature, some of which have been described this evening.

DR. J. H. WRIGHT spoke on the pathological anatomy of sunstroke.

DR. BUCKINGHAM: I think the division into cases of sunstroke proper, and cases of heat exhaustion, made by Dr. Jackson is extremely practical for treatment and for clinical observation. I do not think it has been universally accepted. I should go farther, and say we might make a division of true sunstroke into the cases in which there is a high, tense pulse, and those in which there is a weak pulse. It seems to me that this has not been sufficiently dwelt upon by writers in general; and it is of great importance in the treatment. A case may have a strong, tense pulse; and there is no very great danger of producing collapse in treating it with cold, whereas with a very weak pulse there may be. I have seen a number of cases of heat stroke in which there was no exposure to the sun. At the hospital this year I had one such case in a baker, another in a man working in a stable. In one of the papers I read of a man who had a sunstroke in his room, and died on the way to the hospital.

There is another point I think might well be dwelt upon, and that is the prodromata, which, however, are sometimes entirely absent. They have occurred in quite a number of cases that have come under my observation. For instance, one patient came to the hospital last summer with a sunstroke, and we found afterwards that he had been suffering from severe headache in the sun for two or three days beforehand. A private patient of mine, an inspector of the telephone company, had been exposed during the same time, had been avoiding the heat as far as he could without giving up work; he had headache, and had got to the point where he stopped sweating. He left off work merely because work was over at night, and an hour or two later I found him at his house with a comparatively mild sunstroke. A certain number of these cases recover consciousness without treatment, sometimes permanently and sometimes only temporarily. I saw a gentleman last summer who had been exposed to the sun, going about in the streets; he went to his club, and looked so miserably that the people gave him some brandy. He fell forward on the table. By the time his son got there, he had recovered without treatment sufficiently to get into a carriage. Oftentimes patients will lose consciousness, recover it and lose it again. A man was picked up in the street unconscious and sent in in a police ambulance. When he arrived, he sat up in the chair and gave a more or less connected history of himself to the house-officer, and then shortly became unconscious again. Or, we may have the fever return after it has gone away. One man came into the hospital with a temperature of 103.5°, was treated, his temperature fell to 100° or 101°, and he seemed in pretty good condition, but four days afterwards he had a rise to 110°. His

condition then suggested very serious cerebral disturbance; the question of meningitis was raised, but it was decided not to be meningitis. Looking back, one can say it was not meningitis. He had complete recovery after a few days, but his temperature remained up a little for a week or more. That man has been perfectly well ever since. With reference to post-mortems, I would like to refer to the post-mortem mentioned by Dr. Jackson. If one has not had the opportunity of seeing it, I think he would hardly guess at the amount of edema that took place in the brain. When the top of the skull was removed there was no sign of any convulsion, the appearance was like that of a jelly-fish.

The post-mortem stopped at that point some twenty minutes, during which there was a steady patter of clear serum upon the floor, after which the brain resembled brain. With reference to treatment, I think it important to observe the distinction between cases of tense pulse and those in which the circulation is very poor. The point is that we do not want to produce collapse by the use of cold, which is the common treatment. In almost all the cases I saw last summer the circulation was exceedingly poor at the time they came under observation. After the first one or two, I gave very particular directions to the house-officers, and they were carried out with great intelligence and fidelity, and the result was we had no more collapse. Although the patient had an ice-cap as soon as he came in, he was not to be put in a bath until the circulation was restored. The first thing to do was to bring up the pulse by brandy, strychnia, etc.; after he began to have a good pulse he was to be put in a bath, but to remain only until the rectal temperature fell to 103°. After that plan was adopted there was no more collapse serious enough to be worth mentioning, which has not always been my experience. The temperature continues to fall after leaving the bath.

DR. G. G. SEARS: As Dr. Jackson has said, a number of these cases were in my service; but he has left very little for me to add in regard to any one of them. The particularly interesting cases to me on account of the difficulty in diagnosis were those of continued fever from heat. During the summer I saw a number of cases whose clinical history was something like this: there was a short prodromal history of twenty-four hours, occasionally accompanied by a chill, and followed by a continued fever rising to 103° or so for a few days or more and then a gradual fall. During the earlier stages there might be a little diarrhea, but by the time they came under observation this had usually ceased. There might also be a little delirium toward night, but nothing which approached a typical typhoid condition. Physical examination was negative except for a possible pimple or two suggesting rose-spots, no enlargement of the spleen could be made out. These cases were very similar to those which Guiteras had observed in Key West and described under the name of thermic fever, but which were locally called typhoid, partly for the lack of a better name and partly because it was more satisfactory to the patient to feel that he was ill with a disease of which he had a definite conception.

For very much the same reason a diagnosis of questionable typhoid was made in many of these cases, and as long as they recovered there was no way of proving its incorrectness. One of them, however, died; an autopsy was made and while a positive diag-

nosis of thermic fever was impossible from the indefiniteness of the history, partly due to the patient's condition and partly to the very limited command of English, it satisfies the conditions more fully than any other. He was an Italian of the laboring class and had been ill nine days before he was admitted to the hospital. On entrance his temperature was 105° and almost immediately shot up to 107.8° . From that it was brought down to normal by cold baths, but again rose and ran along at a fairly high level for two days, when he died. He was delirious and before the end his appearance was somewhat typhoidal. Physical examination was practically negative. A little hypostatic congestion of the lungs was made out and the abdomen was somewhat distended so that the splenic area of dulness was not readily determined. Its edge could not be felt. At the autopsy a little congestion of the brain was found, and there was also some congestion of the lungs, with edema. The spleen was a good deal enlarged. Beyond this there was nothing to be found. Cultures made from various organs were negative.

The report of these cases recalls an incident which occurred when I was house-physician at the Massachusetts General Hospital, and which illustrates how powerful an agent fatigue from overwork is in the causation of heat stroke. Contrary to what I understood Dr. Jackson to say regarding the greater prevalence of such cases during hot and dry weather, the thermometer, if I can trust my memory, was not over 85° or 86° , and the day was cloudy and sticky. The militia were returning from camp and equipped in their heavy uniforms were forced to make a long parade through the streets. They dropped out all along the line of march; and after reaching the Common so many of them collapsed that one of the other house-officers, who happened to be passing and who hurried back anticipating that many of them would be brought to the hospital, reported that it looked like a battle-field. Within half an hour thirteen cases were brought in in all stages of sunstroke—some unconscious, others with convulsions, others with simple muscular spasm. All recovered under treatment.

DR. GREENLEAF: Fortunately cases of heat stroke are not common in Boston, as the summers are relatively cool. Therefore individual experiences may help in the better understanding of the treatment of this condition. I should like to say a few words regarding it. My attention was attracted to the subject when a house-officer at the City Hospital. Such cases were always of interest, as, like opium cases, they responded so satisfactorily to treatment. I recall very vividly the cases from the parade referred to by Dr. Sears. The hospital cases and certain others seen since illustrate the principles of treatment to which I would call attention.

Two general lines are indicated: First, the reduction of temperature; and, secondly, the combating of symptoms, such as prostration, incident to special types of the condition.

Authorities are agreed that the rapid abstraction of heat is of the first importance, but directions for this are often obscure and inadequate. Some refer to antipyretics. Nearly all refer to the use of baths. Regarding antipyretics our experience was negative. At that time antipyrine was freely used in a variety of febrile states. While it was temporarily efficient in

such fevers as typhoid, it did not act equally well in heat stroke. In one case that we noted with especial detail no "drop" resulted till the patient was put in a bath. I should not advise antipyrine or allied drugs, on account of their depressing effects, for depression has to be combated in many cases.

Regarding baths, one must bear in mind the objects to be attained. As I understand it, their good results are due partly to the abstraction of heat and partly (perhaps even of more importance) to their stimulant effect on the nervous centres. It is not enough to simply put a patient in a tub of cold water. Indeed, such a treatment may do harm by producing dangerous congestions of internal organs. To be most efficient the cutaneous circulation should at the same time be kept as active as possible by brisk rubbing. Rubbing may be carried out in a tub, but it is more conveniently done on a bed or table, meantime sprinkling or sponging the patient. The most effective way is to use ice. This cools quickest and stimulates most.

Two cases that I attended on one of the hot days of last summer illustrate the value of this method of treatment. The first was of a baker. He was overcome about four A. M., while at work in the kitchen of one of our large hotels. He presented a typical case of heat stroke of asthenic type. He was unconscious, cyanotic and with a labored pulse and breathing. His temperature was about 106° . He was then stripped, laid on a table and rubbed vigorously with ice and hands alternatively. The ambulance, which had been summoned on first seeing the case, arrived within half an hour. At that time consciousness was returning. His skin was rosy and he was so much improved that on arrival at the hospital he was entered simply as a case of heat prostration. At four P. M., of the same day, I attended a little boy. He had been playing in the hot sun since morning, but a bad headache and general malaise had driven him home. His temperature was 104 , the skin dry and hot. He was perfectly conscious but was in the beginning of an attack of heat stroke. He was treated exactly as in the other case. Within ten minutes the temperature became normal. I put him to bed and in a few minutes more he was sleeping peacefully. Except that he had a headache for a few days he suffered no further inconvenience.

As regards the use of medicinal stimulants, here again more precise directions are needed than are usually given. Alcohol, as advised by some, seems hardly wise as it tends to unduly flush the brain in addition to its stimulant effect on the heart. As much of the danger of heat stroke is due to the engorgement of the cerebral vessels, theoretically, at least, alcohol is contraindicated in most cases. Digitalis and strychnia on the other hand, from their tonic effect respectively on the heart muscles and nerve-regulatory mechanism, are of great value in the cases in which prostration is associated.

The treatment of the possible sequelæ of heat stroke is a distinct subject. I will not say anything about it as it is not properly included in this discussion.

LORD LISTER. — The British medical journals note with satisfaction that Sir Joseph Lister, on his elevation to the peerage will take the title of Lord Lister, and not Lord Kinnear, or Lord anything else.

Recent Literature.

Die Mikrotechnik der Thierischen Morphologie. Eine kritische Darstellung der Mikroskopischen Untersuchungsmethoden. Von STEFAN APATHY. Erste Abtheilung, 8vo, pp. iv, 320. Braunschweig: Har-ald Brühn. 1896.

A Text-Book of Histology, Descriptive and Practical. By ARTHUR CLARKSON. With 174 original colored illustrations, 8vo, pp. xx, 554. Philadelphia: W. B. Saunders. 1896.

Directions for Work in the Histological Laboratory. By G. CARL HUBER. Second edition, 8vo, pp. 176.

Text-Book of Histology, including the Microscopical Technique. By PHILIP STÖHR. Sixth edition. Translated by EMMA L. BILLSTEIN, M.D. Edited, with additions, by DR. ALFRED SCHAPER. With 268 illustrations, 8vo, pp. xvi, 344. Philadelphia: P. Blakiston, Son & Co. 1896.

Of the four books we have to notice, that by Stöhr is the most important and valuable, for we consider it the first really thorough and satisfactory students' manual of histology which has appeared in English.

Apathy's volume is the first part of an exhaustive historical and critical survey of microscopical methods, and may be said to be an almost indispensable companion for the advanced specialist. The extreme diffuseness of the author's style and the ponderous philosophy with which he discusses trifles are defects seriously to be regretted. All that he says could *easily* be said in one-third the space, and the reader cannot but smile to find a large octavo page devoted to a discussion of the size of cover-glasses. None the less the work is valuable for its thoroughness, for its criticisms, and for its clear presentation of the essential principles of technique, especially in the matter of staining, and it ought to go far towards terminating the apparently endless re-invention of devices. It is the only work recording the *progress* of methods, and it is rich in suggestions for further progress. We shall welcome the second part.

Stöhr's Histology in an English translation is sure of a favorable reception. The original work has already a very high reputation, won by its conspicuous merits. It is noted for the clearness, thoroughness and brevity of its descriptions; and so far as the beauty and accuracy of its illustrations are concerned, it has probably no equal among students' text-books. In successive editions the author has incorporated the latest results of research, thus keeping the book always abreast with discovery. The numerous "technical directions" are admirable, and will be found of great value both to beginners and advanced workers. The unique combination of merits in Professor Stöhr's treatise has secured for the German editions a sale, which has already amounted to many thousands. In brief, the reputation of the original work is so high and well established, that it is unnecessary to do more than add a few words in regard to the translation. The English rendering is satisfactory, being both accurate and smooth, despite a few, but not important, infelicities. Certain changes deserve mention. All the technical directions as to methods are now gathered at the end of the volume, an arrangement much more convenient than that still followed by Professor Stöhr, of scattering them through the volume, making

it difficult to find any special "direction" wanted. The editor, Dr. Alfred Schaper, who was formerly Professor Stöhr's first assistant, and at present Demonstrator of Histology and Embryology at the Harvard Medical School, has added a valuable chapter on the placenta, and enlarged that upon the uterus, thus making good the only serious deficiencies in the sixth German edition, from which the translation was made. On the technical side the entire absence of any suitable account of microtomes will be felt, especially in America, as a defect not readily excused. This omission should be repaired before another edition is issued.

We are glad to recommend this work very cordially to both practising physicians and medical students. The publishers' part has been admirably done; the type is clear and attractive and the delicate illustrations have been beautifully printed.

Professor Huber's book is especially arranged for the use of his own classes in the University of Michigan, and for that use it appears admirable. It gives specific directions how to make a large series of preparations, and gives for each preparation excellent rules for observing and understanding what it should show. It is arranged in twenty-five lessons, and five or six preparations are treated in each lesson. The lessons are followed by a collection of very excellent directions concerning methods, which are clearly and often felicitously presented. We notice some omissions, and are surprised that no mention is made of microtomes. This fact, together with the offering the students several preparations at each exercise, suggests that the author's standard for students is not very high, for experience shows that two hours is the extreme minimum of time, for a student to master a single preparation in the laboratory.

Mr. Clarkson's volume is beautifully made, and offers the best and most comprehensive set of colored illustrations of histological subjects, known to us. The figures are very good, and are remarkably uniform in merit. They are distributed over eighty-eight plates, which are scattered through the volume, and are all lithographic reproductions of original drawings made by the author,—except nine figures contributed by friends.

The book includes a well-written text, which treats of both methods and of the preparations. The treatment of the urogenital system is inadequate, and that of the nervous system is almost perfunctory. The other parts of the text are much better than these two.

The limitations of the book are very sharply marked, for the author deals only with the ordinary text-book and laboratory knowledge, and is apparently almost wholly ignorant of the literature of histological research, and quite unaware that in order to write such a work as he has undertaken, he should first study one or two thousand of the histological publications of recent investigators.

C. S. M.

The Practice of Medicine. By HORATIO C. WOOD, M.D., LL.D., and REGINALD H. FITZ, A.M., M.D. Philadelphia: J. B. Lippincott Co. 1897.

The preface tells us that this volume "is the outcome of an attempt to view the practice of medicine simultaneously from the pathologic and therapeutic points of view. Whilst each author has written certain determinate portions of the book, there have been such careful joint consideration and discussion of the various subjects that there is a common respon-

sibility, except in the very few places where final difference of opinion is indicated in the text, either over initials or by the use of the pronoun 'I' instead of 'we.'

After reading this opening statement we were tempted to turn to the articles on typhoid fever and appendicitis, expecting, as was the case, to find the "I" instead of "we" in the former in regard to the use of oil of turpentine in the treatment of intestinal ulceration, and in the latter the different initials attached to differing views as to surgical interference in appendicitis.

In general, it is rather surprising that two doctors collaborating upon a work of this kind should disagree as seldom as do Drs. Wood and Fitz. It is scarcely necessary to state that Dr. Wood is Professor of Therapeutics and Clinical Professor of Nervous Diseases in the University of Pennsylvania, and that Dr. Fitz is Professor of Theory and Practice and was formerly Professor of Pathological (not Pathologic) Anatomy in Harvard University. In spelling, apart from the title-page, the two authors seem to have agreed upon the newer Philadelphia terminations.

Dr. Wood's and Dr. Fitz's training and experience as teachers and consultants have well fitted them for writing a book on the Practice of Medicine, and the work which they have produced attests this. Collaboration, on the other hand, has its drawbacks as well as its advantages. In places one has to read closely to be sure of the intended meaning.

The contents of the volume of 1088 octavo pages are divided into six sections. Under Section I come General Diseases, in six chapters; under Section II, Diseases of the Nervous System, in seven chapters; under Section III, Diseases of the Circulatory Apparatus, in four chapters; Section IV, Diseases of the Respiratory Apparatus, in three chapters; Section V, Diseases of the Digestive Apparatus and of the Peritoneum, in five chapters; Section VI, Diseases of the Urinary Apparatus, in two chapters. There is a good general index.

In printing the book, a second sub-heading on the top of the right-hand page would have facilitated reference, for example, on the left-hand page, General Diseases; and on the right-hand page, Infectious Diseases — Typhoid Fever.

Under the treatment of Exophthalmic Goitre we miss any reference to extract of the thymus gland. For the diagnosis of typhoid fever no reference is made to the serum test, but this was less in evidence when the chapter was written than at present. In the treatment of typhoid fever it is stated that "alcohol in some form should be used in every case from the beginning." The indications laid down for its increase or diminution are sound, as is the dietary recommended. The external use of cold water, including baths, is recommended.

Plague receives less than a page. In view of its activity in Asia Minor, in Persia and in China within the last twenty-five years, it deserves more respectful consideration. On the other hand, in view of the present generally accepted relations of the serum treatment to diphtheria, the space devoted to the local treatment of this disease might have been condensed. We doubt the implied statement that diphtheria antitoxin is responsible for albuminuria.

In Malaria we should consider the administration of smaller doses of quinine immediately after the par-

oxysm more effective and less disturbing than the exhibition of larger doses, eight to ten hours, and four to five hours before the paroxysm, as recommended.

Under Cholera we find no reference to Haffkine's work in India.

Under the head of Hereditary Syphilis, the possibility of congenital or intrauterine infection seems to be correctly recognized by the authors, although Kassowitz is quoted to the effect that "the syphilitic virus does not pass through the vascular walls dividing the fetal from the maternal blood."

Incision, or even a resection of the rib, is, we are glad to see, suggested as proper in purulent pericarditis.

The book is characterized by a severe absence of all pictorial illustrations, if we except a few diagrams in the chapters devoted to Diseases of the Nervous System. The temptations offered by the newest micro-organisms and by the oldest temperature charts, have been resisted. We are almost inclined to offer much thanks for this relief. Good wine needs no such bushes.

Handatlas der Anatomie des Menschen. Atlas of Human Anatomy. With 750 illustrations, some colored, with text. By WERNER SPALTENHOLZ, Professor at the University of Leipzig, with the support of PROFESSOR HIS. Volume II, Part I. Leipzig: P. S. Hirzel. 1896.

We have before us the first part of the second volume of this remarkable atlas, treating on the muscles. It begins with some diagrammatic figures, making clear the regions into which it has been thought necessary to divide the surface of the body, and then come the muscles. The style of illustration is the same as in the previous parts, with colored muscles. They are truly admirable as works of art, and at the same time convincing as true anatomy. The muscles of the face and neck deserve particular notice. The platysma is admirably shown as it is when well developed. A very instructive picture is that showing the muscles of the mouth dissected from the inside. There are some beautiful dissections of the fasciæ, among which we may mention one of the back of the thigh, revealing the relief of the muscles through the transparent fascia. The appendages of the muscular system, namely, the bursæ and the synovial sheaths, are also duly considered.

The only criticism we are inclined to make is on the very small number of frozen sections. In fact, there is, we believe, in this part but one, and that borrowed from Merkel.

T. D.

Hygienisches Taschenbuch für Medicinal und Verwaltungsbeamte, Aerzte, Techniker und Schulmänner. Von DR. E. VON ESMARCH, Prof. Hygiene, Univ. Königsberg. Berlin: J. Springer. 1896.

This hand-book is compact, practical, concise and thoroughly adapted to the uses for which it is intended as a reference manual for health officers and medical men generally. The method of treatment of the subject of hygiene employed in this work is that of brief, concise definitions, principles, axioms and formulæ relating to public health.

The subjects treated are the following: air, soil, water, the hygiene of dwellings and their construction, lighting, ventilation, heating, the removal of household waste, schoolhouses, hospitals, prevention of infectious diseases, and disinfection.

THE BOSTON
Medical and Surgical Journal.

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THE ANNUAL REPORT OF HARVARD COLLEGE, 1895-96.

In the portion of this report devoted to the Medical School, President Eliot characterizes as the most important event at that school during the year 1895-96 the decision of the Faculty to require, after the year 1900, that all candidates for admission to the school must present a degree in Arts, Literature, Philosophy, Science, or Medicine, with the exception of persons of suitable age and attainments who may be admitted by a special vote of the Faculty in each case. This step, he states, will place the Medical School, after 1900, by the side of the Divinity School, the Law School, and the Graduate School, which already require for admission a degree in Arts, Literature, Philosophy, or Science. After that year there will therefore be four graduate departments in the university. He reminds us that when the Graduate School was instituted there was no other graduate department, and its name was distinctive; but the word graduate is now applicable to two other departments, and will soon be applicable to three.

He dwells upon the increasing importance of laboratory service in medical and surgical practice as illustrated in the new instruction given in the Chemical Department on the clinical examination of the blood. The Bacteriological Laboratory first makes the diagnosis in a possible case of diphtheria, and then supplies the remedy if it is needed. The Laboratory of Hygiene has demonstrated useful truths in regard to various liquid malt extracts and certain lithia waters. The laboratories of the Medical School, however, not only supply important aid to clinical medicine and surgery, but are also active in advancing medical knowledge.

He refers to the munificent gift of Mr. George F. Fabyan on the 1st of July last, establishing another professorship in the Medical School which cannot but prove to be of the utmost value—a professorship of

Comparative Pathology. This immense subject includes, of course, human pathology; but it ranges over the whole pathological field among the animals which associate with mankind, or furnish food to the human race, or do good or harm to the crops or creatures on which men feed.

Prof. Theobald Smith, who was transferred from the department of Applied Zoölogy to this new Fabyan Professorship in the Medical School continues to occupy the convenient laboratories previously fitted up for him at the Bussey Institution.

In this connection the President advocates a reconstruction of the School of Veterinary Medicine upon a larger plan, by which with the foundation of a professorship of Comparative Anatomy and another of Comparative Physiology, a department of Comparative Medicine might be organized. There should, he considers, be the closest affiliation between the Medical School and such a School of Comparative Medicine. The two schools should, in his opinion, be placed under the direction of a single Faculty of Medicine—the two groups of students being kept distinct, and each group being governed by a dean and an administrative board. The experience of the Faculty of Arts and Sciences, under which Harvard College (the Academic Department proper), the Lawrence Scientific School and the Graduate School are administered, is, the President thinks, directly applicable to this new suggestion, and is highly encouraging for its successful working.

Professor Smith gave during the past year a course of lectures, the first of its kind, to the students of the Veterinary School on the "Etiology and Hygiene of the Infectious Diseases of the Domestic Animals." The course embraced a discussion upon the following subjects: Causation of the infectious diseases of animals; bacteria and their relation to disease, morphology and biology; the pathogenic action of bacteria, natural immunity, predisposition, acquired immunity, including the uses of antitoxins; hygienic surroundings and the methods by which these diseases are communicated, as well as those which must be undertaken to prevent their spread; antiseptics, disinfectants, sterilization, and protective inoculation. This was followed by a consideration, at length, of the contagious and infectious diseases of swine, sheep, horses, cattle, dogs, turkeys and fowls.

In this connection the Dean of the Veterinary School points out that when one considers that all of the animals with which we live in more or less close contact, and from which an important part of our food supply is derived, are not uncommonly affected with diseases which not only easily spread among themselves, but are now known to be communicable to man, always with bad, and oftentimes with fatal results, it will be well understood that the importance of the study of comparative medicine can scarcely be overestimated.

The President emphasizes again the great need of the Medical School for one or two halls of furnished

chambers with low rents, not too remote from the school building, and constructed with every sanitary precaution and every means of health, such as good baths and good means of heating and ventilation. Near these halls a dining-room conducted on the plan of the Foxcroft Club at Cambridge, would be very serviceable. Medical students, he truly says, who have little money undergo more physical hardship and exposure than any other class of students; and yet less care is taken of them. No benefactions have, as yet, made their lives safer and easier.

The report of the Dean of the Medical School goes more minutely into the administration of the school during the past year, and the changes which have taken place. The first class under the required four years' course of instruction graduated in June, 1896, and numbered 101, of whom 35 received the degree *cum laude*. The whole number of students in attendance during the year was 552. During the last three years there has been once more, after a somewhat continuous decline, a steady increase in the number of college graduates among the matriculants: in the year 1893-94 there were 27 per cent., in 1894-95, 35 per cent., in 1895-96, 41 per cent. Some of the laboratories of the school are overcrowded, and some relief must before long be found. Notwithstanding the increasing attendance—partly perhaps in consequence of that, and partly in consequence of expenses for electrical lighting, ventilation, and other improvements in the school building—there is again a deficit in the annual accounts of the school, and the reserve fund has been reduced from \$89,000 in 1893 to \$73,000 in 1896. With the growth of laboratory instruction and a constantly increasing corps of teachers, medical education, as given in a school of the highest rank, becomes more and more costly. In this it offers a strong contrast to the education given in a Law School or a Divinity School.

The number of students at the Dental School is increasing, during the past year 103 were in attendance, of whom 20 were in the Senior Class, 36 in the Junior Class, and 47 in the Freshman; the graduating class was the largest in the history of the school. The Medical Faculty having abolished the course in General Chemistry which dental students have hitherto attended, the Dental School has been obliged to provide a chemical laboratory of its own. The range of operations of the Dental Infirmary has been increased. Artificial noses were supplied in cases where the natural nose had been lost by accident or disease. Fractured jaws, requiring complicated appliances, were successfully treated, and patients with cleft palate and incapable of articulate speech had their speech restored and their appearance greatly improved. The service of the Infirmary is gratuitous. The Dental School is now occupying every available part of the building at present in use.

The Dean reports that the school is crowded and hampered in its work, which the Faculty is conducting under adverse conditions, at the same time main-

taining through the Infirmary a great and worthy charity.

In the Veterinary School three new courses of instruction were added during the year: one in Comparative Pathology, one in the Etiology and Hygiene of the Infectious Diseases of Animals, already referred to, and one in Practice. This school has always hoped to be able to maintain a free clinic for the gratuitous treatment of suffering animals whose owners could not afford to pay for treatment. Such a clinic is at once a charity and a means of instruction. During the past year this hope has been fulfilled in large measure through the generosity of the Visiting Committee of the school, who have provided a building at their own charge for three years for this purpose. This charity hospital for animals was opened about a year ago. Here is a grand opportunity for all lovers of animals to aid in a good work twice blessed. We commend it most especially to those tender and bustling souls whose energies are now devoted to the protection of the guinea-pig and the frog from the assiduity of the physiologist. Let them subscribe and induce others to subscribe to the charity hospital or free clinic for sick and wounded animals. Being free from all public agitation and sensationalism, such action commends itself as a quick but at the same time most effective way of being useful to man's dumb servants, companions and dependants of the animal kingdom.

THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE THREATENED.

THE Appropriation Committee of the House of Representatives in Washington have now under consideration a proposal to transfer the Library of the Surgeon-General's Office from the Army Medical Museum to the New Library of Congress; and Mr. Cannon of Illinois, the Chairman of the Committee, proposes to have this inserted in the Sundry Civil Appropriation Bill. He does not propose at present to transfer the management of the library from the Medical Department of the Army to the Librarian of Congress, but this will almost certainly follow in a year or two. If this proposal should succeed, the result would probably be a cutting down of the Appropriations for the Medical Library, reductions in the force of its cataloguers and indexers, and a great diminution in the future utility of the library to the physicians of the United States.

There is no time to lose if the members of the medical profession desire to express their opinions and use their influence to prevent serious damage to their interests. They should at once put themselves in communication with their representatives in Congress and with any of their acquaintances who may have influence with those representatives.

This is a matter in which the best interests of the medical profession subserve the best interests of the general public welfare. The profession has very

lately been enjoined by a most distinguished adviser not to neglect to concern itself with public affairs. Here and now is presented a very suitable opportunity to act upon this excellent advice.

MEDICAL NOTES.

ZYMOTIC DISEASES IN DUBLIN.—Scarlet fever, measles and whooping-cough are epidemic in Dublin, and the capacity of the hospitals is seriously overtaxed.

A MEDICAL BARONET.—Dr. Douglas Powell, physician extraordinary to the Queen and physician to the Middlesex Hospital, was created a baronet at New Year's.

TRAUMATIC TETANUS TREATED BY HYPODERMIC INJECTIONS OF ANTISEPTICS.—Two cases are reported in recent numbers of the *Lancet* and *British Medical Journal*, of traumatic tetanus successfully treated by hypodermic injections of carbolic acid and corrosive sublimate respectively.

MEMORIAL OF BARON HIRSCH.—The widow of Baron Hirsch has presented the Pasteur Institute in Paris with 2,000,000 francs as a memorial of her late husband. It is also reported that she has presented 80,000 pounds for the establishment of a seashore hospital for the treatment of children afflicted with tubercular disease.

NURSING BOTTLES AND THE BABIES' HEALTH.—The following ordinance has been passed by the Board of Health, of Buffalo, N. Y.: "And it shall be unlawful for any person or persons to use or to engage in the sale of any bottle, mechanism or other device for the artificial feeding or nursing of infants or children under three years of age, which has connected therewith a rubber tube, hose or such contrivance."

A BELLICOSE SURGEON.—Lepelletier had occasion recently to address the graduates of the military school at St. Cyr, France, and called upon them "to arise in their might and as surgeons of the honor of France, perform *rhinoplasty* upon the territory of their fatherland, and restore the flap of living flesh so brutally severed by the conquering Germans!"—*Journal of the American Medical Association*.

THE DEADLY NICOTINE.—In a book of travels written by a Mr. Barrow we find this interesting bit of information: A Hottentot was seen to apply the short end of his wooden tobacco pipe to the mouth of a snake when the reptile was darting out its tongue. Death was instantaneous, the effect almost like an electric shock; with a convulsive motion that lasted only for a moment the snake half untwisted itself and then became still. And upon examination the muscles were found to be so contracted that the snake felt as hard as if it had been dried in the sun.—*Harper's Round Table*.

Does this incident point most strongly to the susceptibility of the reptile or the roughness of the Hot-

tentot? Would tobacco be indicated in delirium tremens?

DISINFECTION OF THE MAIL.—Nine sacks of mail from India came into New York Harbor last week, and were taken off the steamer at quarantine for disinfection, in view of the bubonic plague that is devastating Bombay and the far East. Dry heat was employed. Chambers have been provided on the new quarantine boat, where treatment can be given by heat, steam, formalin, or bichlorid of mercury.

A MEDICAL PRESIDENT.—M. Adolphe Deucher, who has just been elected president of the Swiss Confederation for the ensuing year by an almost unanimous vote, is a member of the medical profession. He was born in 1831, and was actively engaged in medical practice till 1879, when he retired in order to devote himself entirely to political life. He had, however, for some twelve years before that been a member of the Swiss Parliament, in which, though a staunch Catholic, he played a conspicuous part as a radical.

APPOINTMENT OF A FIRST-ASSISTANT PHYSICIAN AT THE SHEPPARD ASYLUM, BALTIMORE.—At a special meeting of the Trustees of the Sheppard Asylum, held Thursday, January 28th, Dr. Charles M. Franklin, of Lancaster, Pa., was elected to the position of first-assistant physician. Dr. Franklin is a graduate of the Franklin and Marshall College, and in medicine at the University of Pennsylvania. After taking a term of service in one of the general hospitals in Philadelphia, he served for a time in the Friend's Asylum at Frankford, resigning to go to Europe, where he spent two years in study at Vienna and Berlin. Upon returning he was shortly afterwards appointed assistant physician at the men's department of the Pennsylvania Hospital for the Insane, Philadelphia, where he served for over two years, resigning to enter upon private practice in Lancaster.

THE BRITISH ARMY MEDICAL SERVICE.—It is reported on good authority that only two applicants have appeared for a competitive examination for the British Army Medical Service, which is to be held in February, to fill thirty-six vacancies. The War Office is stated to be sending out "into the highways and byways for the maimed, the halt, the lame, and the blind" in order that their little wedding in February shall be furnished with some sort of guests. Come what may, says the *Medical Press and Circular*, the army medical authorities will not give the minutest concession to the "d—d doctors" unless Parliament forces them to do so. Let us hope that they will have to do so.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 3, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 113, scarlet fever 38, measles 51, typhoid fever 11.

THE SALEM HOSPITAL.—At the recent annual meeting of the corporation of the Salem Hospital, a report was read showing that 350 patients were treated at that institution during 1896.

THE APPROPRIATION FOR THE MASSACHUSETTS CATTLE COMMISSION.—The bill appropriating \$250,000 for continuing the work of the Massachusetts Cattle Commission in exterminating tuberculosis and other contagious diseases among animals, has been passed to be engrossed by the House of Representatives, in spite of opposition on the part of the farmers.

THE MASSACHUSETTS ASSOCIATED BOARDS OF HEALTH.—The annual meeting of the Massachusetts Associated Boards of Health, was held January 28th at the Parker House, Boston. Dr. H. P. Walcott presided. Professor W. T. Sedgwick of the Massachusetts Institute of Technology read a paper on the "Protection of Public Milk Supplies from Pollution." Officers were elected as follows: President, H. P. Walcott; Vice-Presidents, S. H. Durgin, S. W. Abbott; Secretary, Edwin Farham; Treasurer, James B. Field.

NEW YORK.

PRESIDENT CLEVELAND ADDRESSES THE NEW YORK ACADEMY OF MEDICINE.—The exercises of the semi-centennial celebration of the New York Academy of Medicine on January 29th were carried out in accordance with the announced programme, and everything passed off in the most satisfactory and enjoyable manner. Carnegie Hall was filled with a cultured audience, and the occasion was an inspiring one. After addresses by Dr. Bryant, President of the Academy, and by Drs. Purple and Sayre, two of its founders, came the oration of ex-President Jacobi, and the exercises were concluded with the address of President Cleveland, who had come on from Washington for the occasion, accompanied by Secretary Lamont and Surgeon-General Sternberg. In the course of his remarks Mr. Cleveland spoke as follows in regard to the political obligations of members of the medical profession: "If laws are needed to abolish abuses which your professional investigations have unearthed, your fraternity should not be strangers to the agencies which make the laws. If enactments already in force are neglected or badly executed, you should not forget that it is your privilege and duty to insist upon their rigorous and honest enforcement. Let me also remind you of the application to your case of the truth embodied in the homely injunction, 'If you want a job well done, do it yourself.' If members of your profession were oftener found in our National and State legislative assemblies, ready to advocate the reformatory measures you have demonstrated to be necessary to defend your brotherhood against flippant and sneering charges of impracticability, the prospect of your bestowal upon your fellowmen of the ripened results of your professional labor would be brighter and nearer." After the conclusion of the exercises at Carnegie Hall a reception was held at the Academy of Medicine Building.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.—At the annual meeting at Albany of the Medical Society of the State of New York, which, on account of special circumstances, was held a week earlier than usual, the following officers were elected: President, Dr. Seneca D. Powell, of New York; Vice-President, Dr. Lucien Howe, of Buffalo; Secretary, Dr. F. C. Curtis, of Albany; Treasurer, Dr. Charles H. Porter, of Albany.

DEATH OF DR. RICHARD J. HALL.—Dr. Richard J. Hall, a son of the Rev. Dr. John Hall, of the Fifth Avenue Presbyterian Church, died recently of appendicitis at Santa Barbara, Cal. Dr. Hall was forty-one years of age, and was graduated from Princeton College in 1875, and in 1878 from the College of Physicians and Surgeons. After pursuing his professional studies for a time in Vienna, he returned to New York, where he received an appointment on the attending staff of the Presbyterian Hospital, and soon won an enviable reputation as a surgeon of unusual ability. Some years ago, on account of the development of pulmonary trouble, he was obliged to remove to Santa Barbara. As a result of his residence in a more genial climate his health gradually became re-established, and he was after a time enabled to resume the practice of his profession. He leaves a wife and two young daughters.

DEATH OF DR. McNAMARA.—Dr. Lawrence J. McNamara, a graduate of Bellevue Hospital Medical College in the year 1882, died on January 28th. He early won distinction as a pathologist and bacteriologist, and on the opening of the Carnegie Laboratory, in connection with the Bellevue Medical School, was appointed one of the instructors in that institution.

THE MORTALITY OF NEW YORK IN 1896.—The annual bulletin of the State Board of Health shows the average daily mortality in the year 1896 to have been 340, against 336 in 1895. The highest death-rate was, as usual, in July, and the lowest in November. Influenza was epidemic early in the year, and is accredited with about 3,000 deaths. The mortality from scarlet fever was the smallest in ten years, while that from measles was the largest. The number of deaths from pulmonary tuberculosis was about the same as usual, a little over 13,000.

THE BLIZZARD INCREASES THE DEATH-RATE.—In the city of New York the intense cold of the early part of last week, followed by the severest snow storm of the season, had the effect of slightly increasing the mortality, which has been phenomenally small for this time of the year. For the week ending January 30th the number of deaths recorded was 758, against 703 in the week ending January 23d and 700 in that ending January 16th. The highest death-rate is principally due to consumption and pneumonia, the deaths from which increased respectively from 83 to 120 and from 77 to 109. With the exception of that from diphtheria, which averages about 30 deaths per week, the mortality from contagious diseases has for

a number of months been insignificant. Thus, in the week ending January 30th there were but two deaths from influenza, seven from scarlet fever, four from measles, and one from typhoid fever.

Miscellany.

DANIEL MARCH, JR., M.D.

RESOLUTIONS OF THE EAST MIDDLESEX DISTRICT MEDICAL SOCIETY.

WAKEFIELD, January 20, 1897.

Whereas, In the all-wise providence of the great Ruler of the universe, our most highly esteemed associate, Dr. Daniel March, Jr., has been suddenly stricken down and taken from our midst, it is hereby

Resolved, That the members of the East Middlesex District Medical Society deeply and sincerely mourn the loss of its officer and member. As its President, he was able and efficient in his office; as a member, he was ever a willing coadjutor, wise councillor and loyal friend. As a physician, he was worthy and well-qualified, just and upright in the highest degree in his relations with his fellow-practitioners, unselfish, courteous and kind. He was deeply beloved by his constituency for his skill in his profession, his generosity, his sympathy and helpful spirit. As a citizen and a man among men, he was valued for his true friendship, his unswerving integrity and his sacred honor. The members of this Society will ever cherish the memory of our deceased brother, and hold in emulation his character and record.

Resolved, That a copy of these resolutions be sent to the family of our deceased President, extending to them the heartfelt sympathy of our Society, and also that the same be spread upon the records of the Secretary.

FRANK W. GRAVES, M.D.,
SETH W. KELLY, M.D.,
CHAS. C. ODLIN, M.D., } Committee.

EDWARD P. ELLIOT, M.D.

BOSTON, January 21, 1897.

In the death of Dr. Edward P. Elliot, Assistant Superintendent of the Danvers Lunatic Hospital, the Medico-Psychological Society has sustained a loss which its members can but view as personal.

His unassuming, modest bearing, genial companionship, and cultured intellect commanded the regard of all who came in contact with him.

His methodical application to his duty, his faithful devotion to his obligations, and his loyalty to superior officers were traits which characterize a true knight, whose death always leaves a permanent void in the ranks.

His rare mental gifts, quick perception, retentive memory, logical powers, and scientific inclinations admirably fitted him for the good work he has done, and gave rich promise of ultimate eminence in his profession.

But alas! these divine faculties, deprived of full exercise by physical infirmities extending over a period of several years, are now extinguished to us by the untimely claims of Death. Therefore:

Resolved, That this, our estimate of his ability and worth, be entered upon the records of this Society, as an expression of our feelings of deep personal affliction.

Resolved, That the Secretary be requested to make a copy of this record, and transmit the same to Dr. Elliot's bereaved father, with the assurance that we sorrow for him in his loss, and sympathize with him in his loneliness.

CHARLES W. PAGE,
PHILIP COOMBS KNAPP,
ROBERT T. EDES, } Committee.

Correspondence.

LETTER FROM ROME. PUBLIC HEALTH IN ROME.

ROME, January, 1897.

MR. EDITOR:—During a short stay in Rome, I have been enabled, through the kindness of Dr. Tito Gualdi, Sanitary Director, to examine some of its hygienic arrangements, and have found them most admirable. The same laws as to public health are found throughout the whole of Italy, but the perfection of detail depends upon the individual city.

Each city has an elected town council as its legislative body. This council elects in turn a junta, consisting of a syndic or mayor, and a number of *assessori*. The mayor is the president of the junta, and the *assessori* are practically deputy mayors, each *assessore* having in charge some particular department, such as finance, or public health. The junta is the executive body of the city. The *assessore* of public health has, however, no power over the practical details of the health department. These are in the hands of the sanitary director, who is elected by the town council and must be approved by the central government. The sanitary director not only attends to contagious diseases, but has also the care of the treatment of the poor. For this purpose, in Rome, are appointed (by competitive examination) eighteen district physicians and seventeen *nocturni* or physicians for night calls. There are, also, six *neuroscopi* through whose hands all death certificates must pass. There are located in this city, and under the sanitary director, five maternity hospitals. If a poor woman be about to become a mother, she is taken to one of these hospitals, delivered, and returned to her home, in uncomplicated cases, in twelve days. It is rather uncommon, at present, for any poor woman to be confined in her own home.

In the case of contagious diseases, the laws are very strict and very rigidly observed. Each practising physician of the city is given a book containing a large number of coupons, with spaces for the name of the patient, residence, etc. When he meets a case of contagious disease, he must detach two of these coupons, and personally present them without envelope, one to the syndic and one to the sanitary director. They, separately, must report the case to the central government. The idea is, that the suppression of cases, through favoritism or other causes could hardly occur, since each official acts as a check on the other. The physician does not enter the disease on his coupon (as the coupon is open to view), but simply numbers it, leaving on the back cover of his book a number corresponding to each of the prescribed diseases. This method is in vogue all over Italy, and is called "denouncing" the patient.

Cholera is the most dreaded of all diseases, but is now practically extinct in Rome, owing to an excellent water system, great care in bacteriological examination, and excessive precautions on the part of the health authorities in all suspected cases. There are two laboratories under the sanitary director, one for bacteriological examinations of all kinds, and the other for chemical analyses. The chiefs of these laboratories must be men well known in their special line of work, and they must be confirmed in their appointment by the State. Variola is of rare occurrence, owing to a very general vaccination. The law requires that each child shall be vaccinated before it is one year old, and revaccinated in its eighth year. There are two penalties for violation of this mandate. The first is that the unvaccinated child cannot enter any school, either public or private. In Boston, a child cannot enter any public school without having been previously vaccinated, but may be sent with impunity to any one of our numerous private ones. Thus, their law is stricter than ours in that particular. They have, besides, a second penalty, which is, that unless a child be vaccinated at the times prescribed,

he cannot, in after years, be eligible for any public office. This, to an Italian, is practically a loss of citizenship.

Tuberculosis is placed among the diseases to be denounced. When a notification of a case of tuberculosis is received, the house is visited by a medical sanitary inspector. He gives complete instructions to the attendants or family. The attending physician is obliged to see that all handkerchiefs, nightdresses, bed linen, etc., are thrown into a receptacle containing proper disinfectants. At regular intervals the disinfectors from the lazaretto call and remove all soiled articles, thoroughly sterilize them, then wash them and return them to the owners. This is done at the municipal expense in the case of poor people. Others pay according to their means. It is forbidden to wash any article belonging to a tuberculous patient outside the lazaretto. After a death from tuberculosis, the rooms and furniture are disinfected in a manner to be hereinafter described. A complete record of all houses in which tuberculosis has occurred, is kept at the central health office, so that any one about to hire or buy a house, may there learn its full history.

In some of our American cities, notably New York, similar precautions are taken. In Boston, however, where tuberculosis kills more people than all the other germ diseases combined, we do nothing. If we have an excessive mortality, we complacently attribute it to the prevalent east wind, and so plod along in our mediæval way. O modern Rome! O ancient Boston!

All cases of contagious diseases are supposed, of necessity, to go to the lazaretto. Special permission to remain at home may, however, be granted at the discretion of the sanitary inspector. In such cases the family physician is directly responsible to the health authorities for the carrying out of all proper precautions and must conduct the case under their supervision.

There are two corps of disinfectors. One stationed at what, for convenience, I shall call the central building; the other at the lazaretto. Those at the lazaretto, however, are in a separate building at one of the gates of the courtyard, and are exposed in no way to the dangers of the contagious hospital proper. The men at the central building have apartments corresponding somewhat to the ground-floor of one of our fire-engine houses. These consist of three large, well-lighted rooms with concrete flooring. One of these rooms is the office, in which all records are kept. Then comes the main room which contains a number of small carts, some of them small enough to be dragged by a single man, and others built for two men. Next in order is a room containing boxes and wardrobes for clothing, sterilized sheeting, etc., and a shower bath.

When the men arrive in the morning, they strip off their clothing, and don a fatigue uniform of blue cloth, only to be worn while at work. Then, they get their respective carts ready for the day's work. The carts contain a large tub which holds a measured quantity of water, concentrated solutions of corrosive and other disinfectants in bottles, a glass graduate, a large number of brushes of different sizes, a strong metal scraper for walls and floors, a heavy broom, which comes apart for convenience in packing, a thick swab of short broom canes, shaped like an inverted cone, for swabbing water-closet bowls, a sterilized linen suit and sterilized shoes. Attached to the outside of the cart are the brush poles which are too long to be conveniently packed away. The suit consists of long, loose linen stockings which draw over the foot and are tied to the upper part of the thigh, a long blouse or coat which comes nearly to the knees and which is tied in at the wrists and neck, besides being lapped over, and closely fastened all the way down the front, a linen hood falling over shoulders and having a face strap across the mouth and moustache, and a pair of large shoes. The shoes deserve a passing notice. It is considered here that shoes of all kinds are the greatest carriers of infection. It is enjoined then, that the men, when about to enter an infected house, shall remove their shoes at the entrance, put on the sterilized over-suit and then the shoes provided by the department. These are a large, clumsily-made shoe with thick wooden soles and heels

and a strong cloth top. It is found that these can be sterilized as easily and as thoroughly as the suit. Each man is obliged to return to the central office after every disinfection, and before starting again must provide himself with freshly sterilized suit, hood and shoes. No over-suit is used twice without resterilization.

When a disinfection is to be done, the lazaretto men are notified by telephone, so that they may be at the appointed house at the same time as the others. Then, before starting, a record is taken at the central office of the place to be visited, the hour of starting, and the men detailed; on the return of the men, a further record is made on the same blank of the hour of return, the apartments disinfected, the articles removed for disinfection, the amount of disinfectants used, the kind of disinfectants and any other details which may be necessary. This blank is afterwards verified by the visit of an inspector, who travels from place to place on a bicycle. After his verification has been obtained, the record blank is filed in the department. When the work of the day is concluded, the men wash face and hands in a corrosive solution, strip to the skin, put away their fatigue uniforms, step under a shower bath, don their street costumes and go home.

The method of disinfecting a room is worthy of consideration. The central and the lazaretto men meet at any house designated. The central men, having put on their sterilized suits, proceed to the infected apartment. If the floor be carpeted, they first spray with corrosive solution, 1 to 500, combined with chloride of sodium, so that no dust may arise. Then the carpet is removed, the floor being continually wet under it during the process of removal. If a bare floor exist, it is immediately drenched with a plentiful supply of 1 to 3,000 corrosive, combined with hydrochloric acid. All carpets, bedding, mattresses, portières, curtains, clothing or anything of like nature are rolled up in sterilized sheeting and given to the lazaretto men, to be removed by them and treated at their own building. The central men then thoroughly drench the walls with corrosive (1 to 500) and chloride of sodium. This drenching is done with a small hand-pump which should have been enumerated with the contents of the cart. After the drenching, a vigorous scrubbing takes place, and, if need be, a vigorous scraping also. Each chair is taken to the tub and thoroughly scrubbed with the solution. Stuffed furniture is treated with the corrosive and sodium chloride solution, which they consider harmless. Metal articles, such as brass beds, are rubbed over with a phenic-acid solution. Water-closet bowls are swabbed out with slaked lime. Landlords are then obliged to paint, paper and whitewash the rooms at their own expense.

The thought occurred to me, that perhaps our people might object at first to such thorough measures, and I, therefore, asked Dr. Gualdi whether he ever met with opposition. "Oh, yes," said he, "we used to meet with clubs in the beginning, but we persevered, and now the people send for us and are willing to pay. This is notably the case in tuberculosis, where we often disinfect a number of times during an illness."

When the men employed at the lazaretto disinfecting plant arrive in the morning, they enter an outer room, strip to the skin, pass through a second room into a third, where they put on a blue blouse and pantaloons which are worn all day. They receive a freshly-sterilized suit every morning. When they are ready to leave at night, they strip in the inside room, wash face and hands in a corrosive solution (1 to 1,000), then pass into the middle room, where they take a shower bath of fresh warm water, resume their street dress in the outer room and go home.

The lazaretto disinfecting plant contains two steam boilers, a receptacle for phenic-acid solutions, a stone vat for corrosive solutions, arranged so that the articles may be thrown into it in the infected apartment and removed on the other side of the partition, a small, tight apartment for sulphur fumigations, various vessels for cleansing purposes and a complete washing and ironing department.

They place great reliance on their steam sterilizers and work them scientifically. According to Geneste, twenty-

five minutes at 100° to 120° C. were only required in these boilers to destroy all germs. After a number of experiments, however, they have come to the conclusion, in Rome, that sixty minutes should be given to each sterilization. Attached to each boiler is an instrument which records on a chart the number of minutes consumed during each sterilization and the pressure during that time. There are, also, two instruments, either one of which is used for determining the degrees of heat. One is a thermometer which is placed in the very centre of the articles to be disinfected. This is so arranged that when the column of mercury pushes up to 120° C., a metallic circuit is completed and a bell is rung. The other is an ordinary spring clothes-pin, jaws pressed apart and held so by a clamp composed of an alloy which fuses at any point from 90° to 120° C., according to its composition. When the desired heat is reached, the clamp dissolves and releases the pin, which springs back into position and rings a bell. As soon as the bell announces that the maximum heat desired has reached the centre of the mass of bedding, or whatever may be in the boiler, the recording apparatus is attached and the chart must then record a duration of sixty minutes at a uniform pressure of eight atmospheres. Whenever handkerchiefs, bed linen, nightdresses or any articles for personal use are spotted with fecal matter, sputum, blood or pus, they are not only treated with steam, but the spots are carefully scrubbed in various disinfecting solutions. Permanganate of potassium is frequently used for this purpose. Many of such articles are thrown into the corrosive vat (1 to 500) and there kept for six hours. They are then put into vessels constantly filled with fresh, running water. They are afterwards bleached in vessels containing soda lye, heated to 100° C., and finally washed in large iron tubs, attached to a steam belt, and so arranged that they have a churning and an oscillating movement at the same time. Shoes are dipped into a phenic-acid solution, and great care is taken that the soles are thoroughly treated. Sulphur fumigations are reserved for valuable furs, and such things as cannot be treated in any other way.

The lazaretto proper is under the care of the Sisters of Charity. No hired attendants are allowed within its walls. The nuns, themselves, do everything from the lowest kinds of menial work to the highest form of nursing. Those nuns who have patients under their care are necessarily quarantined until their wards are empty. The physicians also live in the hospital and remain isolated during their term of duty.

As with us, they treat, principally, diphtheria and scarlatina. Measles and typhoid are, however, frequently under treatment. For both of these diseases, the disinfecting regulations are enforced. Glanders is sometimes met, and for this there is a special disinfection of apartment, consisting of a drenching with phenic acid and a rubbing down of the walls with quicklime. In the treatment of diphtheria, antitoxin is always used. They have it in three strengths, and commence their treatment with the weakest serum, repeating every three hours and gradually increase the strength until they get an effect. As soon as the patient enters the hospital, a culture is taken. If the case be a favorable one, another examination is made a few days after. If, after the clinical symptoms have disappeared, a negative culture be obtained, the patient is kept for about eight days. If another negative culture be obtained at the end of that time, a transferral to the convalescent ward takes place. A discharge from this latter place is expected in ten days more, provided there be no relapse. Scarlatina takes a malignant form and is much dreaded. Special precautions are taken in its treatment and the general tendency is toward recovery, unless there be an ensuing nephritis. In order to guard against all danger, patients are kept for forty days after desquamation has ceased.

Unfortunately, my time was so limited that I was unable to enter into any investigations as to plumbing regulations. These to me, however, form a most important part of public health work in our large American cities. Mayor Quincy partially recognized this fact last year, when he

appointed a sanitary commission to examine into the condition of our public schools. And no one, who read the very excellent report of this commission, could doubt the wisdom of its appointment, or the practical science of its members. I find, by a recent number of the *New York Herald*, that that paper is following along the same line in its own city. An editorial (December 26, 1896) says:

"The inquiry which the *Herald* has been making through the aid of plumbers, physicians and sanitarians begins to reveal the immense importance and practicability of making a new departure in city hygiene."

Our people do not sufficiently realize the great change which has taken place in the conditions of life in our cities, during the last twenty years. The character of our immigrants has completely changed. A few years ago our incoming population consisted of English-speaking people, with an admixture of Germans and some French. As soon as they reached this country, they either entered domestic service, or joined foreign-born friends, who had already acquired the rights of citizenship. They thus became rapidly fused into the homogeneous mass. Now, however, we have in every city its distinct "quarters." Chinese, Armenians, Italians, Portugese and Poles herd by themselves, and limit themselves to an area of a few squares. This herding means a great increase in tenement-house living. A few years ago, also, there was great demand for small houses in the suburbs; to-day, even in those very suburbs, apartment-houses are springing up in every direction. Practically, another form of tenement-house living. Again, an excess of population in certain districts necessarily causes an overcrowding of the public schools. This overcrowding causes two evils: First, an assigning to the rooms in the schools already existing, more scholars than they can properly accommodate, and, secondly, the hiring of outside rooms which are totally unfitted for the purpose.

All these things (and many more, had I the space to detail them) prove the necessity of the supervision of a practical sanitary engineer. A thoroughly-grounded sanitarian is as necessary to-day on the boards of health of our large cities as a physician. And it is not sufficient that such a man should be a subordinate. No professional man, hampered by superiors, who have not his special knowledge, can do himself full credit. He should have, to be effective, an equal voice in all deliberations of the board, and an equal vote in all its decisions and regulations.

As far as the efficacy of the sanitary regulations enforced in Rome is concerned, some progress has already been noted. Scarlatina has diminished in its number of cases, and its mortality. As in all other cities, since the advent of bacteriological examinations, the number of cases of diphtheria reported is as great, but the mortality is much decreased. Cholera and variola, as I have before stated, no longer exist. Tuberculosis, though never the dread enemy that it is with us, has been sensibly and favorably affected.

Why not, then, try in our own city some of the measures that have been successful in other places? Two objections might be encountered: the lack of money and the opposition of the people. As for the first, there is no way in which money can be so well used by a municipality as in securing the health of its citizens. The principal opposition would be on the part of tenement-house landlords. They would soon discover, however, that the money needed for repairs after a disinfection, would be but trifling when compared with the loss caused by an unrented apartment. As for the disinfection and washing of the clothes of tuberculous patients, I believe that a department for such a purpose would pay for itself, and would be eagerly sought by those having such patients under their charge.

Very truly yours, WM. G. MACDONALD, M.D.,
Formerly City Physician of Boston.

RÖNTGEN-RAY EXPERIMENTS. —The Prussian Government is reported to have appropriated \$12,000 for Röntgen-ray experiments during the current year.

METEOROLOGICAL RECORD

For the week ending January 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-		Relative		Direction		Velocity		We'th'r.		Rainfall in Inches.		
	meter.	eter.	humidity.	of wind.	of wind.	We'th'r.	of wind.	of wind.	We'th'r.	of wind.				
Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.				
S..17	30.17	35	41	29	74	87	80	S.	S.E.	4	18	C.	C.	
M..18	29.62	35	52	18	87	63	75	S.W.	W.	14	28	O.	C.	.25
T..19	30.36	10	18	2	13	53	33	N.W.	W.	18	8	C.	C.	
W..20	30.52	16	27	6	42	93	68	W.	S.E.	5	14	C.	N.	
T..21	29.68	38	49	27	95	84	90	E.	W.	29	13	R.	O.	.66
F..22	29.68	36	40	32	61	57	59	W.	S.W.	16	11	C.	O.	
S..23	29.62	30	36	23	55	64	60	W.	W.	17	19	O.	C.	.08

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 23, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	703	236	10.92	14.14	1.40	.84	12.71	
Chicago	1,619,236	434	194	15.87	24.38	9.43	2.30	2.53	
Philadelphia	1,164,000	—	—	—	—	—	—	—	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	207	55	5.76	18.72	.96	.96	1.92	
Boston	494,205	200	56	10.50	23.00	1.00	2.00	4.00	
Baltimore	496,315	172	49	15.08	12.76	3.48	1.16	7.54	
Cincinnati	326,000	—	—	—	—	—	—	—	
Cleveland	314,537	89	24	6.72	6.72	—	—	3.36	
Washington	275,500	120	38	3.40	28.90	—	.85	—	
Pittsburg	238,617	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	28	12	10.70	64.26	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	30	18	16.66	16.66	—	—	3.33	
Fall River	88,000	36	12	19.39	16.66	11.08	2.77	2.77	
Lowell	84,358	32	10	15.65	25.00	6.26	3.13	—	
Cambridge	81,519	32	9	21.91	6.26	6.26	—	9.39	
Lynn	62,355	10	2	30.00	5.00	—	15.00	5.00	
New Bedford	55,254	15	6	6.66	6.66	6.66	—	—	
Springfield	51,534	12	1	—	8.33	—	—	—	
Lawrence	52,153	—	—	—	—	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,337	10	6	10.00	10.00	—	—	10.00	
Brockton	33,167	—	—	—	—	—	—	—	
Haverhill	30,185	14	5	—	28.56	—	—	—	
Malden	29,709	9	1	—	22.22	—	—	—	
Chelsea	31,295	16	6	18.75	—	—	—	12.50	
Fitchburg	26,394	13	6	7.69	7.69	—	—	7.69	
Newton	27,122	9	3	11.11	—	—	11.11	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	5	1	—	—	—	—	—	
Waltham	20,877	3	0	—	33.33	—	—	—	
Quincy	20,712	5	1	—	40.00	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	—	—	—	—	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	8	4	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,310; under five years of age 783; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 263, acute lung diseases 247, diphtheria and croup 85, diarrheal diseases 72, scarlet fever 19, cerebro-spinal meningitis 19, measles 14, whooping-cough 14, erysipelas 8.

From scarlet fever New York 13, Boston 3, Chicago, St. Louis and Baltimore 1 each. From cerebro-spinal meningitis New York 7, Washington 3, Providence and Worcester 2 each, St. Louis, Baltimore, Boston, Cambridge and Lynn 1 each. From measles New York 5, Chicago 2, Baltimore, Boston, Worcester, Lowell, Cambridge, Lynn and Somerville 1 each. From whooping-cough New York 4, Cleveland 3, Chicago 2, St. Louis, Balti-

more, Fall River, Lowell and Chelsea 1 each. From erysipelas New York and Chicago 2 each, St. Louis, Baltimore, Boston and Providence 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending January 16th, the death-rate was 19.2. Deaths reported, 4,055: acute diseases of the respiratory organs (London) 306, whooping-cough 90, diphtheria 77, measles 73, diarrhea 49, fever 45, scarlet fever 44.

The death-rates ranged from 9.1 in West Ham to 28.3 in Plymouth: Birmingham 22.2, Bradford 16.0, Croydon 16.4, Gateshead 22.7, Hull 18.3, Leeds 20.5, Leicester 15.9, Liverpool 25.1, London 18.0, Manchester 22.3, Newcastle-on-Tyne 17.7, Nottingham 23.3, Sheffield 20.3, Swansea 19.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 23, 1897, TO JANUARY 29, 1897.

MAJOR CLARENCE EWEN, surgeon, having served over thirty years in the Army, is, on his own application, by direction of the President, retired from active service this date, January 26, 1897.

Leave of absence for one month, to take effect about the first proximo, is granted CAPTAIN WILLIAM O. OWEN, assistant surgeon, Fort Bayard, N. Mex.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 30, 1897.

C. E. RIGGS, assistant surgeon, detached from the "San Francisco" and ordered to the "Detroit."

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 8th, at 8 o'clock.

Dr. Charles H. Williams will read a paper entitled: "Standards of Form and Color Vision in Railway Service." Discussion by Drs. B. J. Jeffries and O. F. Wadsworth.

Dr. Howard A. Lothrop will read a paper entitled: "Emphysema of the Antrum of Highmore, a New Operation for the Cure of Obstinate Cases." Discussion by Drs. J. W. Farlow, A. Coolidge, Jr., J. P. Clark and F. C. Cobb.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

NEW YORK STATE MEDICAL ASSOCIATION, FIFTH DISTRICT BRANCH.—The thirteenth annual meeting of the Fifth District Branch of the New York State Medical Association will be held in Brooklyn on Tuesday, May 25, 1897. All Fellows desiring to read papers will please notify

E. H. SQUIB, Secretary, P. O. Box 760, Brooklyn, N. Y.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, February 11th, at 8 P. M., by PROF. T. DWIGHT. Subject: "The Reconstruction Method in Human Anatomy." Illustrated by the reconstruction of several viscera. The profession are invited.

RECENT DEATH.

SIR SPENCER WELLS, of London, died at Antibes, France, in the seventy-ninth year of his age.

BOOKS AND PAMPHLETS RECEIVED.

Modern Surgical Dressings. By F. B. Kilmer. Reprint. 1897.

Diastase in Therapeutics. By C. C. Fite, M.D., New York. 1897.

A Case of Paralysis of the Fifth Nerve. By W. R. Gowers, M.D., F.R.C.P., F.R.S. Reprint. 1897.

Remarks on the Management of Glaucoma. By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1896.

Colono-Enteric Irrigation in the Treatment of Intestinal Obstruction. By Edwin Pynchon, M.D., Chicago. Reprint. 1896.

Annual Reports of the President and Treasurer of Harvard College, 1895-96. Cambridge: Published by the University. 1897.

Twentieth Century Practice, An International Encyclopedia of Modern Medical Science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume X. Diseases of the Nervous System. New York: William Wood & Co. 1897.

Original Articles.

TWO CASES OF LAPAROTOMY FOR ACUTE INTUSSUSCEPTION.¹

BY J. COLLINS WARREN, M.D.

THE following reports of two cases are submitted to the Society as examples of successful treatment of this affection by opening the abdominal cavity and reducing the invagination by taxis. The medical features of the cases will be described by Drs. T. M. Rotch and C. P. Stickney, who have kindly furnished me with notes. The salient points in diagnosis, as presented to my mind, were the sudden onset of the symptoms, the presence of a tumor, and the bloody mucus which was discharged. In neither case could the tumor be felt by the rectum.

The question of laparotomy for intussusception is one which can be discussed with profit at the present time, and it is for this purpose that those two cases are reported this evening.

CASE I. (Seen with Drs. Reid and Rotch.) F. C., male, six years old. General health good. Was attacked at 7 A. M., April 11, 1896, with severe abdominal pain, coming on every five or ten minutes, and accompanied by small movements from the bowels, at first fecal in character, but later of clear blood. A dose of medicine given by his mother was followed by excessive vomiting. The movements later contained blood-stained mucus. The extremities were cold. The pulse was slow. The temperature at 4 P. M. was 97° F. There was much prostration.

The attacks of pain and the movements from the bowels lessened in frequency in the afternoon, and there was no vomiting after 1 P. M. The pulse, which was 60 and intermittent when taken by Dr. Reid at 4 P. M., was 84 and strong at 8.30 P. M. Dr. Reid was first able to feel a tumor in the left side of the abdomen at 4 P. M.

The tongue was slightly coated.

The boy was seen by Dr. Rotch, in consultation with Dr. Reid, at 9 P. M.

The rectal examination was negative.

The abdomen was soft and resonant, except in the left hypochondrium, where there was dullness corresponding to a hard mass, apparently the colon.

Dr. Reid's diagnosis of intussusception was confirmed by Dr. Rotch.

April 12th, at 2 A. M., laparotomy was performed, nineteen hours after the first symptoms, and an extensive invagination of the transverse colon into the descending colon was found and reduced. There was much congestion, but there were no adhesions.

The operation consisted in an incision on the median line, about five inches in length, which was subsequently joined by a transverse incision on the left side about two and one-half inches opposite the umbilicus. The tumor was readily grasped, but was with difficulty brought into view, owing to the shortening of the mesocolon. The intussusceptum being finally held by the thumb and forefinger of the left hand, gentle traction was made upon the intussusciptiens by the right hand which enveloped the tumor. By alternate traction and compression the intussusceptum was gradually delivered, and found to be in the condition above mentioned. The bowel was replaced

and the peritoneum was carefully stitched with catgut. The divided rectus muscle was also sewed separately. The skin and linea alba were then approximated by silk sutures. The patient bore the operation well. Convalescence took place without any accident of special interest, the wound healing by first intention. The patient has been well since and has worn an abdominal supporter with a pad made to fit the wound.

CASE II. (Seen with Drs. Stickney and Rotch.) S. S., age nine months, male. Until present attack always well. Always nursed.

First seen by Dr. Stickney May 22, 1896. Irritable in the morning and vomited the breast-milk at noon. Following this had a semi-solid movement of the bowels, with a small quantity of bloody mucus. In the afternoon restless, and had sharp, short attacks of abdominal pain, drawing up his legs. At 8 P. M., had a large, watery movement, with considerable blood and mucus; and during the night the pain and restlessness continued every quarter- or half-hour, lasting about one minute. It would roll and writhe about, and beads of perspiration would stand out on forehead and face. Between the attacks it seemed exhausted.

May 23d. The watery movements with blood and mucus continued. Quieter than on previous day, and remained so until late in the afternoon. The physical examination was negative until about 6 P. M., when a distinct tumor could be felt to the left and a little above the umbilicus. The tumor was somewhat larger than a large olive, and slightly tender. Rectal examination negative. Diagnosis, intussusception.

The case was seen by Dr. Rotch, in consultation with Dr. Stickney, on the evening of May 23d. Temperature on May 22d, P. M., 100° F.; May 23d, A. M., 100.5° F. Pulse 130, good strength, regular; respiration slightly accelerated. Tumor distinctly felt in left side of abdomen, but not by rectum. Dr. Stickney's diagnosis confirmed.

May 24th. One A. M. Laparotomy about forty hours after first symptom.

An incision, almost four inches in length, was made on the median line, starting from above the umbilicus and skirting around its left margin. The hand introduced into the abdominal cavity easily grasped the tumor in the left hypochondrium. It was gradually drawn forward and brought into view. The intestines appeared to be in good condition and there were no adhesions. The invagination appeared to be at the junction of the transverse and descending colon. The tumor thus found appeared to be about six inches in length. Reduction was effected in the following manner: The right hand grasped the intussusciptiens, the little finger overlapping and exerting compression upon the apex of the intussusceptum. The neck of the intussusceptum was held firmly between the thumb and forefinger of the left hand and the intussusciptiens was gently pulled upon by the right hand, which at the same time exerted light compression upon its contents so as to push them out. After a few minutes' manipulation of this sort, as the bowel did not unfold, the finger was introduced and swept around the ring, through which the bowel entered the invagination, so as slightly to compress it and reduce the swelling at the outlet. After further taxis the bowel gradually unrolled itself. At no time was any traction made upon the intussusceptum. The loop of bowel, which appeared to be uninjured, the only change apparent, being a slight thickening of the mesentery, was re-

¹ Read before the Boston Society for Medical Improvement, November 2, 1896.

turned to its normal position, and the abdominal incision was closed. The time of the operation did not exceed thirty minutes, and was probably somewhat less than that. A laparotomy dressing was applied.

The bowels were moved on the second day after the operation. The temperature did not rise above 102° F., and the stitches were all removed, and the temperature was normal on the thirteenth day after the operation.

In reporting these two successful cases, I do not wish to be considered as advocating the operation in all cases. To what extent this method should be employed, and in what class of cases the treatment by enemata should be resorted to, are points which I trust will be brought out during the discussion this evening.

ACUTE INVERSION OF THE UTERUS FOLLOWING DELIVERY OF PLACENTA.¹

ABDOMINAL SECTION, REDUCTION, RECOVERY.

BY D. J. BROWN, M.D., SPRINGFIELD, MASS.

THE case which I desire to present to your attention is one of acute inversion of the uterus.

The patient, Mrs. R., white, aged thirty-five, married, mother of five children, oldest twelve years, youngest eight days. All labors were reported as being difficult, though not instrumental. No puerperal complications had existed. Menstruation at the age of fourteen, and no trouble since. Health had been fairly good. Tuberculosis on mother's side.

Present History.—First saw the patient eight days after the delivery of her last child, and obtained the following history: Pregnancy advanced to the full term without any complications; health good during that period. Labor lasted seven and one-half hours, and was the same as all others with the exception of delivery of placenta. In this the attending physician experienced considerable difficulty, and at last resorted to great traction on the cord. Upon delivery of placenta the uterus immediately followed. This was followed with severe post-partum hemorrhage and collapse. At the time of my visit the following conditions were noted: A patient quite anemic, with loss of appetite, severe cough, papular eruption on trunk and lower extremities; temperature 103.5°, pulse 120, and of poor quality.

Examination *per vaginam* revealed a rounded, dark-colored, roughened mass, which bled very easily when touched. There was considerable discharge and some odor. An attempt under ether was made to reduce it, but it was found impossible, on account of almost complete involution of the cervix having taken place, the hemorrhage produced and the poor condition of the patient. Forceful reduction at that time would mean rupture of the uterus, on account of its spongy condition. Twenty-four hours later, and with the patient's condition improved, abdominal section was performed. The cervix was dilated, pressure and internal counter-pressure were applied, and after twenty-three minutes the uterus was returned to its normal position without injury to it or surrounding parts. A stout silk suture was then passed through the uterus, brought out through the muscular layer of the abdominal wall and ligated. The wound was then closed with deep and superficial sutures, dressings and bandage applied.

Next the uterus was thoroughly curetted, irrigated with bichloride solution (1 to 2,000), and packed with sterilized gauze drain.

After-Treatment.—During the first twenty-four hours, patient was given nitroglycerin, gr. $\frac{1}{100}$, and strychn. sulph., gr. $\frac{1}{20}$, every three hours; the total amount of brandy in twenty-four hours, eight ounces. At the end of twenty-four hours gauze drain was removed, and intra-uterine douches, bichloride (1 to 2,000) given once in four hours; catheterized once in six hours.

Second day. Calomel (five doses, one grain each) was given every hour, followed by magnesia sulph., one drachm every hour, until decided results were obtained. Brandy and strychn. sulph. still continued (brandy increased to twelve ounces). Beef extract and milk with lime-water. Quinine sulph., two grains every four hours. Still catheterized. Cough troublesome, odor very slight. Morning temperature 100.5°, pulse 100; evening temperature 104°, pulse 120.

Third day. Bowels moved quite freely. Stimulants and nourishment practically the same. Morning temperature 100.3°, pulse 108; evening temperature 103.2°, pulse 120. Coughed less during the night. Catheterization stopped.

Fourth day. Morning temperature 99.5°, pulse 80; evening temperature 101.5°, pulse 102. Douche still continued, odor ceased, discharge diminished. Brandy diminished by four ounces.

Fifth day. Evening temperature 100.2°, pulse 94. Diet, egg-nogg with whiskey, one-half ounce every two hours. White of egg with lemon-juice. Beef-juice, one and one-half ounces three times daily. Strychnia, gr. $\frac{1}{20}$, still continued. Bowels still moved quite freely.

Sixth to ninth day. Improvement gradual. Brandy now diminished to four ounces in twenty-four hours. Elix. calisayæ, ferri et strychn. was now given, one drachm three times daily. Diet increased.

Tenth day. Deep sutures removed. Improvement continued.

Twelfth day. Morning temperature 98.4°, pulse 80; evening temperature 99°, pulse 88. Superficial sutures removed. Wound well healed, rash almost entirely disappeared, patient's condition very good. From this time on recovery uninterrupted.

ETIOLOGY.

"As regards the etiology of this accident, Buchler considers its chief factors are the relaxation of the walls of the uterus, the enlargement of its cavity, and a power which, acting upon the uterus, either from without or within, forces the uterus downwards." This becomes evident when it is noted that the accident almost always occurs immediately after the expulsion of the child and during the delivery of the placenta, through forcible attempts to deliver the latter, either by forcing down the fundus or by pulling upon the cord, especially when it is unusually short. The latter was the cause in the case under discussion.

Prof. Barton Cooke Hirst has had experience in three cases. He thinks it almost invariably caused by traction upon the cord or by the manual removal of the placenta. In one of his cases the womb was turned inside out by the suction of his hand, with the placenta grasped in it. He had loosened it from the uterine wall to which it was adherent, and he states that up to this time the walls of the uterus were in

¹ Read before the Hampden Medical Society, October 20, 1896.

their normal position; but directly after he withdrew his hand, he found the womb completely inside out.

Inversion may also occur when the walls of the uterus are released. Rokitansky has called attention to the fact that inversion often begins at the placental site.

When flaccidity of the uterus is extreme, a strong pressure of the intestines may produce inversion. Denucé thinks when the uterus is contracted an increased intra-abdominal pressure can cause inversion. Buchler denies this, and cites the theory of Bradford and Tyler Smith who found the cause of inversion to be activity of the inverted part with simultaneous flaccidity of the parts beneath.

This theory was rejected by Duncan and Spiegelberg, who believed that the inverted part was always passive, and that by pressure exerted upon the fundus from without, and by the intestines or by the hand forcing it down, or by dragging upon the placenta by the cord, the uterus could be inverted. When the flaccid part of the walls of the uterus is inverted, its uninverted body will be called in action and propel the uninverted parts downwards.

Thomas says: "Every influence which destroys the tone and resistance of the uterine parenchyma proves a predisposing cause of the condition." As examples, he mentions: (1) parturition, (2) distention of uterus by retained fluids, (3) distention of uterus by tumors. And among the exciting causes he mentions, (a) traction on placenta, (b) traction by polypi or tumors, (c) sudden delivery of child by traction, (d) muscular movements when relaxation exists.

DEGREES OF INVERSION.

Writers describe three degrees of inversion. In the first the fundus, or any other part of the body, is simply turned inside out, but has not yet come through the os internum. In the second the body has appeared at the os in the vagina. In the third the organ has passed the *rima vulvæ*, the inversion being then complicated with inversion of the walls of the vagina. This latter condition existed in the writer's case.

SYMPTOMS.

The chief symptoms of complete inversion occurring after delivery are discomfort about the vulvæ, faintness, nervous disturbance, hemorrhage and collapse.

Should no diagnosis be made at the time of the accident, and the case drag along until the condition becomes chronic, the following symptoms will manifest themselves:

- (1) Occasional or constant hemorrhage.
- (2) Dragging pains in back and loins.
- (3) Difficulty in locomotion.
- (4) Difficulty in defecation and micturition.
- (5) Anemia and its accompanying evils.

DIAGNOSIS.

The diagnosis of recent puerperal inversion is very easy, especially when the placenta remains attached. However, cases have been reported in which the inverted mass was mistaken for the head of another child, for the placenta, or for a polypus. Between this latter complication and inversion, the following are diagnostic points:

(1) The circular, not lateral, implantation of the pedicle.

(2) The opening of the tubes upon the inferior portion of the tumor.

(3) The special sensibility, sometimes accompanied by special contractility, that it offers to pressure and to acupuncture.

(4) The half reduction which can always be made in inversions, never in polypi.

(5) The absence of the uterine fundus from its ordinary place, ascertained by rectal and vesical examinations.

In the writer's case, two of these conditions were absent, namely, sensibility and contractility.

If it be fibroid, the probe will show increase of uterine cavity; it will have come on gradually; it will have no reference to parturition.

PROGNOSIS.

According to Crosse, one-third of the women with puerperal inversion of the uterus die either immediately or within a month. Such a mortality undoubtedly stamps inversion of the uterus as one of the gravest accidents of labor. In 72 of the 109 fatal cases collected by him, death occurred within seventy-two hours, usually within half an hour. Crampton, in 1885, collected 120 cases. There were 89 recoveries, 32 deaths, and one remained unrelieved. Winckles states that in 54 recent cases only 12 died.

MODES OF DEATH.

Death may occur from shock or from hemorrhage. It may also occur from incarceration of a loop of the intestines in the inverted uterus, from peritonitis, from puerperal infection, or from gangrenous inflammation of the uterus. In very rare instances recovery has followed the separation by sloughing of this organ, and spontaneous restoration has taken place. Ten such cases have been recorded.

TREATMENT.

Prophylaxis is of primary importance. Let the recumbent position be insisted upon during delivery. If you recognize brevity of the cord, promptly divide it. In delivering the placenta, make no traction upon the cord, unless it be during a pain. Again, in expelling placenta endeavor to have pressure equal on all sides.

After inversion takes place, and should placenta be attached, all operators now agree that before attempting reduction the placenta should be detached.

In regard to controlling the hemorrhage, many remedies are advocated; among others alum, tannin and persulphate of iron. The writer would suggest packing the vagina firmly with sterilized gauze.

Reduction should be attempted as soon as possible, especially before contraction of the os and swelling of the fundus takes place. When reposition is impossible and the condition of the patient becomes unfavorable, reduction after the manner suggested by Thomas, together with ventrofixation seems to me the most favorable. Should this method be found impossible, nothing is left but amputation.

PLAGUE AND PROTECTIVE SERUM INJECTIONS. — Professor Haffkine is reported to have produced an attenuated plague virus which is credited with being protective against the disease. No details have yet been published respecting the methods he employs.

AN ACUTE SYPHILITIC AFFECTION OF THE EAR.¹

BY E. A. CROCKETT, M.D.

VERY little attention is paid to the syphilitic affections by any of the recent text-books on the ear, and such space as is devoted to the subject is given to the consideration of the skin lesions or the chronic bone lesions about the stapes or in the labyrinth. The general consensus of opinion seems to be that aural manifestations of this disease are rare, and relatively unimportant. This is, I am sure, a mistaken idea, for I readily found some 15 or 20 cases of this particular lesion, of which I am to speak, in about a year after my attention had been specially directed to the search for them. I do not doubt that every clinic contains many unrecognized cases of various phases of otitic syphilis, some of which endanger the other patients in the clinic.

Concerning the particular lesion of which I am to speak to-night, almost nothing is to be found in aural literature, although the significance of the group of symptoms has been recognized for a long time. I may best define these symptoms by giving one or two histories:

CASE I. A man forty years old, with no previous ear trouble, had syphilis about six months ago. He had never received any treatment, but has had no symptoms since the disappearance of the skin eruption some three months ago. Three weeks before I saw him, he began to have ringing in the ears, which gradually increased in severity until it became very loud; at the same time a deafness began, which in the course of a week became practically complete. At the same time he had a slight vertigo so that the gait was somewhat unsteady in walking. When I first saw him, three weeks after this, his deafness was practically complete, the hearing tests being

Watch: right, $\frac{c}{60}=0$; left, $\frac{c}{60}=0$.

Voice: right, $\frac{1}{5}$; left, $\frac{1}{5}$.

Tuning-fork C, 512 v. s.: right, $\frac{8''}{b.c.}$; left, $\frac{10''}{b.c.}$.

Upper Limit: right, Galton 2.9; left, Galton 2.6.

Lower Limit, 64 v. s.: heard with both ears.

The tinnitus and vertigo, were at this time very marked.

CASE II presents some points of difference. G. E., twenty-eight years old, had syphilis three years ago, and received treatment for a year, since which time, having no further symptoms of the disease, he took no medicine. Five weeks before I saw him he had a severe cold in the head, which went away very suddenly, leaving him totally deaf. The onset of this deafness was exceedingly acute; he went to bed with his ear feeling "stuffy," and woke up absolutely deaf, and with severe vertigo and vomiting. In the next five weeks he took treatment with his family physician, without improvement. He remained very deaf; his vertigo was so severe that, to use his own expression, he was afraid to walk alone for fear of being arrested for drunkenness. He had at all times a sound like a sea-shell in his ears, and at times a clear ringing sound. At the time I saw him he staggered perceptibly to the left in walking; but a careful examination failed to reveal any other trouble than that of the auditory nerve. Both membranæ tympani were clear and transparent and in normal position. The hearing test was

Watch: right, $\frac{c}{60}=0$; left, $\frac{c}{60}=0$.

Voice: right, $\frac{2}{5}$; left, 0.

Tuning-fork C: right, $\frac{10.5''}{b.c.}$; left, $\frac{9''}{b.c.}$.

Weber Test: fork heard in right ear.

Unfortunately no test of the upper and lower tone limits was made in this case.

CASE III. A man thirty-five years old, had syphilis six months ago, and had been under careful treatment from the time of the initial lesion. The skin eruption and other secondary lesions had been very slight indeed. Ten days before I saw him, he had begun to notice difficulty in hearing, which rapidly increased, accompanied by violent vertigo and tinnitus, until in the course of two or three days he became so deaf that he was unable to carry on his business. At this time he was taking iodide and mercury in full doses. On examination, no trouble with any other part of the nervous system was discovered, the drum membrane was clear, transparent, and in normal position. His chief complaint was of dizziness and a very loud tinnitus. The hearing test was

Watch: right, $\frac{c}{60}=0$; left, $\frac{c}{60}=0$.

Voice: right, $\frac{1}{5}$; left, $\frac{1}{5}$.

Tuning-fork A: right, $\frac{10''}{b.c.}$; left, $\frac{10''}{b.c.}$.

Galton: upper register lost in both ears; lower register 64 v. s., not heard in either ear.

As will be very easily seen, these three cases present a marked similarity of symptoms—very sudden and severe deafness, more or less severe vertigo, and violent tinnitus, occurring in persons previously free from ear trouble. This complex of symptoms should always suggest syphilis, and will be found to be caused by it in the large majority of cases where there has been no previous ear trouble. We do meet the same group in the rare cases of labyrinthine hemorrhage or tumor, and also in the rare sudden fixations of the stapes which occur in the deep middle-ear thickenings. In these cases the history and hearing tests, or in case these fail, the treatment will immediately show us the probable cause.

In this differentiation the test of hearing is especially important. It will be noticed that in all the cases I have quoted, the watch and voice deafness was very marked, and a tuning-fork of the middle register was wholly lost to bone conduction, but remained fair for air conduction. At the same time the upper register as shown on the Galton whistle was more or less diminished, and the lower limit usually remained unaltered. This hearing test is in my experience quite characteristic. On the other hand, a stapes fixation from extension would show a very marked loss of low tones, often as high as 2,000 vibrations a second where the process had extended into the labyrinth sufficiently to involve the upper register. Such a loss of low tones I have never seen in an acute syphilitic process. The acute labyrinthine processes on the other hand, show a marked loss of high tones in all cases, and in the more severe ones a total deafness by both air and bone conduction over a greater part of the register.

The pathological process in these cases is not well understood, as an opportunity for post-mortem investigation is never obtained in the acute form of the disease. In the old syphilitic process we find most commonly periosteal changes about the base-plate of the stapes and that portion of the cochlea in its vicinity, and degenerative tissue changes in the nerve-cells and blood-vessels of the cochlea.

¹ Read before the Boston Society for Medical Improvement, November 2, 1896.

The clinical evidence would seem to be in favor of an effusion into the labyrinth as a cause of the particular group of symptoms we are considering.

The early tertiary or late secondary period seems to be the favorite time for this particular lesion, although some cases are reported as early as the fourteenth day of the disease. In all of the cases I have observed, the first symptoms of the involvement of the auditory apparatus have been from three months to five years after the original infection. In some twenty cases I have never seen one earlier than three months. One case occurred in the course of hereditary syphilis in a child of eight years. Some points in the differential diagnosis are of importance. The majority of the cases that I have seen have had a diagnosis of cranial trouble made, and had consequently been given a bad prognosis; this mistake is not an unnatural one from the fact that, in the mind of the average practitioner, even a high grade of deafness is considered relatively unimportant, and the chief attention is given to the symptom, vertigo. This vertigo and its accompanying nausea is frequently quite severe. In extreme cases, the patient may be confined to his bed for several days, unable to raise his head without vertigo and vomiting; occasionally he will say that he sees double, and even in the less severe forms the patient will stagger perceptibly in walking. There should, however, be no difficulty in establishing the absence of any other cranial lesion, as a careful examination will fail to reveal the implication of any other nerve than the auditory.

As will be observed in two of the three cases quoted, this complication of syphilis frequently comes on in cases that have received careful and thorough treatment; this was especially so in Case III, who had very thorough treatment under a member of this Society from the very start of the disease. Under these circumstances the administration of mercury and iodide to the maximum limit will often be of no avail. Here the subcutaneous administration of pilocarpine up to its full physiological limit will be of great service.

The improvement in hearing and the diminution of vertigo following the administration of this drug is in acute cases little short of marvellous; for example, Case II, when I first saw him, was so dizzy that he was unable to walk to and from his place of business, and his hearing was reduced to zero in one ear, and whispered voice at two twenty-fifths in the other. One injection of pilocarpine (one-sixth of a grain) raised his hearing to ten twenty-fifths, three injections to normal; and at the end of a week, having been given in addition iodide of potassium, he was free enough from vertigo to return to work, which he had not been able to do before for three weeks.

Case III had, in addition to his regular treatment, five or six injections of pilocarpine, which raised his hearing for both tuning-fork and voice to normal, where it now, after the lapse of two years, still remains. The pilocarpine in Case II was continued over the space of two weeks, when his hearing in one ear was normal; the other ear did not respond to treatment. This was about four years ago; he continued treatment with iodide of potassium for about six months, and his hearing at that time was still good in the better ear. Since that time he has neglected treatment both for his ear and for his systemic syphilis; and in a letter received from him some months ago I

was informed that he was practically totally deaf and much troubled with vertigo.

From a fairly large experience in the administration of pilocarpine in these cases I think we may safely conclude that the drug is an absolute specific in all acute syphilitic cases presenting this complex of symptoms; that where the deafness and vertigo have persisted for over a month, the prognosis is very doubtful; that it is of great value in cases where iodide and mercury are of little avail; but that it has no permanent value, and should be used in conjunction with other syphilitic treatment. In neglected cases where the pilocarpine may have failed to improve the hearing to any appreciable extent, it will almost never fail to relieve the accompanying vertigo.

There is nothing especially new about the pilocarpine treatment; but it certainly is a very valuable drug, and its use has been curiously neglected. I have for two or three years used it as a routine treatment in all cases of progressive deafness and obstinate vertigo and tinnitus which I have seen in my service at the Eye and Ear Infirmary; but although very favorable reports by eminent aural authorities on the use of this drug in other than syphilitic cases have been published from time to time, I have, in over a hundred administrations of the drug, never seen a favorable result follow its use in a non-syphilitic case.

STERCORAL ULCER.¹

BY J. G. MUMFORD, M.D., BOSTON.

THE bibliography of stercoral ulcers is scant. Many standard authors do not so much as give it a name. Having had a few cases with similar symptoms suggesting this condition, I have been led to think that this class of phenomena has a greater importance than is credited to it by others.

Of the cases I have observed I shall detail but one, however, which is the most striking and interesting.

Doubtless in recent years, the stercoral ulcer which eventuates in what we call appendicitis has absorbed attention to the exclusion of much else, but that these ulcers are found elsewhere in the intestine there is abundant evidence.

As is now generally recognized, the presence of an impacted fecal mass is the commonest and important causative factor in appendicitis, the usual sequelæ being localized enteritis, swelling, malnutrition, necrosis, ulceration, perforation.

The older medical writers, while failing to recognize the great frequency of these processes in the appendix, did mention them as occasionally occurring in other portions of the intestines, notably at the flexures of the colon, the caput ceci, and the rectum, and referred them to that unusual and rather mysterious disease "mucous colitis," or to chronic constipation. I doubt the importance of the former, but am convinced that a chronic constipation, especially when complicated with a long-continued local impaction, may and does give rise to ulcerations more frequently than the pathologists tell.

Naturally, when impactions, inflammations, necrotic patches and ulcerations in the course of the large intestine do not lie in the cul-de-sac appendix, they often do not result seriously.

¹ Read before the Warren Club, December 1, 1896.

However, that an extensive conflagration may start from such a focus is evident from the following case:

Mr. F. M., about forty-five years of age, has been under my care for a year. His general health has been only fair, though he is a vigorous, well-developed and active man, mentally and physically.

He has been for some ten years subject to occasional attacks of epigastric pain, which sometimes have required up to three-fourths of a grain of morphia to quiet them. A free use of salines has put a limit to each attack, in one of which only had I attended him previous to the illness to be described. He had never been a hard drinker or smoker, though he has been subjected to the ordinary American boarding-house diet. For the past year he has lived in Nahant, and has indulged moderately in the abominable drinking-water of that region.

On the 17th of last August I was called to see him in the afternoon. He was in bed, writhing with pain referred to the epigastrium. His bowels had operated that morning, but he had had much malaise for upwards of two months, owing, he thought, to sluggishness of peristalsis.

His temperature was 100° F., pulse 80. Abdomen soft, face anxious, tongue furred. A doughy mass could be felt, presumably in the transverse colon. This was very tender on palpation. Elsewhere the abdomen was soft and free from pain. I quieted him with a hypodermic of morphia, and ordered an ounce of castor oil, to be repeated in twelve hours. He passed a restless night. The next morning he was still very restless, but somewhat more comfortable; the abdomen was slightly distended.

He had had two enormous solid evacuations of the bowels—"Pounds," his nurse said. With these, however, his general condition did not at once improve, as I had anticipated. The urine was scanty, high, specific gravity 1.036, loaded with albumin and casts.

On the third day there was a change for the worse. Exquisite spasmodic pain in the perineum and the passage of blood were complained of.

There were three or four stools daily, of a gruel-like consistency and muco-purulent character. Small shreds of tissue could be seen in them.

An examination of the lower rectum showed a small hemorrhoid, with the neighboring mucous membrane velvety and intensely congested. Abdominal palpation had become very painful. The knees were drawn up. There was greatest tenderness over the course of the transverse and descending colon.

The face was anxious and the tongue thickly coated with black fur. Enormous eructations of gas were frequent, and there was absolute anorexia. Flatus passed freely; but there was no diminution of the distention. In other words, we had here a marked, acute gastro-enteritis, with possibly a mild peritonitis, and an acute nephritis. The temperature ran along at about 100°, with a fairly steady pulse.

All this went on with but little change till the seventh day. On that day I found the following conditions: Decubitus the same; great restlessness; abdomen enormously distended and tympanitic. In some considerable experience with abdominal surgery, I have never seen such distention. It seemed as though he would burst if touched. The greatest tenderness was still in the region of the splenic flexure; and at this place there was an area nearly as large as one's

palm, of great pain. If possible the distention at this place was more pronounced than elsewhere.

The face was haggard, the mind confused. Vomiting came on in the morning and towards night the character of the vomitus became fecal. At 6 p. m. he regurgitated freely the contents of the jejunum.

In twenty-four hours he had passed twenty ounces of high-colored urine; in which I roughly estimated over two per cent. of albumin. The specific gravity was 1.038, and there were innumerable casts with free blood. The temperature had reached 101° F. The patient would have been pronounced *in extremis* by any tyro.

My only hope clung to a full regular pulse of 90. This was at 6 p. m. Two hours later the pulse became more rapid and irregular—100 to 120. The patient was in mild delirium, and sinking fast. I told the nurse to give him a large hypodermic of morphia—one-half a grain, for he stood large doses—and to make his last moments as comfortable as possible.

I made a midnight visit. He was asleep. There had been no more vomiting. The pulse was steady at 100.

From that time on he began to improve. The stomach began to take care of food, the pain to diminish, the urine to clear up, and the temperature to come down.

The convalescence was rather slow. He had several slight relapses, and the abdominal distention was apparent after four weeks. However, he got well and is now in Europe.

I have described these symptoms in some detail, because the diagnosis was for a time obscure and the course unusual.

Of the initial fecal impaction there was evidence enough. The doughy mass first felt disappeared with the enormous dejections, but the enteritis and gastritis quickly supervened. The presumption is that the onward movement of the foul fecal masses over a sensitive mucous membrane accounts for the implantation of pathogenic bacteria in numbers sufficient to cause a rapidly spreading inflammation. Then, too, a stercoral ulcer at the seat of impaction undoubtedly existed and served as a nidus for fresh infection. It is a well-ascertained fact that such ulcerations are the result of a long-continued irritating impaction. The rapid spread of the inflammation was doubtless due to the man's lowered general condition.

I have said that there was a gastritis also present, and I base my belief in that on the fact that the stomach itself was distended and that the eructations of gas were enormous after the third day. At the same time flatus and feces passed *per anum* until the day of fecal vomiting. The whole course up to that day is certainly not very suggestive of a peritonitis.

Fortunately, there was no autopsy to confirm the diagnosis, but the onset of acute pain in the region of the splenic flexure, the subsequent increased distention, obstipation, and fecal vomiting leave one no other conclusion than that there had been a perforation and a localized peritonitis on that day.

Then there came the usual symptoms of approaching death and the large hypodermic for the relief of pain.

I admit that I had in mind the thought of checking peristalsis by morphia, and possibly assisting self-limitation of the peritonitis; but with almost no hope. From the result I believe the drug saved the man's life.

The question naturally arises, Why did I not do an immediate abdominal section? Because when the evidence of perforation was established the patient was obviously dying, and I was alone in the country, at least two hours from assistance. Ether would certainly have killed him.

There is in all this a curious analogy with the development of an acute appendicitis, but with the important distinction that the peritoneum is not so immediately threatened as in the case of an ulcerative appendicitis.

In the latter case necrosis and perforation into the peritoneal cavity are often rapid and fatal, but, *a priori*, it seems probable that an ulcer of the colon would be so slow in perforating as to give more time for a circumscribing peritonitis.

Certain it is that in my case peritonitis was limited in extent and quickly subsided. The etiology of the condition in this case is interesting. Let me premise this by saying that, in sixteen months, I have seen in Nahant seven cases of fecal impaction and a very unusual number of cases of obstinate constipation, especially in children. I have come to feel that the town water of the region — known as "Marblehead water" — is largely at fault. The exact analysis I cannot give, but it contains a very large proportion of lime salts in solution. It is so "hard," as the term is, that only the boldest can successfully bathe or shave with it.

It has become my routine practice to forbid the drinking of it by children. With this conviction about it in mind, I was much interested the other day to read in the *Lancet* a passage from an article by Lauder Brunton, in which he attributes much constipation to the improper quality of drinking-water as well as to its improper quantity; and he deprecates the use of water from a chalky soil, such water being very conducive to constipation.

In the treatment of this and similar cases it is better to use salines with plenty of water rather than oil or drastic cathartics.

I have usually done so, as the intestinal contents are thus very largely diluted and irritation of the gut is less. Frequently repeated doses of salts in plenty of water has been my rule. In this case I gave oil disguised in paregoric, as the patient was in great pain and I wanted to obtain as soon as possible the soothing influence of that excellent combination. Throughout the course of the disease the further treatment consisted of salol, lithia, milk and champagne, with morphia as indicated.

Clinical Department.

ABDOMINAL HYSTERECTOMY COMPLICATED WITH DOUBLE OVARIOTOMY: RECOVERY.

BY O. J. PFEIFFER, M.D.,
Surgeon to St. Luke's Hospital, Denver, Col.

MY patient Miss —, age between thirty and forty, came to me for examination in May, 1896. She had been examined by me in the spring of 1893, at which time she was (examination without ether) supposed to have three small fibroid tumors of the uterus. Examination now revealed one large tumor, the size of a football, solid to the touch, and a second smaller one, the size of the fist, in front of and

below the first. Both seemed closely adherent to each other, firm on manipulation, and moved with the uterus as one mass. I supposed two of the fibroids found three years before had gone on enlarging, and had obscured the third.

The patient was operated upon at St. Luke's Hospital, Denver, in June, 1896, Dr. E. J. A. Rogers, of Denver, assisting. The patient was in the Trendelenburg position. An incision was made from above the umbilicus to the pubes, and the large tumor on coming into view proved to be an ovarian cyst. In passing the hand around the cyst, to see if adhesions existed, it was ruptured at its pedicle, and a brownish fluid with black flakes escaped into the abdominal cavity. This was rapidly flushed out with sterilized water; and an incision in the collapsing cyst wall drained off the remaining fluid over the edge of the abdominal incision, the cyst wall being drawn up to overhang the abdominal wall. The cyst was freed of adhesions by dissecting off with the thumb-nail about nine inches of small intestine, after which the pedicle could be secured in the usual manner and the cyst wall cut off.

The right side furnished a slightly adhering and easily detached ovarian cyst the size of a very large kidney, which had a pedicle easily ligated and divided. The uterus had attached to its fundus a fibroid tumor the size of a fist, and it was amputated at the level of the internal os in the manner originated by Dr. John Homans, and so clearly described by him in the *Boston Medical and Surgical Journal*.¹ The broad ligaments were tied off as low as possible with two ligatures on each side, one inch apart, care being taken to avoid the bladder; and the broad ligament was divided on both sides between the ligatures; then peritoneal flaps before and behind were made and reflected back. The uterine arteries were ligated by the aid of an aneurism needle; the uterus was divided by a V-shaped cut, forming anterior and posterior uterine flaps, which were sewed together; and the peritoneal flaps were brought together over the stump.

The abdominal cavity was flushed out; the incision was sewed up; gauze and rubber-tube were used for drainage, extending from the fossa of Douglas to the lower end of the incision.

A hand-to-hand fight with shock followed for twenty-four hours in which figured brandy, strychnia, digitalis, nitroglycerine and oxygen, after which the patient rallied and made a steady and complete recovery. The drainage was gradually removed, and the patient was up in four weeks, and in six weeks went East for the summer.

November, 1896. Patient has since returned to Denver, has gained twenty pounds, and is in perfect health.

RESTRICTION OF THE MECCAN PILGRIMAGE.—All the European Governments are thoroughly aroused to the danger of infection, and the powers ruling Mohammedan subjects are placing restrictions upon the pilgrimage to Mecca. The movement of the French subjects in Northern Africa is just now a matter of French legislation, and the Mohammedans in Eastern Europe—in Albania, in Herzegovina, etc.—are being told that restrictions are to be placed upon their intended visit to Mecca. The Indian Government has closed its infected ports to the departure of pilgrims.

¹ Vol. cxxxii, Nos. 10, 11.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

THE TREATMENT OF ECLAMPSIA.

THE International Congress of Gynecology at Geneva¹ discussed the treatment of eclampsia on September 2, 1896.

N. Charles, of Lüttich, after considering the complex character of the affection, stated that he had found in 151 cases a maternal mortality of 24.42 per cent., and one of 41.83 among the children.

Charpentier, of Paris, urged the great importance of careful examination of the urine in pregnant women and in all cases of diminished urine, edema or albuminuria, he would insist on a strict milk diet. If the patient be robust and cyanotic, he would bleed in the presence of eclampsia, and give chloral and milk through a stomach-tube if necessary. Chloroform inhalation and subcutaneous injections of salt solution he also believed of value. Where the patient was not strong and not cyanotic and the eclampsia not severe, chloral treatment would be enough. *Accouchement forcé* or Cæsarian section should only be resorted to in exceptional cases. It is better to wait until the full dilatation of the cervix before completing the labor. The induction of labor should also rarely be resorted to.

Halbertsma, of Utrecht, believed that the most important question to be decided was whether the physician should terminate the pregnancy himself, or wait for nature. He thought that he ought to interfere when the attacks were severe and frequent, or the anuria absolute, or where the labor was difficult or prolonged. He believed in the incision of the cervix in difficult cases.

Veit, of Leyden, said that it was impossible to lay down exact rules for treatment, as we had not sufficient pathological basis to go on. The systematic use of large doses of morphine seemed to him the most satisfactory treatment.

Byers, of Belfast, recommended the use of morphine (thus lessening the chance of bronchial catarrh and pneumonia), elimination by hot baths, etc., and where the conditions were favorable, delivery under chloroform.

Tarnier, of Paris, spoke of the great value of milk diet in prophylaxis of eclampsia, and in all pregnant women where there was nervousness, sleeplessness or headaches. The results in his clinic from 1838 to 1887 showed a maternal mortality of 37 per cent. From 1889 to 1891 he treated the eclamptics with chloroform, chloral and blood-letting, with a mortality of 38 per cent. From 1892 to 1895 he treated the eclamptics with blood-letting, purgatives, chloroform and chloral, and especially with milk (even by stomach-tube, if necessary). The mortality was reduced to nine per cent.; and since January, 1896, no case of death from eclampsia has occurred in his clinic.

Dr. Ferre² reports in detail seven grave cases of eclampsia treated by large subcutaneous injections of salt solution. Mild cases are not included in this list, as will be seen by the fact that the patients suffered

from 11 to 40 complete convulsions and were in uninterrupted coma from thirteen to sixty hours. Only one patient died. The total quantity of salt solution injected varied from 1,600 to 5,640 grammes. Venesection, to 600 grammes, was also practised in these cases. Labor was normal or expedited, but not forced.

J. Clifton Edgar³ believes that in the majority of instances, if not in all, the eclamptic seizure is a preventable accident. He advocates frequent examination of the urine as to its amount, specific gravity, etc., as well as to the presence of albumin. In threatening cases, a milk diet, with eliminative treatment, should at once be instituted. When these methods fail, he believes in rapid and complete dilatation of the os, and delivery.

In the presence of an eclamptic attack he offers for combined treatment three indications:

I. *Control the convulsions.* For this he uses chloroform, veratrum viride and chloral. Morphine he has abandoned almost entirely, believing that it prolongs the post-eclamptic stupor and increases the tendency to death during coma by interfering with the eliminative processes. As regards veratrum viride, he says: (1) This drug reduces the pulse-rate, and convulsions are practically unknown with a pulse-rate of 60 or under; (2) it reduces the temperature; (3) it relaxes and renders more yielding the rigidity of the cervical rings; (4) it causes prompt diaphoresis, and (5) diuresis.

II. *Empty the uterus, under deep anesthesia, by some method that is rapid, and will cause as little injury to the woman as possible.* He believes that those who leave the uterus alone in eclampsia until the os is fully dilated, for fear of precipitating eclamptic attacks by manual dilatation, will see many cases lost that might otherwise have been saved. For the dilatation of the parturient os he recommends especially the bimammary method, which he figures, and he particularly warns against premature extraction of the fetus before full dilatation has been secured.

III. *Elimination of the poison or poisons which we presume cause the convulsions.* Catharsis by the various methods, glonoin, veratrum viride, and the hot-air bath are all used. Pilocarpine, in the presence of an eclamptic attack, he utterly rejects, because of the danger of edema of the lungs and glottis which it may produce. Oxygen, strychnine and alcohol are all of great value.

CARDIAC DISEASE COMPLICATING PREGNANCY.⁴

L. Demelin observed 64 cases of cardiac disease among 5,162 cases of labor in the service of Tarnier. These 64 women had passed through 162 pregnancies, in 107 of which there was no serious accident or symptom attributable to the heart, a percentage of 66.

The accidents that can be attributable to the heart lesions are classified as follows:

	Cases.
Dyspnea (notable or grave)	23
Bronchitis	3
Syncope	7
Edema (marked)	7
Albuminuria (cardiac)	12
Gastro-hepatic accidents	2
Epistaxis and hemoptysis	5
Uterine hemorrhages of pregnancy	9
Post-partum hemorrhages	7

¹ Centralbl. für Gynäkol., No. 39, p. 991.

² L'Obstetrique, November 15, 1896, p. 487.

³ Medical Record, December 26, 1896, p. 913.

⁴ L'Obstetrique, January 15, 1896, p. 41.

Two of the mothers died, a mortality of only three per cent. This small mortality, as compared with that given by other obstetricians, he attributes to the fact that, as a rule, the heart is not examined unless serious, often fatal, heart symptoms exist; and many mild cases of true cardiac disease go through pregnancy and childbirth unobserved.

One of the fatal cases was due to uremic accidents, the other occurred in a rachitic patient with a heart fatty degenerated.

He relates two cases where the patients became cyanotic, with much-embarrassed heart and respiratory action, yet recovered. One of these, so dangerously ill with her first parturition, passed through a second without a bad symptom.

The fatal mortality was 15 out of the 162, including 4 abortions and 11 deaths of premature infants.

The cardiac lesions were as follows:

	Cases.
Mitral insufficiency	22
Mitral stenosis	6
Double mitral	3
Aortic	2
Aortic and mitral	4
Myocarditis	2
Adhesive pericarditis	1

He draws the following therapeutic deductions:

"The mere finding of a valvular soufflé is an insufficient motive for intervention. Conception, childbirth and nursing are possible and even perfectly easy among those with cardiac diseases.

"All essentially depends on two grand conditions: (1) The anatomic-physiological state of the myocardium; (2) the anatomic-physiological state of the large emunctories (liver and kidneys).

"The artificial termination of labor, even the interruption of pregnancy, are demanded in grave cases. But, when menacing accidents appear more or less far from term, and without a spontaneous tendency to the expulsion of the fetus, the following therapeutic means should be followed in turn: (1) Medical and dietetic means. (2) Bleeding, whose powerful action ought not to be misunderstood or neglected. (3) Artificial interruption of pregnancy in the gravest cases."

INDUCTION OF PREMATURE LABOR.

T. Arthur Helme⁵ describes a modification of Pelzer's method of inducing labor by the injection of glycerine. The modification consists of the injection of glycerine into the cervix instead of carrying the syringe tube up into the uterus. His conclusions are (1) that the intra-cervical injection of glycerine produces a rapid and progressive dilatation of the cervical canal; (2) that at the same time the lower pole of the ovum becomes detached from the lower uterine segment; (3) that the intra-uterine injection of glycerine between the detached portion of the membrane and the uterine wall may be carried out without fear of puncturing the membranes or of interfering with the placental attachment; and (4) that labor is effectually induced.

Helme makes repeated injections of 1½ ounces of pure glycerine.

PERIPHERAL NEURITIS IN PREGNANCY.

George Elder⁶ reports two cases of this affection confined to the arms and hands alone in one, affecting the feet also in the other. Both began about the

sixth month. There was tingling and feelings of "pins and needles," with lack of tactile sensibility. Recovery took place in one and four months respectively, after delivery.

Solowjeff and Polk have each reported a fatal case of peripheral neuritis in pregnancy. Remembering this fact, that the disease may prove fatal, one must be prepared to induce labor before the disease has advanced too far, for as soon as the uterus is emptied, there is naturally a tendency to recovery.

GANGRENE DURING THE PUERPERIUM.

Thomas Oliver⁷ reports two cases of this rare affection situated in the leg due to sudden blocking of the popliteal artery, occurring on the fourteenth day in one case, on the eleventh day in the other. In both cases amputation of the leg was required. The first case recovered; the second died of septic pneumonia and ulcerative endocarditis. In both cases there was agonizing pain, and analgesia and anesthesia of the affected limb.

E. R. Rouse⁸ reports a case where acute mania succeeded delivery. On the subsidence of this affection in the three weeks of the puerperium pain in her feet and fingers was complained of, which on examination were found to be white, cold and anesthetic. On the following morning the toes of both feet and the fingers of one hand and the right ear were in a condition of gangrene, the case simulating very closely one of Raynaud's disease. Both legs were amputated and the patient recovered.

A second case is reported by Rouse, where the patient was admitted to his asylum with acute mania three months after the birth of a child. Two weeks later her mental symptoms improved coincident with beginning gangrene of the right leg. This was amputated, and the patient recovered. An examination of the amputated leg showed venous thrombosis and endarteritis of the large arteries.

SERUM THERAPY OF PUERPERAL SEPSIS.

Barton Cooke Hirst⁹ says that although the antitoxic serum for puerperal sepsis be prepared with the greatest care, there is a possibility that it may contain dangerous toxins, and that the treatment may be more dangerous than the disease. There is a streptococcal infection so virulent that the antitoxin will be of no avail, no matter how strong it may be. There is an undeterminable time in streptococcal infections when the serum will be used too late. The anti-streptococcal serum has no antagonistic power over other pathogenic micro-organisms. It is not easy to determine during life whether the infection is pure or mixed, though the majority of puerperal infections are due to streptococci. Therefore the use of the serum must be more or less empirical. Finally, the clinical results of the serum therapy for puerperal infection have not been as yet at all encouraging.

Hirst thinks that the plan of treatment for the artificial production of hyperleucocytosis is much more promising. Hofbauer, in Vienna, reports the results of employing Horbaczewski's nuclein in seven cases of puerperal infection, with favorable results in some cases.

John D. Williams¹⁰ reports six cases of puerperal

⁷ Lancet, July 4, 1896, p. 15.

⁸ Ibid., November 14, 1896, p. 1375.

⁹ American Journal of Obstetrics, August, p. 180.

¹⁰ British Medical Journal.

⁵ Lancet, October 3, 1896, p. 936.

⁶ Ibid., July 25, 1896, p. 232.

septicemia treated by the anti-streptococcic serum, together with eight others, all severe cases, which he has collected from literature. Two of these fourteen ended fatally. In ten cases the records are complete. None of these cases were injected without a previous thorough trial of the usual constitutional and local remedies. In two of the cases only were the cases proved bacteriologically to be true streptococcic infection. In every case with the exception of three, the temperature and pulse were reduced after each dose of serum in from six to twenty-four hours. Williams's own fatal case he attributes to the injection of too little serum and he cannot agree with Gaulard, who attributes his own fatal case to the injection of too much serum.

The serum comes into play when the germs have passed into the general circulation, by annulling their action and toxin and obviating the organic degenerations which are otherwise beyond our control.

Reddy,¹¹ of Montreal, reports a case of puerperal septicemia starting from an enlarged vein that had ruptured on the left labia. Streptococci and staphylococci were found in the membrane at this spot. Ten cubic centimetres of Marmorek's serum were injected with a resulting fall of temperature to normal in forty-eight hours and disappearance of the membrane. Much blood appeared in the urine and continued for several days.

BACTERIOLOGY OF VAGINAL SECRETIONS.

Barton Cooke Hirst,¹² in an article under the above title, draws the following conclusions of great interest to obstetricians:

"The vagina becomes infected almost immediately after birth. In a normal condition it contains no pathogenic bacteria. It has strong germicidal powers, which serve to guard a woman against infection. These powers depend, as far as our present knowledge goes, upon the presence of a special bacillus and upon the products of its life processes; upon the leucocytosis due to chemotactic action; upon phagocytosis; upon the germicidal powers, perhaps, of the anatomical elements of the vagina, of the cervical mucus, and of the bloody discharge during menstruation and the puerperium.

"During and after labor mechanical safeguards of the most effective kind are furnished against infection. These are the discharge of the liquor amnii, washing out the vagina; the passage of the child's body, the descent of the placenta and membranes, and the bloody discharge which follows.

"Moreover, should the vagina exceptionally contain pathogenic bacteria, they are likely to be in a condition of diminished or absent virulence, in which condition they will not be productive of disease unless the tissues with which they come in contact are reduced in vitality.

"Bearing these facts in mind, it would seem that the common practice of relying upon vaginal douching for disinfecting the vagina before labor, is faulty, not to say foolish. It has been clearly demonstrated that the injection of an antiseptic fluid into the vagina will not destroy pathogenic germs there, and will, moreover, rob the woman to a certain extent of the safeguards against infection that Nature provides for her.

"If, therefore, under certain circumstances, it is desirable to disinfect the vagina, mere douching should not be depended upon, but the vaginal mucous membrane should be thoroughly scrubbed out as well as douched, just as one would prepare the skin for an important surgical operation."

FIBROMYOMATA AND PREGNANCY.

F. W. N. Haultain,¹³ after a brief account of cases, concludes that fibromyomata of the uterus tend to cause sterility by preventing conception and tending towards abortion, should they be so placed or have attained such dimensions as to cause symptoms of their presence in the non-pregnant condition. As regards diagnosis of pregnancy, where fibroids also are present, this is often difficult, the tendency being for the pregnancy, on the one hand, by softening these growths, to change the normal "feel," while, on the other, the irregular hemorrhages, etc., due to the fibroid tend to mask the ordinary symptoms of pregnancy.

Though in a large number of instances the course of pregnancy is in no way influenced by the coexistence of fibroids, their presence considerably increases the risks of pregnancy by complicating labor in preventing ready expulsion of the ovum and predisposing to severe hemorrhage. The prognosis depends on the site and size of the tumor. Thus, when subperitoneal, unless the growth be of sufficient dimensions to cause severe pressure on surrounding organs, or is incarcerated in the true pelvis and thereby obstructs the passages, little or no inconvenience, is, as a rule, to be anticipated. Even in these cases, however, retrograde changes in the tumor, that is, suppuration and necrosis, may occasion anxious and even fatal consequences. With the interstitial and submucous varieties, the association of pregnancy must at all times be considered of grave import.

DILATATION OF THE PERINEUM IN LABOR.

Dr. G. Coromilas,¹⁴ of Greece, describes the following method by which he has been enabled to shorten labor, diminish pain, and prevent lacerations of the perineum. After proper antiseptic precautions, the *accoucheur's* hands and the perineum, vagina and os uteri are anointed with the following ointment:

Cocaine, three grammes; antipyrine, three grammes; vaseline, fifty grammes. Four fingers of one hand are then passed within the vaginal orifice, and semilunar movements are made, first on one side and then on the other, so as to dilate the perineum. After three or four such powerful movements, the fingers of the other hand are introduced and the performance repeated. When the requisite degree of dilatation is achieved, the fingers are passed into the vagina until the index, middle and ring fingers touch the os uteri, the same movements are made, the perineum being pushed outward with the palmar surface of the hand.

POST-PARTUM HEMORRHAGE.

E. Stanmore Bishop¹⁵ urges the importance of compression of the aorta as a rational and efficient means of checking post-partum hemorrhage. If this is done the hemorrhage is at once absolutely stopped, and without needless hurry the secondary measures can be employed to empty the uterus of clots to bring

¹¹ Montreal Medical Journal, September, 1896.

¹² American Journal of Obstetrics, July, 1896, p. 11.

¹³ Practitioner, July, 1896, p. 38.

¹⁴ Edinburgh Medical Journal, August, 1896.

¹⁵ Lancet, October 31, 1896, p. 1215.

about firm contraction. The ulnar surface of the closed hand should firmly compress the aorta against the spine, while the other hand is free to compress the uterus.

RETROVERSION OF THE PREGNANT UTERUS.

Murdoch Cameron¹⁶ believes that in the majority of cases the condition is probably due to previous displacement, but it occasionally arises acutely from a strain or a fall. Over-distention of the bladder is more frequently an effect than a cause, but once retroversion had taken place, an over-distended bladder would tend to aggravate the condition and prevent its cure.

In fatal cases death has occurred from the manipulations, or of necrosis of the tissues. The symptoms enumerated in those cases which terminated fatally were: (1) retention of urine; (2) febrile symptoms; (3) bearing-down pains at pelvic outlet, with anxiety and great restlessness; (4) delirium; (5) intermittent pulse; (6) coldness of extremities, moribund sweats and convulsions; (7) in a number of cases rupture of the bladder.

He reports a case of pregnancy of four months, where the uterus was retroverted, the bladder being enormously distended. Eighty ounces of urine were drawn off. On the next day blood appeared in the urine; and later a blood cast of the ureter, some fifteen inches in length, was withdrawn. Ten days later abdominal section was done, the bladder opened and cleared of blood-clots. When this was done, the bladder contracted, and it was possible to reach the uterus. By combined pressure from below through the vagina and traction through the abdominal wound from above the incarcerated uterus was pulled out of the pelvis. The patient made a good recovery, blood disappeared from the urine and she was delivered, at full term, of a large healthy child.

THE RELATIVE ADVANTAGES OF FORCEPS AND VERSION AS A MEANS OF EXTRACTION IN CASES OF MODERATE PELVIC DEFORMITY.

The above was a subject of discussion at the sixty-fourth annual meeting of the British Medical Association¹⁷ held last July at Carlisle.

R. Milne Murray opened the discussion by stating that forceps present obvious advantages from the point of view of the safety both of the mother and the child. Thus as to the mother, we have (1) avoidance of risk of uterine rupture, (2) avoidance of intra-uterine manipulation, (3) diminished risk of infection; and, as to the fetus, (1) avoidance of traction on the neck, (2) avoidance of compression of the cord.

In justo-minor pelves the question of turning does not arise, forceps being the only proper operation. In flat pelves version is almost universally recommended, while only recently has the accuracy of this view been questioned. Murray had already shown that the diminution in the cranial capacity produced by compression of the forceps is compensated by a vertical expansion and not by a transverse one. Accordingly he holds that the explanation of the inefficiency of the ordinary forceps in a flat pelvis is due, not to complications arising from their grasp of the head, but to waste of force arising from error in the line of traction.

He therefore urges the use of axis traction, offering for this purpose the rods devised by himself to be applied to ordinary forceps. He claims these points for axis traction in flat pelves: (1) the forceps can be applied without difficulty to the antero-posterior diameter of the head and in the transverse or roomy diameter of the pelvis; (2) the grasp of the head, while sufficient to prevent slipping, does not materially compress the head; (3) no amount of practical compression of the head in this direction is capable of causing the least expansion of the biparietal diameter; (4) the mode of grasp favors the development of the Naegale obliquity, and this follows the natural mechanism of delivery in such cases; (5) as compared with version, forceps avoid intra-uterine manipulation, traction on the neck of the child, and also the risk of delay during compression of the cord.

He has delivered living children in this manner, where the brim was not more than 3.25 inches, and in one case where it measured 2.75 inches.

C. E. Buslow agreed with Murray, except that he believed version would sometimes succeed where forceps failed.

W. E. Fothergill believed that version in flat pelves had nothing in its favor except its antiquity. He had successfully delivered by axis-traction forceps six women in whom the conjugate varied from three to three and one-half inches. A further advantage of forceps besides those mentioned by Murray is that forceps can be applied at any time, however long, after the rupture of the membranes.

Munro Kerr, Cameron and Connel were all practically in accord with the position taken by the first speaker.

WALCHER'S POSITION IN PARTURITION.

W. E. Fothergill¹⁸ finds that in about thirty cases measured by him the average increase in the diagonal conjugate gained by the Walcher position was one centimetre, the claim made by Walcher. The parturient woman is placed in the lithotomy position and the legs allowed to hang down, the feet not touching the floor. If the bed is low, pillows are placed under the buttocks so as to raise the body until the feet hang clear of the floor. There is a tendency to pull the patient off the bed, but she may be held by the anesthetist, or hands passed under the arms and fastened to the bed. He reports several cases where extraction failed until the Walcher position was adopted, when it took place without difficulty.

He sums up as follows:

A. In high-forceps cases, and after perforation the position saves (1) The strength of the operator, (2) pressure on the head, (3) pressure on the symphysis, (4) pressure on the perineum by forceps.

B. In cases of difficulty at the brim not needing forceps, and in breech cases, the position saves (1) exertion to the uterus and abdominal muscles, (2) pressure on the head, (3) pressure on the pubic symphysis.

C. In all cases, with or without forceps, where the perineum is in danger, extension of the legs at the hips is of advantage in relaxing the integument and subjacent structures at the vulvar orifice.

It is reported that Lord Lister is contemplating a visit to America during next summer.

¹⁶ British Medical Journal, October 31, 1896.

¹⁷ Ibid., p. 1231.

¹⁸ British Medical Journal, October 31, 1896, p. 1290.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, November 2, 1896,
DR. C. J. BLAKE, the President, in the chair.

ORAL COMMUNICATIONS.

DR. F. S. WATSON: As one of the dissatisfactions of surgical practice is the losing sight of the ultimate results of cases after surgical operation, so a corresponding satisfaction occurs when we are able to follow them for long periods. I do not think, therefore, that I need offer any excuse for asking the attention of the Society once more to a case I reported last year and which is now thirteen months from the date of operation. And more especially as it is the only operation of the kind done in this country and was then the third that had been performed anywhere. The case was fully reported in the *Boston Medical and Surgical Journal*, April 2, 1896.

The patient is a woman who a year ago last September came to the City Hospital in a dying condition. She had had for a year very frequent vomiting; she was greatly emaciated, having lost forty pounds in weight within the past year. The stomach could retain no food and she suffered a great deal from pain in the stomach. There was a history of gastric ulcer seven years before. Upon examining her, I found a slight sensation of resistance in the epigastrium on the left side and slight rigidity of all the abdominal muscles, but no distinct tumor could be felt. I told her I might give her relief by an operation, having in mind rapid anastomosis between the stomach and intestine in case of finding cancer, but I could not promise anything in regard to saving life and I told her she might die on the table. On the following day I operated and she got the reward of her courage. I found an hour-glass constriction of the stomach due to contraction of the cicatrices of former ulcers which antedated the operation several years and of which there was a pretty clear typical history. It occurred to me on the spur of the moment, and without having any precedent to authorize me in so doing to turn the pyloric half of the stomach upon the cardiac portion—using the constriction as a hinge—to sew the two together and make a communicating hole between so that the gastric contents might pass through both halves of the stomach without going through the constriction. I did this as rapidly as possible. It also occurred to me first to sew the two portions all around before making the communication between them, and to do the latter through an incision made in the roof in the presenting part of the stomach. A single row of silk sutures was used to unite the two portions; one long suture was left at each corner of this ellipse in order that I might know where my knife was going and might not go beyond the borders of the ellipse made by the sutures. I then incised the presenting portion of the stomach and made the communicating cuts, then button-hole sutured rapidly the edges of the two coats so that they might not unite, and finally sewed up the wound in the presenting portion, and put the stomach back in the abdominal cavity.

The next morning to my surprise she was alive.

The wound healed perfectly by first intention. She had no hernia. I fed her for seven days by rectal enemata, after that by mouth with milk and champagne mixed and champagne and egg mixed. The first time she took food by the mouth I was interested to know what her sensations were, and she said it passed through without pain and without trouble. She has had no trouble practically speaking from that day to this and has continued to gain. She is now in perfect health and weighs more than at any time in her life.

PATIENT: I have no trouble from the operation at all. For three years before the operation I lived in agony all the time. I am now perfectly free from pain. When I take food I am not conscious of any thing but a perfectly natural feeling in my digestion.

DR. WATSON presented a second patient, and said: This patient is an example of the recently popularized operation of castration for the relief of prostatic hypertrophy. He came to the City Hospital, and after trying for two months the most thorough treatment to relieve his condition of chronic retention of urine from obstructive prostatic disease, cystitis, and a slowly increasing loss of vitality, I removed both testicles. He had no trouble following the operation, and has been absolutely and entirely comfortable ever since. The prostate has disappeared and is now below its normal size. Before the operation it was about as big as an average russet apple. Catheterization was very difficult. He bled profusely when it was first done.

PATIENT: I think it was a very successful operation. It has been some six or seven weeks since the operation, and I don't think I was ever better in my life.

DR. WATSON: The patient has shown no evidence of the accident which sometimes follows the operation, namely, mental derangement, which has been noticed in a certain number of cases. The statistics published recently by Dr. Cabot which seem to show that the mortality of this operation is nearly as high if not higher than from the operation of prostatectomy, were a great surprise to us; in spite of them it is hard to feel convinced that the operation of castration is as dangerous as the other.

In the most successful case of castration performed by me for this purpose the patient has remained absolutely well. It is now eighteen months since operation.

In answer to a question, Dr. Watson said the first patient had not been on a restricted diet since six weeks after the operation.

DR. C. B. PORTER showed a patient and related the following history: This man, seventeen years ago, was standing in a stooping position when his revolver of calibre 45 went off, the bullet passing along the ribs and lodging under the shoulder-blade. He has been operated upon three different times where it was supposed the bullet was lodged. He was troubled, because any motions of the arm brought friction of this bullet upon the ribs and upon the under surface of the scapula. He had these photographs taken in New York, which located the bullet on the second rib and in the subscapular space. I made an incision here four days ago, through the trapezius and came upon the interval between the levator anguli scapulae and rhomboids and entered the finger under the shoulder-blade. My finger was not long enough to reach the bullet, but my assistant, Dr. Newhall, reached it. I

enlarged the opening, and by carrying the arm as far as possible upward I dug out the bullet with my finger. I could not extract it with instruments. The muscles grasped the finger as the os uteri does when trying to dilate it. The wound is practically healed, and he has come to show the result of the recent operation. Here are two pictures of the case.

I have only a word to say, and that in the way of the practical application of what we have had demonstrated by x-rays. I think we realize what Dr. Richardson has said, that we want to know what is to be our method and a method which can be carried out by all surgeons with reference to the treatment of fractures. They must all be examined to know if they are in good position, or they will be examined afterwards and it may be proved against us that they are not in good position. It is a very important question which must be settled, probably be settled in favor of the x-ray picture. I do not mean to say we do not all wish to use it in difficult cases, only we have so many good results without it that it seems as if it would be unnecessary in all.

I have one picture here which will illustrate another side of the question, and that is the disorganization of bone by the advance of disease. This is from a case of advanced tuberculosis of the elbow and it shows the distance to which the ends of the bones have been separated by the increase of new tissue between them, or by the gradual destruction of a portion of the bone. This seems to me also an important advance and an aid in diagnosis. I have another radiograph showing the pleasant side of the question. It is the photograph of an elbow-joint in a subject of compound dislocation of the forearm backwards with fracture of the olecranon some years ago. I reduced the dislocation, put the olecranon in place and wired it to the shaft of the ulna. The silver wire was left in position permanently and shows in the picture. Perfect motion resulted.

DR. FRANCIS H. WILLIAMS: Allow me to refer to one of three cases of aneurism, two of which were aneurisms of the aorta and one of the carotid artery, which I have examined by means of the x-rays, using both the fluoscope and the radiograph. The first case is that of a patient of Dr. F. C. Cobb's, whom Dr. Codman brought to the last meeting of this Society, and of whom I took a radiograph the next day at Dr. Codman's suggestion. In taking this radiograph the photographic plate was placed under the patient, who was lying on his back. This small photograph is a picture of the patient's back; to make it I looked at the patient with a fluoscope and drew with a suitable pencil on the skin the outline of the aneurism as seen in the fluoscope, and then photographed the line thus drawn. The point indicated by an arrow directs attention to the point of the curve of the aneurism where the pulsation was most marked. I supposed that the pulsation of the wall of the body of the aneurism would be more obvious than it was; but on reflection it is easy to see, I think, why this was not the case in the shadow of such a body. It is where the aorta is more nearly of normal size that the pulsations seem to be most marked. The curve seen in the radiograph is not quite the same outline that I saw in the fluoscope because in the fluoscope the shadow upon the aneurism was cut by a plain surface whereas the line shown in the radiograph was the line which this irregular surface of the back made in inter-

secting or cutting through the rays coming from the aneurism. The curve that I saw in the fluoscope was rather more like the curve shown in the radiograph.

DR. J. C. WARREN read a paper on

THE TREATMENT OF ACUTE INTUSSUSCEPTION.¹

DR. ROTCH: It seems to be a very important question whether a case of this kind should be operated on and what to do when first called to see such a case. These cases almost always occur most frequently in infants at about the fifth or sixth month. It rarely occurs earlier, and one of the reasons that it occurs in infancy more frequently than at a later period is that the large intestine in proportion to the small intestine is shorter and the mesentery broader than at a later period, thus giving greater play in the region of the cecum and the colon where these intussusceptions usually take place. At this period of life the individual dies more quickly.

According to my observation, even when the infants are able to nurse and have a fairly good appearance, they may within a half-hour die suddenly with such a condition as this in their abdominal cavities. It is, therefore, very important to have some definite idea, first, as to the diagnosis, and then as to what shall be done in the especial case. It almost always occurs in perfectly healthy infants so far as can be ascertained by careful examinations both before death and at the post-mortem examination. The diagnosis of these cases is exceedingly simple. It appears to me that it is the first case of the kind which the physician sees that seems difficult to diagnosticate: a little uncertainty as to what he is dealing with, a little uncertainty as to whether he shall perform such a radical operation as laparotomy at once or later. A number of cases have come under my observation which I think will be interesting to speak of and certain points in connection with them which make it comparatively clear what course we should pursue in the individual case.

In the first place, as to the diagnosis. There is no other disease in which an infant will be attacked so suddenly with the clinical symptoms of abdominal pain combined with discharges of blood from the bowel. It is exceedingly rare for a young infant with gastro-enteric disease to present these symptoms very quickly. Until something is felt in the abdomen, however, we feel that we are not justified in making definitely our diagnosis. The diagnosis, however, even previous to the detection of a tumor, can be fairly made by any one who has seen a number of infants with intestinal disturbance; and this simple combination of abdominal pain and frequent discharge of blood, the discharges at first fecal mixed with blood, then pure blood, and then the blood mixed with mucus which gives the appearance of currant jelly, is almost characteristic after the first twelve, eighteen or twenty hours of the attack. You do not see it in any other disease at such an early period of the attack. When a tumor can be felt, of course the diagnosis becomes clear. The tumor, as a rule, in these cases is not felt early in the attack, even on careful examination, when the abdomen is not distended and when it is soft; it is also, as a rule, not detected for perhaps six or eight hours, that is by external manipulation; and by the rectum it often is not detected at all, even when the

¹ See page 125 of the Journal.

disease is fairly advanced. I have known a number of skilful examiners fail to detect the tumor by rectal examination when it was very evident that a tumor was present as shown by external examination.

Hydrostatic pressure, although not so much favored as formerly, would be comparatively safe to try in the beginning in the first six, eight or twelve hours of the attack. In experiments on the cadaver I have found that a column of six feet is held by the intestine, but it is wiser perhaps not to use more than four or five feet, also to allow for transudation which may take place, and therefore you should use a fluid to which there would be no objection if it entered the abdominal cavity. The hydrostatic pressure is usually unsuccessful in these cases. Dr. Stickney, of Arlington, just had a successful case, but the reduction by this means is rather rare and a good deal a matter of chance. It is almost always the case with an intussusception that that part of the intestine is not on a line with the axis of the intestine, but at an angle; and when you employ hydrostatic pressure it increases the trouble, presses the intussusception closer together and prevents the reduction. Also, beyond a certain time it is not only dangerous from possible rupture, but also is of no use whatever on account of the adhesions which have taken place. In the very early hours where adhesions have not taken place, it seems to be a perfectly legitimate procedure, but if it is not successful it would seem to me that immediate laparotomy is indicated. As to when adhesions take place it seems they evidently do so very early, within twenty-four to thirty-six hours at most, so that you cannot really operate too soon. It is better to operate while the infant is in fair condition, before it is reduced to this condition of the intestine which is conducive to reducing its vitality so quickly and to so quickly killing it.

The first case usually puzzles the diagnostician. Men seem to be staggered by their first case of intussusception. I remember some eight or ten years ago seeing my first case, with the usual symptoms. A perfectly healthy infant, six months old, breast-fed, was suddenly attacked with abdominal pain, with discharges of a currant-jelly consistency. During the first six hours nothing was to be found in the abdomen; at about the tenth or twelfth hour a tumor was found in the left side of the abdomen, and nothing felt by the rectum. I made a provisional diagnosis of intussusception; but I was uncertain what I was dealing with, and called an older physician, who said it was a case of dysentery. It is not so very unusual to have opinions of that kind given. I was still uncertain, and telegraphed for another physician to come, who immediately made the diagnosis of intussusception, and we used hydrostatic pressure at once, but without success. We then decided that an operation should be performed; but it was decided to wait for six or eight hours and see if it would be reduced spontaneously. Six hours later the infant had been nursing, was looking fairly well, and I felt comparatively easy about it. Fifteen minutes afterwards it died suddenly. The autopsy showed an intussusception through the ileo-cecal valve, and at such an angle that the hydrostatic pressure increased the difficulty of reduction. There were some adhesions; this was forty-eight hours from the beginning of the attack. With difficulty the adhesions were broken up and the intestine reduced, so that it was a case where laparotomy in all probability, even as late as forty-eight

hours, would have been successful even though adhesions had taken place.

The next case was one of the same kind, a healthy infant six months old, breast-fed, seen by two physicians in the central part of the State, one of them having the largest surgical practice in the district. The younger man supposed it might be a case of intussusception; the older man said that it was not. When I saw the case it was very easy to make the diagnosis. The tumor could then be felt, and by the rectum you could feel the invaginated intestine, and a currant-jelly material would appear on the examining finger. We then decided to have more advice. We telegraphed for one of our surgeons from Boston, who arrived sixty hours from the beginning of the attack and performed laparotomy. An extensive intussusception, involving about eight inches of the small intestine and passing through the ileo-cecal valve, was found. The surgeon tried to reduce it. There were some adhesions and a great deal of congestion; and he worked two hours on the case, and then tore a rent four inches long in the intestine. The reduction of the first four inches was comparatively easy; it then stopped; the cecum seemed to be inverted on itself. The intestine was stitched; the dressings were applied; and the infant began to nurse, looking fairly well.

But an hour afterwards it died suddenly.

These cases impressed upon me the necessity of not waiting. It is a perfectly simple diagnosis to make; and if the hydrostatic pressure does not reduce the intussusception, laparotomy should be performed at once. There are a very few cases on record where these infants live without operation, and they are liable to die any minute after invagination has taken place. I feel very strongly that an operation should be performed at once.

DR. C. P. PUTNAM: The case Dr. Rotch referred to occurred many years ago, and some of the details I cannot recall. The patient was a baby. I do not remember how long the case had run since the first symptoms came on, but I remember that the diagnosis was plain, because I could feel the tumor. Another physician had been there before, and had tried to reduce it by hydrostatic pressure, and had not succeeded, and they had waited a while.

Unless you have some means of plugging the anus without producing pain, it is impossible to have the water go in satisfactorily. For this purpose I placed a rubber bulb on the end of the fountain syringe and put into this bulb a short tube to go into the anus. This bulb is soft and compressible. When it is pushed against the anus it fills it up at once and then the anus dilates and it goes in farther and farther. It is evident that approximately speaking the same amount of force is used to hold in this soft plug that is used to dilate the bowel. If you press it in too hard your fingers compress the bulb; if you do not press enough the water comes out. There is no possibility of pushing too hard, because you are pushing with the same force that is distending the gut.

At that time operations were not very common on infants. I had not realized that they had been so rare in Boston now, as Dr. Warren told us. It was then considered a very dangerous procedure, and at the moment it seemed to me the only thing to save the child was to use hydrostatic pressure. The height of the column was considerably higher than mentioned by Dr. Rotch. The bag must have been seven feet

from the floor. The only gauge I had as to the possibility of danger was holding the hand on the abdomen and when the abdomen seemed to be distended too much I had the bag lowered. In a few minutes we took it down and let the water run out, but there was the tumor still. It was done once or twice more and then there was no tumor to be felt; the child fell asleep, was comfortable, went to bed and was well almost all night, but toward morning was in pain and on examination the tumor was again to be felt. We tried the water again in the same way and the tumor disappeared and did not reappear. I think, as Dr. Rotch says, it is a dangerous procedure and that the time very soon arrives when it cannot do good in any case because the intestines get swollen and brittle. In some cases it cannot do any good at any stage, and while I should try it in every fresh case because it is safer than opening the abdomen, yet opening the abdomen is a small matter compared to what it used to be.

DR. ROTCH: Was an opiate given after the first reduction?

DR. PUTNAM: I cannot remember.

DR. ROTCH: I think it is a very wise procedure, because local peristalsis is supposed to have something to do with it.

DR. WATSON: There is only one point to which I should like to refer, and that is with regard to a bit of surgical technique in operating for this condition which was suggested by Dr. Monks in a case of his. The invagination in his case, was of the small intestine through the ileo-cecal valve and the entire colon, and protruded through the anus. Laparotomy was decided upon, after ineffectual efforts to reduce the invagination, and was performed successfully so far as concerned the withdrawal of the invaginated portion, but the child died after a few hours. The operation was rather long, and what struck him, as it struck me and others at that time, was the great degree of collapse and prostration occurring in the young child, which, in addition to the manipulation of the bowel occurs because of the difficulty of keeping the child warm and protected while operating upon its abdominal organs. Dr. Monks suggested that it would be well to operate with the patient in a hot bath, and it seemed to me that it might be a valuable procedure.

DR. FITZ: Dr. Warren is to be congratulated upon the success of his treatment. The case reported by Dr. Stickney well illustrates the advantage, at the outset of cases of supposed intussusception, of a trial of hydrostatic pressure before resorting to laparotomy as a means of relief. Its frequent inefficacy is due, in part, to the failure to employ some such measure as that suggested by Dr. Putnam to prevent regurgitation of water from the bowel. Another explanation for the different behavior of intussusceptions under hydrostatic pressure is to be found in the seat of the lesion. If the obstruction is at the ileo-cecal valve as is frequently the case, the cecum itself is often involuted and the reduction is then much more difficult than when a portion of the colon only is inverted into itself. I do not think the difficulty of reduction due so much to the formation of adhesions as to the resistance of the mouth of the sheath, partly from congestion and edema and in part from the traction upon it of the tense mesentery. Even at a post-mortem examination it is often not easy to pull the intussuscepted portion out of the sheath; one has to retract the latter from the intussuscepted bowel.

As to the time when the intussuscepted bowel should be operated upon, this is a matter which one cannot fix absolutely. In general, of course, the earlier the operation the more likely is it to succeed. Within the first twenty-four hours any adhesions which may have formed are easily torn. After a time the sheath becomes weak and the danger of its rupture from hydrostatic pressure is direct. In those cases where the intestine is torn at an operation the injury is due largely to traction upon the intussuscepted bowel, whereas the sheath should be moulded and withdrawn. In the first twenty-four hours an attempt should be made to reduce the intussusception by hydrostatic pressure and if this prove inefficient, laparotomy should be performed without further delay.

DR. WARREN: One or two points about the technique of the operation. In regard to taxis. Dr. Fitz's remark about the condition of the mouth of the sac describes a condition which I experienced in endeavoring to start the reduction. The mouth of the sac seemed to narrow as it approached the invaginated portion. There seemed to be a certain rigidity at this point of the bowel. In reducing, the custom is not to use any traction whatever on the intussusceptum because that is the strangulated part and may be easily lacerated. That must be held with the thumb and finger of one hand, and then the sac should be grasped by the other and traction or a squeezing motion exerted upon that. What I tried to do was to draw upon the outer wall and to force back its contents at the same time. Failing to do that in one of the operations I passed my finger round the ring, drove out some of the fluid from the meshes of the tissue, eased the tension at that point and then the rolling motion began and reduction was effected. It is a manipulation somewhat similar to that employed in strangulated hernia so far as the right hand is concerned, in fact so far as the left hand is concerned also, except that there is a pulling as well as squeezing motion.

DR. E. A. CROCKETT read a paper on

SYPHILIS OF THE EAR.²

DR. H. L. MORSE: The first case in which I used pilocarpine was a day laborer who, as I remember the case, had no history of syphilis, and who was supposed to have had a sunstroke. On a hot summer day he was wheeling a wheelbarrow over an exposed piece of ground, over and over again, and suddenly fell over his wheelbarrow, and was picked up and carried home. He was very, very dizzy, so that for a number of days he could not leave his bed. After a time he came to me accompanied by a friend. I cannot say positively that he had not had syphilis. My impression of the case is, that there was no history of syphilis. I gave him three doses of pilocarpine, small doses, at my office, and he waited while he went through his sweat. Three doses straightened him out so that his hearing was so good that he considered it normal; his dizziness was so far gone that he did not notice it at all. This is a case where I am pretty positive that there was no syphilis, and there seemed to be a good result, in an acute case, from three small doses of pilocarpine.

A year or two ago at the Eye and Ear Infirmary for a period of three or four months we tried giving pilocarpine to all the well-marked cases of tinnitus, dizziness and deafness that would submit to it. I have

² See page 128 of the Journal.

not the data to say exactly what the results were. They were exceedingly favorable if you can take the word of the patient for the results. The treatment is not a pleasant one, and I am not sure that some of the patients did not say they were less dizzy, because they did not want to go through more of it; but a very large proportion of those cases reported great diminution of dizziness and tinnitus, and in a number of the cases improvement in hearing after the use of pilocarpine subcutaneously. Those were not selected cases, as being syphilitic; I dare say many of them were. They were not selected cases as being recent. We took them as they came along in the clinic, and a great many of them had been there for months, and some of them for years being treated with a catheter and the ordinary middle-ear treatment, and a number of these reported that the improvement under pilocarpine was greater within two or three treatments than it had ever been in the ordinary middle-ear treatment.

I am sorry I did not know what train of symptoms Dr. Crockett was going to bring up, because I think I have the data which were made out for me by Dr. Hammond. I think there must have been twenty or thirty of those cases. I should, therefore, be inclined to try the pilocarpine a little more widely than Dr. Crockett has suggested in his remarks. I think it is worth trying in cases where we do not find a history of syphilis, or do not suspect syphilis. As he said, even where there is no improvement in hearing, there is an improvement in vertigo; and that alone is enough and makes it worth a trial. I have seen several cases of apparent total loss of hearing and total loss of bone conduction, in persons who were syphilitic, coming on during sleep. The persons went to bed hearing as well as they usually do, and awoke totally deaf and without any vertigo. Several cases of that sort were cases where the patient was known to be syphilitic, but had had no history of previous ear trouble.

DR. CROCKETT: The point I wished to make in the paper was not so much the improvement we obtain in many cases by the administration of pilocarpine, as that this particular complex of symptoms was apt to mean syphilis, and was apt to need pretty immediate treatment to restore the hearing. In most of the cases I have seen where the symptoms have been neglected a month or more the treatment has been hopeless. I once saw a case of hereditary syphilis in a child about twelve years old. One night, three or four months before she was seen by Dr. J. O. Green at the Infirmary, she went to bed perfectly well, and woke up perfectly deaf with loud tinnitus. She went on about a month, the cause not being recognized, when the process was repeated in the other ear. After another month she came to the Infirmary. Her father gave a clear history of syphilis before his marriage; no treatment; the mother had several miscarriages, and this was the first living child. She had had some few symptoms in infancy. She was a bright child, totally deaf. Treatment of every sort failed to improve her in any way, either as regards the vertigo, tinnitus or deafness. I think it was a case of the sort I have spoken of to-night, allowed to run too long.

PROFESSOR VIRCHOW RE-ELECTED. — Professor Virchow has been re-elected President of the Berlin Medical Society.

Recent Literature.

Gesundheitsbüchlein. Gemeinfassliche Anleitung zur Gesundheitspflege, Bearbeitet im Kaiserlichen Gesundheitsamt. Berlin: Julius Springer.

This health manual issued by the German Health Department of the German Government is a compact volume of 254 pages, containing the general principles of Hygiene, and is admirably adapted for use in the public schools. A good American edition, adapted to American needs, would prove extremely useful. The subjects treated are an opening chapter on the structure and functions of the organs of the body; the essentials of life, air, water and food; clothing; the house; exercise; man socially considered; settlements; commerce; training of children; employment and wages; danger from external causes; weather and climate; infectious diseases; other diseases; accidents; nursing.

The introduction is a model in its way, as the following extracts will show:

"The health of man is a precious possession. Its loss causes harm not only to the individual, but also to the community. The individual whose health is impaired suffers discomfort or pain. He loses his ability to work, or to earn a living, and his enjoyment of the pleasures of life. He must incur expense in order to regain his health, and anxiety and poverty are the results, both to himself and to his family.

"By the decrease of its productive labor, the community suffers loss in its industries, and incurs expense in the support of the sick; and when, as often happens, the sick man is attacked with an infectious disease, he becomes a danger to his neighbors. The extent of the loss arising from the impairment of health, can be estimated from the returns of the workmen's sick clubs of Germany. In 1891, out of a total membership of 6,500,000 more than 2,000,000 cases of illness occurred, each of which averaged seventeen days in duration. These clubs paid in medical expenses \$22,000,000. Since it may be assumed that, among the remaining 44,000,000 of the German population, 24,000,000 of whom are old enough to work, the cases of illness were as numerous and as long-continued as among the members of these clubs, the expense caused by sickness in Germany in 1891, is not placed too high at \$120,000,000. The loss incurred by stoppage of wages is not included in this sum.

"The preservation and promotion of the health of mankind is the aim of hygiene. Among the tasks which it proposes are the prevention, limitation and removal of sickness and disease, and the preservation and prolongation of the ability to work, and of man's life in general. . . . For a full understanding of the requirements of hygiene, a knowledge of the nature and organization of the human body is necessary."

The manual is illustrated with appropriate cuts and plates.

THE CZAR'S HEALTH. — The report that Dr. Von Bergmann had been summoned to St. Petersburg to remove an osteoma from the head of the Czar is now officially denied. He is reported to be free from the symptoms of any malady whatsoever.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, FEBRUARY 11, 1897.

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283 WASHINGTON STREET, BOSTON, MASS.**CO-OPERATIVE ACTION FOR THE IMPROVEMENT OF MEDICAL EXPERT TESTIMONY.**

At a recent meeting of the Councillors of the Massachusetts Medical Society, the following resolutions and vote were passed unanimously:

Resolved, That the Councillors of the Massachusetts Medical Society regard with cordial favor and approval any just and practicable plan designed to improve the rules under which medical experts are employed in the courts.

Voted, That the Standing Committee on State and National Legislation be instructed to co-operate with the committees chosen by other associations, legal and medical, to promote legislation for the amendment of the methods in vogue relating to the use of expert witnesses.

At the meeting of the Massachusetts Medico-Legal Society on February 3, 1897, the following vote was unanimously passed:

Voted, That the Executive Committee of this Society be instructed to co-operate with committees chosen by other associations, legal and medical, in promoting legislation for the reform of the methods now used in the employment of medical experts in courts of law.

The Boston Medico-Psychological Society had previously appointed a representative committee the purpose of which is not to initiate action, but to co-operate with the Executive Committee of the Boston Bar Association in promoting legislation for improvement in the present laws relative to medical expert testimony, and we are informed that such co-operative efforts in this direction are now in progress.

The evils connected with the present system, which arise in the main from the fact that at present experts, often against their will, are made to appear as partisans of the side for which they are called, have long been realized by the medical profession, and have recently been discussed in our editorial of January 7, 1897, on "Medical Expert Testimony in Hypothetical Cases," and in an article on "The Opportunities and Responsibilities of Neurological Experts with Regard to Medico-Legal Testimony," by James J. Putnam, M.D., in our issue of October 22, 1896. Both these articles have suggested the advantages which would be gained if

the experts, instead of being restricted to the answering of hypothetical questions so framed by counsel as to accentuate their differences of opinion, were allowed to fully explain and discuss the case, a proceeding which would often bring out their points of agreement, and prevent their differences from standing out in full, and often partially false, relief.

The proposal which has been frequently made to have medical experts serve as advisers of the court instead of being retained by the plaintiff and defendant, and thus in a certain sense appear as partisans, and which many of the best men in the medical profession feel would be an advantage for the ends of justice, has been met on the part of the lawyers by the statement that the restriction of medical expert testimony to that of experts summoned by the court, would interfere with the fundamental right of the litigant to summon whom he chooses to testify in his behalf.

It was suggested, however, as long ago as 1872, that the summoning of medical advisers by the court need not interfere with the calling of experts by the plaintiff and defendant. The trial of Leavitt Alley for the murder of Abijah Ellis in Cambridge at that time aroused such interest on the part of the late Dr. Henry I. Bowditch in medical expert testimony that he asked Dr. Hildreth, of Cambridge, who made the autopsy on Ellis, to appear before the Boston Society for Medical Observation. Probably no committee of the Society was appointed at the time, but Drs. Bowditch and Hildreth saw Judge Joel Parker, and Ex-Governor Emery Washburn, both professors in the Harvard Law School, and Dr. John Ordrouaux, with reference to the matter. Judge Parker said that any change in the present methods would interfere with the right of every man to summon any one whom he saw fit to help his cause. Governor Washburn was in favor of continuing the present method of summoning experts, but thought that the judge should have power himself to summon experts, who should review the whole testimony and evidence of the experts called by the litigants, and also that the judge should be required to summon experts if either lawyer demanded it.

In 1880, the following form of an Act was adopted by the Massachusetts Medico-Legal Society, and urged before the Judiciary Committee of the Legislature:

AN ACT IN RELATION TO MEDICAL EXPERT TESTIMONY.

Be it enacted, etc.

SECTION 1. In any action, suit, or proceeding, civil or criminal, in which the testimony of a medical expert witness is desired by the parties, they may at any time before the trial file in the clerk's office a written agreement that such witness shall be summoned, designating him by name if agreed upon. The clerk shall thereupon issue a subpoena to the person designated, to be served in the manner provided by law. As soon as may be after service thereof the witness shall make such examination of the case as may in his judgment be necessary and practicable, and he shall attend as commanded in the subpoena, and answer such questions as may be put in relation to the case.

SECT. 2. If no person is designated by the agreement of the parties, the court, or any judge thereof in chambers, or in vacation, in any county, upon the filing thereof, shall designate a proper person, learned in the science of medicine, to be summoned as such expert witness, and the clerk shall thereupon issue a subpoena as hereinbefore provided. If the parties do not

agree that a medical expert witness shall be summoned in the case, the court or judge, upon motion of either party and upon hearing, may determine the question, and may designate the person to be summoned, if any, as hereinbefore provided.

SECT. 3. Such witness shall be paid for his attendance, travel, and services, a reasonable compensation, to be allowed by the court and paid out of the treasury of the county. In all civil actions and proceedings the defeated party shall be liable to refund the amount so disbursed; and after final judgment an execution may issue against him therefor in favor of the county commissioners, or, in the county of Suffolk, the city of Boston.

SECT. 4. In any case the court, upon its own motion or for cause shown, may order more than one, and not exceeding three persons, to be summoned as medical expert witnesses; and such additional witnesses shall be designated and summoned, and shall perform the same services and receive the same compensation as hereinbefore provided.

SECT. 5. In any criminal proceeding the defendant may call and examine other medical expert witnesses in addition to those hereinbefore provided for, but at his own cost; and in such case other medical expert witnesses may be called and examined in behalf of the commonwealth.

SECT. 6. No medical expert witness shall be admitted to testify before any court or magistrate except as hereinbefore provided.

Although no immediate result followed this action, and although perhaps it may have been, in the light of its complicated legal bearings, unwise or premature, it has had its influence as one of the early efforts looking toward the improvement of medical expert testimony. The reception which it met has, however, probably operated to deter medical men from making any further efforts along exactly the same lines.

It is to be hoped that the present co-operation on the part of representatives of important legal and medical organizations may result in legislation which shall enhance the value of such testimony both for the medical and legal professions, and, last but not least, shall oftener result in justice to both plaintiff and defendant.

THE REAL REASON FOR THE PASSING OF THE GENERAL PRACTITIONER.

FROM time to time the enraged practitioner, or the statistically inclined editor of a medical journal, raises his voice in melancholy plaint and inveighs against the dread evil of Hospital and Dispensary into whose hungry maws, ever insatiable for material, he sees disappearing day by day the last remnants of the "general practitioner's" *clientèle*. To him no words are strong enough to express his condemnation of "misguided charities"; and in the blindness of his rage he totally overlooks a far more formidable antagonist who stands between the public and himself and takes more dollars from his pockets than any hospital clinic that ever existed. We refer to the wily patent-medicine man. Backed by the testimonials of a host of so-called "cures," both male and female, selected from the most prominent walks of life, he probably accumulates more money in a month than the average medical practitioner does in a year, for at no time within our memory has the craze for exhibiting their photographs with a neatly-worded and convincing testimonial appended as to the virtues of this, that or the other quack nostrum, been so rife among people whose

names are household words all over the country and whose influence among the masses is widespread. The unblushing manner in which women disclose to the general mass of readers of the daily papers the pathological workings of their genito-urinary apparatus and the marvellous relief which they obtain—as evidenced by the redundancy of mammary tissue exposed in the accompanying wood-cut—by merely purchasing a bottle of Mrs. Allslop's Ovarian Stimulator, after they have been for months exposed to the ruthless fingers of all the best-known gynecologists, is enough to bring a flush to the cheek of a pernicious anemic—but it doesn't, it simply sends hundreds of other suffering females in search of this wonderful remedy for their self-diagnosed complaints.

Not a day passes but the lay press contains a villainous reproduction of the face of some well-known divine, accompanied by a testimonial overflowing with exuberant gratitude for the remarkable manner in which Dr. Charcoal's Tablets have enabled him to overcome the ravages of a deadly disease whose nature was so obscure that it defied the skill of the most renowned specialists even to determine. Cheek by jowl with him will be imprinted the philanthropic features of some famous temperance advocate who testifies in language whose sincerity is beyond a doubt, that it is only through the constant use of Brown's Nervine Invigorator (mainly proof-spirit with a dash of gentian and flux) that he is able to withstand the strain upon his nervous system incident to his vigorous onslaughts upon the demon Rum.

Next to the pulpit, the stage furnishes the greatest number of promising wrecks who have been snatched from an untimely grave—or from the lunatic asylum, more's the pity!—solely by the use of Someone's Malt or So-and-So's Wine, the secret of whose virtue is beyond the chemist's art to discover, but which probably owe their wonderful therapeutic value to the fact that they are a little more stimulating than beer and a trifle less paralyzing than absinthe. It will not be overstepping the narrow bounds of truth to say that there is hardly an actor or actress, singer or songstress of any repute to-day, for whose power to entertain we are not indebted to the magic influence of some patent nervine or reconstructive.

Even the legal profession is not loth to lift its voice to swell the chorus of praise for services rendered by the various prominently advertised nerve-foods and panaceas; and not a few eminent law-makers unconsciously—but clearly—explain, in the exhaustive symptomatology which they detail of their sufferings previous to the use of one of these panaceas, that peculiar flavor of general paresis so characteristic of certain statutes governing the practice of medicine.

Now that athletics stand so conspicuously before the public, we are everywhere confronted by the beautifully portrayed musculatures of crack athletes who owe their wonderful powers of endurance to an occasional nibble at Blauk's Comatogenous Biscuits washed down by two or three drops of Somebody's

Kola Preparation to whose superiority as a preventive of undue tissue waste, the lavish supply of muscles in which the athlete rejoices abundantly attests.

One cannot sit down in an electric car without being confronted by a galaxy of lithographic beauties singing the praises, in rubricated rhyme, of coal-tar products or cold cream; and beside them one beholds the smiling and scorbutic countenance of banker's or merchant's child—money no object—whose once feeble frame was coaxed into vigorous activity by some patent food, after it had nearly succumbed to the misdirected onslaughts of the best-known pediatricists.

The effect of all this upon the general public can be easily imagined. If the Rev. Dr. This or the Hon. Mr. That has been cured by somebody's nostrum, or if their babies are able to thrive vigorously upon a patent food, why shouldn't the humblest of these gentlemen's admirers and their babies do the same? They try one bottle—and keep on trying, just as they keep on buying lottery tickets, until their money is exhausted, and then—too poor to employ even the general practitioner, they turn in desperation to the dispensary and hospital clinics where they faintly hope that they may come in contact with some specialist who will, by mere bull-luck, be able to stumble upon a remedy for their complaint. Let the general practitioner be content!

MEDICAL NOTES.

FOR THE STUDY OF THE RÖNTGEN RAYS.—The budget of the Prussian government appropriates 50,000 marks for investigation on the Röntgen rays. The money is to be used for apparatus to be divided into a number of special appropriations.

AN ANTI-CIGARETTE BILL has passed the lower House of the Tennessee Legislature by an unanimous vote, and it is expected that it will also pass the Senate. It prohibits absolutely the sale of cigarettes and of cigarette papers in the State. The law is to come into effect May 1, 1897.

SMALL-POX IN PUEBLO.—There were 270 deaths from small-pox in Pueblo, Mexico, during the first half of January. Most of the sufferers are among the poorest class of the Indians, and the spread of the disease is ensured by the custom of carrying the dead to the cemetery in coffins on the heads of surviving friends.

THE FUNERAL OF PROFESSOR DU BOIS-REYMOND.—The funeral ceremonies of du Bois-Reymond took place on December 29th in the lecture hall of the physiological laboratory, Berlin. Dr. Bosse, the Prussian Minister of Education, represented the government, and there were delegates from many scientific and learned societies. The Reverend Professor Scholz made the chief address; and other speeches were made by Professors Warburg, Munk, Rosenthal, Fritsch and Pictet.

TRI-STATE MEDICAL SOCIETY.—The fifth annual meeting of the Tri-State Medical Society of Iowa, Illinois and Missouri will be held in St. Louis, April 6, 7 and 8, 1897. The President of the Society is Dr. A. H. Cordier, of Kansas City; and the Secretary, Dr. G. W. Cale, 4403 Washington Boulevard, St. Louis.

THE PLAGUE IN BOMBAY.—According to the official report issued on January 28th, there have been 4,396 cases of the plague in Bombay, and 3,275 deaths from that disease. At Kurrachee 694 cases and 644 deaths have been recorded. At Poonah there have been 65 cases and 60 deaths, and a few cases have occurred at Surat, Baroda, Ahmadabad, Kathiawar and Cutch.

THE HUXLEY MEMORIAL.—The *British Medical Journal* states that the sum received by the Huxley Memorial Committee now amounts to nearly £3,000. Mr. Onslow Ford, R.A., has nearly completed the full-size model of the statue which is to be placed in the central hall of the Museum of Natural History at South Kensington. The dies for the Royal College of Science medal are now being prepared by Mr. L. Bowcher.

FIFTIETH MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—The Committee of Arrangements for the fiftieth meeting of the American Medical Association, to be held in Philadelphia, June 1, 2, 3 and 4, 1897, desire to announce that in addition to the regular order of exercises during the meeting of the Association, there will be for a week preceding and a week succeeding the Association meeting, special courses and clinics given in the various large teaching institutions of Philadelphia, without cost to visiting physicians. This course has been organized in response to the generally expressed wish that opportunities might be given to visiting physicians of taking clinical courses, for it is believed that many physicians from distant points would be glad to spend a week or two over and above the time occupied by the meeting in this manner. The Chairman of the Committee of Arrangements is Dr. H. A. Howe. For particulars apply to Dr. Edward Martin, Chairman of the Clinical Committee, 415 South 15th Street, Philadelphia.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 10, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 108, scarlet fever 42, measles 135, typhoid fever 8.

CHANGES IN THE CORPORATION OF THE MASSACHUSETTS GENERAL HOSPITAL.—Samuel D. Warren and George Wigglesworth have been elected Trustees of the Massachusetts General Hospital, to succeed Roger Wolcott and Thornton K. Lothrop, whose terms have expired.

THE BOSTON CITY HOSPITAL CLUB.—The City Hospital Club held its eighth annual meeting and dinner at Young's Hotel on Wednesday evening, February 3d. The President, Dr. F. W. Draper, was in the chair, and Drs. H. P. Walcott and Hon. H. H. Sprague were present as guests of the Club. Ninety members were present. After dinner the President in a short speech introduced Dr. H. P. Walcott, who responded to the toast of "The Massachusetts General Hospital"; Hon. H. H. Sprague, who spoke for "The Trustees"; Dr. C. F. Withington, who answered for "The Medical Side," and Dr. Paul Thorndike, who replied for "The Surgical Side." The loving-cup presented to the Club by its first President, Dr. C. J. Blake, was passed about, after which there followed speaking by Dr. G. H. M. Rowe, for "The Hospital"; Dr. M. D. Clarke, of Haverhill, for "The Country Doctor"; Dr. John G. Blake, for "The Nurses." The evening closed with remarks by Dr. D. W. Cheever and by Dr. G. W. Gay, the newly elected President.

A NEW NURSES' HOME FOR THE BOSTON CITY HOSPITAL.—At a recent meeting of the Boston Board of Aldermen, Mayor Quincy presented a letter from the Board of Trustees of the Boston City Hospital, informing him of their acceptance of the gift of \$100,000, offered them by the trustees of the estate of the late Ann White Vose, according to the provisions of her will. The gift was made, as previously noted in our columns, on the condition that some permanent building be erected for hospital purposes, to be known as the "Ann White Vose" building, and the trustees state that it was made also under the expectation that the building should be a nurses' home. The trustees, in their letter to the mayor, allude to the totally inadequate accommodations of the present nurses' home, and state that the gift would be sufficient to erect a building which would accommodate 90 to 100 nurses. They recommend to the city government an appropriation for the purchase of the estates on the corner of Harrison and Massachusetts Avenues as the only available and convenient site for the new building, which in this event would adjoin the present nurses' home, and could be connected with it by corridors. About \$100,000 would be required for these purposes. The matter was referred to the Committee on Finance. The erection of the new building will at the same time supply one of the most pressing needs of the hospital, and provide a suitable memorial of the public spirit and generosity of the giver.

RESIGNATION OF DR. COTTING.—Dr. Benjamin E. Cotting has sent in his resignation as curator of the Lowell Institute Lecture Course, to take effect next April. Prof. William T. Sedgwick of the Massachusetts Institute of Technology will be his successor.

THE CHIMPANZEE AT THE HARVARD MEDICAL SCHOOL.—Prof. Thomas Dwight gave an interesting lecture to the Second-year Class at the Harvard Medical School on the anatomy of the chimpanzee, and a

comparison between the anatomy of the higher primates and man. The lecture was illustrated by the partially dissected body of the chimpanzee which died recently at the Zoo in Boston, and was kindly forwarded to the Harvard Medical School by the proprietors of the Zoo, Messrs. Atkinson and Bostock, for post-mortem examination and dissection.

THE MAINE MEDICAL ASSOCIATION.—This Association has 327 active members, according to a recent official list.

NEW YORK.

A PROLIFIC CAT.—Among the archives preserved at the Oak Street Police Station is a record of the progeny of a pet cat which has been an inmate of the station-house for the past twelve years. The addition to it of a recent litter brings the number up to the remarkable figure of 283 kittens.

X-RAYS FOR BELLEVUE HOSPITAL.—The Commissioners of Public Charities have decided to have placed in Bellevue Hospital a complete Röntgen-ray apparatus. They very properly regard this as an economical measure, as the ordering of x-ray photographs from outside has already been an item of considerable expense, and the establishment of such a plant in the hospital will be of material practical assistance to the medical and surgical staff.

THE BERTILLON SYSTEM.—Dr. Stephen G. Cook, President of the Board of Police Surgeons, who has been making a thorough study of the subject, both theoretically and in its practical application in Sing Sing prison, has, at the request of the Board of Police, established a bureau for the Bertillon method of measuring criminals, in connection with a photograph gallery, on the top floor of the Police Headquarters Building.

THE NEW YORK ACADEMY OF MEDICINE.—At the meeting of the New York Academy of Medicine held February 4th, the retiring President, Dr. Joseph D. Bryant, made some valedictory remarks, and the President-elect, Dr. Edward G. Janeway, was inaugurated. In the course of his address Dr. Janeway referred to the desirability of establishing a pathological laboratory at the Academy for the service and convenience of the members, and also expressed the wish that a committee should be appointed to take into consideration the vexed question of medical experts in criminal trials and bring the matter before the Academy for general discussion.

STEPS TOWARD A NEEDED REFORM.—At a recent conference of the authorities of the Charity Organization Society and a committee, consisting of Drs. Burtonshaw and Washburne, representing the Medical Society of the County of New York, a plan of co-operation was agreed upon for preventing unworthy persons from longer receiving free treatment at the dispensaries and out-patient departments of hospitals. The fact that those able to pay are constantly patients at these charitable institutions has long been a crying

abuse, and it is claimed that the number of such beneficiaries is steadily increasing. In consequence, not only do medical practitioners lose their legitimate fees, but the dispensary physicians, who give their services gratuitously, are greatly overtaxed. The contemplated plan of co-operation has in view the appointment of an organized corps of investigators to examine systematically into the financial condition of all applicants for treatment at the dispensaries.

Miscellany.

LOUIS AGASSIZ.

THE following tribute to the late Professor Louis Agassiz, relating especially to the debt which all American teachers of science, and not least those who teach the science of medicine, owe to him as the introducer of the laboratory method of teaching, is taken from the Annual Report of the President and Treasurer of Harvard College:

It will be fifty years next September since Louis Agassiz was elected Professor in Harvard University. The Museum he founded in 1859 has developed into an establishment which has cost for its building, collections and library more than a million of dollars, and possesses also an invested endowment of nearly six hundred thousand dollars. All education in the United States and all American science are under the deepest obligations to Louis Agassiz. He introduced here in 1847 the laboratory method of teaching science. Properly combined with lectures it was the only method he believed in or ever used, and it is the only method now considered satisfactory or even justifiable. When he was appointed professor, there was no laboratory for students' use in the entire university, except the dissecting-room for human anatomy in the Medical School, where the work done was for the most part of a crude sort. The numerous well-appointed laboratories of to-day, not only in Harvard University, but in all institutions of the higher learning, and even in well-equipped secondary schools, bear witness to the importance of this reform in which Agassiz was a pioneer. He created in the university respect for the special student—the persistent student of one subject—for he demonstrated in many of his pupils the developing, refining, and exalting influence of the thorough study of any one great subject. He was not so careful to inquire what had been the previous academic training of a promising young man, as to make sure of his present capacity, enthusiasm and endurance. As a proper test of fitness for a degree he gave preference to one comprehensive examination covering a long period of study over a long series of examinations, each covering a short period of study. It was not till 1872, twenty-five years after his appointment as professor, that this method of examination was introduced into the university in connection with the degrees of Doctor of Philosophy and Doctor of Science. He set up a high standard of endowment and equipment in his department, and thereby raised the standard for all other departments, not only in his institution, but in all other American institutions of the higher learning. When by the unequalled influence of his enthusiasm and persuasive oratory, he procured great sums of money from the Commonwealth and from private benefactors for the building and endowment of his Museum of Comparative Zoölogy, he was making it easier for the departments of Chemistry, Botany, Physics and Medicine to obtain material support for their laboratories and collections. The friends of other departments had to exert themselves to keep pace with his achievements. Almost from the beginning of his life in this country he took a strong interest in the elementary and

secondary schools as well as in the universities, and was ever ready to give time and labor to any undertaking which promised an improvement in existing school methods. He was always ready to exert himself to promote the introduction of just methods of teaching Natural History and liked no audience better than an assemblage of school-teachers. The lesson he taught in this respect has been learnt but slowly. To-day, in spite of his example and its manifest effects, there are few university teachers who take the interest which Louis Agassiz took in the work of the elementary and secondary schools, or are willing like him to labor strenuously on their behalf. He believed that the teacher and man of learning should always be giving out as well as acquiring, always be imparting as well as absorbing, always be trying to do something to advance the knowledge of his subject or to improve the means of teaching it. He constantly dwelt on the importance of testing young scholars by their intellectual productiveness, as well as by their capacity to assimilate the productions of others. His doctrine and example in this respect had a very stimulating and invigorating effect at this university and at many others. In all these ways he was far in advance of the average American college teacher of that period; and being endowed by nature with an extraordinary personal influence over friends, neighbors, and even casual acquaintances, and with a prodigious energy in travelling, exploring, collecting and teaching, he aroused new intellectual interests all over the country, raised the popular conception of the man of science, introduced on a great scale improved methods of teaching the sciences dear to him, and gave a new meaning to the word teacher.

THE PLAGUE AND CLIMATIC CONDITIONS.¹

THE present outbreak of the plague in India suggests certain considerations with reference to the possible connection of its occurrence with climatic conditions. While it used to be thought that the plague could not occur in the torrid zone, it is now known, in view of outbreaks of the disease within the tropics in Arabia and India, that this rule does not hold rigidly. In Egypt the autumn seems to be the season in which the plague appears, and June the month in which it dies out. In Europe, outside of Turkey, the plague season has been summer and autumn. In India no direct connection with the seasons could be detected in the epidemics of 1815-21, the first outbreak concerning which we have trustworthy information, and of 1836-38. From all the data at hand, the general conclusion is that a moderately high temperature favors the development and extension of the plague, but extremes of heat and cold are unfavorable to its breaking out. Exceptions to this rule are many. For instance, in the epidemic at Smyrna in 1735, the heat was so excessive during the plague that many of the people who left the town for neighboring villages died of sunstroke on the way, while in Roumelia, in 1737-38, the plague continued in many places in which the temperature fell at times to 3° Fabr. Regarding the effect of atmospheric moisture there is also some doubt. Some authorities hold that a high degree of humidity is necessary for the epidemic extension of the plague, while others maintain the opposite view. Certainly the occurrence of many outbreaks at high altitudes in Kurdistan, Arabia, Chioa and India, makes it clear that a moist atmosphere is not always an essential in the spread of the epidemic. The present outbreak in India, coming at a time when medical men in that country and all over the world are thoroughly alive to

¹ R. DeC. Ward: Science, February 5, 1897.

the importance of studying the climatic relations of the disease, will undoubtedly result in giving us much additional information in this connection. The occurrence of this outbreak in India at a time of famine recalls the fact that the plague, 1815-21, broke out in the island of Cutch in a district where there had been a famine a short time before.

CHILD INSURANCE AND CRUELTY TO CHILDREN IN ENGLAND.

In the *Child's Guardian*, the official organ of the English National Society for the Prevention of Cruelty to Children, we find the following summary of the work of the Society since 1884:

"Since its formation in 1884, the Society has investigated 106,554 complaints of cruelty, of which 96,914 were found to be true, and affected the welfare of 259,336 children and 136,316 offenders. Action was taken as follows: 70,756 cases were warned; 12,128 were prosecuted (over 95½ per cent. being convicted); 14,000 were dealt with in other ways; 2,199 years of imprisonment and £3,886 in fines were inflicted; 54,760 children were known to be insured for a total sum of £277,000."

The large number of insured children (54,760) certainly points strongly toward the pernicious effects of child insurance. The classification of complaints was as follows: Neglect and starvation, 68,105; ill-treatment and assault, 21,643; manslaughter, 22; abandonment, 1,803; exposure, 3,909; causing to beg, etc., 5,027; indecent assault, 845; criminal assault, 611; immoral surroundings, 2,221; other wrongs, 2,368; 1,347 children died of their treatment.

THE PURPOSE OF PHYSICAL PAIN.

DR. WEIR MITCHELL's poem on "The Birth and Death of Pain," read at the recent Ether Celebration at the Massachusetts Hospital, has given rise to much discussion, by no means new, in the daily press as to the riddle of the purpose of physical pain. It is suggested that pain is obviously intended as a warning of impending danger, an indication of the condition of injured structures and also an educator and means of discipline. To one class of thinkers this question is a part of the problem of the origin and purpose of evil.

A writer in the *New York Commercial Advertiser* treats of these questions, and especially of pain as an educator, in a judicious and suggestive way. As an educator pain can have no influence, in his opinion, that is at all commensurate with its intensity.

"In spite of the argument advanced to show the effect of pain on the adult of small intelligence, we are bound to fix the limit of its educational purpose to the period of early childhood—to the teaching of the child that fire, which destroys the continuity of tissue, hurts; that a fall is accompanied by sensations that are disagreeable; that sharp-edged tools, when awkwardly handled, have a distressing effect, and so on. It gives no warning, however, of other equally dangerous and similar agencies, as that water will drown; and gases in the stomach, over which the child can have no control, and which are wholly without danger, are as acutely painful as a cut or bruise.

"However, some measure of utility in pain, perhaps merely incidental, must be admitted. Yet it so often hap-

pens that the pain is not proportioned to the danger to be guarded against, so that often it does not reach its maximum of intensity until all possibility of protective or curative action is past, that it seems unwarranted to regard its chief purpose to be indicative. There are diseases of a most virulent type in which the pain is nothing like the ache of a tooth. A mere distention of the stomach is sometimes the cause of a deeper pain than a condition that is bound to be fatal. The consequences of a tight boot are never as serious as certain diseases of the lung tissue, yet the pain may be much less bearable. The pain of tuberculosis is at its height in the most hopeless stage, when blood-poisoning is established. As an indicator pain is a failure, being too utterly inconsistent and indiscriminate in its operations. In its care for the preservation of the race, nature has made the sexual instinct the strongest of all, stronger even than that of self-preservation. How absurd, then, to make the travail of child-birth the most excruciating. It serves no other purpose than to discourage child-bearing—unless, of course, we regard it as a vindictive punishment of women for Eve's failure to resist the allurements of knowledge.

"It is a common idea that sorrow is essential to an enlargement of the sympathetic nature, and therefore to the achievement of the highest in the realm of the poetical and imaginative. Doubtless, it is true that mental suffering chastens and purifies and exalts in some instances, though in others it makes querulous and selfish beings of previously tolerable persons, but there is little reason to think physical pain has so often that effect as to make the victims impatient and fretful, a nuisance to friends and a bore to themselves. It is either too uncertain in its effects, or too often it weakens the moral sense, to be regarded as purposeful in this direction. In short, conceding its occasional, but possibly accidental, utility, the purpose of pain is less clear than the purpose of the beautiful, of which Emerson asked, in effect, what could be the use of the infinite forms of beauty in the shells sometimes brought to the surface in deep-sea soundings.

"If customs are the index to belief, then nobody now believes pain to be either a punishment we should bear for our own good, or a means of education it is to our interest to welcome, since even the mandate that woman shall bear children in pain is daily defeated, and no voice is raised to protest; and since in every case the first effort of layman or doctor is to relieve the sufferer. Mankind seems to be united in the opinion that the greatest boon to man is the discovery of the anesthetic.

"Of such little benefit is pain compared with the injury it inflicts, it is probable that if the wisest and most dutiful of men, knowing all it is possible to learn, should have it in his power either to abolish pain or allow it to continue under its present laws, he would probably banish it with so glad a heart that he would not regret the loss of the educating influence of pain in childhood."

A STATIONARY POPULATION IN FRANCE.

SINCE the last census revealed the fact that the population of France was not increasing, and that even the law passed some years ago that every seventh child might be educated and boarded at school at the nation's expense, was not sufficient inducement to cause families of seven or its multiples to result from French marriages, the French have become seriously concerned over their unfruitfulness. It has been suggested that every year France loses the equivalent of a battle of Sedan in infants, premature and still-born babies; moreover, Germans and Austrians are sending out disquieting stories of the number of children they can produce and rear to manhood.

It is related, for instance, that a Vienna woman in her fortieth year recently presented her husband with

their thirty-second child. The effect of such stories upon the susceptible mind of the Frenchmen is tremendous. Suppose every married woman in Germany and Austria goes on at this rate, what will become of France?

Desperate efforts are made to rear infants under glass in the incubating establishment in the Boulevard Poissonière, where, it is stated, all infants who are brought there immediately, without receiving a chill on the way, and exceed the small limit of two and one-fourth pounds in weight, are successfully reared. The managers of the institution state that they have saved the lives of 1,200 children since it was established.

The National Alliance for the Increase of the Population of France has this week presented a petition to the Prime Minister, setting forth certain drastic measures which the government is urged to adopt. Dr. Bertillon, inventor of the system of measuring criminals, is the head of the society, and its plan includes some interesting features. It proposes that government scholarships in schools, lycées, and academies be given only to families having at least three children living; all favors of government, such as tobaccoists' licenses, concessions in colonies, etc., to be given to such families; when the claims of government officials for promotion are decided, their number of children to be taken into account; allowances and traveling expenses to officials, as well as the salaries of subalterns, to be regulated according to the number of children; the posts under the government, except those requiring special qualifications, to be given only to fathers having more than three children.

BEHRING'S DIPHTHERIA ANTITOXIN SERUM IMPROVED.

PROFESSOR BEHRING announces in the *Fortschritte der Medicin* that he has succeeded in improving the diphtheria serum so that any ill effects will henceforth be entirely avoided. The undesirable symptoms observed sometimes, such as exanthems, swelling of the joints, albuminuria, etc., are, in Professor Behring's opinion, due partly to the diphtheritic process itself and partly to accessory products which are present in the serum, pure antitoxin being a definite substance which only acts against the virus of diphtheria, and otherwise has no influence on the organism. Professor Behring has not been able either to remove these products from the serum or to prevent their formation; but the strength of the serum, reckoned in antitoxin units, has been increased so much that only a small quantity is required, and the unpleasant symptoms referred to are not now produced. This extra potent serum is sold by the Hoechst factory as a dry preparation, which, before being administered, must be dissolved in water. It is very soluble, and may be kept for any length of time. It does not contain carbolic acid or any other antiseptic compound, but is simply preserved in hermetically closed bottles. The strength of one gramme is 5,000 normal units.

Professor Behring points out that the new antitoxin is especially valuable for immunizing purposes; the immunity obtained by its administration lasts about four weeks. He hopes that the small number of medical men who are still opposed to the antitoxin treatment will now be persuaded of its efficacy and safety.

Correspondence.

THE ELSNER METHOD OF DIAGNOSIS IN TYPHOID FEVER.

13 HEREFORD ST., BOSTON, MASS.

MR. EDITOR:—I am engaged, at present, in investigating the value of the Elsner method in the diagnosis of typhoid fever by the bacteriological examination of the stools. Unfortunately, for my purpose, the number of typhoid cases just now in the wards of the Massachusetts Hospital is very small. I should like, therefore, to say, through your columns, to the members of the profession, in Boston and immediate vicinity, that I should consider it a great favor if I were allowed to make, at short intervals, cultures from the stools of suspected typhoid patients.

It is especially desired to get cases as early as possible in the disease, but any case, up to the stage of convalescence, would be of value.

Any physician, who desires to co-operate with me, will kindly write to me at above address.

Very truly yours, MARK W. RICHARDSON, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 30, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	758	281	9.52	17.42	1.43	.13	5.07	
Chicago . .	1,619,226	480	219	14.07	22.05	7.56	.81	3.78	
Philadelphia .	1,164,060	448	134	11.88	18.70	.44	1.10	9.02	
Brooklyn . .	1,100,000	—	—	—	—	—	—	—	
St. Louis . .	560,000	184	48	8.54	15.12	—	2.16	6.48	
Boston . .	494,205	237	71	11.24	18.06	—	.84	7.98	
Baltimore . .	496,315	184	59	12.96	22.42	.54	—	10.26	
Cincinnati . .	336,000	96	—	4.16	20.32	—	—	3.12	
Cleveland . .	314,537	—	—	—	—	—	—	—	
Washington .	275,500	115	33	6.96	29.58	.87	2.61	.87	
Pittsburg . .	238,617	89	38	4.92	23.37	—	.36	.12	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	87,754	22	3	4.15	8.50	—	—	—	
Charleston . .	65,165	23	6	—	8.68	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	40	19	12.50	17.50	—	—	7.50	
Fall River . .	88,020	37	15	29.70	10.80	18.90	5.40	5.40	
Lowell . .	84,359	36	20	5.54	16.62	—	—	2.77	
Cambridge . .	81,519	24	3	8.32	—	4.16	—	4.16	
Lynn . .	62,355	16	—	—	25.00	—	—	—	
New Bedford .	55,254	26	8	11.55	11.55	3.85	—	3.85	
Springfield .	51,534	—	—	—	—	—	—	—	
Lawrence . .	62,153	17	9	—	5.88	—	—	—	
Holyoke . .	40,149	11	3	—	—	—	—	—	
Salem . .	34,437	—	—	—	—	—	—	—	
Brockton . .	33,157	10	4	20.00	30.00	—	—	20.00	
Haverhill . .	30,185	4	2	25.00	25.00	—	—	25.00	
Malden . .	29,709	—	—	—	—	—	—	—	
Chelsea . .	31,295	9	1	11.11	44.44	—	—	11.11	
Fitchburg . .	26,394	3	1	—	—	—	—	—	
Newton . .	27,022	9	2	22.22	11.11	—	22.22	—	
Gloucester . .	27,663	4	0	—	25.00	—	—	—	
Taunton . .	27,093	6	1	—	—	—	—	—	
Waltham . .	20,877	—	—	—	—	—	—	—	
Quincy . .	20,712	—	—	—	—	—	—	—	
Pittsfield . .	20,447	6	2	—	33.33	—	—	—	
Everett . .	18,578	—	—	—	—	—	—	—	
Northampton .	16,738	—	—	—	—	—	—	—	
Newburyport .	14,554	2	0	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,105: under five years of age 1,015; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 317, acute lung diseases 555, consumption 352, diphtheria and croup 171, diarrheal diseases 61, typhoid fever 28, whooping-cough 19, scarlet fever 13, measles 12, erysipelas 9, cerebro-spinal meningitis 4.

From whooping-cough New York 6, Philadelphia 4, Baltimore and Washington 3 each, Chicago, Boston and Providence 1 each. From scarlet fever New York 7, Chicago and Boston 2 each, Baltimore and Lawrence 1 each. From measles Chicago 5, New York 4, Boston, Providence and Worcester 1 each. From erysipelas New York 4, Chicago 2, Philadelphia, Boston and Nashville 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending January 23d, the death-rate was 19.7. Deaths reported, 4,156; acute diseases of the respiratory organs (London) 325, whooping-cough 117, diphtheria 87, measles 67, scarlet fever 43, fever 36, diarrhoea 35, small-pox (London) 1.

The death-rates ranged from 12.0 in Croydon to 29.2 in Liverpool; Birmingham 21.8, Bradford 20.1, Brighton 14.2, Gateshead 16.0, Hull 16.9, Leeds 20.2, Leicester 20.5, London 18.1, Manchester 26.0, Newcastle-on-Tyne 19.4, Nottingham 19.7, Plymouth 18.2, Sheffield 21.2.

METEOROLOGICAL RECORD

For the week ending January 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..24	29.84	18	25	11	58	62	60	S.W.	W.	8	20	C. F.
M..25	29.64	12	16	7	51	48	50	W.	S.W.	24	30	C. C.
T..26	29.58	22	32	12	54	52	53	S.W.	W.	24	15	F. C.
W..27	29.89	26	32	21	59	94	76	S.W.	N.	8	3	C. C.
T..28	29.30	26	32	19	100	89	94	N.E.	W.	30	16	N. N.
F..29	29.7	24	21	18	65	54	60	W.	S.W.	13	14	C. C.
S..30	30.42	24	31	16	70	55	62	N.W.	N.W.	10	12	C. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 30, 1897, TO FEBRUARY 5, 1897.

MAJOR WILLIAM C. SHANNON, surgeon, will upon the expiration of sick leave, be relieved from duty at Fort Custer, Mont., and ordered to Jackson Barracks, La., relieving FIRST-LIEUT. ROBERT S. WOODSON, assistant surgeon.

FIRST-LIEUT. WOODSON, on being thus relieved, is ordered to Fort McPherson, Ga., for duty, relieving CAPTAIN PHILIP G. WALES, assistant surgeon.

CAPTAIN WALES, on being thus relieved, is ordered to Fort Niobrara, Neb., for duty.

MAJOR EDWARD B. MOSELY, surgeon, ordered, upon the expiration of his leave of absence, to Benicia Barracks, Cal., relieving MAJOR CURTIS E. MUNN, surgeon.

MAJOR MUNN, on being thus relieved, is ordered to Fort Logan, Col., for duty, relieving MAJOR AUGUSTUS A. DELOFFRE, surgeon.

MAJOR DE LOFFRE, on being thus relieved, is ordered to Fort Sam Houston, Tex., for duty.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 6, 1897.

H. LAMOTTE, assistant surgeon, granted sick leave.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene will meet at the Medical Library, 19 Boylston Place, Wednesday, February 17, 1897, at 8 o'clock.

The following papers will be read: Short communications from Drs. Greenleaf and E. H. Nichols, and the paper of the evening by Dr. E. G. Cutler, "Chronic Gastric Ulcer."

Dr. Hewes will speak on "The Analysis of Gastric Contents." E. W. TAYLOR, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next lecture will be given on Thursday evening, February 18th, at 8 P. M., by ASST.-PROF. WM. T. PORTER. Subject: "The Physiology of the Sympathetic System." The profession are invited.

RECENT DEATHS.

SAMUEL HUTCHINS HURD, M.D., M.M.S.S., formerly of Charlestown, died at Atlantic City, N. J., February 5, 1897, aged sixty-six years.

CHARLES WENDELL COOPER, M.D., M.M.S.S., of Northampton, died at sea, February 7th.

BOOKS AND PAMPHLETS RECEIVED.

Eighteenth Annual Report of the State Board of Lunacy and Charity of Massachusetts, January, 1897. Boston: Printed by the State. 1897.

Gonorrhoeal Iritis and Non-Suppurative Gonorrhoeal Conjunctivitis and their Pathology. By William Cheatham, M.D., Louisville, Ky. Reprint. 1896.

Transactions of the American Ophthalmological Society, Thirty-second Annual Meeting, New London, Conn., 1896. Hartford: Published by the Society. 1897.

Impetigo Contagiosa Universalis. Treatment of Ringworm of the Scalp in Institutions. Some Glycosuric Dermatoses. By Charles W. Allen, M.D., New York. Reprints. 1896.

A Brief Note upon a Perfected Series of Test-Words Intended for the Determination and Estimation of the Power of Accommodation. By Charles A. Oliver, A.M., M.D. Reprint. 1896.

Transactions of the American Surgical Association. Volume XIV. Edited by DeForest Willard, A.M., M.D., Ph.D., Recorder of the Association. Published by the Association. Philadelphia: W. J. Dornan. 1896.

Abdominal Surgery. By J. Grieg Smith, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary; Professor of Surgery, University College, Bristol. Fifth edition. Volumes I and II. London: J. & A. Churchill. 1896.

Note Climatologique et Démographique sur Biarritz. Par le Dr. Lohit, Membre de la Société Astronomique de France. Communication faite au Congrès d'Hydrologie, de Climatologie et de Géologie de Clermont-Ferrand (Septembre-Octobre, 1896). Biarritz. 1896.

Vingt Cas de Fractures de Clavicule Traités par le Massage. Par le Dr. Dagron, Ancien interne des Hôpitaux de Paris, Chargé du service des massages des fractures à l'Hôpital Beaujon. Extrait du *Journal de Médecine et de Chirurgie Pratiques*, 25 Aout, 1896. Paris: A. Coccoz, Libraire-Editeur. 1896.

De la Gonococcose — Gonococcite et Gonococcie, Localisations Gonococciennes et Infection Gonococcique. Par le Dr. Richard D'Aulnay, Ancien interne de Saint-Lazare. Extrait de la *Revue Internationale de Médecine et de Chirurgie*, 10 et 25, Décembre, 1896. Clermont (Oise): Imprimerie Daix Freres. 1896.

The Sequels of Disease, being the Lumleian Lecture delivered in the Royal College of Physicians, 1896, together with Observations on Prognosis in Disease. By Sir Dyce Duckworth, M.D., LL.D., Fellow and Treasurer of the Royal College of Physicians, etc. London, New York and Bombay: Longmans, Green & Co. 1896.

Objections to and Criticisms on the Majority Report of the Committee of the Medico-Legal Society on the Existing Law for the Commitment of the Insane. Practical Points Regarding the Severe Insanities, with Special Reference to Prophylaxis and Management. By Ralph Lyman Parsons, A.M., M.D., New York. Reprints. 1896.

Physiology for Beginners. By M. Foster, M.A., M.D., F.R.S., Professor of Physiology in University of Cambridge, and Lewis E. Shore, M.A., M.D., Fellow of St. John's College, Cambridge, and Senior Demonstrator of Physiology in the University of Cambridge. New edition, with additions. New York: The Macmillan Company. 1897.

Le Rôle de la Graisse dans les Hernies: Applications Thérapeutiques, Prévention des Hernies, Préparation des Sujets à Opérer, Traitement Palliatif des Sujets Inopérables. Par le Dr. Just Lucas-Championnière, Chirurgien de l'Hôpital Beaujon, Membre de l'Académie de Médecine. Extrait du *Journal de Médecine et de Chirurgie Pratiques*, 10 Septembre, 1896. Paris: A. Coccoz, Libraire-Editeur. 1896.

The Diseases of Infancy and Childhood, for the Use of Students and Practitioners of Medicine. By L. Emmett Holt, A.M., M.D., Professor of Diseases of Children in the New York Poly-clinic; Attending Physician to the Nursery and Child's and the Babies' Hospitals, New York Infant Asylum, and to the Hospital for Ruptured and Crippled. With 204 illustrations, including seven colored plates. New York: D. Appleton & Co. 1897.

A System of Practical Medicine by American Authors. Edited by Alfred Lee Loomis, M.D., LL.D., Late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the New York State University; Physician to the Presbyterian and Bellevue Hospitals, New York. Vol. I, Infectious Diseases. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1897.

Original Articles.

VENTRO-SUSPENSION OF THE UTERUS.

BY JOHN C. IRISH, M.D., LOWELL, MASS.

THE term "suspension" rather than "fixation" is chosen, because suspension, with considerable mobility of the uterus is to be especially desired.

The manner in which the operation is usually done, gives fixation for a short time after; while the secondary effect is a suspensory ligament which allows considerable motion. Formerly, when fixation was especially aimed at and obtained, the after-results of the operation were much less satisfactory than they are now; so that, in suspension of the uterus most operators at this time employ a technique designed to avoid a permanent fixation, and secure suspension in the ultimate result. Still, in the matter of technique, there are certain details of the operation by which we can save the patient some after-annoyance.

When the organ is suspended by buried silk or silk-worm-gut sutures, the latter occasionally make their way out through a suppurating sinus. These extrusions, of the silkworm gut especially, have occupied a very long time. I have had this-unpleasant experience in several cases. Therefore, of late I have suspended the uterus with two kangaroo-tendon sutures carried through the abdominal muscles, "fascia" and "peritoneum," thence through the anterior portion of the fundus and through the muscles of the opposite side. I prefer to carry sutures through the anterior rather than the posterior portion of the fundus, believing that when the suspensory ligament has been formed, the uterus may be in a more nearly normal position.

A still more cogent reason for attaching the uterus to the abdominal wall by sutures through the anterior portion of the fundus is brought out by the investigations of Dr. Noble in a communication to the American Gynecological Society, May 27, 1896. Discussing the effect of suspension of the uterus upon pregnancy and labor, after an investigation of 808 cases, Dr. Noble deduced, among others, the following conclusions: "That serious or insuperable obstructions to labor may be produced if the fundus and anterior walls of the uterus are imprisoned below the point of attachment between the uterus and abdominal wall."

This one dystocia of pregnancy and labor due to suspension of the uterus, and the only one his investigations did unquestionably establish, seems really due to the introduction of the sutures upon the posterior surface of the fundus. This condition, as described by Dr. Noble, is due to a tumor at the superior strait, consisting of the imprisoned and hypertrophied fundus and anterior wall of the uterus, constituting a muscular mass, that obstructs the entrance into the pelvis.

I think we may, therefore, reasonably hope that sutures introduced upon the anterior portion of the fundus, may prevent the occurrence of this complication in a following pregnancy and labor. Should this be the case, from the 808 cases investigated by Dr. Noble I think we are fairly justified in concluding that the operation has no objection with reference to a following pregnancy and labor.

In the treatment of retro-displacements of the uterus, ventro-suspension has been so generally resorted to for the past few years, and the results have been so satisfactory, that its employment in these

cases is fast becoming a matter of routine practice. The operation can be very easily and quickly done, and, barring avoidable accidents, without danger to the patient. When we secure suspension rather than fixation, the relief is complete and permanent. The value of the operation in this class of cases is so well established that little remains to be said.

In the treatment of procedentia uteri of every degree, from moderate downward displacement to complete prolapse, the propriety of uterine suspension has not been so generally recognized as in case of retro-displacements. It is in this class of cases, that I wish to especially insist upon the value of this operation. Procedentia, occurring mainly among women of middle age or advanced life, who have borne several children, is very frequently met with. We see only exceptionally, the very aggravated forms of the disease, where the uterus is entirely prolapsed, accompanied by the bladder and a portion of the vagina. More frequently the mouth of the uterus descends to the vulva, and is arrested there. Whether this condition is still further complicated by cystocele depends much upon the condition of the pelvic floor and anterior vagina. The uterus is enlarged and congested, and necessarily retro-displaced. With this condition in these cases anterior and posterior colporrhaphy never cures; and when, in addition, the uterus is curetted and drained, and lacerations of the cervix repaired, if need be, still these multiple operations only partially correct the faulty conditions. It is true, however, they afford great relief—so great that the patients, whose condition has required some of these operations, have believed themselves entirely cured. The relief they experience may to a certain extent be permanent; but the faulty position of the uterus has not been corrected. It is still displaced backward, and is still much too low in the pelvis. Consequently, after a time the uterus descends again to its old position, and again becomes heavy and congested; while, if we have complete prolapse, the failure of all these operations is, as a rule, only more complete and prompt.

This statement of the inefficiency of the above plastic operations for the correction of procedentia uteri, is based largely upon personal experience. But in extenuation of my apparent lack of skill to obtain perfect and permanent results from these operative proceedings, I must say, that, so far as I have observed the cases of other operators, they have had much the same defective results as have followed in my own cases. While one or more of these operations in the vagina is usually necessary to restore the vaginal outlet or uterus to its normal condition, yet the prime object of our efforts must be to restore and permanently retain the uterus in its original position. This, ventro-suspension does with sufficient precision to make a permanent cure in cases of procedentia of the second degree.

My personal experience in the treatment of prolapse of the uterus by ventral suspension, comprises 21 cases. In 18 there was descent of the organ to the vulva. Three were cases of complete prolapse. Ventral suspension alone was done in the first five cases, with the belief, that when the uterus was held in position, all inconvenience from cystocele and defective perineum would gradually disappear. The after-results in three of these cases corrected that error. In one I have since done anterior colporrhaphy and perineorrhaphy. Two others are still suffering from a cystocele—but

not enough to induce them to have it relieved by operation. There are occasional examples of prolapse of the uterus to the vulva, in which there is no defect of perineum and no cystocele. In the treatment of these, ventro-suspension alone is required. Anterior and posterior colporrhaphy was done in most of the remaining 16 cases. An elongated cervix was amputated in one case. In several instances curetting and drainage of the uterus seemed necessary, and was done in addition to the plastic vaginal operations.

In brief, whatever operations upon vagina or uterus the condition of each patient seemed to require, were done first; then the uterus attached to the abdominal wall at the same sitting.

The after-progress of all these patients to recovery was rapid and uneventful. In no instance were there any of those disturbances that we now and then see after abdominal sections for other and graver affections. The contents of the abdomen are so little exposed and so little is done within the abdominal cavity, that there is no danger except from septic infection, which, with our care of to-day in this operation, is practically an eliminated factor of danger.

The recorded results in large numbers of cases by others, confirm this statement. Ventro-suspension, in addition to the ordinary plastic operations done for prolapse, did not in any way alter or retard the patient's progress to recovery. These cases have been operated on so recently that I do not know whether there will be any remote sequelæ that will detract from the value or final success of the operation. But its after-results so far have been so satisfactory to myself and so gratifying to the patients, that in all cases of prolapse of the uterus to the vulva, ventro-suspension will be done with the consent of the patient; and in view of the complete cure that can be promised, that consent will rarely be withheld.

As applied to the correction of complete prolapse, ventral suspension cannot be advised so confidently. Although it has been entirely successful so far as my own small experience goes, still there are several recorded cases of failure. Some of these are undoubtedly due to the fact that hysterorrhaphy alone, without the auxillary plastic operations, was relied upon.

We have, then, to compare ventral suspension, supplemented, of course, with the necessary plastic work, with other operative procedures that may be chosen for the treatment of the affection. Vaginal hysterectomy has given, in many cases, very satisfactory results, but it is often followed by an intractable cystocele.

The character of the operation is such that this sequel cannot be prevented nor cured when it has once occurred. Ventro-suspension, even if it is followed by an occasional relapse, is by far the preferable operation.

The choice of operation, then, lies between hysterorrhaphy and abdominal hysterectomy. Baldy reports eight cases of supra-vaginal hysterectomy for prolapse, and describes the technique followed, which in the first part, is the ordinary operation (Baer's). Then he raises and attaches the cervix to the broad-ligament pedicles that contain ovarian arteries and sound ligaments. He thus utilizes the remaining portion of the cervix to draw up and anchor the stretched-out vagina. The advantages of this procedure over complete abdominal hysterectomy are at once apparent.

In one case Baldy¹ attached the cervix to the anterior abdominal wall.

Noble² also reports a case in which hysterorrhaphy had failed, and in which he did hysterectomy and attached the cervix to the abdominal wall.

These cases all gave satisfactory results.

The single advantage of hysterectomy over ventro-suspension is that it would probably eliminate the rare failures that might follow the latter operation. A very movable uterus can be removed with great facility and with very little danger, still the mortality of the operation is necessarily larger than that of ventro-suspension. When it is done for prolapse, the patient must submit, two or three weeks later, to additional plastic operations, and is confined in bed six weeks. When ventro-suspension is done the patient is consciously disturbed by only one operation, for the others that are required are done at the same time, and she recovers in three weeks. At the present time, my own choice of operation will be ventro-suspension with women of child-bearing age, and those quite advanced in years, for example, sixty-five and older, and in ordinary cases of complete prolapse. Should prolapse recur, the failure is not irremediable, for hysterectomy can then be done. However, in that class of cases in which the uterus has become greatly enlarged or its structure much changed from long-continued exposure, I believe that hysterectomy with all its disadvantages will give better results.

ANATOMY OF CONGENITAL EQUINO-VARUS.¹

FROM THE SEARS PATHOLOGICAL LABORATORY OF
THE HARVARD MEDICAL SCHOOL.

BY EDWARD H. NICHOLS, M.D., *Assistant in Pathology.*

THE two specimens of equino-varus illustrated in this article are the feet of a still-born child, delivered at term, in the Out-patient Clinic of the Boston Lying-in Hospital.

Besides the double club-foot there was a failure to close of the posterior wall of the neural canal in the occipital and dorsal regions, "partial cranio-rachischisis"; a lack of development of the right side of the heart, and a fetal mesentery.

The left foot was carefully dissected. The right foot was frozen, and cut in parallel sections in a plane corresponding to that of the malleoli. This method, so far as the writer knows, is a new one, and gives an accurate view of the relations of the parts, without the artifacts necessarily associated with any dissection of the deep structures.

THE NORMAL FOOT.

In the normal foot the astragalus lies tightly wedged between the tibia and fibula, with which its upper surface articulates, and this joint permits motion only in flexion and extension. In front of this joint the neck of the astragalus extends forward and slightly inwards, and terminates in an articular facet or head, which articulates with the scaphoid. The plane of this joint is practically at right angles to the long axis of the foot. The astragalus rests upon the os calcis, a little to its inner side, and the plane of the articular

¹ Read before the Boston Society for Medical Improvement, November 30, 1896.

² American Journal of Obstetrics, April, 1896.

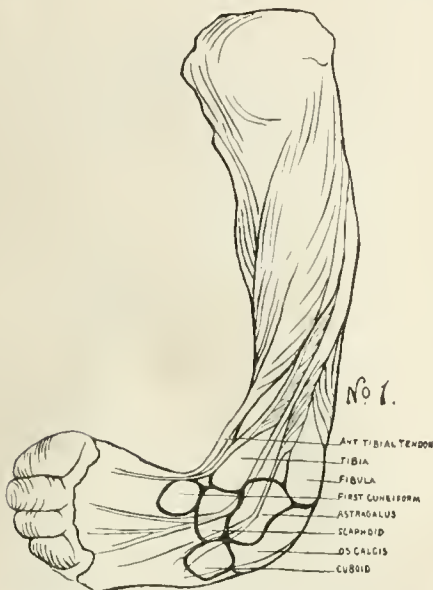
² American Gynecological and Obstetrical Journal, May, 1896.

surface between the astragalus and os calcis is practically a horizontal one, at right angles to the long axis of the leg.

The os calcis lies below, and a little to the outer side of the astragalus, to which it is firmly attached by the interosseus ligament. The long axis of the os calcis runs forwards and slightly inwards. The anterior end extends nearly to the plane of the joint between the astragalus and the scaphoid, and articulates with the cuboid. The plane of this joint is also practically at right angles to the long axis of the foot. The two articulations, between the astragalus and the scaphoid on the inner side of the foot, and the os calcis and cuboid on the outer side of the foot, together constitute the "mid-tarsal" joint. This joint

calcis posteriorly, and the scaphoid and cuboid anteriorly. The deformity is best understood by studying the changes in the individual bones, ligaments and tendons. The following description of the abnormalities, especially of the relations of the bones, is based upon an examination of the two feet illustrated in this article, and of several dissections and preparations in the Warren Museum. For descriptions of individual bones various works were consulted, especially the admirable description of Walsbam and Hughes.

The astragalus is deviated slightly inward at the ankle-joint, the neck is somewhat elongated, and curves inward and downward so that the facet which should articulate with the scaphoid, points inward. The whole astragalus is tipped forwards so that the ante-



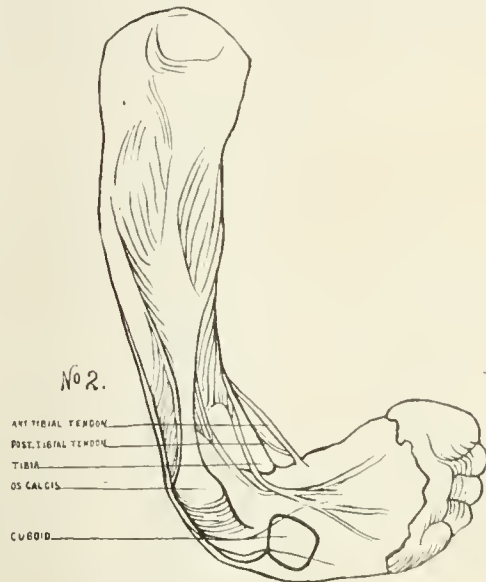
Congenital Equino-Varus. View of anterior surface of left foot. Shows inward deviations of neck of astragalus, and of os calcis, with resulting obliquity of mid-tarsal joint; altered relations of scaphoid, cuboid and internal cuneiform; and direction of anterior tibial tendon. Line-drawing from photograph of dissected foot.

allows limited motion in all directions, and is the joint chiefly concerned in the deformity of club-foot.

EQUINO-VARUS.

The gross changes in club-foot are obvious. The heel is small and elevated. In front of the leg the dorsum of the foot is prominent; the toes point inward nearly at right angles to the line of the leg, and the outer edge of the foot rests upon the ground, while the inner border is raised; the dorsum of the foot looks forward, while the plantar surface looks backward. The sole of the foot is contracted. The deformity is due to an inward and upward rotation of the whole foot, caused by a change in the shape of all the bones of the foot, accompanied by a contraction of the internal, and a lengthening of the external, ligaments, and by shortening of certain muscles and tendons, and by peculiarities in the course of vessels and nerves.

The greatest and most important abnormalities are the obliquity of the facets, and the change in shape of the bones which enter into the formation of the "mid-tarsal" joint, that is, the astragalus and os



Congenital Equino-Varus. View of plantar surface of left foot. Shows convexity of os calcis; altered relation of cuboid; and direction of posterior tibial tendon. Line-drawing from photograph of dissected foot.

rior half or two-thirds of the superior articular facet is not covered by the ankle-joint, and appears as a prominence on the dorsum of the foot. The inner surface is compressed, so that on cross-section the bone appears wedge-shaped, with the apex of the wedge on the inner side of the foot.

The os calcis is generally small. The posterior end is raised, the anterior end is depressed, while the bone, as a whole, is rotated inward beneath the astragalus, with the interosseous ligament as the axis. Moreover, the whole bone is convex externally and concave internally, and is directed downward, forward and inward, so that the anterior facet looks down and inward.

The scaphoid is somewhat flattened, is drawn inward and upward, and slightly rotated on its antero-posterior axis, so that its internal surface looks somewhat upward. It articulates with a facet on the inner side of the head of the astragalus, and may also articulate with the internal malleolus.

The cuboid is somewhat altered in shape, is drawn inward and upward, and is somewhat rotated on its antero-posterior axis, so that its internal surface faces

upward; it may be drawn entirely to the inside of the os calcis. It articulates with the obliquely placed anterior facet of the os calcis.

The cuneiforms are slightly changed in shape, the facets being obliquely placed to correspond with their altered position. They are adducted and rotated inward, so that their plantar surfaces look backward and inward.

The metatarsals are adducted and rotated to correspond with the altered positions of the cuneiforms and cuboid, but are only slightly altered in shape.

The internal ligaments are contracted, especially those which bind the scaphoid in its position. The external ligaments are lengthened. The plantar fascia is very much contracted.

The anterior tibial muscle is displaced inward, and shortened, and is an important factor in maintaining the varus position of the foot. The posterior tibial

that part of the foot in front of the mid-tarsal joint. The rotation of the anterior part of the foot causes the outer edge of the foot to bear upon the ground, and the dorsal surface to look forward. The shortened ligaments and tendons, especially those of the tendo-Achillis, tibialis anticus, and tibialis posticus, retain the foot in its abnormal position, while the shortened plantar fascia causes the contraction of the sole of the foot. Of these changes the most essential, and the one which offers the greatest resistance to correction of the deformity, is the obliquity of the mid-tarsal joint.

In patients who have walked upon uncorrected club-foot, all of these deformities are increased and accentuated. The muscles atrophy. The cartilaginous

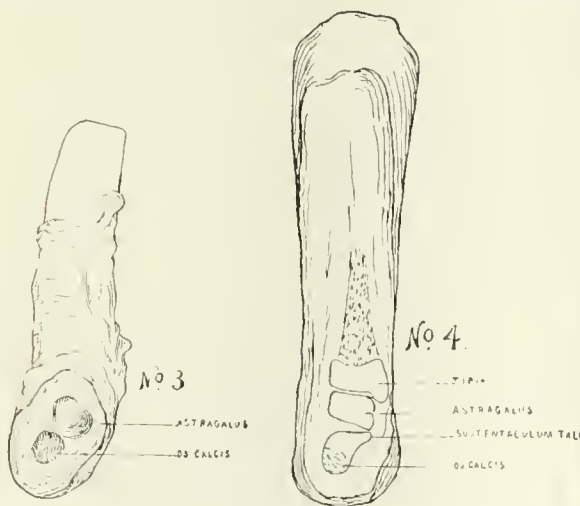


FIG. 3. Congenital Equino-Varus. Frozen section through mid-tarsal joint of normal foot at birth. Shows articular facets of astragalus and os calcis, with plane of articulation at right angles to the long axis of the foot.

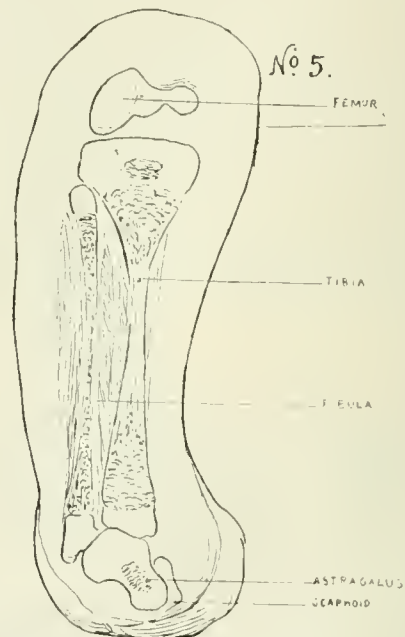
FIG. 4. Congenital Equino-Varus. Frozen section of normal foot, in long axis of the leg in the plane of the malleoli. Shows the nearly vertical position of astragalus and os calcis beneath the tibia. The section passed just in front of the fibula.

is shortened, and extends directly forward to its attachment to the scaphoid. The tendo-Achillis is shortened, and elevates the posterior end of the os calcis.

The anterior tibial artery is displaced inward, but is separated from the anterior tibial tendon by the long extensor of the great toe. The posterior tibial artery lies to the outer side of the posterior tibial tendon, although in close proximity.

The posterior tibial nerve is closely approximated to the posterior tibial artery.

Hence it appears that the deformity of the foot in cases of congenital equino-varus is due essentially to an alteration in the shape of all the bones of the foot. The tilting forward of the astragalus, carrying with it the os calcis, produces a plantar flexion of the foot at the ankle-joint. The inward twist of the neck of the os calcis and of the astragalus, causing an inward deviation of the anterior articular facets of the mid-tarsal joint, combined with the adduction and rotation of the scaphoid and cuboid, produces the varus position of



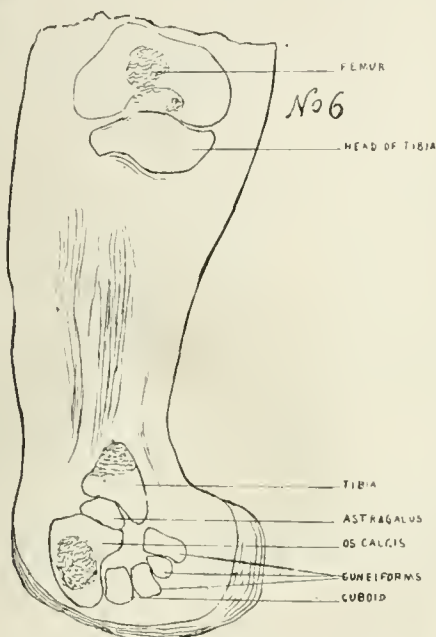
Congenital Equino-Varus. Frozen section, vertical, in the plane of the malleoli at about the level of the mid-tarsal joint, through a right congenital club-foot at birth. Shows the length and inward deviation of the neck of the astragalus, and the articulation of the scaphoid with the inner side of the neck of the astragalus.

surfaces of the os calcis and astragalus, which are uncovered and fail to articulate with the proper bones, lose their cartilage, which may be replaced by fibrous tissue or bone. This renders late reposition of the foot difficult. The ligaments bind the anterior tarsal bones more firmly in their abnormal positions. The marked inward direction of the anterior facet of the astragalus prevents forcible correction of the scaphoid or tends to cause recurrence of the deformity, if reposition is possible. The inward direction of the anterior facet of the os calcis prevents reduction of the cuboid, or tends to cause recurrence if reduction is possible. The contraction of the plantar fascia is more marked and the contraction of the anterior and posterior tibial tendon is extreme. Firm ligaments bind the scaphoid to the internal malleolus, the cuboid to the inner side of the os calcis, and the posterior surface of the astragalus to the external malleolus. The skin over the point of pressure of the foot upon the ground thickens, and large bursæ may form.

REDUCTION OF THE DEFORMITY.

To reduce the deformity it is evident that each step of the deformity must be corrected, that is, the contraction of the sole of the foot, the inward rotary deviation of the anterior part of the foot at the mid-tarsal joint; the inward obliquity of the mid-tarsal joint, the inward deviation of the astragalus and os calcis, and the plantar-flexion of the foot at the ankle-joint.

In infantile and non-resistant cases division of the plantar fascia will correct the contraction of the sole. Forcible reposition, with, if necessary, division of the anterior and posterior tibial tendons, and of the calcaneo-scapoid and calcaneo-cuboid ligaments, will cor-



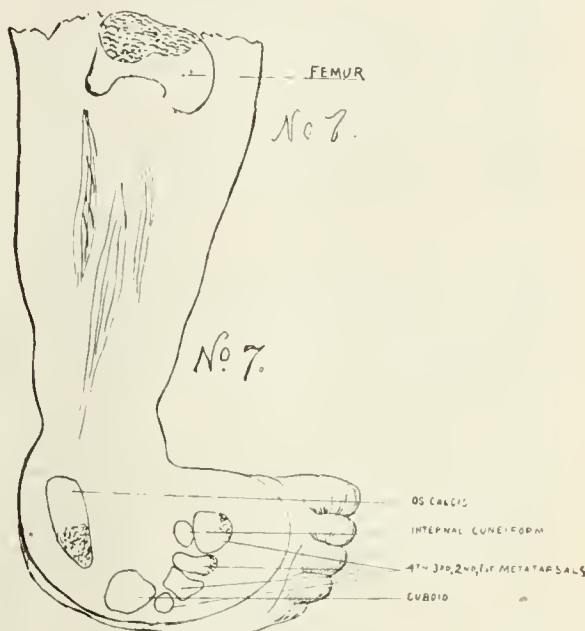
Congenital Equino-Varus. Frozen section, vertical, in the plane of the malleoli, about one-quarter of an inch posterior to the section in Fig. 5. Shows the compression of the astragalus; the obliquity of the os calcis; the altered position inward of the cuboid; and the relations of the cuneiforms.

rect the rotation and varus. Division of the tendo-Achillis and forcible reposition will correct the plantar flexion and inward deviation of the astragalus and os calcis. On account of the cartilaginous, yielding structure of the bones, division of tendons, forcible reposition of the foot, and retention of the foot in an overcorrected position will generally suffice, because the distorted bones conform to the corrected position.

In adult and resistant cases the bones are hard, no longer cartilaginous; the ligaments are very firm; and all steps of the deformity are accentuated. To correct these obstinate cases many operations have been recommended; for example, removal of the cuboid; of the astragalus; of the astragalus, cuboid and scaphoid; of the astragalus and external malleolus; division of all internal soft parts down to the bone; wedge-shaped osteotomy of the outer side of the os calcis; and, finally, osteotomy of the neck of the astragalus and of the neck of the os cal-

cis. From the anatomy it is evident that an operation which neglects to correct the inward obliquity of the mid-tarsal joint and the inward deviation of the astragalus and os calcis must be faulty, and liable to be followed by a recurrence of the deformity. A correction of the deformity of the anterior part of the foot alone will leave a re-entrant angle between the head of the os calcis and the cuboid, and is tolerably certain to be followed by a relapse.

The rational treatment of the deformity must depend upon a recognition of the essential changes that produce it. Division of the plantar fascia will correct the contraction of the sole. Division of the anterior tibial tendon, the calcaneo-scapoid ligament, the calcaneo-cuboid ligament, possibly the posterior tibial



Congenital Equino-Varus. Frozen section, vertical, in the plane of the malleoli, about one-quarter of an inch posterior to the section in Fig. 6. Shows the os calcis cut obliquely; the altered position inward of the cuboid; the internal cuneiform; and the heads of four metatarsals.

tendon, with osteotomy of the neck of the astragalus, and of the neck of the os calcis, followed by forcible reposition, will correct the varus and rotation at the mid-tarsal joint. Division of the tendo-Achillis, with forcible reposition, will correct the plantar flexion at the ankle-joint, and the inward deviation of the astragalus and os calcis.

SUMMARY.

The deformity in cases of congenital club-foot is due to alterations in the shape of all the bones of the foot, accompanied by contraction of certain tendons and ligaments. The chief deformity is at the "mid-tarsal" joint, and is due to an inward deviation of the anterior articular facets of the os calcis and astragalus. A failure to correct this obliquity is a failure to correct the deformity. In resistant cases the obliquity can be corrected best by an osteotomy of the neck of the os calcis and of the astragalus, followed by forcible reposition of the foot.

AIR-EMBOLISM, WITH REPORT OF CASES, CLINICAL AND EXPERIMENTAL.¹

BY JAY PERKINS, M.D.,

Medical Examiner, District No. 10, Providence County, R. I., Pathologist Rhode Island Hospital.

THIS subject of air-embolism, is one of peculiar interest because of the sudden onset of dangerous symptoms. Sudden death upon the operating-table strikes terror to the heart of any operator. To have a patient die suddenly during or after confinement is unfortunate for all concerned; but more impressive and more ruinous than either of these is it to have a patient die suddenly while a physician or other person is secretly performing a criminal operation or abortion.

Deaths under any of these circumstances may, and a number of times have, taken place in consequence of the entrance of air into the veins. The first recorded case of death thus caused was reported by Beauchêne in 1818. Since then there have been many cases reported by different physicians, especially in England, France and America. Yet the cases are sufficiently rare so that the average practitioner knows little or nothing about the accident. I find that many are wholly ignorant of the fact that such a form of death ever occurs. Were it more generally known and looked for, probably many more cases would be reported. It is hard to establish this as an absolute cause of death unless an autopsy is held, and that before putrefaction has set in. And even then it may be overlooked unless the pathologist has it in mind and looks especially for it.

Cases have been reported where severe symptoms or death have followed the entrance of air through the jugular subclavian, axillary, anterior thoracic, facial, femoral and uterine veins, and the sinuses of the skull; and many experiments have been made demonstrating the action of air in the circulation. The most thorough and complete experiments recorded are those by Senn, as published in the "Transactions of the American Surgical Association" for 1885.

For the accidental admission of air into the circulation to take place, it is necessary that a vein should become canalized. For ordinarily when a vein is cut it collapses and closes as by a valve, permitting blood to flow out but not admitting anything to pass in. This closure, may, however, be prevented by a partial division of the vein while it is on the stretch; by the vein being pulled upon from all sides, as in the neck and axilla when the muscles of respiration are in action; or by the vein being enclosed in and attached to firm tissues, as in bone, or the uterine tissue when the uterine muscle is relaxed, the uterus being pregnant.

The part of this subject to which I wish especially to call your attention and ask for your discussion is the entrance of air through the uterine veins.

In "Braithwait's Retrospect" for 1851 there is a record of three deaths from this cause, the authority being Dr. Lever. All of the cases were multiparæ, labor not long, placenta thrown off without assistance, and an inert stage of the uterus with hemorrhage followed. Forcible compression over the uterus with the hand was used. When the hand was removed a rushing sound was heard and all of the patients died speedily. In two of these cases an autopsy was held

before any decomposition had begun, the third was beginning to decompose. There was air in the vessels of all three.

Heckford² reports the case of a patient forty-three years of age, eighteenth confinement. After a few strong pains a living child was expelled and the mother expired. Those present said: "Death was instantaneous and without the least struggling; she turned on her back and was dead." No hemorrhage had taken place, and the placenta had not been interfered with. Post-mortem, air was found in the heart and vessels. Air bubbled from the vessels as the different viscera were cut.

Cordwent.³ Mrs. W., married. Full-term, strong, expulsive pains became urgent, and patient remained standing. Child born, falling to the floor and dragging the placenta with it. Almost immediately a gurgling sound was heard by the attendants. Patient remained standing about one minute, holding to a bed-post. She then said: "I can't see, I feel faint. Lay me on the bed." And she died instantly. At the autopsy a portion of the wall of the fundus of the uterus was more puffy than the rest, and on section air escaped. Air was in the heart and vessels.

Dr. Cheever.⁴ Tumor of uterus, thought to be cystic, of ovary. Aspirated; no fluid, aspirator working all right. Needle withdrawn. Phenomena of air-embolism at once ensued. Artificial respiration was used, and hastened the result by sucking in more air. Autopsy by Dr. Draper, who said that the uterine wall outside of the tumor was very much thinned, while the sinuses were very much developed. Where the air entered near the left cornu the tumor had been separated somewhat, and there was some reddening of the part by infiltrated blood. There was a distinct solution of continuity, of the size of a silver quarter, between the tumor and the uterine wall which could not have been made by the finger, as Dr. Cheever had supposed. Air was in the heart and vessels.

May.⁵ Mrs. T., thirty-eight to forty; sixth child, male, May 7, 1852, 8 A. M. Severe after-pains; great oppression about the chest; feeling of sinking and exhaustion and extreme restlessness; no hemorrhage. Died at 2 o'clock in the afternoon. Autopsy the same evening. Air in the heart and blood-vessels.

Mrs. E., twenty-eight, third child. Natural labor. While doing household work, eighth day after labor, was taken suddenly ill, and died at once. Autopsy the following day. Bloody froth in the right side of the heart, etc. Uterus normal size for eighth day. No decomposition.

Swinburne.⁶ Miss M. A. S., twenty-three. Three attempts were made, from day to day, to rupture the membranes with some blunt instrument, without success, by a professional female abortionist. Dr. Carr was called suddenly. Woman had fainted. Keeper of house said she had used only an india rubber, and showed a gutta-percha catheter which she said was what she had used. Post-mortem fourteen hours after death. Deceased was five months pregnant. On the right latero-posterior surface of the uterus the membranes and part of the placenta were separated

¹ Medical Times and Gazette, February 9, 1867.² St. George's Hospital Reports, 1871-72.³ Boston Medical and Surgical Journal, November 29, 1883.⁴ British Medical Journal, June 6, 1857.⁵ Medical and Surgical Reporter, Philadelphia, April 23, 1859.⁶ Read before the Rhode Island Medico-Legal Society, June, 1896.

from the uterine wall. Beneath the free border of the placenta were several small coagula. There was found (1) slight softening of the tissues, (2) several abrasions evidently not natural, (3) a perforation communicating directly with the uterine sinuses, about two inches from the cervix. Air was found in the heart and vessels.

Hekton.⁷ Patient, nineteen, married seven weeks, four months pregnant, went to her room for the alleged purpose of changing her dress. In a few minutes a fall was heard, and the woman was found to be dead. A Davidson's syringe, a chamber vessel and a basin of cold water were arranged as if she had commenced to take a douche. She was found dead twelve minutes from the time she went to her room. The autopsy showed air in heart and vessels. At the inferior border of the placenta there was a separation to the extent of three-fourths of an inch. Many ruptured sinuses were seen.

M. De Paul.⁸ Rickety woman, twenty-two. Twice delivered by cephalotripsy, and one premature delivery. On fourth pregnancy M. De Paul decided to bring on labor at seven and one-half months. Douche administered on two occasions without success. On the third time air was seen to come out of the vagina with the water, but the apparatus was working well, apparently, and the douche was continued. M. De Paul asked the patient to arise and walk about the room; but when she tried to arise she turned pale and fell dead. Cæsarean section. Uterus pale pink; bloody froth from sinuses of uterus on section, and bubbles of air escaped from between the membranes and the wall of the uterus. No autopsy.

Hitchcock,⁹ two cases.

CASE I. Mrs. LaFargue, four to five months pregnant. Abortionist blew into catheter while withdrawing it. Instant death. Conflicting testimony at trial as to post-mortem appearances, but air was in the heart and vessels.

CASE II. L. R. J., twenty-one, single, between seven and eight months pregnant, died suddenly in a physician's office. The physician claimed that he merely made a digital vaginal examination and the patient fell back in a faint. Autopsy eighteen hours after death. Body was kept in a cool room on a marble slab, and was well preserved. Some blood about the external genitals and clothing. Heart and veins distended with air. Membranes unruptured, but separated from the uterine wall to a considerable extent, opening up the uterine sinuses.

The six cases following were taken from the *American Journal Medical Sciences*, October, 1857.

CASE I. In 1841 Dr. Bessems attended a labor with which there was hemorrhage with retention of the placenta. On the fourth day after her confinement, while water was being thrown into her uterus she suddenly exclaimed that she was suffocating, and she died in three minutes. Air was found in the heart and veins.

CASE II. M. Lionet, of Corbeil, attended a woman aged twenty-seven. Labor natural; no hemorrhage. She soon, however, became faint, breathed with difficulty, and expired five hours after delivery. Air was found in the heart and cerebral veins.

CASE III. Dr. Wintrich, in 1848, published a case

of rapid death after parturition. Convulsive movements and suffocation followed the expulsion of the infant and partial separation of the placenta. Air was found in the venous system.

CASE IV. Professor Simpson mentions a case in which death occurred a few hours after delivery, accompanied with hemorrhage and alternate relaxations and contractions of the uterus. Air was found to have entered through the uterine veins.

CASE V. In 1850 Mr. Berry, of Birmingham, attended a primipara aged twenty-two. But little hemorrhage. She did well for six hours, and then had difficulty of breathing and faintness, and expired in less than an hour. Air was found in the heart, and the uterine veins were patulous.

CASE VI. Case of Mr. Taylor. Mrs. —, thirty, third child. Mr. T. was in the act of introducing a catheter to draw her urine, when a severe pain occurred. Three-fourths of a pint of liquor amnii was discharged. The woman suddenly exclaimed, "Oh, how faint I feel!" was convulsed for a moment, and then expired. The heart was distended with air.

Professor Oppolzer¹⁰ relates a case of uterine cancer, death occurring from the entrance of air. The autopsy showed air or frothy blood in the heart and veins.

Davidson¹¹ relates the case of a Hindoo woman. Labor normal; placenta came away all right; no post-partum hemorrhage. About three-quarters of an hour later the woman died, without any apparent cause. At the post-mortem, two hours later, the uterus was found empty, with large and somewhat distended veins, air and frothy blood in the right side of the heart.

Bram (quoted by Senn in his article on air-embolism) gives two fatal cases from the introduction of air into the uterine veins. The uterine douche was used, in one case to produce an abortion, and in the other after the delivery of twins. Both patients died in a short time. Autopsy showed air in the heart and veins.

Senn also mentions a case of Olshausen's, that of Mrs. —, twenty-nine, second child. Labor was lingering, and the midwife forced water into the vagina gently with a pump. A third injection was used. After eight minutes' use the patient began to complain of oppression. The tube was withdrawn. The patient arose in bed, but immediately fell back senseless, and died in less than a minute under convulsive respiratory movements and distortion of the face. On touching the body widespread crepitation was felt. Autopsy eight hours after death. A little frothy blood was in the right heart and a large amount of air in the veins. A small portion of the placenta was detached from the uterus.

Draper¹² reports two cases:

CASE I. M. A. F., twenty-eight, married, was found dead in a house of ill-repute. Autopsy twenty-three hours after the assumed time of death, the body having been kept cool. The uterus contained a fetus of about three months; membranes unbroken. Placenta of about the size of a silver half-dollar. There was air in the uterus. Light pressure on the placenta gave the characteristic crepitan sign of air between it and the uterine wall. The right cavities of the heart

⁷ North American Practitioner, March, 1891.

⁸ Lancet, July 21, 1860.

⁹ Transactions American Medical Association, 1894.

¹⁰ British and Foreign Med.-Chirug. Review, vol. xxx, 1862.

¹¹ Lancet, 1883, vol. i, p. 699.

¹² Boston Medical and Surgical Journal, January 4, 1883.

and the vessels distended with air. No lesion of the external genitals or vagina. Just within the external os the mucous membrane was reddened over an annular area two or three lines wide; and just above the internal os and at the lowest part of the ovum there was an ecchymosed patch or streak half an inch long and one-eighth of an inch wide; at the right and most discolored end of this bruise there was a rent of the decidua admitting freely to the placental attachment. In Dr. Draper's opinion this abrasion was made by some instrument like a catheter, which instead of rupturing the membranes had glanced aside and torn up the decidua layers, though there was no distinct separation of the placenta from the uterus.

CASE II. L. R. J., twenty-one, single, between seven and eight months pregnant, died suddenly in a physician's office. The physician claimed that he merely made a digital vaginal examination. The patient suddenly threw her hands above her head and fell back with a low moan or cry, then had a convulsion with some frothing at the mouth, and became unconscious. This was one of his stories, and the other was that she fell back in a faint.

Autopsy eighteen hours after death. Body kept in a cool room on a marble slab, and well preserved. Some blood about the external genitals and clothing. Heart and veins distended with air. Membranes unruptured, but separated from the uterine wall to a considerable extent, opening up the uterine sinuses.

The same author¹⁸ reports: A. H. J., thirty, married, multipara, five months pregnant. Had been warned by a physician that she ought not to have any more children because of lateral curvature of the spine. She went to Mrs. X., an abortionist, and went into an inner room with her, leaving her sister in the waiting-room. In a few minutes the sister, hearing some confusion in the inner room, invaded its privacy, and saw the patient flat on her back on the floor. There was no sign of life excepting a little gurgling noise in her throat. On the carpet at the patient's feet was "a silver thing about five inches long and of the size of a lead pencil." Autopsy eighteen hours after woman's death, the body having been kept in a cold room during the last twelve hours of that period. The right side of the heart was distended with air and frothy blood; the left ventricle was firmly contracted.

(To be continued.)

Clinical Department.

NOTES OF A CASE OF EXTRA-UTERINE GESTATION; RUPTURE OF THE SAC; OPERATION AND RECOVERY.¹

BY S. E. WYMAN, M.D., CAMBRIDGE, MASS.

THE comparative rarity of cases of ectopic gestation; the obscurity of the symptoms before rupture, with the consequent difficulties of diagnosis; the extreme gravity of the prognosis after rupture has taken place; and the triumphs of modern aseptic abdominal surgery render extremely interesting the history of this case which it is my privilege to report to you to-night.

¹ Read before the Cambridge Medical Improvement Society, December, 1895.

¹⁸ Boston Medical and Surgical Journal, April 30, 1896.

Statistics as to the frequency of cases of this condition are necessarily unreliable, since so many are unrecognized, death from rupture of the sac being attributed to other causes, for example, peritonitis, hematocele, abdominal tumor, etc. But, where access can be had to the records of hospitals, in which autopsies are uniformly made, a nearer approximation to the truth can be reached. Such records are to be found in connection with the hospitals of Vienna; and "Bandl" declares that out of 60,000 gynecological and obstetric cases received during seven years at the clinics of Carl Braun and Späth, in Vienna, there were five cases of extra-uterine pregnancy."

Thomas² writes: "During the past twenty years I have personally examined and treated thirty-three cases. . . . However, the great majority of my cases were seen in consultation with other physicians."

These statistics, however, seem like ancient history — coming from books published in 1888, a date since which such rapid strides have been made in abdominal surgery — and, while valuable, are not a sure guide as to the frequency of cases of this condition; of which fact we are further apprised by the cases reported before the Boston and other medical societies and published in the current medical journals. Certainly, these cases are more often recognized and successfully treated to-day than formerly.

The difficulties of diagnosis are often great, the symptoms being obscure and not of such import as to alarm the patient as to her condition.

Not infrequently there appears, in the course of a supposed normal pregnancy, a bloody flow of greater or less persistency, with occasional gushes of blood; paroxysmal pelvic pain, extending down the thighs; and sometimes symptoms of abortion, with expulsion of pieces of decidua, but without expulsion of the fetus. An hematocele may be formed, the mass of blood become absorbed, and the case thus have a fortunate issue.

If the fetus is already of considerable size, the bones may become encapsulated and thus remain quiescent; or they may, by their irritation, give rise to an abscess and be discharged either through the abdominal walls or through the neighboring viscera — intestines, bladder or vagina.

In other cases, however, the first symptoms are those of rupture of the sac, with severe agonizing pain and evidences of intra-abdominal hemorrhage. It is to the last class that the case I have to report belongs.

On the morning of the 12th of August, 1895, I was called at three o'clock to see Mrs. A. G. The patient, thirty years of age, was born in England, and is the mother of a daughter eleven years of age. No miscarriages. Menstruation never regular, often painful, and often absent for three months.

In October, 1894, the uterus was curetted and an Alexander operation performed for malposition of the uterus. She had been in excellent health after the operation, indulging in the pleasure of bicycling. Menstruated last in April, 1895. There had been no symptoms of pregnancy, with the exception of slight pains in her breasts and the occasional escape of moisture from her nipples. Having no idea that she could be pregnant, she had been taking iron for the amenorrhea.

On the morning of August 10th she was taken un-

² Hart and Barbour: Gynecology.

³ American System of Gynecology, vol. II, p. 178.

well, the flow being scanty and attended with some pain. While engaged in her household duties, she was seized with severe, sudden pain, which doubled her up and compelled her to spend the remainder of the day on a couch. She had a feeling of faintness whenever she raised her head from the pillow. She spent the forenoon of August 11th on her bed, but sat up during the afternoon. Sometime after two o'clock of the morning of August 12th she was seized with very severe agonizing pain in the abdomen, accompanied by the feeling of impending death. Two tablets of morphia (probably one-quarter grain) were given by her husband without any relief, and aid was sought.

When seen at 3.15 A. M. (it was a warm morning) the patient was lying under heavy bed-clothes (two blankets and a thick quilt), but cold. Her body was covered with clammy perspiration, and she complained of exquisite pain. Countenance anxious; face and lips blanched; pupils large; pulse weak, but 55 (a rate wholly inexplicable to me then and now, but verified by auscultation of the cardiac sounds); abdomen tender to slightest palpation, especially to the right and below the umbilicus; thirst prominent; profound collapse.

One-eighth of a grain of morphia subcutaneously at 3.30, and artificial heat. At 4 A. M. she seemed at the point of death. Stimulants were administered; but whether any absorption took place is doubtful, as she vomited at 4.45.

At 5 o'clock Dr. Swan saw the patient in consultation. The symptoms were not so alarming; the pulse-rate was slow, such as to seem to Dr. Swan not to indicate hemorrhage. At 5.45 the patient was easier. Rectal and vaginal examination negative. At 10 o'clock Dr. Swan saw her with me a second time, when the gravity of her condition was more pronounced. Pulse 120, temperature 100.4° in axilla. Abdomen tympanitic, moved with respiration, tender on pressure, with dulness in the right iliac region.

At 12.30 she was seen by Dr. A. T. Cabot, in consultation. Pulse 128, temperature 99° in axilla. Face anxious, respiration sighing, skin bathed with clammy perspiration.

After consultation, a diagnosis was made of probable rupture of an extra-uterine gestation, and an immediate operation advised.

Corrosive pack (1 to 4,000) to abdomen. At 3.30 P. M. preparations were completed for laparotomy. An enema of whiskey, one ounce, and tincture digitalis, one drachm, given, and patient etherized at 3 P. M., when Dr. A. T. Cabot operated, Dr. Balch and Dr. Swan assisting. Pulse 148. A median incision was made through the abdominal walls, the tissues of which contained but little blood. When the peritoneal cavity was opened, dark blood flowed out, containing clots, some of which were quite firm and comparatively old. The posterior cul-de-sac was full of large clots. The fetus was discharged with the liquid blood, but was found and verified.

Upon examination it was found that the hemorrhage came from the right tube at the fimbriated extremity, where placental tissue could be seen; the right ovary was cystic. The tube was clamped, ligated, and the right ovary removed. The peritoneal cavity was freed of blood and clots by sponging, and the edges of the incision united by deep and superficial sutures. At 4 P. M. the patient was in bed with its foot raised and artificial heat applied. Pulse 140.

The patient rallied quickly without any vomiting; but as she complained of considerable pain and was restless, a rectal tube was passed, allowing the escape of considerable flatus, the bladder was catheterized and urine (six ounces) drawn. A subcutaneous injection of one-eighth of a grain of morphia was given at 7 P. M.

Patient had an excellent night's sleep, and her recovery was rapid and uneventful. Urine passed naturally within twelve hours, and the bowels moved fifty hours after operation, from the use of salines. On the third day after the operation there was a bright vaginal discharge and a piece of deciduous membrane on the napkin, which I regret was not carefully examined. On the ninth day the sutures were removed and the wound dressed with crêpe lisse and collodion. On the twentieth day the patient sat up in bed for a short time. In four weeks after the operation menstruation was re-established.

A CASE OF WEB-FINGERS, ASSOCIATED WITH CURIOUS ANOMALIES OF THE PHALANGES, METACARPAL BONES AND FINGER-NAILS; WITH SKIAGRAM.

BY F. B. LUND, M.D.,

Surgeon to Out-Patients, Boston City Hospital.

M. F., a girl of eighteen years, was referred to me at the Outpatient Department of the Boston City Hospital, by Dr. J. Orne Green, for advice with regard to operation for the separation of web-fingers. Operation had been previously considered, and advised against; but it was thought that the x-rays might perhaps give some further information with regard to the advisability of operation than could be secured by the ordinary methods of examination. Although the skiagram, which was kindly taken by Dr. F. H. Williams simply confirmed the previous decision with regard to the advisability of operation, it at the same time revealed such a curious condition of the bones of the hand as to render the case one of considerable interest.

The fingers of the left hand, which was smaller than the right, were completely webbed, down to the tips of the third phalanges, and all the phalanges were of equal length, so that, as is evident from the skiagram here reproduced, the ends of the fingers formed a straight line.

Instead of a separate finger-nail for each phalanx, one continuous nail extended across the whole width of the flipper-like hand, the line of demarcation between the fingers being marked merely by a slight but distinct groove. The phalanges were so crowded together that the hand was narrow and tapering. Flexion and extension of the phalanges was normal, as were all movements of the thumb. The hand was therefore of a good deal of service to its owner, and might be very well compared to a hand on which a mitten was worn. It was about two-thirds the size of the right hand, which was normal in every respect.

The skiagram shows the following curious condition: The second phalanx of the forefinger is rudimentary and is dislocated backward. The terminal phalanx of the forefinger is bifid, and the inner portion is ankylosed to the terminal phalanx of the middle finger. The metacarpal and first phalanx of the

forefinger are much longer and stronger than those of the other fingers, and there is a wide space between the first and second metacarpo-phalangeal joints. The middle finger shows a rudimentary metacarpal bone, about half the length of the others, and the normal number and relation of the phalanges. In the ring finger the second phalanx is absent, and in the little finger it is rudimentary. The phalanges and metacarpal bones of the three inner fingers are crowded so closely together that the bones touch each other at the joints.

Although since the use of the x-rays in diagnosis large numbers of anomalies of the phalanges have been brought to light, the bones of the hand here de-



picted are as "irregularly irregular" as any that I have seen published.

The skiagram showed conclusively that all that could possibly be done in the way of operation, would be perhaps to free the fore from the middle finger, and it was thought that even if this were accomplished, it might be impossible at her age to secure independent action of the muscles of that finger. There is little doubt that a dissection of the hand and forearm would show muscular anomalies, for example, absent or rudimentary interossei, etc.

In this case there was no family history of similar deformity, such as was present in the case shown in the JOURNAL of February 20, 1896, and in two of the cases quoted by Dr. Thomas Dwight in the editorial article on "Anomalies of the Phalanges" in the same number.

Medical Progress.

REPORT ON ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D. AND E. G. BRACKETT, M.D., BOSTON.

CURVATURE OF THE AORTA IN POTT'S DISEASE.

BOUCHACOURT,¹ in a bulletin of the Anatomical Society of Paris, has described the deviation of the aorta in dorsal lumbar Pott's disease, in the patient of Kirmisson, fourteen years of age. The same deformity has been described by Professor Dwight in the *American Journal of the Medical Sciences*, January, 1897. It consists of a curvature of the aorta independent of the curve of the spine. The spinal column was much shortened. The aorta was of the normal length, and not finding room along the column, was forced to wind itself irregularly from side to side.

PRIMARY ACUTE OSTEOMYELITIS OF THE SPINE.

Hahn² has collected a number of cases of osteomyelitis of the spinal column. The diagnosis is not easily made, and the prognosis is doubtful. Treatment consists of an early and thorough opening of the abscess and the prevention of the deformity by the treatment usual to tubercular disease.

G. H. Makins and F. C. Abbot have contributed an excellent article on this subject to the *Annals of Surgery*, May, 1896, with an analysis of 21 cases. In 11 cases the spinal cord was involved.

Müller³ describes a case of osteomyelitis of the spinal column, to which he adds the history of seven other cases. His patient was twelve years old; was seized with fever, headache, pain in the back, and a motor and sensory paralysis, with paralysis of the bladder, which he considered to be a case of Landry's paralysis, but which soon developed an abscess in the thoracic region, which was opened and showed a sequestrum in the thoracic vertebra, as well as a collection of pus in the spinal canal. This was followed by edema of the lungs and death. An osteomyelitis of two lumbar, three dorsal and a cervical vertebra was discovered.

The diagnosis between this and a tubercular process is based, according to Müller, on a very acute curve and the early appearance of paralysis.

ANCHYLOSIS OF THE ATLAS.

Gelsam⁴ reports three cases of ankylosis of the atlas. He has only been able to collect three of these cases, although Lombroso and Paoli claim a greater frequency. They present no clear symptoms during life. In one case the ankylosis was reported as a result of rheumatic inflammation; in the other two it seemed to be a defect of development. Gelsam considered in one instance the result to be due to an inflammation following a blow. Hann reports a case of acute osteomyelitis of the vertebra similar to that of Müller.

COSTO-TRANSVERSECTOMIE.

Menard⁵ reports the results of operation on cases of paralysis from tubercular spinal abscess by an opening through the posterior part of the trunk. The opening was made by the resection of a transverse process of the infected vertebra and the adjacent rib. The

¹ Zeitschrift f. orthopädische Chirurgie, 1896, p. 423.

² Beiträge klinischer Chirurgie, Bd. xiv and Heft I.

³ Deutsche Zeitschrift f. Chirurgie, Bd. xli.

⁴ Zeitschrift f. orthopädische Chirurgie, 1896, p. 433.

⁵ Revue d'Orthopédie, 1896, No. 2.

operation was found not to be difficult, and the result was satisfactory. The cases all showed improvement, the paralysis disappearing. In all six cases the operation was on the right side.

ARRANGEMENTS FOR THE TREATMENT OF STIFFNESS OF THE FINGERS.

Krukenberg⁶ has devised an ingenious and simple arrangement to correct stiffness of the fingers so frequently seen after fracture. It consists of a glove of the ordinary stout leather, dogskin or kid, which is furnished with strings attached to the tips of the fingers and passing through small rings at the wrist. At the ends of these strings weights of from one to three pounds are fastened. If the hand is held upward for a quarter of an hour, the weight exerts a pull upon the fingers bending them toward the palm.

Dolega⁷ recommends a somewhat similar plan, with the addition of longer strings which pass through attachments at the bend of the elbow and are fastened to the undershirt. On straightening the arm a pull on the fingers is exerted.

TREATMENT OF CONTRACTION OF THE SHOULDER.

Kann⁸ describes this affection, which is, as is well known, obstinate in treatment. The contraction is almost always in the direction of adduction, owing to the leverage of the weight of the arm; forward and back motion is usually made readily, but pure abduction is limited. *Brisment forcé* is frequently employed, but the benefit is not always evident, and it is rejected by some surgeons. The writer recommends mechanical gymnastics, using an apparatus which is a modification of that used by Zander. It consists of a place to rest the arm, balanced by a weight attached to a longer arm. The shoulder is kept down in place by means of pressure, and motion is easily graduated by means of a shifting weight.

CONGENITAL ELEVATION OF THE SHOULDER.⁹

In 1891 Sprengel called attention to a deformity which had hitherto not been described, namely, a congenital elevated position of the shoulder-blade. Kolliker, Schlange, Hoffa, Kirmisson and others have described similar cases. The affection is a congenital deformity of the shoulder-blade. In the way of treatment nothing can be done with the exception of an operation, which in certain cases apparently is of help. Division of the shortened muscles is not beneficial, and has been rejected by some writers. Hoffa, in addition to dividing the muscles, chiselled off a portion of the corner of the shoulder-blade; the scapulæ were pulled down and kept in an altered position by means of an elastic pull attached to a scoliotic corset.

THE LOCAL USE OF HYDROCHLORIC ACID IN BONE NECROSIS OF TUBERCULAR ORIGIN.

Dr. Jerome H. Waterman¹⁰ reports the results of the use of strong hydrochloric acid used locally on bone necrosis in eight cases. This treatment was used, on the theory that the acid dissolved the earthy salts in healthy bone without injury to the animal matter of the bone, and that in this way the disease would be more directly attacked.

The acid was applied, after a thorough cleansing of the wound by sterile water, by the injection of a few minims through a glass pipette.

Eight cases are reported, of which marked benefit was found to result in four, and improvement in two others. He gives the following conclusions:

- (1) No evil effects have resulted from its use.
- (2) The use of the acid in its concentrated form is preferable.
- (3) When the area of necrosis is extensive, operative methods are advised.
- (4) Its action is limited to the necrosed area; whereas curetting may remove both diseased and healthy bone.
- (5) By the disintegration of the dead bone the newly-formed tissue has a better opportunity for its more rapid development.

TREATMENT OF WHITE SWELLING OF THE KNEE.

Calot F. and J. Decherf,¹¹ consider the question of operative treatment of white swelling as compared in adults and children. The natural course of the disease is different essentially, varying with the age, which seems to be the result of the resisting power of the individual. In children there is a decided tendency toward spontaneous cure. First, in regard to the treatment of this condition in adults, the chances for cure by conservative methods alone is much less; the time required is much greater, and frequently the surgeon must be guided by the consideration of the economy of time. Second, that the danger of general tubercular affection is not great with a child, but is so with adults; and one must consider the advantage of immediately removing a tubercular focus before it becomes a source of danger for infection. In such cases, when the operation is performed early and the extension of the disease is not great, the amount of shortening is slight. If, however, the lesions have extended, the amount that is necessary to completely extirpate the disease results in a great amount of shortening of the limb. In such cases, when this is necessary and when the general condition is not good, and if there is a reason to suspect invasion of the lungs, it is better to amputate rather than to excise. The resection in these cases frequently gives good results, but the patient more often dies from this than from the amputation.

RICE BODIES IN TUBERCULOUS SYNOVITIS.

Dr. Heinrich Riese¹² illustrates his article with plates and drawings, and gives minute details with regard to the preparation and staining of the specimens. He concludes that these rice bodies, both in the tendon sheath and in the bursa, are derived from a fibrin clot, one group springing from the clot grows in the synovial fluid, another working its way into the tissue which forms the wall about the synovial cavity, and that in both places they became organized.

OSTEOMYELITIS.

Canor¹³ in a contribution upon osteomyelitis with reference to immunity, gives the following conclusions:

The experiments were performed upon rabbits in four groups: (1) The production of osteomyelitis through the injection of staphylococci into a blood-vessel. (2) Through the injection of other micro-or-

⁶ Zeitschrift f. orthopädische Chirurgie, 1896, p. 183.

⁷ Loc. cit., 1894, p. 440.

⁸ Loc. cit., 1896, p. 317.

⁹ Wolfheim: Zeitschrift f. orthopädische Chirurgie, 1896, p. 197.

¹⁰ New York Medical Journal, August 8, 1896, p. 189.

¹¹ Revue d'Orthopédie, January, 1896, No. 1, p. 60.

¹² Zeitschrift f. Chirurgie, 1895-6, i, 99.

¹³ Deutsche Zeitschrift f. Chirurgie, 135-164.

ganisms. (3) The production of osteomyelitis through the gastro-intestinal canal. (4) Inoculation.

Tables are given showing the conditions under which the experiments were carried out as to temperature, culture, preparations, amounts given and manner in which it was done. The author admits that the investigations are not conclusive, but that they are encouraging, in that they show that he is working in the right direction.

TRAUMATIC INFLAMMATION OF THE BURSE OVER THE GREAT TROCHANTER.

Thiem¹⁴ claims that chronic inflammation of the gluteal trochanteric bursa is not so rare from injury; for a diagnosis it is especially important to notice that limitation of motion is in the direction of adduction and internal rotation. Contusion of the trochanter combined with a quick turn of the body with the limb fixed is apt to cause this injury.

OPERATIVE TREATMENT OF PARALYTIC CLUB-FOOT.

Kirmisson¹⁵ reports a number of cases where arthrodesis was performed on the different joints in the foot. He criticises the plan of limiting the operation to the tibio-tarsal joint, as it has been the experience that many of these cases develop later an abnormal mobility of the mid-tarsal joint, which impairs to a great extent the early result. Saunter, to avoid this, has opened the tibio-tarsal articulation from behind along the border under the tendo-Achillis, making an incision ten centimetres long, and cutting the tendo-Achillis, in this way obtaining access to the ankle-joint. Three operations by this method are claimed by him to have given good results. Karewski considers that it is necessary to extend the arthrodesis to the astragalo-calcaneus articulation as well. Besides 23 cases, 18 of which were paralytic, he performed arthrodesis on the calcaneo-astragaloid articulation. Sometimes it is necessary to operate on the small articulations of the foot. He uses an incision on the interior part of the foot, which allows one to open the tibio-tarsal joint. Kirmisson also considers that the transverse anterior incision is convenient; it is better to avoid this anterior part of the foot if necessary, on account of the tendons and nerves, although the tendons can be sutured. It is unfortunate if the nerves are severed. He uses an incision small enough to allow the passage of an osteotome at the level of the external malleolus. The object of this is to allow one to completely invert the foot, and in this way to expose freely to view the two surfaces of the tibia-tarsal articulation, after which an L-shape incision is carried around the internal malleolus; the periosteum is detached and the ligaments divided, by which one can completely subluxate the foot on the leg; the cartilage is removed by a gouge; and the operation is completed by joining the two articular surfaces by pegs of bone, two to three millimetres in diameter and five centimetres long. It is naturally of great importance that these pegs should be absolutely aseptic, and hence the practice of boiling these in carbolic acid, after which they are kept in a strong solution until the moment of their use. By these precautions they have never observed any bad results from their use. Fifteen cases are reported: in 11 arthrodesis of the tibio-tarsal joint was performed; nine times of this joint alone;

twice combined with the mid-tarsal articulation, and twice with the astragalo-scapoid; arthrodesis of the whole mid-tarsal joint two times. Of the 15 operations, in 11 these pegs were used, and the presence of an ivory peg gave no inconvenience; the functional results have been satisfactory.

INFANTILE PARALYSIS.

Sighicelli¹⁶ recommends the use of electricity in infantile paralysis after the limb has been made bloodless by an elastic bandage. He reports four cases where marked improvement was observed after such treatment, even in one case where the paralysis had persisted for four years. His argument in favor of this method of treatment is that if the limb is deprived of its blood, it becomes a more homogeneous medium for the electrical current, and for that reason a smaller amount of the electrical power is lost. There is a certain advantage in the artificial anemia in that the sensation is diminished, and for that reason a stronger stream of electricity can be used.

CLUB-FOOT SHOE.

Nabel¹⁷ writes upon the fixation of the heel in club-foot shoes, preferring the method recommended by Schaffer, modifying it, however, and adapting it to a shoe in such a way that all buckles are avoided, straps being tied to counter-straps inside.

CONCERNING FOOT-JOINT AND TARSAL TUBERCULOSIS.

E. Spengler¹⁸ treats the subject from all possible points of view, and tabulated results are carefully worked out from a large mass of clinical material. As to age, the largest number of cases fell between twenty and thirty. That due to direct hereditary influence was found to be 25 per cent., while in 36 per cent. there was probably no tuberculosis in the family history. Among the statistics of exciting causes, distortion and spontaneous beginning had the largest percentages.

Primary tubercular-ostitis, and that secondary to other forms, are discussed at length, as also when complicated with other affections.

In a comparison as to the bones most frequently attacked, the talus, calcaneus, cuboid, and tibia held the highest ranks.

As to the indication for a operation, the author holds to general surgical rules; contraindications, in a young patient suffering with any form of heart trouble, also in cases of advanced age. In the radical treatment, results are shown under the heads of arthrotomy, arthrectomy, excision and resection, exarticulation, amputation, etc. Those in conservative treatment are tabulated under expective, injection, incision, ignipuncture.

After exhaustively setting forth the advantages and disadvantages of each, the writer concludes that every method is good and yields good results, provided it is chosen to fit the case, but that every method is not good for every case.

FLAT-FOOT. — HAMMER-TOE.

Ranneft¹⁹ reports an unusual deformity which was described by Nicoladoni under the title of hammer-toe

¹⁴ Zeitschrift f. orthopädische Chirurgie, Band iv, Heft 2, p. 452.

¹⁵ Revue d'Orthopédie, 1or March, 1896, p. 228.

¹⁶ Zeitschrift f. orthopädische Chirurgie, 1896, Band iv, Heft 2, p. 473.

¹⁷ Loc. cit., 1896, p. 247.

¹⁸ Zeitschrift f. Chirurgie, 1896, p. 1.

¹⁹ Zeitschrift f. orthopädische Chirurgie, 1896, p. 191.

flat-foot, which results from a peculiar position of the foot, that in order to avoid pressure upon the painful part of the inner edge of the foot. The foot presented a pronounced flat-foot, the astragalus and scaphoid being very prominent. The head of the metatarsus is very prominent, and the first phalanx of the great toe is flexed almost at right angles with the metatarsus. The second phalanx rests upon the ground, and the remaining toes are more or less flexed. The flat-foot is not fixed but movable. The writer was not inclined to consider this due to any painful pressure on the foot, but a form of late rickets and considers it a form of flat-foot primarily, and that the deformity of the toe is the result of the pressure of a wooden shoe upon the end of the toe; exostosis followed which flexed the toe more and more.

CONGENITAL DISLOCATION OF THE HIP REPLACED BY OPERATION.

Mr. Openshaw²⁰ showed a girl, aged three, who came to him presenting the typical appearance of congenital dislocation of the hip. He cut down into the joint, removed a portion of the iliac bone at the upper and back part of the acetabulum, and gradually wiggled the head, which was normal in shape, back into the cavity. The shortening, which was previously one and one half inches, was reduced to three-fourths of an inch, and she could walk with a slight limp. The movements of the joint were free in almost every direction, it being four months after the operation. He pointed out that unilateral cases were more favorable for operation than bilateral — the head could not very well be replaced in the cavity before two and one-half years, on account of the contraction of the acetabulum. The head of the bone generally became flattened after the age of eight, if it remained dislocated.

CONGENITAL DISLOCATION OF THE HIP.

Dr. James Taylor²¹ showed a woman, aged twenty-three, who came under his care for epilepsy. He noticed that she was lame, and on examining her he found that there was probably congenital dislocation of the hip. Dr. Ballance concurred in this view. It was peculiar in that there was very great mobility of the joint, this being associated with abnormal mobility in the corresponding knee as well as in the opposite knee. The limb was much shortened, with corresponding lateral spinal curvature. There was much grating on moving the femur, and it sometimes seemed to slip into a hole as if there were the remains of an acetabulum. Mr. Wallace said that after seeing this patient walk and noticing how easily she did so, he was disposed to congratulate her on having escaped operative interference. Mr. Gordon Brodie recalled the case of a lad with a similar condition who could walk several miles without inconvenience; and under these circumstances he, too, was inclined to consider nature's method of cure the best. Mr. Brattle observed that in this case there seemed to be very little neck left; and he presumed that, as in cases of injury, there had been some atrophy and absorption of the upper end of the bone. He suggested that the condition might possibly be the remains of an attack of infantile paralysis. Dr. Taylor said that idea had occurred to him, but he had not been able to elicit any

information pointing to any such attack. The whole limb was smaller, probably from want of exercise.

Brodhurst²² gives his opinion from his experience in 52 cases in 35 years. He regards this affection as having for the most part a traumatic origin, and holds that it may be best treated by subcutaneous myotomy and subsequent extension of the limb, and in cases in which the acetabulum is filled up, by subcutaneous gouging of this cavity. If retraction of trochanteric muscles has not taken place, the head of the femur, he states, may be immediately replaced in the acetabulum and there be retained.

Schanz²³ contributes an excellent review on the subject of operative interference for the correction of congenital dislocation, giving a history of the methods recommended and the modifications by Lorenz, awarding the chief credit of the operation to Hoffa. A table of the cases that have been operated upon is given and the results. The writer is inclined to take issue with Lorenz, who claims that an incision dividing the muscles is a great injury to them, and fails to find any case where a muscle loosened from the trochanter not only did not heal, but did not recover its function. Almost all operators have used the incision of Langenbeck. A few favor an incision upon the side in order to give more freedom in the anterior division of the capsule and especially the Y ligaments. It is essential not only that the anterior capsule should be divided, but also that the acetabulum should be sufficiently deepened, and that there be no tendency for a subluxation to take place. The writer is not in favor of placing a needle in the upper portion of the acetabulum to prevent subluxation, as had been suggested. Forcible motion after an operation is not necessary, and in most of the cases in Hoffa's clinic, good motion is obtained ultimately. In the ultimate results of the operation in the list collected by the writer, seven cases died from sepsis, and in all these the wound was closed by suture. In four cases death followed from intercurrent disease. In eight cases the result was poor, that is to say, relapses occurred. In six the cases were neither good nor bad; in two the joint being ankylosed and in one an ankylosis was expected, but in 109 cases the result is reported as entirely satisfactory.

Paradies²⁴ reports several cases of the operative treatment for pseudo-arthritis in double congenital hip in older patients at Hoffa's clinic in Würzburg. He claims that patients above ten years of age (too old for radical cure) with double congenital dislocation are suitable for this operation, which aims at a firmer union with the ilium at the upper end of the femur then the distortion alone gives, the fact being that under ordinary circumstances the dislocated head of the femur can form no proper joint upon the ilium, because it does not lie in direct contact with it, but is separated from the ilium partly by the interposing capsule and partly by the ligamentum teres. If this is extirpated and the interposing capsule is removed, the head and neck can come in direct contact with the ilium. The deformed head is sawn off, and the freshened end of the femur is placed in contact with the freshened portion of the ilium. Twelve cases are reported with good results.

Lorenz²⁵ in a monograph on the subject, based his

²² J. & A. Churchill, 1895.

²³ Zeitschrift f. orthopädische Chirurgie, Bd. iv, Heft 2 and 3, p. 207.

²⁴ Loc. cit., p. 258.

²⁵ Pathologie und Therapie der Angeborenen Hüftverrenkung Wieu, 1895.

²⁰ British Medical Journal, p. 595.

²¹ Loc. cit., p. 595.

conclusions upon a hundred cases of operative reposition by means of incision; he finds that the gluteus maximus, a portion of the pelvi femoral and the pelvi crural muscles, especially the latter, are the most important obstacles to reduction. He thinks that the ileo psoas muscle and the gluteus, which passes over the head of the femur and the trochanter, do not offer any resistance to reposition. The affection may be mistaken for the coxa-vara, coxitis and luxation after an osteomyelitis. He considers that there is no conflict between the mechanical and operative treatment, where the first is possible it is sufficient, but after five years of age, operative incision is usually necessary. He has modified the method of forcible reduction recommended by Paci. He recommends traction for several days in order to lengthen the limb, and makes an incision along the outer border of the tensor vaginæ femoris. He opens the capsule by a T-incision.

Hoffa²⁶ reports the ultimate results in his operations upon congenital dislocation — nine being for the formation of an artificial pseudo-arthritis, already mentioned; one being a double resection; 82 of operative reposition through incision. Thirty of these were double and 52 single. There were seven deaths, three being in connection with pneumonia, diphtheria and intestinal catarrh; four being from shock. These deaths Hoffa considers can be avoided by an improvement of the technique. He recommends strict asepsis, and the use of a sterilized gauze tampon, and in his last 47 cases he has met with no misfortune. There was ankylosis in nine cases, and in eight of these there were suppuration from a wound that was sewed. Hoffa has never found a dislocation backwards, but he has in eight cases met with a transplantation forward, following the operation. This can be avoided by deepening the acetabulum.

RESECTION OF THE RIBS IN SCOLIOSIS.

Hoffa, of Würzburg,²⁷ reports a case of severe scoliosis in a boy on whom he performed an unusual operation by a resection of a portion of the ribs. This operation was first suggested by Volkmann in 1889. Orthopedic treatment had been unsuccessful, and the case was a pitiable one. The patient is said to have been much improved by the operation. The operation was repeated by him in a second case; but with these exceptions no surgical interference has ever been undertaken in scoliosis until that reported by Hoffa. The patient was a boy ten years of age, and presented a severe rickety curvature of the spine, which had increased in spite of treatment. The patient was pale and weak, and with a marked projection of the ribs sharply bent; gymnastics and apparatus had been thoroughly tried by Hoffa, with some development of the muscle, but with no improvement in the deformity. The patient was laid upon the face, the left arm raised to remove the scapulæ; an incision of the skin was made from the upper border of the deformity of the ribs, downwards to the lower border of the same. Various muscles were divided, and a subperiosteal resection was made at the ninth rib at the point of its greatest projection. The seventh and eighth ribs were also divided in the same way in the line of the axilla. The sixth, fifth, fourth and third ribs were twisted out of their vertebral articulations. The plura were slightly perforated during the operation,

but caused no trouble. After the operation the thorax was fixed by adhesive plaster, and the patient was able to go about eight days later. The procedure not only improved the appearance of the patient, but it enabled the surgeon later to effect considerable correction in the deformity through gymnastics. This is clear from the result of photographs shown in the paper. The patient not only was given to gymnastic treatment, but a specially devised corset was used and worn. Hoffa recommends in severe scoliosis, not only to resect a portion of the rib, but on the concave side to make a lineal osteotomy of the concave ribs. This would enable him to arrange for a correction of the twist of the spine.

THE USE OF THE BICYCLE IN THE TREATMENT OF SCOLIOSIS.

Dr. Kiliani²⁸ reports a device by which he uses the principle of the bicycle in the treatment of scoliosis. He distinctly states that he considers it simply one link in a long chain of therapeutic means, but regards it as a valuable method of muscular development in positions which are in themselves corrective. His device is so arranged that the height of the saddle can be changed, its obliquity, the height relative to the position of the pedals and the relative position of the two sides of the saddle. By the changes, combined with the difference in height or the length of the pedals on the two sides, an obliquity of the pelvis is obtained, and the person is allowed to use the muscles in this position, which is corrective of some of the conditions found in scoliosis. By his device he is enabled to change the relative position of the two sides of the handle-bars, by which the position of the upper part of the spine is influenced, so that the deformity can be untwisted, as it were, while at the same time the muscles of the lower part of the trunk are made to work in such positions as favors their correction. The machine is so arranged that it may be used as a home exercise, but it is also possible to apply the method to the bicycle as used for exercise.

LATERAL CURVATURE.

Delore²⁹ recommends forcible correction in scoliosis. The patient is etherized and placed on the side, with a cushion under the axilla and pelvis, and considerable force used upon the projecting ribs; adhesions are broken down, and the ribs and spinal column moved into correct positions by force. Sometimes the correction is easily made, at other times a great deal of force is necessary; but no evil results have been met by Delore. The patient is placed in a fixed bandage, and later correction twice a day is undertaken and a specially constructed corset used. At night a specially devised couch is used, the patient lying upon the right or left side. Suspension can be added to this method of treatment.

LUXATION OF THE SESAMOID BONE OF THE GREAT TOE. — The diagnosis of a case of this injury by means of a skiagraph is reported in the *Lancet* by Thorburn. The injury was the result of a weight falling upon the foot, and the ensuing pain incapacitated the patient for work. Reduction was impracticable, but a cure resulted apparently from cutting down on the bone.

²⁶ Archiv. f. klin. Chirurgie, Bd. II, Heft 3.

²⁷ Zeitschrift f. orthopädische Chirurgie, 1896, p. 401.

²⁸ Medical Record, October 1, 1896, p. 16.

²⁹ Zeitschrift f. orthopädische Chirurgie, 1896, Band IV, Heft 2, p. 416.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

MEETING of November 30, 1896, DR. F. H. WILLIAMS in the chair.

DR. E. H. BRADFORD called attention to the

VALUE OF MECHANICAL EXERCISE IN THE TREATMENT OF STIFFNESS OF THE JOINTS.

After traumatism or inflammatory changes, an impairment of elasticity of the ligaments follows, which impedes motion and, unless corrected, cripples. A stage is reached when motion as a therapeutic measure is indicated. This must be painless, to prevent reflex muscular spasm, which protects the impaired ligaments, and should be frequently repeated.

Forcible correction may be needed to break adhesions, but it is ineffectual as a constant daily exercise; that improvement may be followed by careful efforts is illustrated by two cases.

Dr. Bradford spoke of the method of mechanical exercise recommended by Zander and in use in the various Zander establishments, and also the appliances devised by Krukenberg, of Halle, and showed a modification of Krukenberg's pendulum apparatus to be used for stiffness of the knee, hip, elbow and shoulder joints.

This method may be found also to be applicable in other groups of muscles.

DR. HARTWELL: I suppose Dr. Bradford has asked me to open the discussion on this subject because of the reference he has made to the mechanical gymnastic treatment devised largely by Dr. Zander, and because it happened some years ago that I had the opportunity of spending some time with Dr. Zander. It is interesting to see how Gutenberg has evidently profited by some of the Zander devices. The figures suggest that he has studied pretty carefully the Zander machines and then patented his ideas in a way to imitate them. The Zander machines have not been patented, so far as I know. It is also very interesting to see how this mechanical line of treatment is becoming more and more developed in order to supplement the mechano-therapy of manipulation by the masseur and the medical gymnast. It was very largely with that in view, I presume, that Dr. Zander, in the home of Swedish-movement treatment, developed his system of machines and treatment. The series of Zander machines numbers something like fifty, divided into two great groups: those run by power and those to which are applied the active movements and motive power found in the muscles of the patient himself. They were exhibited in this country in 1876 at the Philadelphia Exposition. They have afforded confirmatory suggestions to some inventors of gymnastic apparatus which have proved popular and widespread in this country (for circumscribed muscular exercises). My attention was called to them twelve years ago because of their great ingenuity; and they were then, in 1885, in the Institute in London as well as in use at the bath establishment of Baden-Baden. Since then the Zander institutes have multiplied in large numbers; and in these pamphlets, which I will pass around, are some maps showing by dots in red the location of the leading Zander institutes. The machines have

been put in by the new Kaiserbad at Carlsbad, an institute in Dresden, Frankfort, Vienna, etc. They are divided into these two general classes: those run by power afford the passive movements; and also another set of manipulations which are difficult to give and give satisfactorily in force with the hand by an accomplished masseur or gymnast, namely, the vibrations and the various forms of shock and blow which by properly graduated hammers and cushions may be applied to any part of the body, including joints. That class of machines as well as this, which corresponds to this class which Gutenberg has developed, also constitute a part of the series of the Zander armamentarium for the treatment of joint diseases.

The year I was with him about 30 per cent. of Zander's cases were cases in which there was some disease or trouble of the organs of movement or locomotion, and the next largest class of cases were cases of heart affection, about 20 per cent. Dr. Bradford spoke of the good effect of riding. Zander has a machine for horse exercise which can be moved so that you can use a side-saddle or ordinary saddle and get a good deal of vibration and shaking out of it. I think what would be of most interest to us to consider is the fact that there has been developed in Germany, chiefly through the initiative of the director of the Zander institute in Berlin, an institute which was formed, as such institutes ought to be, through the action of an association of physicians responsible for it and to whom the director was responsible. Dr. Schultz, of Berlin, has been instrumental in developing an asylum for the treatment of injured persons, that is to say, distinctly for the treatment of persons who have injured their joints or bones and who need after-treatment following their discharge from the hospital; and he has developed it in connection with certain associations of workmen. At first, in 1891, the patronage was chiefly in the asylum, situated a few miles north of Berlin, where a house was fitted up with a full set of the Zander machines, in connection with improved baths, electricity and appropriate manual gymnastics and massage. (It should be said that in the Zander institute massage is not given by machinery.) It is distinctly understood that he has not attempted to devise massage machines. There is a great deal of massage given by skilled masseurs, most of whom have been trained in Germany. The especial trade-union which patronized this asylum near Berlin in 1891 was the Carter's Union, and most of the men brought into that were men who had fallen off wagons, had injured their joints, and had suffered from the ill effects of weakness, atrophy, etc. Now there was a pecuniary end in establishing this institute—to see if they could not relieve the union of paying stipends for too long a time, and a certain number of cases came in for observation by skilled physicians to see whether the degree of injury which the patient claimed prevented him from work, was genuine or not; and only a certain portion of malingerers was found—about four per cent., I think, in the two years of which I have the reports; and the result was that the management of that trade-union was so satisfied that a number of other unions undertook to obtain the benefits of the asylum so that there were 300 more patients the second year than the first.

I will give a few figures to show what class of cases they had and what in general the results were. In the second year 625 cases of injury were received into

the institute and 533 discharged. The other 92 were still on hand for further treatment, and there are no less than 49 different associations of one kind and another represented in the patronage of this institute, including some dozen railroad associations in Germany, who sent their injured cases for treatment there. Now, of the 533 cases treated in this year and discharged, 50 per cent. had had fracture of the bones, 5 per cent. had luxations, 1 per cent. strains, 17 per cent. contusions, 19 per cent. wounds in the soft parts, and 5.5 per cent. other injuries. The most numerous cases of fracture had been of the leg, next of the thigh, then of the forearm, then of the upper arm, besides all sorts of breaks in other parts of the body. It is interesting to note that in this second year the average time which had elapsed after the injury before the patients were received at this place was twelve months. There were 229 patients that came in within the first half-year after the injury, 154 in the second half, 139 after the second half-year, etc.; but the improvement in the general statistics of the association over the previous year was in proportion as the patients came up for treatment earlier, and the average time of treatment or stay in the institute was seven weeks during the second year, whereas it had been nine weeks in the first year. The age of the patients varied from fourteen to seventy-three years: 29 between sixty-one and seventy, 104 between fifty-one and sixty, the greatest number 146 between thirty-one and forty. Of a certain proportion, 163 of the 533 discharged, 28 were turned out with fully restored power—6 per cent. of that number; 33 per cent. were turned out with still some slight loss of power and the amount of inability was adjudged not only by the physician but by a court of reference in which the leading insurance companies were represented. About one-fourth of those that had been under treatment in this class came out very nearly fully restored; considerably improved, from 50 per cent. to 100 per cent; improvement in the matter of ability to go on with their craft, in 43 per cent. of the whole; etc. The practical point as regards the value of this institute to the associations engaged in the insurance of workmen comes from the financial balance. The whole cost of the treatment (three marks a day) is charged to the patients, counting stipends to the wives and children of the disabled men; that all comes to about 24,000 marks; and in diminished stipends from the treatment and improvement to the men the figure is over 30,000 marks; so that apparently Dr. Schultz makes out a saving of 6,200 marks for the cases directly under treatment.

DR. H. P. BOWDITCH: I have prepared no formal contribution to this discussion, but I have been very much interested in all that has been said about passive movements for the treatment of diseases of the nerve-muscle mechanism of the body, and it seems to me that since they have been found so successful and useful in many cases, it is interesting to consider some of the physiological principles on which such treatment must rest. Of the simple mechanical uses of such treatment, such as breaking up of old adhesions or stretching of contracted and diseased ligaments. I need not speak. There are a number of processes connected with the movements of the joints which must necessarily be affected by passive as well as by active movements, for it has been found that among the different phenomena which are connected with

movement, some of them seem to occur in connection with muscular contraction, that is, certain processes go on in the muscle because it contracts, while others take place not because the muscle contracts, but because the joints move. The fact of movement is, therefore, an important circumstance in connection with the nutrition of the parts, and not simply the fact that the muscles contract. Of course, all the phenomena which occur in consequence of the movement and not on account of muscular contraction are largely to be imitated by passive movement. Among these phenomena are to be classed in the first place, the movements of the lymph. The lymph moves in obedience to the laws of hydraulics in consequence of the fact that the fasciæ about the muscles are stretched and relaxed whenever the muscles move. The contraction of the muscle and the movement of the joints continually relax and stretch the neighboring fasciæ, the lymph spaces between the tendinous bundles are opened and closed, and the lymph is sucked away from the side nearest the muscle and carried on through the lymph spaces into the lymphatic vessels and into the great lymph trunks. This important influence of the fasciæ in keeping the lymph moving has been demonstrated by physiological experiments. In the second place the respiration of the tissues is to be considered: going on in all parts of the body, and largely increased by the activity of the organs, are certain chemical changes which find their final expression in what has been called "the respiration of the tissues," that is to say, the blood loses oxygen and gains carbon dioxide. It has been found that this gas exchange of the tissues, which is complementary to that which takes place in the lungs, is affected both by the movements of the limbs and by the fact that the muscles contract. It has been found that the muscular contraction is the main element in determining the amount of carbon-dioxide liberation whereas the fact that the joint moves, seems to determine very largely the oxygen absorption. The muscle liberates carbon dioxide in consequence of its contraction. That is not necessarily at the same instant associated with absorption of oxygen. Oxygen has to be absorbed to keep pace with it; but the fact of muscular contraction seems to be the determining influence in setting free carbon dioxide, whereas movements of the joints influences the amount of oxygen absorbed. By passive movements, therefore, the amount of oxygen available for muscular catabolism can be increased without necessarily setting free the corresponding amount of carbon dioxide; so that there is no doubt that passive movements are very useful on this account as well as for other reasons. It seems to me, too, that the question of passive movement is a very important one in other ways. When a movement takes place actively, no matter how gentle the movement may be, the articular surfaces are pressed together. Even in a very slight movement, a considerable pressure must be exerted on the articular surfaces. In arthritis, it seems to me, this is what should be avoided. This may be the reason why passive movements are often so much more useful than active ones in a great many cases of joint trouble. This is more particularly the case in joints of the lower limbs which bear the weight of the body, for it is impossible to exercise those joints naturally without subjecting them to a good deal of pressure by the weight of the body. The usefulness of such apparatus as Zander machines where the limb is placed

in a piece of machinery which moves it, is perhaps largely to be explained in this way. It seems to me the time has come when we ought to have in this city the advantage of such therapeutic facilities as are afforded by a Zander institute. While there are some thirty odd Zander institutes in Europe, we have only two sets of apparatus in America. I believe there is a portion of a set in New York and one in St. Louis. It seems very desirable that we should have something done here and I cannot help thinking that, if it has been so successful in Germany, the institute must be largely self-supporting. It seems to me that among the various classes of cases that seem to be benefited in this way the number of patients will be found sufficient to justify the establishment of such an institute in this city.

DR. GRAHAM: There is one use to which this apparatus can be put which Dr. Bradford did not point out. While it is excellent for passive motion it can also be used for resisted motion where the joint is not too stiff. It is a good plan to let the patient exercise himself occasionally, and, moreover, Dr. Bowditch would tell us that muscles that are contracted in lifting a weight will extend more than muscles that are relaxed and being pulled out by the same weight; so that if we take stiff muscles, it will be of advantage to stretch them in both directions and get so much more passive motion. We have all been considering the effects of stiff joints, what Oliver Wendell Holmes used to speak of as investigating fireworks after the Fourth of July. It might be worth while to say something about preventing these stiff joints. Going through the large hospitals we see fractures beautifully put up, and we see two or three joints being made stiff for one fracture to unite; and when the poor patient gets out of the hospital it takes him, two, three or six months to get over the stiffness that might have been prevented by a little massage and passive motion while the fracture was uniting.

DR. J. E. GOLDTHWAIT made a preliminary report on

THE DIRECT TRANSPLANTATION OF MUSCLES IN THE CORRECTION OF DEFORMITIES.

In a paper read about a year ago on the subject of tendon grafting or transplantation I made the suggestion—and in that paper the work was confined entirely to the grafting of tendons about the feet—that in all probability the same principle could be applied to other parts of the body, and that probably the muscles of the thigh could be used to help out those which had been paralyzed, and in other parts of the body the same principle could be worked out. In developing that work a clinical study was made of the cases of infantile paralysis so commonly seen in the orthopedic and nervous clinics, in which the muscles of the thigh were more or less involved; and in a very large number of cases all of the anterior thigh muscles were found to be paralyzed, with the exception of the sartorius and the tensor vaginae femoris. On looking up the nerve-supply, it seemed rather an unusual condition, because the anterior crural supplies the sartorius as well as the other muscles; but Dr. Dwight kindly looked up the minute anatomy, and reported that the fibres going to the sartorius came from the second and third lumbar nerves and the fibres going to the others came from the branches of the lumbar plexus below that. The attempt was made to use the sartorius as

an extensor, and this young woman has come to-night so that I could show the result of that operation. She has infantile paralysis of the right leg, practically all the muscles of the lower leg being involved, and the muscles of the thigh were all involved, with the exception of the sartorius, and the gait was the characteristic flinging gait. About six months ago an operation was done and the sartorius muscle transferred. Before this there was no power of extension and the sartorius served simply to jerk the leg sidewise. Now she can lift and completely extend the leg. She has lost that flinging gait entirely. The limp is largely due to the fact that the tendo-Achillis and the posterior muscles were all contracted and she walked on the toe. She wears a brace holding the foot so that it cannot drop down, and the gait is partly due to that. Before the operation, having no anterior thigh muscles, it was impossible to bear the weight on the leg. The knee gave way, and down she would go. Now she can walk. In doing the operations one thing very noticeable was the fact that with the extreme atrophy of the anterior thigh muscles you have a condition something like this (diagram shown): the sartorius starts properly at the anterior superior spine, and passes directly under the skin across this thick mass of muscle down the inner side of the tibia. This mass of muscle acts as a fulcrum over which the sartorius pulls so that the muscle in a state of health is an outward rotator of the thigh, and an extensor as well. Now this fulcrum being so high, lifts the leg as well as rotates it. When the fulcrum is lost so that the quadriceps is represented by a thin membrane, the sartorius comes down directly against the bone, and it gradually slips round to the side, so that instead of finding the sartorius on the inner side well toward the front, the muscle is found way round to the back behind the adductor muscles. In the first operation I attempted I did not find the muscle. The next time it was found at the back, and it has been found in the other cases in the same place. One plan was to attach the muscle in the middle of the thigh; but this is not satisfactory, as you lose half of the contractile power of the muscle. The results are not as good as where the attachment is made directly above the patella. If it is possible the attachment of the sartorius muscle is not severed at all; if the muscle is long enough so that it can be drawn up and sewed to the tendon, the attachment is made and no harm can result; but if the muscle is so much contracted, as it has been in several cases, so that it is impossible to loop the muscle up, the sartorius tendon is divided and the end of the muscle sewed through and attached just above the patella. In this case you see the muscle was left at this point and not divided.

The only other satisfactory case of muscle transplantation I wish to report is one undertaken to correct one of the defects which has been encountered in doing the tendon-grafting, and that is in the tendons of the anterior part of the foot. The common tendon to which the attachment is to be made is the peroneus tertius, because that muscle commonly escapes paralysis, and the tendon of that muscle is so small that sloughing has taken place where the greatest care has been used; and to correct that, the operation has been done of cutting down on to the muscles just before the tendons are given off, the muscles separated and the muscles sewed directly through before the tendons are given off, so that the pull comes

through the end of the muscle rather than through the tendon. It is an easier operation; there is no danger of sloughing; and in a condition where the tendons are very small, it is the better operation to do.

DR. HARRINGTON: I have very little to say. Dr. Goldthwait was kind enough to help me in a case of tendon and muscle transplantation at the Massachusetts Hospital. I wish to express my admiration for the work which Dr. Goldthwait has done in this direction. The sartorius muscle on both thighs was attached to the tendinous tissues just above the patella. I have not yet allowed the patient to use these muscles. In this same case the transplantation of the tendons of the foot was very successful.

In both thighs the sartorius was displaced backward, as Dr. Goldthwait has said, and was found with difficulty in the first search. The search for the second muscle was much less difficult.

DR. BRADFORD: Dr. Goldthwait was kind enough to allow me to examine one of his cases six months after he had operated upon the patient, and I can gladly testify to the excellent results. The procedure of muscle-grafting of the sartorius is a new one, and the credit of it belongs to Dr. Goldthwait, who has enlarged his experience in tendon transplantation, adding to it cases of muscle transplantation, utilizing the sartorius to supplement the work of the extensor-cruris muscle. Judging from the results which have been gained the new method promises to be of great value. If it is tried in younger children, it can be expected that the muscles will adapt themselves to the new condition, and there is no reason why we cannot expect that the sartorius may become enlarged by use and growth, replacing the paralyzed quadriceps.

Recent Literature.

A Handbook of Pathological Anatomy and Histology.

By FRANCIS DELAFIELD, M.D., LL.D., and T. MITCHELL PRUDDEN, M.D. Fifth edition. New York: Wm. Wood & Co. 1896.

This, the fifth edition of this well-known work, appears as an attractive volume of 800 odd pages. The introduction of many new wood-cuts and the revision or rewriting of all of the sections of the book make it a very satisfactory presentation of the important facts and prevalent ideas on the subjects of Pathological Anatomy, Bacteriology and Pathological Histology. The subject-matter is divided into four parts:

Part I contains directions for making autopsies and some of the more important methods of microscopical examination of pathological tissues.

Part II is devoted to the consideration of general pathology, including the infectious diseases, parasites, tumors, and the pathology of the circulation. It also includes a chapter on the changes in the composition and structure of the blood, by Dr. James Ewing, in which is given a brief account of the microscopical characteristics of the blood in the various forms of blood disease, as well as a short description of the technique of blood examination.

Part III is entitled the "Morbidity of the Organs," and contains brief descriptions of the gross and microscopical appearances of the various important lesions met with, including a good chapter on the nervous system.

Part IV deals with the lesions found in the general diseases, in poisoning and in violent deaths. The discussion of these subjects is brief and to the point.

The book thus covers a wide field. It commends itself for its concise statement of facts; for its brevity and clearness of description. Its chief merit, however, is the great number and excellence of the wood-engravings, nearly all of which are original, illustrating the microscopical anatomy of tumors, and of pathological tissues generally.

The work can be sincerely recommended to students and practitioners of medicine who do not desire an exhaustive consideration of the subjects treated.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty volumes. Vol. VII, Diseases of the Respiratory Organs and Blood, and Functional Sexual Disorders. New York: William Wood & Co. 1896.

The contributors to this volume are Drs. Charles W. Allau, New York; Jules Comby, Paris; Charles G. Cumston and Ernest W. Cushing, Boston; James M. Freuch, Cincinnati; E. Fletcher Ingals, Chicago; E. Main, Paris; Franz Riegel, Giessen; Alfred Stengel, Philadelphia; Herbert B. Whitney, Denver. Most of these gentlemen are connected with some medical school or hospital, or both.

The subjects treated of in this volume have no especial connection with each other.

The most important articles are those by Dr. Whitney, on "Diseases of the Respiratory Organs," and by Dr. Stengel on "Diseases of the Blood."

Dr. Allen's contribution is on "Functional Disorders of the Male Sexual Organs," Drs. Cushing's and Cumston's on "Disorders of Menstruation." Dr. Ingals's paper on "Hay Fever" tells what is known on that subject and gives the result of his personal experience, with treatment. Riegel, who writes on "Asthma," is the author of the paper on "Bronchial Asthma," in "Von Ziemssen's Cyclopædia, 1876."

This volume contains, with the index, 796 pages. Volume VIII has already been published.

A Text-book upon the Pathogenic Bacteria. For Students of Medicine and Physicians. By JOSEPH MCFARLAND, M.D. With 113 illustrations. Philadelphia: W. B. Saunders. 1896.

The publisher has made a very attractive book out of this volume of about 350 pages. It is plentifully supplied with excellent reproductions of microphotographs of bacteria, most of which have been taken from the well-known "Atlas" of Fraenkel and Pfeiffer. Various subjects are also well illustrated with wood-cuts selected from various other books dealing with bacteriological subjects. Original or new illustrations are very few. A reproduction of Löffler's colored plate of the potato culture of the bacillus of glanders adorns the page opposite the title-page. It was probably placed in this prominent position on account of its rather striking colors.

The paper and printing are excellent. The author's part in the preparation of the book is not very remarkable. The usual facts have been presented in the usual way. The volume can be recommended to those who wish to secure by reading some knowledge of the pathogenic bacteria and the methods of bacteriological research.

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RECENT ADVANCES IN NEUROPATHOLOGY.

AMONG the most hopeful and significant phases of recent progress in medicine is the constantly increasing attention given to pathology and pathological anatomy. It is coming to be generally recognized that observation and experience are frequently false guides, and that empirical methods of studying disease need always to be supplemented by an appeal to underlying morbid conditions. Processes are demanding attention, and symptoms are being relegated to their normal scientific position, as the physiological expression of such processes. We are already reaping the fruits of our broadened attitude in a clearer comprehension of the various groups of symptoms, which we more or less accurately designate as diseases, and the future is full of hope that a classification may ultimately be made which will satisfy the scientific intelligence, as well as the mind of a purely practical bias. This, certainly, it is the function of pathology in its broadest sense to accomplish, and the results thus far attained allow of no reasonable doubt that the task is not an insurmountable one.

Owing to the infinitely complex and subtle functions of the nervous system, it is in no way to be wondered at that knowledge of an exact sort has lagged behind that of other organs or systems of organs. Nevertheless, the revelations of the last few years, even in this field, have been so suggestive, that we may look forward with confidence toward generalizations of wide-reaching significance. This progress has been due to but one thing — the recognition of the necessity of a rigid scientific method of investigation. With the growth of this feeling, and as a necessary consequence of it, pathological laboratories have come into existence at many institutions for the insane, where but a few years ago they were supposed to have no field of usefulness whatever. New York State has gone still further, and established in New York City, under the able directorship of Dr. Ira Van Gieson, a

central pathological institute, whose function shall be to direct the work of the several laboratories throughout the State, and at the same time serve in itself as a centre of research. There can be no doubt that the establishment of such a laboratory or system of laboratories is one of the most significant steps of recent years toward the foundation of a scientific spirit regarding neurological problems. Van Gieson's brilliant address, on "The Toxic Basis of Neural Diseases,"¹ forces us to an entire agreement with him in his hopes for future work. Reverting to certain statements made in a previous address relating to the fact that he believes that "certain factors are at hand for the creation of a new epoch in the evolution of the pathogenesis of nervous and mental diseases," he goes on to say:

"The first and most important of these factors is the precise and definite status which the anatomy of the nervous system attained through the investigations of the past decade by the Golgi methods; the establishment of the neuron theory in particular leads to a definite understanding of the pathology and physiology of the nervous system."

"A second great factor in this new epoch of neuropathology is the application of the modern doctrine of cytology and its technical methods of research to the investigation of the problems in nervous and mental diseases."

"A third factor is a realization of the absolute necessity of correlating the nervous system with other organs and tissues in the body in studying the operation of the fundamental and general somatic pathological processes in the nervous system."

In these three statements lies the substance of our present point of view regarding the pathology of the nervous system. Certain points are of particular interest, and by no means sufficiently realized by the medical profession at large. The significance of the Golgi methods in the light they have thrown on the fundamental principle of anatomical structure received a quick recognition. The neuron theory needed only to be advanced to be accepted, so reasonable did its fundamental idea seem to be. As applied to pathology, however, it had been accorded a much more tardy recognition, on account, no doubt, of the deeply-rooted conception that cells and fibres did not essentially belong together. Because of our failure to recognize in the neuron a unit of histological structure, we have been unable to apply a true cellular pathology to our investigations of disease processes in the nervous system. When, however, it becomes a habit of thought to conceive of the highly differentiated nerve cell as we do of the simpler liver or kidney cell, it will be at once evident that we may apply to the nervous system those general pathological principles which are everywhere else operative — a step certainly of much significance.

The second point upon which Van Gieson dwells is of almost equal importance, namely, the elaboration

¹ State Hospitals Bulletin, 1896, Vol. i, No. 4.

of new technical methods of research. It is entirely natural that the highly differentiated nerve cell should demand for its proper investigation staining methods of extreme refinement and delicacy. Until methods were found which could demonstrate minute structural alterations it was hopeless to expect any material advance in our knowledge of the subtle anatomical changes underlying and associated with many marked clinical phenomena. This difficulty is now, in a measure at least, a thing of the past. We have come clearly to recognize that transient injuries to the nerve mechanisms leave their impress, as well as those of greater severity and longer continuance. We are now no longer deterred from histological investigation, which a few years ago, would, of necessity, have been fruitless owing to inadequate methods.

A matter of extreme general importance is Van Gieson's third factor, in which he speaks of the necessity of correlating the nervous system with other organs and tissues in studying its pathological processes. We cannot do better than quote his own words relative to this point:

"However obvious or trite," he says, "the statement of this third factor may appear, it is nevertheless true that much of the present obscurity in the pathogenesis of nervous, and especially of mental diseases, is largely to be explained by the very simple fact that the brain and the rest of the nervous system have been studied altogether too much as something apart from the rest of the body—as something beyond the jurisdiction of the laws of the great fundamental pathological processes which operate on the whole organism."

Van Gieson insists that the nervous system cannot be exempt from the workings of pathological laws which are elsewhere operative, and that we must recognize this fact if we are to progress. Of necessity, the manifestation of such laws in the nervous system, as elsewhere, must depend upon the peculiar differentiation of the ultimate histological elements, but because the nerve cell is highly differentiated affords no reason that it must be governed by pathological laws peculiar to itself.

We owe Van Gieson a debt of gratitude for having clearly stated this broad point of view, and for his insistence upon the fact that the nervous system is, after all, merely a part of the organism as a whole, and therefore must be amenable to the same laws of disease and decay.

Space is not permitted us to discuss in detail the skilful application of the principles above stated to a consideration of the present theories and facts regarding the toxic causes of many nervous and mental affections. He sees in such agencies, taken in the broadest sense, an etiological factor of the greatest importance. His view is a somewhat radical one, but nowhere does it lose its absolutely judicial spirit. Unquestionably, the line of investigation presented in the paper from which we have quoted, is one which, if carried out on the strictly scientific lines laid down, will

yield results of the utmost importance. Van Gieson insists upon the value of minute examination of cells, as giving indication of a toxic process, when such toxic agent may be in itself unknown. For example, he says:

"While little or nothing may be known about the nature and source of subtle and seemingly intangible pathogenic poisons, beyond suspicions of their existence from the clinical history, nevertheless, existence in the body of these poisons may be postulated and their causal relation to the neural clinical manifestations may be determined by the morphological changes of parenchymatous degeneration recorded in the nerve cell by their toxic action."

The address is full of suggestiveness from beginning to end, and marks, no doubt, the beginning of more painstaking and systematic work than has yet been done on the general subject of the pathology of nervous and mental disease.

MEDICAL NOTES.

DU BOIS-REYMOND'S SUCCESSOR.—Professor Munk, of Berlin, and Professor Kühme, of Heidelberg, are being considered as successors to the chair of physiology at Berlin University.

A RINDERPEST SERUM.—Professor Koch is reported to have succeeded in preparing a serum which will lessen the virulence of rinderpest. Whether it has any protective power is not stated. He is soon to return to Berlin.

THE NEW YORK POLYCLINIC HOSPITAL.—The trustees of the New York Polyclinic Medical School and Hospital have decided to rebuild on the site of their former building, which was burned some weeks ago. The work will be begun immediately.

BRONZE MEDAL CURE OF CANCER.—The daughter of the principal notary of Piacenza, Italy, was found to have in her stomach an accumulation of medals of a Madonna locally celebrated for powers of cure in cancer. She had swallowed a medal each day for a week on advice of her confessor. — *The Churchman*.

COLLARETTES AND DERMATITIS.—Two cases of dermatitis of the neck caused by the wearing of sable collarettes were reported in the *Lancet* of December 12, 1896. Chemical examination in one case showed that there was no arsenic or other irritant drug in the fur, and the trouble is believed to have resulted from mechanical irritation.

ANGEL MAKING IN RUSSIA.—A telegram from Odessa to the *London Daily Mail* reports the trial of a woman and her three daughters at Ekaterinburg, during the course of which it was proved that the charge for "angel making," the euphemism applied to infanticide, was five shillings an infant. Death was brought about mainly by withholding food, and by general neglect.

MEXICO HONORS PASTEUR.—The municipality of Mexico has given the name of Pasteur to the gardens situated in front of the National School of Medicine in that city.

THE TETANUS ANTITOXIN.—Four cases of traumatic tetanus which entered the Cook County Hospital, Chicago, between September 20th and October 10th, were treated by tetanus antitoxin, and three of the four recovered, according to a report in the *Journal of the American Medical Association*.

DR. ABBOTT SUCCEEDS DR. BOLTON.—Dr. Alexander C. Abbott, Professor of Hygiene in the University of Pennsylvania, has been appointed chief of the bacteriological division of the Philadelphia Bureau of Health, in succession to Dr. B. Meade Bolton, resigned.

THE FIFTEENTH GERMAN CONGRESS OF INTERNAL MEDICINE will be held in Berlin on the 9th, 10th, 11th and 12th of June, under the presidency of Dr. von Leyden, of Berlin. There will be a discussion on the Treatment of Chronic Articular Rheumatism (Dr. Bäumler, of Freiburg, and Dr. Ott, of Marienbad, reporters); on Epilepsy (Dr. Unverricht, of Magdeburg, reporter); and on Morbus Basedowii (Dr. Eulenburg, of Berlin, reporter).

TARTAR THERAPEUTICS.—A Tartar doctor, when he finds himself without his drugs and medicines, is not in the least embarrassed. He writes the names of the needed drugs on slips of paper, and these, being rolled up in little balls, are swallowed by the sick man. "To swallow the name of a remedy, or the remedy itself," say the Tartars, "comes to precisely the same thing."—*Noah Brooks*.

THE DISPENSARY ABUSE IN BERLIN.—The dispensary abuse is perhaps even greater in Germany, where private clinics compete with public for dispensary patients, than in this country. The Berlin correspondent of the *British Medical Journal* writes that "State interference with private clinics is the burning question of the day in Berlin medical circles, and that in the year 1895 more than 10,000 cases were treated in private clinics. The statistics for 1896 have not yet been published, but there is no doubt that there has been a considerable increase."

MEDICAL JOURNALS OF THE WORLD.—According to Professor Laboulbène of the Paris Faculty of Medicine, the total number of medical journals published in the world, which in 1880 was 785, had risen in 1895 to 1,380. There are 667 European medical journals, of which France has 190, Germany 168, Italy 140, Great Britain 101, Russia 86, and so on down to Turkey and Greece, which have only two each. America has 367, of which 343 are published in the United States, 4 in Canada, 17 in the Republics of South America, 2 in Mexico and 1 in Brazil. Twenty-five medical journals are published in India and 30 in China and Japan. Africa has only 2, and Oceania 3.

AN ANECDOTE OF LORD LISTER.—The following anecdote is related in the *London Daily News*: "While going round his wards in the Glasgow Royal Infirmary one day, Sir Joseph, then plain Mr. Lister, came to the bedside of a patient whose arm had been severely crushed without the skin having received any injury. Turning to the assembled students, he said, 'Gentlemen, I have frequently noticed that when severe injuries are received without the skin being broken, the cases nearly always recover. On the other hand, trouble is always apt to follow, even in trivial injuries, when a wound in the skin is present. How is this? I cannot help thinking that the man who is able to explain this problem will be one who will gain for himself undying fame.'" Lord Lister himself has proved the truth of his prophecy.

THE INVESTIGATION OF ALLEGED PLAGUE CASES IN CALCUTTA.—The Medical Board of Calcutta, according to the *Indian Medical Gazette*, have decided on clinical and bacteriological grounds that the cases reported as plague in that city proved on investigation to be either "ordinary non-venereal buboes or cases of simple enlarged glands, fever and bronchitis or intestinal obstruction!!" The exclamation points are those of the editor of the *Gazette*, who evidently does not believe that plague was certainly excluded in all the cases. As the editor remarks, the term "ordinary non-venereal buboes" is rather vague and does not satisfactorily account for the disease; and he points out the danger of overlooking the mild form of the disease, described as "pestis ambulans," which may at any time give rise to the severer type. The danger of minimizing the earlier manifestations of plague, on account of commercial considerations, has been brought out with sufficient vividness by the experience at Bombay, where the medical authorities refused to admit the presence of plague till it had gotten beyond their control. Whether Calcutta is to be taught as severe a lesson or not, the action of its medical board in denying the presence of the disease without the most careful and rigid examination is reprehensible in the highest degree.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 17, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 73, scarlet fever 39, measles 106, typhoid fever 13.

THE RHODE ISLAND HOSPITAL.—From the Report of the Board of Trustees of the Rhode Island Hospital, we learn that, during the year ending September 30, 1896, the number of patients treated was 2,283: males, 1,460; females, 823. The number during the previous year was 2,046. The total number of new cases treated in the out-patient departments was 7,306. The number of out-patients was smaller than that of the previous year, during which 8,649 cases

were treated, owing to the adoption of regulations by the trustees to prevent the abuse of the out-patient department by patients who were able to pay for medical attendance. A new building for contagious diseases was opened on June 13, 1896.

NEW YORK.

A FIRE AT ROOSEVELT HOSPITAL.—A fire, causing damage to the extent of \$15,000 or \$20,000, occurred on Saturday evening, February 13th, in what is known as the kitchen pavilion of Roosevelt Hospital. It is a two-story brick building with a mansard roof, the lower floor being mainly occupied by the boiler-room and store-rooms, and the upper floors with the sleeping apartments of laundresses, servants and porters. During the continuance of the fire, which is said to have been caused by a defective flue, and which, happily, was confined to the pavilion in which it originated, there was naturally considerable excitement among the patients of the hospital, but, through the energetic efforts of the superintendent and the house-staff a panic was averted.

A STUDY OF PLAGUE BACILLI.—Several weeks since Dr. H. T. Wilson, of the Hoagland Laboratory, received from China a supply of plague bacilli, and under the direction of the Brooklyn Board of Health has been making a series of experiments with cultures from them. His report on the results obtained is looked for with much interest.

THE OLDEST MALE IMMIGRANT.—Leon Reynolds, ninety-seven years of age, a native of Wexford, Ire., recently arrived from Southampton, and is said to be the oldest male immigrant on the records of the Immigration Bureau. His occupation is that of a saddler, and he expects to work at his trade in Illinois, where he has relatives living. The oldest immigrant on the books is Annie O'Neil, who arrived about a year ago, at the reputed age of one hundred and four.

Miscellaneous.

THE DEATH OF SIR SPENCER WELLS.

IN the death of Sir Spencer Wells, the medical profession has lost a man whose energy, activity and skill in the department of ovariectomy in its earlier days did much toward establishing it upon a firm footing, and resulted in an almost incalculable benefit to mankind in the relief of suffering and the saving of life. His recent death in the seventy-ninth year of his age, at Antibes, France, whither he had gone for change and rest, was sudden, though not entirely unexpected.

Thomas Spencer Wells was the eldest son of the late Mr. Wells of St. Albans, and was educated at Trinity College, Dublin. Thence he went to the Infirmary and School of Medicine at Leeds, and subsequently carried on his medical studies in the Anatomical School in Dublin, and at St. Thomas's Hospital. In 1841 he obtained his M.R.C.S. Eng., and three years later, he was elected one of the Honorary

Fellows called into being by the new charter. He subsequently entered as a surgeon in the Royal Navy, and on the outbreak of the Crimean War, he was appointed chief surgeon of the auxiliary hospitals at Smyrna and at Renkioi.

On returning to civil practice Mr. Spencer Wells distinguished himself by the success with which he practised the operation of ovariectomy, and by his eminent skill as a gynecologist. In 1865 he published the results of ten years' observation, both in private practice and as surgeon to the Samaritan Hospital for Women, and that volume was followed by others upon the same subjects in 1872 and 1882. A wider field was covered in 1885 by a book upon the "Diagnosis and Treatment of Abdominal Tumors," to which and to cognate subjects the author returned again and again at different dates down to 1891.

In 1882-83 Sir Spencer Wells was elected president of the Royal College of Surgeons of England. Dublin, Leyden, Charkof and Bologna conferred upon him the honorary degree of M.D., and a long list of learned societies at home and abroad offered their recognition of his eminence in the medical profession. In 1883 he received the honor of a baronetcy "in acknowledgment of the distinguished services which he had rendered to the medical profession and to humanity," a recognition of sterling merit which was universally appreciated throughout the profession.

PUERPERAL ECLAMPSIA; ITS ETIOLOGY AND TREATMENT.

DR. WILLIAM WARREN POTTER, of Buffalo, read a paper at the ninety-first annual meeting of the Medical Society of the State of New York, Albany, January 26, 1897, on the above subject.

He said, *inter alia*, that we seem to have arrived at the renaissance of eclamptic literature, that while the subject is being discussed in magazine articles and societies it would not answer for this society to keep silent.

Though the pathogenesis of eclampsia is still unsettled, we are certain that it is a condition *sui generis*, pertaining only to the puerperal state, and that to describe, as formerly, three varieties—hysterical, epileptic and apoplectic—is erroneous as to pathology and causation as well as misleading in treatment.

The kidney plays an important office in the economy of the eclamptic. If it fails to eliminate toxins, symptoms are promptly presented in the pregnant woman. Renal insufficiency is a usual accompaniment of the eclamptic state. Over-production of toxins and under-elimination by the kidney is a short route to an eclamptic seizure. However, many women with albuminuria escape eclampsia, and many eclamptics fail to exhibit albuminous urine.

The microbic theory of eclampsia has not yet been demonstrated. The toxic theory in the present state of our knowledge furnishes the best working hypothesis for prevention or cure.

Treatment should be classified into (a) preventive, and (b) curative. The preventive treatment should be subdivided into medicinal and hygienic; and the curative into medicinal and obstetric. A qualitative and quantitative analysis of the urine must be made at the onset. If there is defective elimination something

must be done speedily to correct a faulty relationship between nutrition and excretion. One of the surest ways to control progressive toxemia is to place the woman upon an exclusive milk diet. This will also serve to flush the kidneys and thus favor elimination. Distilled water is one of the best diuretics; it increases activity and supplies material—two important elements. In the pre-eclamptic state, when there is a full pulse with tendency to cyanosis, one good full bleeding may be permissible, but its repetition should be regarded with suspicion. If there is high arterial tension—vasomotor spasm—glonoin in full doses is valuable.

When eclampsia is fully established the first indication is to control the convulsions. Full chloroform anesthesia may serve a good purpose. If the convulsions are not promptly controlled the uterus must be speedily emptied. This constitutes the most important method of dealing with eclampsia. Two lives are at stake, and by addressing ourselves assiduously to speedy delivery of the fetus we contribute in the largest manner to the conservation of both.

Rapid dilatation first with steel dilators, if need be, then with manual stretching of the os and cervix, followed by the forceps, is the nearest approach to idealism. Only rarely can the deep incision of Dührssen be required. Cæsarean section should be reserved for extreme complications, as deformed pelvis, or to preserve the fetus when the mother's condition is hopeless. Veratrum viride is dangerous, uncertain and deceptive in action.

In eclampsia of pregnancy, that is, prior to term, the aseptic bougie, introduced into the fundus and coiled within the vagina, may be employed to induce labor. Finally, to promote elimination of toxic material, diuresis, catharsis, and diaphoresis should not be forgotten; neither should the hot-air bath, nor the hot pack be overlooked.

Correspondence.

CURIOUS STATEMENTS IN THE "LANCET."

PARIS, January 29, 1897.

MR. EDITOR: The following extracts from a paper written by Richard Brown, M.R.C.S., L.A.C., and which I find in the *London Lancet* for 1851, Vol. I, p. 8, offer such a curious comment upon the proof-reader if not upon the editor, of the *Lancet* of the date I have quoted, that I send them to you without further remark:

"On applying the ear or a stethoscope over the precordial region two sounds are heard following each other; the first is dull and prolonged, whilst the second is shorter and sharper. The first sound is produced by the diastole and the second during the systole of the ventricles; and in support of this theory I will state the circumstances under which this opinion was formed."

The writer concludes his explanation, for which I refer you readers to the article itself, by saying:

"I observed, moreover, that the first sound did not exceed the space in which the impulse was felt, but that the second sound was audible in nearly the whole extent of the chest, which would tend to strengthen the theory I have advanced, inasmuch as the sound produced by the diastole of the ventricle would be circumscribed, whereas, that produced by the systole would be diffused."

"I diagnosed ossification of the aortic semi-lunar valves and arch of the aorta, believing that during the production of the second sound (systole) the current of blood was passing in this direction."

Another remark of the writer is:

"Immediately followed the second sound produced by the onward current of blood through the aortic opening propelled by contraction of the ventricle."

After reading this remarkable paper, one involuntarily recalls a conundrum propounded most seriously by one lunatic to another: "Why is a mouse when it spins?" To which the satisfactory answer was: "The higher the fewer."

H. O.

METEOROLOGICAL RECORD

For the week ending February 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Weath'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...31	30.68	24	33	15	67	84	76	N.W.	S.E.	9	3	C.	C.
M...1	30.42	30	41	18	64	41	52	S.W.	S.W.	13	8	F.	C.
T...2	29.98	28	36	20	79	73	78	N.W.	N.	4	12	O.	F.
W...3	29.88	28	35	22	77	62	70	N.	N.	25	13	O.	C.
T...4	30.26	24	29	18	63	66	64	N.	N.W.	19	6	O.	C.
F...5	30.46	27	35	19	60	67	64	N.W.	S.E.	6	1	O.	C.
S...6	30.23	32	38	26	78	88	83	N.	N.E.	4	16	O.	O.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 6, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	741	70	10.92	19.18	1.26	.28	5.74	
Chicago	1,619,226	460	188	12.76	22.44	6.82	1.54	1.98	
Philadelphia	1,164,000	505	145	8.93	22.99	.57	1.14	5.89	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	212	60	6.11	20.68	.47	1.41	3.76	
Boston	494,205	244	87	15.17	16.40	1.23	1.73	9.43	
Baltimore	496,315	206	61	6.86	12.25	.49	.98	3.92	
Cincinnati	336,000	118	—	7.65	17.00	1.70	—	5.92	
Cleveland	314,537	102	33	4.95	12.87	—	.99	2.97	
Washington	275,500	137	37	2.92	25.55	—	.73	.73	
Pittsburg	238,617	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	35	11	2.86	22.88	2.36	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	36	14	8.31	16.62	2.77	—	2.77	
Fall River	88,020	37	11	10.80	29.70	8.10	2.70	—	
Lowell	84,359	40	13	5.00	22.50	—	—	5.00	
Cambridge	81,519	37	6	16.20	10.80	2.70	2.70	8.10	
Lynn	62,355	—	—	—	—	—	—	—	
New Bedford	55,254	21	2	4.76	14.25	4.76	—	—	
Springfield	51,534	15	3	6.66	6.66	—	6.66	—	
Lawrence	52,153	20	6	15.00	25.00	—	5.00	10.00	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	12	4	—	8.33	—	—	—	
Brockton	33,157	12	5	8.33	16.66	—	—	8.33	
Haverhill	30,185	14	5	14.28	29.56	—	7.14	—	
Malden	29,709	8	0	—	25.00	—	—	—	
Chelsea	31,295	15	2	6.66	20.00	—	—	—	
Fitchburg	26,394	6	4	33.33	33.33	—	—	33.33	
Newton	27,422	9	1	—	22.22	—	—	—	
Gloucester	27,063	4	0	—	25.00	—	—	—	
Taunton	27,093	12	4	8.33	16.66	—	—	8.33	
Waltham	20,877	4	1	—	25.00	—	—	—	
Quincy	20,712	7	3	—	14.28	—	—	—	
Pittsfield	20,447	6	2	—	33.33	—	—	—	
Everett	18,578	6	1	16.66	16.66	—	—	16.66	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	3	1	33.33	33.33	—	—	33.33	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,120: under five years of age 743; principal infectious diseases (small-pox, measles, diphtheria and croup,

cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 297, acute lung diseases 612, consumption 369, diphtheria and croup 144, diarrheal diseases 56, typhoid fever 32, whooping-cough 17, scarlet fever 16, measles 11, cerebro-spinal meningitis 11, erysipelas 8, malarial fever 2.

From whooping-cough Philadelphia 7, New York 5, Chicago, Baltimore, Boston, and Washington 1 each. From scarlet fever New York 7, Boston 5, Chicago 3, Cambridge 1. From measles New York and Chicago 5 each, Boston 1. From cerebro-spinal meningitis New York 5, Boston 2, Washington, Worcester, Somerville, and Chelsea 1 each. From erysipelas New York and Chicago 2 each, Boston, Cleveland, Haverhill and North Adams 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending January 30th, the death-rate was 20.6. Deaths reported, 4,338; acute diseases of the respiratory organs (London) 355, whooping-cough 120, diphtheria 83, measles 58, scarlet fever 38, diarrhea 38, fever 29.

The death-rates ranged from 10.8 in Croydon to 33.6 in Plymouth: Birmingham 25.3, Blackburn 20.6, Bradford 21.0, Cardiff 18.1, Gateshead 16.0, Hull 16.2, Leeds 20.1, Leicester 16.1, Liverpool 25.7, London 19.9, Manchester 22.3, Newcastle-on-Tyne 20.4, Nottingham 21.7, Oldham 18.9, Portsmouth 16.3, Salford 25.7, Sheffield 19.4, Sunderland 19.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 6, 1897, TO FEBRUARY 12, 1897.

Leave of absence for two months with permission to go beyond sea, is granted MAJOR ROBERT M. O'REILLY, surgeon.

MAJOR JAMES C. MERRILL, surgeon, will be relieved from duty at Fort Sherman, Idaho, upon the arrival of FIRST-LIEUT. G. A. SKINNER, assistant surgeon, and ordered to report to the surgeon-general for duty. FIRST-LIEUT. GUY C. M. GODFREY, assistant surgeon, is relieved from duty at Fort D. A. Russell, Wyoming, and ordered to Fort Sheridan, Ill., for duty.

FIRST-LIEUT. FRANCIS A. WINTER, assistant surgeon, relieved from duty at Fort Grant, Ariz., and ordered to Washington, D.C., for examination as to his fitness for promotion.

FIRST-LIEUT. WILLIAM E. PURVIANCE, assistant surgeon, will proceed from Fort Columbus, N. Y., to Washington, D.C., and report for examination as to his fitness for promotion.

The following named medical officers will be relieved from duty at the Army Medical School, Washington, D.C., upon completion of the course about March 12, 1897, and ordered to take station as follows:

FIRST-LIEUT. BASIL H. DUTCHER, assistant surgeon, Fort Leavenworth, Kan.

FIRST-LIEUT. LEIGH A. FULLER, assistant surgeon, Fort Meade, S. D.

FIRST-LIEUT. FRANKLIN M. KEMP, assistant surgeon, Vancouver Barracks, Wash.

FIRST-LIEUT. GEORGE A. SKINNER, assistant surgeon, Fort Sherman, Id.

FIRST-LIEUT. CARL R. DARNALL, assistant surgeon, Fort Clark, Tex.

FIRST-LIEUT. WILLIAM E. RICHARDS, assistant surgeon, Fort Grant, Ariz.

FIRST-LIEUT. LOUIS P. SMITH, assistant surgeon, Fort D. A. Russell, Wy.

FIRST-LIEUT. MARSHALL M. CLOUD, assistant surgeon, Fort Sill, O. T.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE PERIOD FROM JANUARY 16 TO FEBRUARY 5, 1897.

BAILHACHE, P. H., surgeon. When relieved from duty at New York, N. Y., on or about March 1, 1897, to proceed to Washington, D.C., for duty. January 27, 1897.

PURVIANCE, GEORGE, surgeon. To be relieved from waiting orders February 20, 1897, then to proceed to Baltimore, Md., and assume command of Service. January 27, 1897.

HUTTON, W. H. H., surgeon. Granted leave of absence for five days from January 22, 1897. To proceed from Detroit, Mich., to San Francisco, Cal., in time to arrive there February 25, 1897, and assume command of Service. February 5, 1897.

STONER, G. W., surgeon. When relieved from duty at Baltimore, Md., on or about February 25, 1897, to proceed to New York, N. Y., and assume command of Service. January 27, 1897.

GODFREY, JOHN, surgeon. When relieved from duty at San Francisco, Cal., on or about February 25, 1897, to proceed to

Detroit, Mich., and assume command of Service. January 27, 1897.

IRWIN, Fairfax, surgeon. When relieved from duty at Washington, D. C., about March 5, 1897, to proceed to Philadelphia, Pa., and assume command of Service. February 5, 1897.

CARTER, H. R., surgeon. Granted leave of absence for seven days. January 19, 1897.

CARMICHAEL, D. A., surgeon. When relieved from duty at Vineyard Haven, Mass., on or about March 1, 1897, to proceed to Cleveland, O., and assume command of Service. February 5, 1897.

GLENNAN, A. H., passed assistant surgeon. To be relieved from duty at Reedy Island Quarantine Station April 5, 1897, then to proceed to St. Louis, Mo., and assume command of Service. January 27, 1897.

WOODWARD, R. M., passed assistant surgeon. When relieved from duty at Cleveland, O., on or about March 10, 1897, to proceed to Reedy Island Quarantine Station for duty, and to assume command of that station April 5, 1897. January 27, 1897.

VAUGHAN, G. F., passed assistant surgeon. To proceed from Philadelphia, Pa., to Washington, D. C., for duty. February 5, 1897.

BROWN, B. W., passed assistant surgeon. To proceed from Washington, D. C., to Charleston, S. C., in time to arrive there January 28, 1897, for temporary duty. January 19, 1897.

STEWART, W. J. S., passed assistant surgeon. To proceed from Washington, D. C., to Vineyard Haven, Mass., about March 1, 1897, and assume command of Service. February 5, 1897.

PROCHAZKA, EMIL, assistant surgeon. Order of January 5, 1897, directing him to report for examination revoked. January 20, 1897.

CUMMINO, H. S., assistant surgeon. When relieved from temporary duty at Southport Quarantine on or about January 30, 1897, to proceed to New York, N. Y., for duty. January 19, 1897.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, on Monday evening, February 22d, at 8 o'clock.

Dr. W. T. Porter will present a paper on "The Physiology of the Sympathetic Nerve."

Dr. G. W. Gay will read a paper on "Ligature of the Innominate Artery." Discussion opened by Dr. H. L. Burrell.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, February 24, 1897, at 8 P. M.

Dr. R. A. Kingman will read a paper on "A Case of Double-Ovariectomy During Pregnancy, the Labor Complicated by Uterine Inertia."

Dr. Edgar Garceau will read a paper on "Some Cases of Cystitis in Women."

F. W. JOHNSON, M.D., Chairman.
C. H. HARE, M.D., Secretary.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

PROF. WM. T. COUNCILMAN, will lecture on the evenings of Thursday, February 25th and Thursday, March 4th, at 8 P. M. Subject, "Arterio-Sclerosis." The profession are invited.

RECENT DEATHS.

HENRY BLANCHARD, M.D., M.M.F.S., died at Neponset, February 10, 1897, aged eighty-five years.

PERRY H. MILLARD, M.D., of St. Paul, Minn., dean of the College of Medicine and Surgery at the State University, died at Johns Hopkins Hospital in Baltimore, February 1st. He was graduated in medicine from Rush Medical College in 1872. He then spent several years in the practice of his profession at Stillwater, Minn., afterward removing to St. Paul. He was an aggressive advocate of higher medical education and it was mainly through his efforts that the present laws regulating the practice of medicine in Minnesota, were enacted.

BOOKS AND PAMPHLETS RECEIVED.

Annual Catalogue of the Massachusetts Institute of Technology, Boston, 1896-97.

Iniencephalus. By Henry F. Lewis, A.B. (Harv.), M.D., Chicago, Ill. Reprint. 1897.

Original Articles.

NEPHRO-URETERECTOMY; RETROPERITONEAL EXTRAPATION OF A KIDNEY WITH ITS URETER.

BY J. W. ELLIOT, M.D.

THE patient, an unmarried woman, twenty-four years old, entered the Massachusetts General Hospital, March 24, 1896.

History.—She had been well and strong until three years previous to entrance, when she had an attack of acute articular rheumatism; for two years then she was not strong or well. One year before entrance she was attacked by severe abdominal pains and vomiting, for which she was taken to the Boston City Hospital and operated on for appendicitis; but the appendix was found to be normal. She remained at the hospital and the pains and vomiting continued. In June, 1895, Dr. Watson¹ made another abdominal incision for the purpose of palpating the kidneys. Having discovered a fluctuating area on the convex border of the right kidney, he did a lumbar nephrotomy, evacuating about two ounces of pus. The wound was allowed to heal in twenty-six days. Ten days later she complained of pain in both right and left kidneys, and Dr. Watson did a nephrotomy on both kidneys. The left kidney proved, however, to be healthy except for a cyst. The right side was much relieved by reopening the old sinus. She left the City Hospital in October, with a urinary fistula from the right kidney. After leaving the hospital she was unable to work on account of want of strength and the harassing condition of the urinary fistula. She applied to the City Hospital and elsewhere to have the kidney removed, but was advised against the operation.

When she entered the Massachusetts General Hospital she was weak and anemic, and suffering greatly from abdominal pains, which she declared to be the same as before her operations. She said, that being a servant by occupation, she would never be able to take a place while she had a disgusting urinary fistula, and that without employment she must go to the poor-house. She preferred to die than to continue as she was. Such a condition seemed to me to warrant her in taking the risk of a nephrectomy. We determined, however, to keep a record of the daily amount of urea in the fluid escaping from the fistula in the right kidney and in the urine as passed from the bladder, in order, if possible, to determine the relative value of the two kidneys. Catheterization of the ureters would have given us valuable information, but it was considered unwise on account of her bad general condition. We feared that the small amount of urea being eliminated might be made still smaller by any irritation to the urinary tract.

The fluid from the sinus was collected in a bottle by a soft rubber catheter fixed in the sinus.

A record was kept of the amount of urea eliminated for 17 days before the operation, during which time everything possible was done to improve the general health; and an improvement is clearly shown by the increased amount of urea eliminated. Dr. Cushing, the house-officer, made the admirable chart appended.

The average daily amount of urea found in the fluid from the sinus was $47\frac{1}{2}$ grains for the first five days,

and $48\frac{1}{2}$ grains for the last five days before the operation.

The average amount of urea passed from the bladder was 181 grains for the first five days and 294 for the last five days. The patient was then eliminating at her best, 342 grains of urea and one-seventh of this came from the sinus.

On April 13th, Professor Wood reported as follows:

"Fluid from sinus, specific gravity, 1.009; acid; albumin, .25 per cent.; large amount sediment, chiefly pus and small round cells, some of which were fatty. Few large hyaline casts from dilated tubules, with pus corpuscles and renal cells adherent. Very few blood globules. Urea, .94 per cent. The urine had a specific gravity of 1.026; albumin, slight possible trace; sediment, cells from vagina and vulva; excess of leucocytes. Few blood globules, small cells. An occasional hyaline and granular cast. Urea, 2.44 per cent.

From all this it seemed probable, first, that all the urine from the right kidney came through the sinus, because the fluid was opaque with pus, while little or no pus was found in the urine, also because the urea from the sinus remained nearly constant while the urea in the urine varied considerably; second, the left kidney was in fairly good condition, and only one-seventh of the urea came from the right side.

The patient's general condition improved, yet morphia was occasionally required for the pain in her right side.

Operation, April 17th. I removed the right kidney, with the old sinus and a greater part of the much enlarged and thickened ureter. The incision extended obliquely forward from the erector spinæ and the twelfth rib to the middle of the crest of the ileum. This was afterwards continued past the anterior superior spine and down on to the abdomen, $11\frac{1}{2}$ inches long in all. After a tedious dissection in the cicatricial tissue caused by the previous operations and disease, the kidney was freed and the vessels tied. It was then noticed that the ureter was very thick and as large as a man's thumb. The peritoneum and its contents being retracted inwards, the ureter was dissected from its bed down into the pelvis. The kidney with a few inches of ureter, was then cut away to allow an examination of the inside of the ureter. A finger-tip could be passed into the cut end, which did not collapse but stood open on account of its thickened walls. A sound was then passed down the ureter into the bladder; and although no obstruction was met, yet I got the impression that the ureter had been blocked with inspissated pus and epithelium. Upon farther examination it was discovered that the ureter became nearly normal in size and consistency soon after passing the pelvic brim; consequently it was cut at that point. The end was closed by stitching the mucous membrane with animal tendon, this was covered by turning down a circular cuff as in appendectomy, which was stitched with silk. The operation was done wholly extra-peritoneally, but the peritoneum was accidentally opened twice and closed with a ligature. The wound surface was enormous, but the muscles were easily reunited with stitches; a gauze drain was left from the cut end of the ureter to the wound in the back. The specimen showed a uretero-pyelonephritis. This was probably caused by a stone which had disappeared. The operation was well borne. A permanent catheter was placed in the bladder, to avoid

¹ Boston Medical and Surgical Journal, June, 1896.

the possibility of back pressure on the cut end of ureter. First twenty-four hours, urine $\frac{5}{8}$ xx.

On April 21st, four days after operation, only a very small amount of urine was passed. The patient looked badly, was restless, but was dull and recognized no one. One-eighth of a grain of pilocarpine caused profuse perspiration, but no change in appearance. Hot-air bath and copious watery stools (due to calomel) brought about an improvement in her general condition.

April 22d. Amount of urine still very small. Patient vomiting and in a critical condition. Pilocarpine and hot-air baths again brought about an improvement. I have supposed that this uremic condition was caused by the irritation of the catheter. Then came a slow but steady gain and a complete convalescence. The greater part of the wound healed well, but the tissue in the region of the old sinus suppurated for several weeks, and finally healed.

The patient was shown at the Surgical Section on December 2d, seven months after the operation. She stated that she was working hard as "second girl," in a family of five people; that she felt perfectly well, better than for the last three years. She looked the picture of health.

In looking over the table showing the daily amount of urea excreted, it is interesting to note that the average daily amount excreted in the first five days of the second week after the operation was 340 grains. Thus, at the beginning of the second week after the operation, which was severe and followed by a critical illness, we find the remaining kidney secreting as much urea as both were doing in comparatively good health just before the operation. Moreover, the average amount of urea for five days, five weeks after the operation, was 405 grains, an amount greatly exceeding anything that both kidneys had ever done while under observation. These facts suggest caution in

CHART OF THE DAILY AMOUNT OF UREA BEFORE AND AFTER NEPHRECTOMY.

DATE.	URINE.			FLUID.			REMARKS.
	Specific Gravity.	Urea. Per cent.	Amt. in 24 hours. Grains.	Specific Gravity.	Urea. Per cent.	Amt. in 24 hours. Grains.	
Mar. 26	1.025	9.77	97	1.010	3.73	82	Mar. 25. Urine: acid; 1.024; trace albumin; no sugar; in sediment pus and small round cells.
28	....	....	....	1.006	2.64	52
30	1.010	3.85	142	1.009	2.64	52	Mar. 26. Urine (by catheter): alkaline; 1.025; no albumin; no sugar.
31	1.018	8.27	165	1.012	1.77	33	
April	1	1.018	8.27	1.008	2.34	42	Fluid: neutral; 1.010; slight trace albumin; in sediment much pus, some blood, few small round cells.
	2	1.018	8.00	1.008	2.94	56	
	3	1.020	6.00	1.010	2.94	50	Urine: neutral; acid; 1.020; very slight trace albumin; in sediment chiefly small round cells.
	4	1.018	8.50	1.010	2.64	45	
	5	1.022	9.44	1.010	2.64	40	Fide Dr. Wood's reports.
	6	1.016	6.50	1.010	2.94	59	
	7	1.016	11.78	1.010	2.64	58	
	8	1.014	4.11	1.008	2.00	20	
	9	1.026	10.61	1.010	2.94	35	
	10	1.022	10.61	1.010	3.25	55	
	11	1.024	14.54	1.010	3.75	49	
	12	1.026	12.08	1.010	3.25	55	
	13	1.026	12.08	1.010	3.25	49	
	14	1.020	12.65	1.008	3.25	39	
	15	1.026	13.55	1.008	2.94	50	
	16						
17	Operation.			Urine after operation (by catheter): pus; caudate cells; normal and abnormal blood; albumin $\frac{1}{4}$ + %.			
18				Sediment: many small round cells; blood; hyaline casts; albumin $\frac{1}{4}$ %.			
19	1.028	10.31	153	Albumin $\frac{1}{4}$ %.			
20	1.032	11.50	254	Albumin $\frac{1}{4}$ %.			
21	1.030	11.78	82	Hyaline casts (small); small round cells, free or in clumps; albumin $\frac{1}{2}$ + %.			
22	1.032	12.08	204	Few hyaline casts; little blood (abnormal); small round cells; albumin $\frac{1}{2}$ %.			
23	1.022	7.06	233	Albumin $\frac{1}{2}$ %.			
24	1.020	10.91	284	Urine thick and ropy; albumin $\frac{1}{2}$ %.			
25	1.014	10.00	230	Acid; cloudy; albumin $\frac{1}{2}$ %; sediment.			
26	10.26	1.208	338	Alkaline; good trace albumin.			
27	1.024	1.208	399	Good trace albumin.			
28	1.022	11.22	314	Cloudy; alkaline; good trace albumin; no sugar; in sediment little blood, normal and abnormal, many small round cells, two large round cells; triple phosphates; much amorphous matter.			
29	1.020	9.72	253	Clear, normal color; acid; small trace albumin; no sugar; neutral, cloudy.			
30	1.024	10.61	296	Neutral, clear.			
May	1	1.026	11.78	401	Slight trace albumin.		
	2	1.028	11.78	283	Slight trace albumin; in sediment abundant leucocytes; mucus; much squamous epithelium; hyaline casts (?).		
	3	1.024	10.30	278			
	4	1.022	10.30	227			
	5	1.020	8.64	232			
	6	1.012	5.28	127			
	7	1.030	8.83	203			
	8	1.012	6.20	198			
	9	1.012	5.28	174			
	10	1.020	7.06	325			
	11			
	12	1.018	7.67	299			
	13	1.022	8.27	334			
	14	1.018	8.83	362			
	15	1.020	8.27	331			
	16	1.020	8.27	347			
17	1.018	8.27	356				
18	1.018	7.67	314				
19	1.020	7.06	284				
20	1.018	9.11	338				
21	1.018	7.06	293				
22	1.016	7.78	579				
23	1.012	7.06	424				
24	1.020	8.00	400				
25	....	....	....	
26	....	....	....	
27	....	....	....	
28	....	....	....	
29	1.016	7.37	401	Neutral, clear; acid; slight trace albumin; no sugar; slight sediment; few leucocytes; few medium-sized bladder cells; occasional blood corpuscle; much degenerated epithelium.			

accepting the dictum of the so-called "conservative renal surgery," that any part even of a diseased kidney should be left if possible.

My own opinion is that one good kidney works better alone than when combined with another diseased kidney. The explanation of these facts which occurs to me is that the diseased organ, by some reflex irritation, prevents the other kidney from making the compensatory hypertrophy which it can and does make as soon as the disease is removed.

The only cases of nephro-ureterectomy I have been able to find in the literature are reported by Kelly in the *Johns Hopkins Bulletin* for February and March, 1896. Kelly reports three cases of his own, and refers to one other. They were all done in different ways, and were all successful. The first case was done by a laparotomy, transperitoneal. The second case was a retroperitoneal operation by a long lumbar incision, like the one here reported. The third case was also retroperitoneal, by a short lumbar incision, and a vaginal incision through which the lower end of the ureter was removed. The case referred to was reported by Dr. Reynier, February 24, 1893, in *La Semaine Médicale*. The patient, a man twenty years old, had his kidney removed April 27, 1892, for uretero-pyelo-nephritis. At a later date, five inches of the ureter were removed by enlarging the lumbar incision. The patient not being cured, an effort was made, without success, to reach the lower end by a para-rectal incision. Later, the lower portion was removed by an incision parallel to the inguinal canal. Result good.

HERNIA EPIGASTRICA, WITH A REPORT OF CASES.

BY HOWARD A. LOTHROP, A.M., M.D.,
Assistant in Anatomy, Harvard University.

OF the numerous varieties of hernia, probably none are more obscure, and at the same time so frequently the source of severe and prolonged suffering, as hernia epigastrica. The physical signs are often so meagre, and the subjective symptoms so prominent and suggestive of some lesion of the stomach, that the true etiology is easily overlooked. The following cases will serve as examples:

CASE I. This patient is a girl, sixteen years of age. Her family history is negative, and she has always enjoyed good health. From early childhood she has been accustomed to an active out-of-door life, and for two years she has been a *danseuse* in a travelling company. Her joints are exceedingly supple, and she can over-extend the trunk, so that the occiput touches her heels. In performing this latter feat, almost a year ago, she experienced a sudden epigastric pain, accompanied by no other symptoms, and ever since then she has had a tender spot in that area. She has been unable to continue this occupation on account of this local pain.

Six months ago, she perceived a small swelling just below the xiphoid cartilage, tender to touch, and occasionally the seat of sharp, shooting pains; its presence has been constant, and its size has slowly increased. Aside from these symptoms, her general health has been good, except for occasional gastric disturbances lasting a few days. These gastric "crises" come on independent of diet, but are associated with

augmented epigastric pain and tenderness in the vicinity of the tumor.

During one of these gastric "crises," I saw her for the first time. She was confined to her bed, suffering from nausea, occasional vomiting, and general abdominal pain. She knew of no cause for these symptoms, but directed my attention to the swelling below the xiphoid cartilage. She was fairly well developed and nourished, but was anemic. Physical examination was negative, except for the presence of this tumor, which was about half as large as an English walnut, located in the median line, directly below the cartilage, so as to obscure its lower extremity anteriorly. The skin was normal and not adherent over the tumor which was painful to the touch. The tumor, however, was only slightly movable, but could be plainly differentiated from the cartilage above it; its surface was perfectly smooth, and the mass gave the sensation of fluid or fat when palpated. There was a distinct impulse on cough, both on inspection and to touch. When the recti muscles were made tense, the tumor became more prominent, and was evidently anterior to the broad tendons composing the *linea alba*, but by no means could it be reduced. The case was considered to be one of irreducible epigastric hernia, containing either subperitoneal fat, or omentum, or both. Dr. M. H. Richardson was kind enough to see her with me at this time, and he concurred in the probable diagnosis, and advised an exploratory incision. Operation was refused, however, by the parents.

Unwilling to lose sight of the patient, palliative measures were resorted to, and the case carefully studied for three months. During this interim, the physical signs remained the same except that the tumor doubled in size; the gastric symptoms (eructations, nausea, occasional vomiting and pain) came and went at irregular intervals, provoked particularly by overexertion, while the diet had less influence in provoking the attacks. The greatest relief was obtained at such times by absolute rest in bed.

Meanwhile the patient began to suffer from pain in both feet and in the tibiae, as well as from obstinate headache. There appeared a small fluctuating tumor over the right supra-orbital ridge, and two small indolent ulcers near the left knee. The anemia increased, and the general condition of the patient became worse. Although no history could be obtained, these conditions were diagnosed as tertiary syphilis and yielded promptly to treatment later. At this time consent of the parents for operation was obtained, and accepted with some anxiety as regards the outcome of the wound, on account of the active nature of the syphilis.

Operation. — Under the influence of profound anesthesia, a three-inch vertical incision was made over the tumor, and carried through the subcutaneous fat layer to reach the sac. On carefully isolating the tumor it was found to consist mostly of a thick fat layer surmounting a layer of connective tissue which continued from the base of the tumor as a pedicle and passed through an oblique slit in the *linea alba* just to the left of the median line. While dissecting around this tumor, outside of what proved to be the sac, about a drachm of thick turbid fluid escaped, having the general appearance of pus. Fearful lest the abdomen should become infected, the tumor was carefully drawn out of the wound, and the pedicle ligated as

deeply as possible. The stump retracted within the ring, which was oval in shape, with a long diameter of about a quarter of an inch, situated just at the left of the linea alba, and directed upwards and outwards. The tumor and fluid were located anterior to the external abdominal aponeurosis, and the pedicle extended through all of the tendons of the broad abdominal muscles, and on section of the excised fat mass, it was found to contain a prolongation from the peritoneum. The wound was carefully irrigated with corrosive sublimate and peroxide of hydrogen on account of unexpected escape of what resembled pus. Further exploration was not considered advisable, and the ring was closed on the transverse with catgut, and the edges of the skin approximated with interrupted silkworm-gut sutures deeply placed, so as to coapt all parts of the wound.

The convalescence was uninterrupted. Eight months have elapsed since the operation, without recurrence either of the hernia or the subjective symptoms. A careful examination of the excised portion, showed that it was a mass of subperitoneal fat surrounding a protruding funnel of peritoneum. Under anti-syphilitic treatment, the tertiary lesions disappeared.

The conclusion arrived at, on considering this case, was that we had to do with a tumor, consisting of subperitoneal fat, in the centre of which was a sac of peritoneum which communicated with the general abdominal cavity—a condition commonly preceding the appearance of omentum or intestine in such cases. Furthermore, that the case was complicated by the presence of a small gumma, which interferred in no way with the primary union of the wound.

CASE II was a patient of Dr. J. W. Elliot, who kindly allowed me to study it and report the following account. The patient was a man, fifty-eight years of age, whose family history is negative. He was a rugged boy, and grew to manhood without suffering any serious illness.

When eighteen years of age he fell upon a sharp-pointed stick, receiving a painful injury in the epigastrium, with consequent symptoms of collapse on account of the severity of the fall. For some weeks he suffered local pain, which gradually wore away. Six years later, he began to experience sharp pain in the epigastrium, particularly after eating, together with gastric symptoms of varying severity, at times sufficient to interfere with his occupation as a farmer. For ten years from this time, he suffered from moderate gastric symptoms, accompanied by tenderness and pain in the epigastrium, none of which yielded to internal medication.

Twenty years ago, the attacks of pain and vomiting became more frequent and severe, and he noticed for the first time a small tender swelling above the umbilicus. This tumor increased gradually for five years, when he says that it was at times as large as his fist, but has always been more or less reducible. For the last fifteen years, its size has not changed materially. The attacks of pain and vomiting were always coincident with the appearance of the tumor, and were alleviated on its reduction. The patient soon learned to appreciate this, and he wore an abdominal swathe to hold back the tumor, but did not succeed perfectly by this means. As a result, he always had some epigastric tenderness, and more or less distress after eating. The hernia frequently appeared during his work in the fields, accompanied by severe pain, and his method for

reducing it was to lean over a fence-rail and thus force it back, a procedure generally successful, and then the pain and vomiting would disappear. At other times he would lie on his back, and reduce it himself by taxis.

About fifteen years ago, the attacks assumed a new phase. In addition to the pain and gastric symptoms coincident with the appearance of the hernia, the attack would be preceded by a chill, followed by considerable elevation of temperature, and on the following day a very marked degree of jaundice would appear. There was no periodicity in these attacks, which were rarely more frequent than once a week, and occasionally an interval of three months would elapse, provided the hernia was retained in position. Meanwhile there persisted the usual dull ache with occasional sharp pain in the epigastrium, and the distress after eating.

Several physicians in attendance during the acute attacks had made a diagnosis of gall-stones, but none have ever been found. The stools were clay-colored, and the urine and tissues tinged with bile pigment, following the acute epigastric pain. It is important to note that the hernia was generally as large as ever during the attack, and then it could be reduced only with difficulty.

He has suffered from fewer severe attacks during the last five years, but otherwise there has been no improvement in his condition. His appetite is fair and his bowels generally constipated. During the last two years his weight has fallen from 245 to 165 pounds. Heavy work, sudden jolting, and hearty meals aggravate his symptoms. Generally of a happy frame of mind, he has become worried and fretful of late. Following one of these acute attacks, he consulted Dr. J. M. Jackson, who considered the case to be of a surgical nature, and he was referred to the Massachusetts General Hospital, where I saw him for the first time.

Physical Examination.—The patient is a large man, fairly well nourished. While lying on his back, inspection showed nothing abnormal, except a little fullness of the skin in the median line half-way between the xiphoid cartilage and the umbilicus. This became more prominent momentarily on coughing, but remained persistently more prominent when lying on his abdomen or during prolonged straining, even while standing or sitting. When fully protruded the mass was about the size of a hen's egg, lobulated, soft and movable in all directions from a fixed point just to the left of the linea alba. Here was a transverse oval opening which would just admit the tip of the index finger. The mass could be reduced except a small portion which was adherent near the ring. At the time of examination, there was no local pain, but some tenderness. The abdomen was not distended, and palpation and percussion did not reveal any abnormality of the abdominal viscera. Aside from a few scars, the result of injuries, and a considerable amount of vitiligo, physical examination was negative.

Urinary Examination.—Acid; specific gravity, 1.022; pale; albumin, one-tenth per cent.; sugar and bile pigment absent; sediment was slight in amount, consisting of fine granular and hyaline casts of large diameter, medium and small round cells.

Operation. under ether narcosis, by Dr. J. W. Elliot. A three-inch vertical incision was made over the tumor, passing through the integument and subcu-

taneous fat layer, when the fibrous sac of the tumor presented. This was carefully isolated on all sides down to its pedicle, and then opened. Within appeared a portion of the omentum, adherent just to the left of the ring, so that only a small part remained irreducible. The adhesion was transfixed and ligated. The sac with its contents was in a plane anterior to the external abdominal aponeurosis. The ring was nearly circular with smooth edges, and just admitted the tip of the index finger. This opening was enlarged vertically in both directions in order to admit the hand for examination of the liver, gall-bladder and ducts; no abnormality was detected. Around the whole inner circumference of the ring, however, the omentum was firmly adherent and continued inward toward the pyloric end of the stomach (great omentum) and then to the liver (lesser omentum) as a fairly firm band. On severing this from the ring, it was found to contain the round ligament of the liver (obliterated umbilical vein) and a portion of the falciform ligament and great omentum. All omental adhesions were freed, and redundant portions of the omentum excised, as well as the edges of the ring, so that the entire sac was removed.

The wound was closed by means of interrupted silkworm-gut sutures, which passed through all of the layers of the abdominal wall, but before these were ligated, the various layers were respectively united by continuous silk sutures. Primary union resulted.

The convalescence was practically uninterrupted for two weeks, when the patient had a chill, followed by a sudden rise of temperature which lasted about forty-eight hours, and then a marked degree of jaundice appeared. Careful examination of the blood at different periods was negative as regards the presence of any plasmodium of malaria. The patient was given quinine, which he has continued to use off and on ever since. It is now seven months since the operation and he has had no recurrence of chills, jaundice or attacks of pain in the epigastrium; all tenderness disappeared and his digestion is greatly improved. He is able to do as much work as ever. About five months ago he had edema of both legs, which lasted a short time, and has had some dyspepsia ever since at intervals. This edema was probably of renal origin, and this may be the source of his dyspepsia. He states that he is entirely relieved of all his old symptoms and only regrets that he was not operated upon twenty years ago.

CASE III was that of a woman fifty years of age. She was a patient of Dr. M. H. Richardson, and to him I am indebted for these notes and for the privilege of reporting this case.

She is a married woman, has given birth to several children, and, up to the time of the onset of the present trouble, has enjoyed good health. Twenty-four years ago, following soon after the birth of a child, there appeared a small tumor in the linea alba about three inches above the umbilicus. Just perceptible at first, this tumor slowly enlarged until it reached the size of a large orange, some year or more ago. It has always been more or less reducible until five days ago, and the patient has been able to retain it fairly well by means of mechanical devices. During all of this long period, there has always existed a varying degree of tenderness in the epigastrium, more severe when the tumor was not reduced.

At periods, coinciding with the greater prominence of the tumor, a certain group of symptoms invariably

appeared. There was increased local tenderness, together with pain, which radiated in all directions, particularly around the sides to the back, where there was "dragging and backache"; also a group of symptoms referable to the stomach, such as anorexia, nausea and occasional vomiting. At such times, there was a general feeling of malaise, and the patient learned that the greatest relief was obtained by rest in bed, and also perceived that the tumor disappeared when she was lying on her back. For years she suffered from what she termed "dyspepsia," and all of her symptoms were worse after a hearty meal.

Always more or less of an invalid for over fifteen years, she managed to get along with only palliative measures until five days ago, when the tumor became irreducible, with the consequent persistence of the usual acute symptoms. She was then seen by Dr. Richardson for the first time, and her condition was as follows: In addition to the above subjective symptoms, there presented a tumor the size of a large orange, located in the median line three inches above the umbilicus. The skin was normal and movable over a tender mass which in turn was lobulated and movable over the tense abdominal muscles, but was apparently fixed by a pedicle, located near the median line. A diagnosis was made of incarcerated omental hernia in the linea alba, and operative measures were decided upon as the only means of relief. A vertical incision exposed the sac which was freed on all sides as far as the base and then opened. The contents consisted of masses of omentum which were carefully excised and the pedicle returned to the abdominal cavity. The sac was freed deep within the ring, ligatured at its base, and the distal portion excised. The muscular and aponeurotic layers were held in approximation by interrupted silk sutures, and the wound tightly closed with interrupted sutures of silkworm gut, which included all the layers of the abdominal wall. The wound healed without complication.

Relief from all symptoms was immediate after the operation, and remained so for some time. Of late, however, she has had some gastric disturbance which may be attributed either to adhesions (to be considered later) or to a chronic catarrhal gastritis consequent on so many years of disturbance in that organ.

CASE IV was that of a woman, sixty years of age, kindly referred to me by Dr. R. W. Greenleaf, to whom she had presented herself on account of gastrointestinal symptoms. On physical examination, Dr. Greenleaf had detected a small and slightly tender tumor in the epigastric area, and considered the case to be of surgical as well as of medical importance.

She had been married, was the mother of several children, and had always been a well woman, except for occasional gastric disturbances during the last year. Particularly during the last six months, she has had distress after eating, manifested by a sense of weight in the epigastrium, local pain on moving about, eructations, nausea and occasional vomiting. Her bowels are generally constipated, and she suffers from headache.

Examination revealed a well-developed and well-nourished woman. In the epigastric area, half-way from the ensiform cartilage to the umbilicus, and between the bellies of the recti muscles, was a smooth rounded mass, with distinct outlines, and about as large as a cherry. It was slightly tender on deep pressure, and remained irreducible, although movable somewhat from side to

side; its consistency was that of fat tissue. Notwithstanding the presence of local tenderness for some months, the patient had never detected the presence of this tumor, and of course was ignorant of any etiological factor.

Her case was studied for three weeks. The objective symptoms never varied, but subjectively her condition improved on liquid diet and absolute rest, only to relapse again after exertion, or the ingestion of ordinary articles of food. She feared the risk of operation, and her case was lost sight of. As will be explained later, this tumor was probably a mass of fat, derived either from the subperitoneal fat layer or from the omentum, and possibly both may enter into its formation.

Since reporting the above cases, Dr. Richardson has given me these brief notes of two further examples:

CASE V was that of a man who had observed a small tumor in the epigastrium for three years with more or less discomfort arising therefrom. Operation revealed the presence of a small omental tumor about two inches above the umbilicus near the median line. Relief was immediate and permanent after this procedure.

CASE VI. A man, forty-three years of age, with excessive panniculus adiposus. He had observed a small tumor just below the ribs for four years, but suffered no inconvenience until a short time ago, when it became tender and painful. Examination revealed a tumor, size of an English walnut, to the left of the median line just under the edge of the costal cartilages, presenting the appearance of a lipoma. There is a slight impulse on cough. This is probably an omental hernia, and is to be operated on shortly.

Under the class "*Hernia Epigastrica*," we include all herniæ which appear in the area limited above by the xiphoid cartilage, below by the umbilicus, and laterally by the costal cartilages. In that they commonly appear in the *linea alba*, they have been called "*Herniæ in the linea alba*," which would include the very rare cases occurring below the umbilicus, not consequent on a laparotomy. The former term seems to be preferable, both on account of the character of the symptoms, and the area included.

In 1743 Garengot described these cases under the name of "*Gastrocele*," believing that the stomach was the organ present within the sac. Over a hundred years ago, A. G. Richter described similar cases, but he declared that the stomach never became involved. In 1802 Maunoir performed the first successful operation, but previous to Terrier's publications in 1886, operation was strongly advised against on account of the dangers of peritonitis, which often resulted after such operations. In recent years, valuable contributions have been added by Czerny, König, Witzel, v. Bergmann, and Lucas-Championnière. This variety of hernia is of unusual occurrence, but undoubtedly many cases pass unrecognized. In a series of 16,800 cases of hernia of all varieties, examined personally by Berger, he found 137 cases of *hernia epigastrica*, either occurring singly or in complication with other varieties.

Age.—This is a variety of hernia peculiar to adult life. It is exceptional to find these cases below eighteen years of age, and the great majority are between twenty-five and fifty. Two cases of congenital origin have been recorded by Sir Astley Cooper, and

a very few cases are reported as arising during early childhood.

Sex.—In a series of 202 cases, 178 were males and 24 were females. The majority of these belonged to the working classes.

Etiology.—The history of the great majority of these cases is that of an insidious onset, and the attention of both patient and physician is directed to the stomach, at a period either before the hernia has made its appearance externally, or is too small to be observed on casual examination. On the other hand, however, there are numerous authentic cases where all symptoms have been preceded by a definite trauma followed by very acute local and general symptoms, and the appearance of a tumor within a few hours.

The following classification of cases has been suggested by Roth:

(1) Embryological defect due to failure of the abdominal parietes to close in the median line. This is an exceedingly rare condition, of which Sir Astley Cooper has reported two examples.

(2) Congenital or acquired thinness of the abdominal fasciæ, also an unusual cause of herniæ, although frequently resulting in marked diastasis and circumscribed prominence of the abdominal parietes.

(3) A theory suggested by J. Cloquet and elaborated by Witzel and others, whereby for some reason or other, a small slit occurs in the fascia into which the subperitoneal fat makes its way, followed in turn by a pocket of peritoneum with the eventual entrance of omentum or intestine. Innumerable examples (in different stages) render this supposition very plausible. (Cases I and II, also one in particular cited by Witzel, where there were three epigastric herniæ in one patient representing different stages. One contained subperitoneal fat *plus* a fold of peritoneum, a second with the addition of omentum, and a third with intestine.)

This subject will be considered in detail under Pathological Anatomy.

(4) Trauma is an undoubted cause of these herniæ. Although some weeks may elapse before the appearance of an external tumor, there are numerous cases where the hernia has developed in a few hours with the usual accompanying symptoms. The rent in the aponeurosis may be the result of:

(a) Direct blow on the epigastrium: (1) Falling on to more or less sharp projections (Case II); (2) Blows by flying missiles.

(b) Sudden vertical tension on the abdominal muscles: (1) Internal origin—coughing, vomiting, etc.; (2) External origin—heavy lifting or pulling, especially with the arms elevated and the trunk extended (Case I).

Undoubtedly trauma frequently makes possible the early steps to be described as taking place in the incipient acquired variety. Heredity seems to play no rôle, and although epigastric herniæ are frequently complicated by other varieties, there does not seem to be any common underlying cause or predisposition.

(To be continued.)

COCAINE has been declining in price very rapidly of late, owing to heavy shipments of the leaves of the *Erythroxylon coca* plant from Peru and Bolivia. The drug is now quoted at \$2.50 an ounce. A few weeks ago it was nearly \$4 an ounce.

AIR-EMBOLISM, WITH REPORT OF CASES, CLINICAL AND EXPERIMENTAL.¹

BY JAY PERKINS, M.D.,

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(Concluded from No. 7, p. 156.)

THE two following cases came under the observation of Dr. W. H. Palmer, in his official capacity as medical examiner, and I now report them with his kind permission.

CASE I. A. H., married, twenty-eight, pregnant in the fifth month. Found dead in a physician's office. Body found lying on the floor in the early evening. The physician said that she came to his office to procure some medicine for a cold, and while standing by the door opening into his consulting-room fell dead upon the floor. Body viewed while still warm, and was found probably pregnant, with watery blood in the vagina. No sign of violence observed. Autopsy held the following morning. Weather cold; no decomposition present. Body well nourished, and evidently healthy in life. As the pectoral muscles were reflected, air bubbles escaped from the intercostal vessels. The organs of the chest were normal in position and size excepting that the right side of the heart was very full. The uterus contained a fetus in the fifth month. Placenta on the right side of the uterus in normal position. A large amount of blood in soft clots was found in the uterine cavity, and had evidently come from the placenta, which was torn up two or three inches, opening the uterine sinuses. The membranes were intact. Air was found in the internal iliac vein, ascending vena cava and heart, the heart also containing frothy blood. The other organs were normal. Death was caused by the opening of the uterine sinuses in an attempt to induce an abortion.

CASE II. C. F., unmarried, second child, was found dead in a physician's office, February 29, 1896, at about 8.30 A. M. The physician said that the patient came to his office in the morning before he was dressed; that she complained of pain in the region of the heart and of difficulty in breathing. He seated her on the edge of his gynecological table to examine her, and she fainted. He tried to revive her but without success. When first viewed in the office, there was no blood on the external genitals, but some bloody water in the vagina. An autopsy was held in the evening at which the writer was one of the witnesses. Autopsy twelve hours after death. Weather cold; no decomposition present. The face indicated pain, the eyes were sunken, and the lips were drawn over the teeth. The pupils were widely dilated. There were *then* stains, such as would be made by watery blood, about the external genitals. There were a few similar stains on the clothing which were not present when the body was first seen in the morning. There was a dirty stain on the skirt, which was made by some liquid which caused stiffening, and upon an examination with a microscope this showed epithelial cells in abundance. On section through the pectoral muscles frothy blood escaped from some of the intercostal vessels. The heart was distended; the vessels leading to and from the heart were ligated, and the heart opened under water, large bubbles of air and a very little frothy blood rising to the surface. The left side contained a little frothy blood. Air was seen

in the ascending vena cava, and was found later in the vessels of the brain. Though, as pointed out by Dr. Draper, air might be drawn into the vessels of the brain while removing the calvarium. I have never seen this appearance in any other case. The other organs were normal, though the kidneys were somewhat injected, excepting the uterus. The uterus extended to about the umbilicus; the os uteri was very patulous. The amniotic sack contained upwards of 250 c. c. of liquor amnii and about 40 c. c. of air. Just inside the cervix there was a small amount of clotted blood. On the membrane there was an abrasion resembling a scratch by some blunt instrument. The placenta was attached low down on the left side, and was separated from the uterine wall at its lower part. The laceration extended into the uterine sinuses and by a puncture into the amniotic sack. The opening into the amniotic sack had an average diameter of five millimetres. From the internal os to the edge of the placenta was three centimetres. The amniotic sack also contained a fetus of six to seven months in gestation.

When a blood-vessel is opened we usually have a hemorrhage. How is it in these cases we get air flowing in instead of blood coming out?

When the veins of the neck are cut, air is drawn in by suction through the negative pressure in the chest during inspiration. The stronger the inspiration the more air sucked in, and the entrance of the first air causes struggling and violent respiratory action. This accident was more common before the use of anesthetics than now, because of the tension of the respiratory muscles during an operation. The pain acted as a stimulus, causing a strained or forceful respiration. The uterus is so far removed from the chest that it does not seem as if the act of inspiration could have as much effect here as in the veins about the neck. But during pregnancy and especially advanced pregnancy the uterine veins are so large and so directly connected with the vena cava that we probably get considerable suction in this manner during forced or gasping inspiration; but before this suction can draw air into the heart, it must get into the uterus.

The uterus being composed of involuntary muscle fibres, naturally contracts whenever stimulated, and especially is this true of the pregnant or parturient uterus. Any foreign body in the uterus causes it to contract; also it contracts from reflex causes—as a new-born babe nursing will increase the after-pains. Each contraction is followed by a relaxation, and the more forceful the contraction the more pronounced the relaxation; and being a hollow organ there is a tendency to a vacuum when relaxation occurs. Normally the soft parts below the uterus close in so as to prevent the entrance of any foreign medium, as air, during this relaxation. But if from any cause the soft parts do not close in, air may enter. This complete closure may be prevented by the position of the patient, especially by separation of the legs, as was probably the case in the patient who remained standing during the birth of her child; also by certain movements of the body, as by raising the head and shoulders. But in many cases, and probably a great many we know nothing about, the air enters through or around an instrument used for legitimate or illegitimate purposes, for giving a douche or bringing on an abortion. The air having gotten into the uterus the rest is easily accounted for in cases where the acci-

¹ Read before the Rhode Island Medico-Legal Society, June, 1896.

dent occurs before the sinuses have become closed by clots.

We have in the action of the uterus a counterpart of the diaphragm in carrying on absorption from the peritoneal cavity. The diaphragm contains numerous lymph-spaces; during relaxation these fill with any fluid within their reach in the abdominal cavity, and then when it contracts this fluid is forced on into the lymph-vessels. The uterine wall at the placental site contains many large sinuses; at full term some of them are large enough to admit the little finger. After the separation of the placenta, these are normally closed by the contraction of the uterus and by clots; but during the relaxed condition of the uterus, especially when it is still distended with the fetus, we have the mouths of the sinuses remaining open, and usually hemorrhage will take place, but if air is present in the uterine cavity the forcing of it into the sinuses will prevent hemorrhage and fill the sinuses with air. Then when the uterus again contracts, or in consequence of the force still applied, if a syringe is used, all of the air is forced from the sinuses into the veins and so to the heart, being assisted by the suction towards the chest during inspiration.

In the case of C. F. (II) there was a low attachment of the placenta. And in the trial of the physician in whose office she died the witnesses of the prosecution maintained that probably a curved instrument was used to puncture the membranes and draw off the water; that this instrument was passed up until it reached or punctured the placenta, was then turned with the point towards the membranes and forced into the amniotic sack. In going through the membranes it tore the lower edge of the placenta from the uterine wall, opened the entrances to several uterine sinuses, and air rushing in around the instrument, or through it, if hollow, before it got into the amniotic sack prevented hemorrhage.

There is one more interesting point in this case, How did the air get into the amniotic sack? The only explanation I can find is the tendency of the pregnant uterus to contract under even slight stimulation. When the instrument was introduced, a contraction of the uterus took place, forcing the blood out of the sinuses; this contraction was followed by a relaxation, during which air was drawn into the uterus. It was a cold morning; the air getting into the uterus expanded by reason of increased temperature, entered the uterine sinuses, acted as a foreign body, and assisted the action of the instrument to bring on another contraction of the uterus; this contraction forced more air into the vessels of the uterus and some into the amniotic sack.

The immediate cause of death in consequence of air in the blood-vessels is given by different authors as one of the three following ways:

(1) Paralysis of the heart from overdilatation of the right ventricle.

(2) Air in vessels of the brain, causing ischemia.

(3) Obstruction of the pulmonary circulation by bubbles of air in the capillaries of the lung, causing death from asphyxia.

The symptoms of air in the veins depends on the amount introduced, the rapidity and force with which it is introduced, and the relative strength of the heart into which it is introduced. A small amount can be taken care of by the blood without causing symptoms; a larger amount, but still not enough to kill, will

cause immediate temporary irregularity of respiration and of the heart's action, a sensation of impending death, a cry, a convulsion, or simply a collapse. On listening over the heart a churning sound is heard. If the air enters more slowly, we may get air-embolism of the pulmonary vessels and death from asphyxia, or later from pneumonia. The plugging of the pulmonary vessels causes deeper inspirations, through the need of the system for more oxygen, and thus more air is drawn into the vessels. Air can, however, pass through the capillaries, if only there is sufficient force behind it, as Professor Senn has shown by injecting air into the arteries of dogs. He found that by injecting air into the arteries he got "convulsions, coma, tetanic rigidity of the limbs and extensor muscles of the back. If the animal does not succumb to the primary effects of the air upon the brain and medulla oblongata, a series of symptoms succeed which announce the arrival of the blood in the veins and right side of the heart." Death takes place from asphyxia from the plugging of the pulmonary capillaries with frothy blood, the right side of the heart being less strong than the left. If a large amount of air enters the blood-vessels at once, we have only momentary symptoms—the cry, deep respirations and death, or simply death. The action being nearly or quite wholly on the heart. Here the symptoms do not last long enough to be due to non-aëration of the blood and there are no brain symptoms unless, as occasionally occurs, we have a convulsion. If the chest is opened immediately after death, the right auricle will be found still contracting, the left auricle and both ventricles having ceased action. If, however, a puncture be made in the right side of the heart and the air let out, the heart will begin to contract again. In dogs dying from the spontaneous entry of air into the jugular vein death is more prolonged and the heart continues to beat for some time after apparent death has taken place.

The first four of the following experiments were carried out under adverse conditions, and the main point in view was to test the time between the entrance of air into the blood-vessels and the occurrence of symptoms therefrom.

EXPERIMENT I. Dog weighing about seventy-five pounds. Ether was given while the vein was being secured and then removed. A large canula was introduced into the external jugular. Blood clotted in the canula, and but little air entered. An unknown amount of air was then blown into the canula, and the dog expired instantly. After a few moments the chest was opened; the auricles were still pulsating, the left slowly, the right 70 times per minute. Heart distended, right side more than the left. Air was present in both sides of the heart, more marked in the right side.

EXPERIMENT II. A small amount of air was injected into the external jugular of a dog, producing labored breathing, a tumultuous action of the heart, and giving a slight churning or gurgling sound on listening over the heart. A larger amount of air was then forced into the vein, causing the arrest of any perceptible action of the heart after a brief space of time. Frothy blood came from the distal end of the jugular, and air was found in the femoral vein and cellular tissue of the thigh. The right side of the heart was distended, and contained air and considerable frothy blood. Some air and frothy blood were found in the left side of the heart.

EXPERIMENT III. Dog, partial chloroform anesthesia. Tried to get air to enter an opening in the external jugular spontaneously; a small amount thus entered causing embarrassed respiration. Air was then forced in, and death ensued at once. The right side of the heart was distended, containing air with a little blood. The left side contained some air but more blood.

EXPERIMENT IV. Dog, partial chloroform anesthesia. Air was blown into the external jugular. Death in two minutes. Right side of heart distended with air and a little blood. Left side contained blood and a little air. Frothy blood came from a cut in the femoral.

The three following experiments were performed under more favorable surroundings than the preceding, and more accurate results were obtained.

EXPERIMENT V. Dog, estimated weight seventy-five pounds. During one minute 60 c. c. of air were injected into the external jugular. The dog struggled considerably and the heart beat violently; slight churning sound heard over the heart. In the third minute 20 c. c. more of air were injected; the churning sound became more marked; the dog stopped struggling and breathed rapidly. In the fifth minute 20 c. c. of air were introduced; in the sixth minute 20 c. c. The dog was then struggling as if for more breath. During the next six minutes 200 c. c. of air were introduced. Immediately after each fresh injection the dog would struggle and whine as if in distress. From this time to the thirty-first minute 560 c. c. of air were introduced. The heart was now very irregular and feeble. From the thirty-first to the thirty-fourth minute 400 c. c. of air were injected. The dog was then convulsed, his eyelids twitched and his reflexes were wholly abolished, and death took place in a convulsion. The urine and feces were extruded.

Thus, altogether over a litre of air was introduced before death took place, showing that if air is introduced slowly the circulation will take care of a large amount of it, though when symptoms are produced they come on immediately after the introduction of the air.

EXPERIMENT VI. In this dog it was proposed to produce death by injecting a fatal amount of air at once. The dog weighed about thirty pounds, and 80 c. c. of air were introduced at once. The dog struggled slightly, and then lay motionless excepting for slight aimless movements of the head. Breathing ceased in eight minutes. At the end of ten minutes the heart was pulsating feebly, 64 times a minute. Cavity of chest opened at the end of twelve minutes. The ventricles ceased contracting at the end of thirteen minutes. The right side of the heart was much distended, and was punctured *in situ*. Much air and frothy blood escaped, and the heart again began pulsating. Frothy blood again collected somewhat in the right side of the heart, and on being let out the heart took a fresh start. Nine minutes from the time of the puncture the heart was contracting regularly 46 times per minute, and did not wholly stop beating until nineteen minutes from the puncture of the ventricles. As the chest cavity was opened, of course, breathing could not start up again. But Professor Senn has shown that by aspirating the heart after the animal has had a fatal amount of air introduced into its veins life may be saved. The lungs in all of these cases were collapsed.

EXPERIMENT VII. In this case it was proposed to endeavor to cause the death of the animal by the spontaneous entry of air into the veins. A dog weighing about forty pounds was used; and, as in all of the other cases, an opening was made into the external jugular vein. The animal was then so held that the head and fore part of the body were higher than the other parts, and the opening into the vein was kept patent. Air entered with a gurgling sound. The dog breathed heavily, whined and struggled, and more air entered as he struggled. He soon became quiet, and in seven minutes was thought to be dying, and was placed in a horizontal position. The heart was beating but feebly. In a few moments he began to show signs of returning vitality, and at the expiration of five minutes was again breathing with fair regularity. The head was again elevated, the vein held open, and air entered as before. In five minutes he was again thought to be dying, and was again placed in a horizontal position, but on showing signs of returning consciousness was for the third time elevated; air again entered, and this time he died—thirty-two minutes from the time the first air entered.

These experiments show that if a small, or even quite a large amount, of air be introduced, or spontaneously enter, into the blood-vessels slowly, the circulation may take care of it, and primarily it may not cause death, but whatever symptoms are produced are produced at once. When a large amount is introduced the result is rapidly fatal. The point upon which special emphasis should be laid is the fact that the primary symptoms cannot be delayed after the air enters. Secondary effects, such as pneumonia from pulmonary embolism may come on later; but not so with the collapse, difficulty in breathing or convulsions, which have been observed in all cases where the air has entered through the uterine sinuses.

In the preparation of this paper much assistance was given by Dr. W. H. Palmer and Prof. H. C. Bumpus, of Brown University, as to them I am indebted for the hitherto unpublished cases and the success of the experiments.

Clinical Department.

A CASE OF SPIRAL FRACTURE OF THE TIBIA.

DIAGNOSIS BY THE X-RAYS.

BY CHARLES E. TAFT, M.D., HARTFORD, CONN.

FRACTURES of the tibia in the lower third of the bone are usually oblique, extending downward and inward, and, in most instances, are produced by indirect violence.

True spiral fractures of this portion of the bone have been considered rare, and, while oblique as to their general direction, have probably been regarded as straight by the attending surgeons. That such a fracture occurs much more frequently than we have realized is undoubtedly true; but it must be evident, that, except in rare instances, it has been impossible of recognition during life by any means of diagnosis previous to the advent of the x-rays.

In view of these facts, it has seemed desirable to me to report the following case of spiral fracture of the tibia.

On October 30, 1896, I was called by Dr. Alcott, of West Hartford, Conn., to attend a boy ten years of age, who had broken his leg while playing football. The little fellow had been playing centre rush, and while standing with his right foot firmly braced in front of him was suddenly twisted sideways by the opposing player and thrown to the ground. He at once felt great pain in the leg and was unable to rise. Dr. Alcott was immediately called, and, after a careful examination, thought he recognized a fracture of both bones of the right lower leg, that of the fibula being a little higher than the break in the tibia.

He applied a temporary splint and dressing, and brought the boy into Hartford, where I saw him in consultation. Chloroform was then administered and a thorough examination made. While it seemed probable that a fracture of both bones existed, we were only able to detect what seemed to be an oblique fracture of the tibia. At this examination no particu-

strate the fracture with an Edison fluorescope; but this was an absolute failure, although we had a powerful, even light and every facility for using it. The reason seemed to be our inability to get the screen sufficiently near the bones, the swelling of the soft parts, the cotton and splints making the intervening

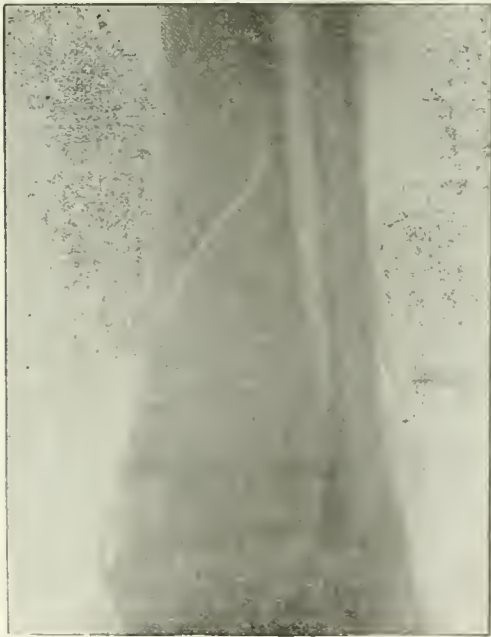


FIG. I.

lar deformity was apparent, a slight depression in the line of the tibia with localized pain on pressure and motion being the only signs of fracture. No crepitus was detected. The limb was placed in a normal position and a felt splint lined with cotton applied.

On November 2d, Mr. Henry Green, of Hartford, brought his portable x-ray apparatus, including the Green-Bauer Crookes tube with auxiliary bulb, to the patient's house, and the negatives of the accompanying wood-cuts were then taken. The development of these negatives revealed a spiral fracture of the tibia. In Figure 1 the plate was placed directly beneath the leg to get the posterior aspect of the bones. Plate 2 was placed on the inner side of the leg. In each case the exposure was twenty minutes, the Crookes tube being placed about four inches from the bones. No splints or dressings were removed.

It is of interest here to note the fact that before exposing the plates an attempt was made to demon-



FIG. II.

strate the fracture with an Edison fluorescope; but this was an absolute failure, although we had a powerful, even light and every facility for using it. The reason seemed to be our inability to get the screen sufficiently near the bones, the swelling of the soft parts, the cotton and splints making the intervening

space so great that the shadow was very indistinct. While the outlines of the bones could be easily seen, there was nothing in the view to indicate a fracture. An additional reason was probably the close apposition of the bones and, in consequence, a rather fine line denoting the fracture.

In view of my experience in this case it would seem inadvisable under similar conditions to depend on the fluorescope alone for a diagnosis, when it yielded a negative or indistinct picture.

The accompanying radiographs beautifully illustrate a long spiral fracture of the tibia. They also show plainly the junction of the epiphysis with the shafts of the bones. It seems probable that the reason why the fracture involved the tibia alone was because the force was applied but for an instant, and the fibula being the lighter bone, its greater elasticity allowed it to spring back into place almost instantly.

FOUR CASES OF PREGNANCY COMPLICATED BY HEART DISEASE.

BY GEORGE G. SEARS, M.D.,
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THE following cases, which have recently come under observation, are briefly reported as a contribution to the statistics of the cardiac complications of pregnancy. They illustrate the successful issue, which is to be expected in a majority of instances, as well as a number of the accidents which may occur, while the one fatal case adds another to the long series of deaths from this cause, which might have been prevented by promptly terminating pregnancy as soon as it became evident that the usual therapeutic measures were insufficient to check the failing cardiac compensation. Unfortunately, here the patient did not seek advice until the opportunity had passed.

CASE I. Mrs. T., thirty-one years old, a primipara, had her last catamenial period in July, 1895. Her previous history is not noteworthy. At her first visit in October examination showed that the temporal arteries were abnormally tortuous and that the radials were somewhat thickened so that they could be distinctly felt.

The area of cardiac dulness was perhaps a little increased but no murmurs were detected. The pulse was regular, but of only moderate strength. The urine contained no albumin till near the end of the pregnancy when a very slight trace appeared. In January, 1896, she began to complain of dyspnea and had a slight cough, raising on one or two days a little blood-tinged expectoration. These symptoms passed off under treatment and during the last few weeks of her pregnancy she suffered no more discomfort than was natural to her condition. Her feet were slightly edematous. Labor came on at term and was not severe. There were no notable symptoms up to the time when the os was fully dilated and the head had begun to descend through the pelvic strait, then the pulse, which had remained good throughout, suddenly became irregular and intermittent. Ether, of which only a little was required, was immediately given and the child extracted by forceps as rapidly as possible.

After the birth of the child the mother was in a state of extreme collapse; respirations were so shallow as to be barely perceptible and the pulse could not be felt at the wrist. Under hypodermic stimulation, however, she revived, but the re-establishment of the circulation started up a brisk uterine hemorrhage in which she lost an alarming amount of blood. This was checked after the uterus was packed with iodoform gauze by Dr. Chute, to whom I am indebted for the most timely assistance. Convalescence was slow but uninterrupted and mother and child are now doing well. A later examination of the heart showed an accentuated and reduplicated pulmonic second sound. It seems probable that some mitral obstruction exists.

CASE II. Mrs. K., a primipara, forty years old. Except for a serious attack of faintness and dyspnea after climbing up one of the White Mountains twelve years ago she had never had any symptoms which should lead to the suspicion of any cardiac trouble. Her last period occurred in December, 1895, and during the next four months she never felt better in her life. Then she began to complain of dyspnea and of a short, hacking cough, and noticed that her feet were

beginning to swell, but thought little of it as her friends told her that such symptoms were incidental to her condition. They steadily increased, however, and in the latter part of June had become so serious that she consulted Dr. George Haven, who a few days later kindly asked me to see her with him. At that time dyspnea was so great that she was unable to lie down and spent most of the time sitting up in a chair. Her face was dusky, her hands markedly cyanotic, the veins standing out in prominent relief. The legs were greatly swollen, the edema extending nearly to the hips. The area of cardiac dulness was laterally enlarged and over the apex, which was situated in the fifth interspace about an inch outside the nipple line, a very rough presystolic murmur was heard. Over the bases of both lungs there was marked dulness with deficient respiration and numerous medium and fine moist râles. The pulse was 90, regular, but small and weak. The urine was scanty, of high specific gravity and contained a very small trace of albumin. The time for interference had passed and her only chance lay in the possibility that the heart still possessed some recuperative power and would respond to stimulation. During the next two weeks she apparently improved somewhat, and seemed much more comfortable, the dyspnea grew less and the urine increased from about seventeen ounces to nearly thirty in the twenty-four hours, but the improvement could not be maintained and at the end the heart suddenly gave out, death occurring just before the completion of the seventh month.

CASE III. Mrs. C., vii-para, thirty-eight years old, was also seen with Dr. Haven, whose patient she was at the Lying-in Hospital, and I am indebted to him for the privilege of reporting it. During the past twenty years she has had four or five attacks of rheumatism, the last and most severe one being a year ago. Following the birth of her last child, two and a half years ago, she had an attack of very severe precordial pain and dyspnea which lasted several hours, but apart from this she gave no history of anything abnormal in any of her pregnancies or labors. When six months along in her present pregnancy she began to cough, but noticed no other symptoms until the end of the eighth month when she began to grow very short of breath, the cough increased and her feet became swollen. When admitted in labor to the hospital, dyspnea was so great that she could not lie down and had to be delivered sitting up in bed. The first stage lasted eight hours, but the pains were neither severe nor frequent. The second stage lasted six minutes. After delivery there was a sudden attack of dyspnea with cough accompanied by much frothy expectoration. The post-partum loss of blood was considerable. When seen three days after delivery she was propped up in bed, breathing rapidly and somewhat cyanotic. There was marked cardiac enlargement and at the apex both a systolic and a presystolic murmur were distinctly audible, while a double murmur was also heard over the aortic area. Over the third left costal cartilage a very rough to-and-fro murmur was heard either pericardial or pleuro-pericardial in origin, which had disappeared a few days later. There was marked edema at the bases of both lungs. The urine was diminished in amount, had a specific gravity of 1.024, and contained a large amount of albumin. The sediment was composed of much blood with numerous hyaline and fine granular casts. Recovery was gradual, and when

last heard from both mother and child were doing well.

CASE IV. Mrs. C. K., age twenty-eight, was admitted with meningitis to my service in the City Hospital from the Lying-in Hospital where she had been brought a week previously in a convulsion following the birth of twins. Labor had been so easy that no physician had been summoned. No symptoms had ever been present which could be referred to the heart although its area was somewhat enlarged laterally and a distinct presystolic murmur was found just inside the apex beat. Her first child had been born ten months before and was still living.

Beside those patients who have applied for treatment for cardiac disease, whose histories showed that the valvular lesions antedated one or more of their pregnancies, my experience is limited to nine cases where heart disease and pregnancy coexisted. So far as it goes it would show that such a complication, when properly managed is not necessarily a very serious one, if the immediate consequences only are regarded, as but one died (Case III of the present series, with mitral stenosis); and she had already passed the period, when first seen, where help could be afforded in any way. The others, under general treatment or with no treatment at all, were all successfully delivered at or near term, with one exception, also a case of mitral stenosis, when abortion was thought necessary, the patient being still alive two years later. Of these nine cases, four were suffering from mitral regurgitation, three from mitral stenosis, one from a double aortic lesion and one from combined mitral and aortic lesions.

Medical Progress.

RECENT PROGRESS IN LEGAL MEDICINE.

BY F. W. DRAPER, M.D.

DEATH BY ELECTRICITY.

THE cause of death following electric shock is not yet definitely decided. P. A. Fish¹ reports the results of his examination of the bodies of two men after electrocution; in neither was there found any lesion of the nerves or nerve-cells. In summing up the results of his investigations, he says:

"It is not probable that one tissue or system of tissues is selected by the electricity as it traverses the body, although there may be different degrees of susceptibility. Death may be brought about by the killing of the cells in the nerve centres, the electricity in this case, acting as a fixing agent; for as in histology when certain reagents, or in some cases, simply their vapor, are allowed to act on living nervous tissue, this not only kills but fixes or retains the elements of the tissue in the position they held at the time of the action of the reagent."

HYPNOTISM AND CRIME.

In recent years, hypnotism has entered in a number of cases into the defence brought forward by those who were charged with felonious crimes. The first case, however, in which an individual has been tried, convicted and sentenced for the abuse of hypnotic power, was reported by Moritz Ellinger² before the

Medico-Legal Society, of New York. The case was tried in Munich, and the accused (Czynski) was convicted and sentenced under three counts:

1. That he put Baroness Van Z., by means of hypnotism and suggestion in a condition of loss of the will power, in which she, without the power to exert her own will, submitted herself to him in illicit intercourse.

2. That he induced W. by the promise of financial gain, to do things which could only be done by a person properly authorized.

3. That he gave to the brother of the baroness a document which was a false marriage-certificate, for the purpose of securing thereby substantial advantage through the use of the baroness' considerable wealth.

It appeared in evidence that the baroness, a woman of neurasthenic constitution and family predisposition, first went to Czynski, a professional hypnotist, for the treatment of certain supposed diseases. After gradually acquiring the alleged hypnotic power over her and maintaining improper relations with her for several months, he caused her, so it was charged, to marry him, the ceremony being performed by one W., who personated a clergyman and furnished a false certificate. Czynski tried, unsuccessfully, by means of this document to obtain possession of property belonging to the baroness which was held in trust by her brother.

PRIVILEGED COMMUNICATIONS.

The subject of privileged communications was again brought into prominent notice by the well-known case of *Kitson versus Playfair*;³ and the forcible, if somewhat remarkable, position taken by Mr. Justice Hawkins is worthy of note. He asked Sir John Williams if he "thought it the duty of the physician to inform the public prosecutor if it had been found that the patient whom he was attending had submitted to an unlawful operation." The answer was in the affirmative, that the College of Physicians had so decided. The judge said that such a position would make him very careful in the selection of his medical advisers; and in his charge to the jury, he went further and said that "the theory that it was always the duty of a physician to inform the public prosecutor when he suspected that a crime had been committed, was simply monstrous."

POISONING BY ILLUMINATING GAS.

The numerous cases of fatal poisoning by carbon monoxide in communities where water gas is used as an illuminant, make the following remarks by Dr. John Haldane⁴ of especial interest. Summarizing his observations and experiments which led him to conclude that the "property [residing in carbonic oxide] of excluding oxygen from the blood really affords a complete explanation of its poisonous action, so that this action may be referred solely to oxygen starvation," he adds: "In breathing carbonic oxide experimentally no unusual effects are felt, during rest, until the blood is thirty per cent. saturated; but any exertion causes dizziness, loss of power and shortness of breath. These symptoms, occurring on exertion, are the first symptoms of carbonic-oxide poisoning. With the blood more than thirty per cent. saturated, throbbing of the vessels of the neck, and slight shortness of breath are felt even during rest. As the saturation of

¹ Journal of Nervous and Mental Diseases, January, 1896.

² The Medico-Legal Journal, February, 1896.

³ Gaillard's Medical Journal, April, 1896.

⁴ British Medical Journal, October 3, 1896.

the blood increases, the power of movement becomes more and more impaired and the senses are also affected. At fifty-per-cent. saturation, I found it scarcely possible to stand, but otherwise there was no positive discomfort."

The author also reports observations made upon one hundred and twenty men killed in three great colliery explosions, in which death was due to poisoning by carbonic oxide. He divides the victims of these disasters into three groups: (1) Those who had apparently died slowly in air containing a small percentage of carbonic oxide. (2) Those who had apparently died more quickly in air containing a larger ratio of carbon monoxide. (3) Those who had died in fresh air from the after-effects of carbonic-oxide poisoning.

The first class was much the largest, and the bodies presented "an extraordinarily life-like appearance," the pink color of the skin and mucous membranes being very striking. The venous blood in several instances was found to contain from 79 to 83 per cent. of carbonic-oxide saturation.

The second class was much smaller, the color effects were less characteristic, and the venous blood was found to contain 63 per cent. of saturation.

In the third class, which included those who died after being brought out alive, the appearance of the bodies, and the amount of carbonic oxide in the venous blood varied within wide limits, and this variation is explained by the time during life in which the poisonous gas had the chance to escape from the blood. From experiments upon himself, the writer found that "it would probably require about six hours for the blood of a man nearly poisoned by carbonic oxide to completely free itself from the gas."

POISONING BY OXALIC ACID.

W. Hall White⁶ reports two cases of acute nephritis resulting from oxalic acid poisoning, one of which ended fatally in six days after the ingestion of the poison. The symptoms were scanty urine and albuminuria; the fatal case had almost complete suppression. In neither case was there edema, high-tension pulse, or hematuria. In both cases, the urine contained granular and epithelial casts, together with calcium oxalate crystals. The first specimen of urine passed after taking the poison contained albumin and crystals. In the case which recovered, the crystals disappeared from the urine in twenty-four hours; the albuminuria persisted four days; and the casts were observed for a week in the specimens examined. In the fatal case, the albumin and crystals remained in the urine until the end. The post-mortem examination in this case showed acute tubal nephritis, and a very considerable number of oxalic-acid crystals were found in the kidneys.

FOREIGN MEDICAL MEN IN ITALY.—Among the governments which have taken measures to prevent the practice of alien medical men therein, Italy must now be numbered. Formerly a foreign qualified medical man was permitted to practise among the foreign population, as well as among the natives, provided that he paid the license fees and taxes. It will now be necessary for foreign practitioners to obtain a diploma from one of the Italian universities.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 2, 1896, DR. H. L. BURRELL in the chair.

DR. H. A. LOTHROP read a paper on

HERNIA EPIGASTRICA, WITH A REPORT OF CASES.¹

DR. CUTLER: In the first place I want to congratulate Dr. Lothrop on the very successful manner in which he has worked up his subject. It is certainly quite an important one, and one which has received relatively little attention. I have looked over my cases, and have found that I have had quite a number of umbilical and two of epigastric hernia, and I am sorry to say none of them have been operated upon. There were two I thought I had got to the sticking-point of an operation, but one of them finally refused and the other has gone into other hands.

As far as the frequency of epigastric hernia is concerned, I have not any figures of my own; but in one of the German clinics (Bonn), a general ambulatory one, I think the percentage was something like one per cent. in 3,420 cases—something like 33 persons, which makes a little over one per cent. Witzel, I believe, found something more in his collection of cases, but I have forgotten the locality of his clinic.

As far as the location is concerned, it seems to me that some of the cases of so-called umbilical hernia are quite this same thing. The hernia is found just away from the umbilicus, which latter can be felt distinctly at one side, and the symptoms are identical, so that if I were to give the limits of epigastric hernia I should have its lower boundary at the umbilicus, and I should say that some of the cases of epigastric hernia are as low as the umbilicus; in the cases I have seen, with one exception, most of them have been nearer to the umbilicus than to the ensiform cartilage.

Dr. Lothrop's explanation of the pathology is a beautiful demonstration of the subject, and seems to me quite conclusive. It is quite in accord, I should think, with certain dissections I saw figured in Paris. I did not have the chance to examine them carefully because I only had a few moments. In the old Dupuytren collection in Paris there is a dried anterior abdominal wall which shows, I suspect, very much this same thing described by Dr. Lothrop.

As far as the size of these herniæ is concerned, the ones which the medical man sees are relatively small, the size of a bean or a little larger. In all the cases I have observed it has not been possible to entirely reduce the hernia. There has been some little portion of it left after taxis. Concerning the contents of the hernial sac, it is omentum; and I believe it is only the larger ones that contain any organ like the stomach or intestine. If the rupture were down near the umbilicus, of course, except in a greatly displaced stomach, you would not find hernia of the stomach; it is only in the larger ones that you get anything else than omentum.

To make the hernia come out more, cough and straining, as Dr. Lothrop has said, is sufficient to do that, but I have made it appear a little more prominently, I think, when the patient is lying down, by

⁶ Journal of Pathology and Bacteriology, July, 1896.

¹ See page 175 of the Journal.

placing him on the side and having him bend over. I demonstrated that a few days ago in a patient at the hospital. I turned him over on his side and had him bend forward, and his rupture came out as a great mass. This I have been able to do in the few cases I have seen almost always.

As far as the etiology is concerned, the cases which have been mentioned are very interesting. In those I have seen vomiting has been spoken of in connection with the etiology, but I think it is hardly likely to have been the cause. It probably is something else in addition. Then trauma and cough are spoken of. Certainly cough cannot be an effective etiological factor in many cases, because we see numerous cases in medical clinics where cough is a very pronounced thing, especially whooping-cough, and we do not see anything like epigastric hernia occur. The disease must be extremely rare in children. All the cases I saw were at least forty years of age. I have never seen it in females.

As far as the symptoms are concerned in the cases I have seen there has been almost invariably tenderness on pressure. It may not have been very severe; in one or two only when you pressed quite vigorously could you get a sensitive place in the rupture, and quick pressure or harder pressure in other parts of the abdomen would give rise to no pain. The omentum has always been adherent in the cases I have seen, and pain has occurred, usually referred to the epigastrium; and especially has it occurred after bending back or stooping. Why stooping should give rise to it I do not know. In one case the man felt perfectly well until he had eaten a big dinner and straightened up and the pain came on instantly. Another curious thing is this pain spoken of as coming on usually an hour after a full meal. That is understood in this way: when you consider the stomach, its function is double—that of motion, the essential one, and secretion, which is not so essential. If anything disturbs the motion of the contents of the stomach, you are going to have pain for the reason that there is allowed to undergo in the stomach, from stasis of the contents, a fermentation which gives rise to pain and secondary disturbance. A very curious thing sometimes observed in these cases is increase in the amount of gastric juice secreted and increase in the acidity; and those are the symptoms Dr. Lothrop has spoken of. The pain is probably due to arrest of gastric peristalsis and of the onward passing of the food from the stomach into the intestine and secondary decomposition, and in some way not yet understood some disturbance of the secretion, perhaps through some nervous influence. The neurasthenic symptoms are the hardest to combat and they occur usually towards the end of the case, after a person has had a good deal of treatment and many things said to him.

As far as the differentiation of these tumors is concerned, of course, I take it the fatty tumor is about the only thing you have to fear of confounding. I have seen a case where I could not determine whether it was simply fat, or whether there was a collection of omentum in a hernia.

I saw in Ewald's clinic this year a person who had severe symptoms from epigastric hernia occurring in the second position. Dr. Lothrop has drawn upon the board. He had not only one there, but one on the left considerably smaller; and then he had on the back outside the sacrum another hernia, and that gave

rise to the same symptoms. I think the patient was a man. He had been under treatment some time, and nothing had helped him. He refused operation.

So far as the prognosis after radical operation is concerned, that depends upon the rapidity with which the symptoms have followed the occurrence of hernia. In the older cases that have lasted for years so many secondary complications have come up that an operation would have to be followed by a prolonged set of medical procedures before you could expect to do very much good.

The treatment, it seems to me, is almost exclusively surgical.

I have a case under observation, that came the 5th of last month, with symptoms of about a year's duration. The diagnosis was omental hernia near the umbilicus. Each time a crisis came on the patient was feeling perfectly well. His bowels would be constipated immediately before or about that time, and they were usually not so. The attacks always began with pain near the umbilicus, soon followed by vomiting; and nothing was retained. The abdomen was particularly tender at and near the hernia. As far as the digestion was concerned, the gastric juice did not show much of anything. I found in putting him in the various positions, I could get out a knuckle of omentum about as large as the end of the thumb; and although the slit was transverse and not round, I had him put on, as he did not consent to operation, a piece of metal and bound it on tight. That was the 10th of November. There has been no material improvement.

I saw at the hospital, two months ago, a person who had a cancer of the stomach; and it is rather common to have these herniæ occur in cases of that kind. I think Boland found eight or ten among his 40 cases. This man had suffered some little time with disturbance of his digestion, and his symptoms connected with his hernia had only been of recent origin. There was localized pain not relieved by hot drinks, and he would get easy frequently by stooping over; that was, of course, the pain due to the hernia and not to the cancer. It was a little to the left of the median line and half-way to the umbilicus. I never understood before why these herniæ appear a little to the one side or the other of the median line, but Dr. Lothrop has explained it satisfactorily. In the two cases I have seen the hernia could not all be reduced, and I do not know in what proportion of them it can be. There is no single symptom or set of symptoms connected with the stomach but what may come with this disease. I do not know about vomiting of blood; but changes in the amount of secretion, changes in the character of secretion, and changes in the acidity have been observed in these cases.

As far as the icterus is concerned, that has sometimes been found to follow slight adhesions of the liver or parts of the ducts or gall-bladder either to the abdominal wall or to some of the adjoining viscera. I have seen one case where an operation was performed by Dr. M. H. Richardson for a possible gall-stone, and merely a slight adhesion was found of the gall-bladder to the upper part of the liver by means of a cicatricial band. That having been divided, the person who had suffered from fever for several months was entirely relieved, and the jaundice which had existed some little time disappeared, and the patient got along very well. She has since continued to have hypochondriacal symptoms, but those she had a good many years

before. The operation succeeded in doing what it set out to do, namely, to relieve the patient of her jaundice and her fever. We expected to find a gall-stone, but did not find one. I saw at the clinic of Rosenheim, in Berlin, the same thing this year.

DR. RICHARDSON: I think Dr. Lothrop has given us a very instructive and interesting description of this form of hernia. I dare say, when attention is called to this subject, we shall find the cases much more frequent. I have noticed often, in cutting through the epigastrium, that in going through the posterior rectal sheath the fat protrudes in the form of a hernia. I think the etiology given by Dr. Lothrop is interesting. I have seen several cases of epigastric hernia, but the only one I recall anything about is the one Dr. Lothrop has quoted. The hernia is precisely like the umbilical hernia, when large. The opening in the aponeurosis is smooth, sharp, precisely like umbilical hernia. The omentum is adherent to the sac and there are partitions as in umbilical hernia. I think we ought to bear in mind the possibility of these forms of hernia in operating upon what seem to be fatty tumors in this region, and also to avoid incisions in cold abscesses, which are not infrequent near the margin of the ribs. There is very little to say except in commendation of this paper. My experience is so limited I do not feel at liberty to say more.

DR. ELLIOT: I am surprised to hear that these herniæ are so rare. I can only remember operating on this, the one case which Dr. Lothrop has reported, and one or two of the little cracks he speaks of. I have had no special experience. I think part of the pain in the stomach spoken of by Dr. Cutler, is probably due to adhesions, because almost all these herniæ have adhesions to the abdominal wall. I believe that in doing these operations one should not only cut out all the adhesions and the tissues attached, but the peritoneum should be cut away from the wound, and in stitching up the peritoneum should not be included. The peritoneum when included, makes a tendency to a pocket, which gives a chance to recur. The cicatricial tissue with no peritoneum in it is stronger and better than cicatricial tissue with the peritoneum turned in.

DR. A. T. CABOT mentioned a case illustrating the importance of investigating the gall-bladder in these patients when there had been any jaundice. This patient, operated upon last February, had a hernia at the umbilicus; and operating for its radical cure, in view of past attacks of jaundice which she had had, he examined the gall-bladder and found it full of gall-stones. After closing the hernial ring, he made an opening over the gall-bladder and removed a great number of calculi. The woman made a good recovery.

DR. GREENE: I was very much interested in Dr. Lothrop's cases. I have seen, I think, some 15 or 20 cases of this form of hernia; and if we should widen the region to the extent Dr. Cutler spoke of, I think more than that. Almost all of these arose from trauma. Three cases in particular happened in railroad accidents, where a collision took place and the person was thrown forward, striking the epigastrium against the corner of the seat in front. One of those cases was a well-known physician of this city, now deceased. In regard to the size of the tumors, I recall one case in particular that was very large. The separation of the linea alba was at least three or four inches in length, and a very large tumor was formed

in that case. These cases, as a rule, can be treated in a palliative manner quite readily by a pad and band around the body; but if they can be cured as readily by operation as the cases reported, that will certainly be a great advance upon the other method of treatment. I was rather surprised to hear that the gastric disturbance was so great in these cases. In the cases I have seen there was but little complaint made of that symptom.

DR. BURRELL: I remember that in one instance some time ago, I operated on what I supposed was an umbilical hernia. In making an incision down upon the neck of the hernia, I found precisely what Dr. Richardson has spoken of, a ring surrounding the neck of the sac, with the fibres concentrically arranged, interlacing in the fashion of which Dr. Lothrop speaks. It was only when I had exposed the hernia that I recognized that it was not umbilical, but it was what I called ventral. I reduced the hernia, closed up the ring in the abdominal wall, thought it rather odd that a ventral should simulate an umbilical hernia; and it is only since hearing this admirable paper of Dr. Lothrop's that I have clearly recognized this class of case.

DR. J. W. ELLIOT reported a

CASE OF RETROPERITONEAL EXTIRPATION OF A KIDNEY, WITH ITS URETER.²

DR. WOOD: I have very few words to say, and, of course, only from the urinary point of view. The great importance in this case, and in many others, of the examination of the urine before the operation is, of course, to determine the condition of the other kidney and in this case the examination I made April 13th showed that the well kidney was secreting 900 c. c. of urine, which is a very fair amount for a woman in that condition, and that the percentage of urea was 2.5 per cent., showing that this kidney was doing fully its normal work, although it was apparently a little lame and the sediment contained here and there a small cast. It occurred to me at the time that a possible explanation of that was that it was more or less congested and was really doing the work of the other kidney, so that it was natural to expect that it would be somewhat hyperemic. The kidney which was removed was doing scarcely any work; it was nearly destroyed by pyonephrosis, the secreting structure only being able to eliminate less than one per cent. of urea, and that with a small amount of fluid. The cases which have been followed out have shown pretty conclusively that the other kidney compensates completely for the loss of its mate, that it becomes hyperemic for a time, and that the congestion finally disappears; in this case on May 12th, less than a month after the operation, I was only able to find one cylindrical body, the origin of which was very doubtful whether it came from a renal tubule or, there being a little leucorrhœa, whether it was from some vaginal duct. In another case of the kind, in which I was able to follow up the urine to the complete disappearance of the casts and the complete subsidence of the renal congestion, one which Dr. Scudder reported where a nephrectomy was done for cystic adenoma, the casts disappeared in about four months from the time of operation. In another case of Dr. Elliot's I had an opportunity to examine the urine three months after the operation; there was then, although it was getting along nicely,

² See page 173 of the Journal.

an occasional cast found at the last examination I made, the remaining kidney secreting 21 grammes of urea. The patient is all right at the present time, and undoubtedly the congestion finally disappeared.

In deciding as to an operation, the condition of the other kidney is important, and that is determined by the facts just mentioned, namely, the quantity of urine secreted by this kidney and the percentage of urea which that urine contained. If it is normal, or more than normal, it is pretty sure that the kidney will be able to take care of the work thrown upon it by the removal of the diseased kidney.

DR. A. T. CABOT said that it made the case a very interesting one, in that the examinations of the urine were so carefully made, enabling us to exactly follow the condition of each kidney. He was inclined to think the improvement in the amount of urea which followed the operation was largely to be accounted for by the fact that before operation the patient was emaciated and taking but little food; whereas, later, when she was convalescent and taking more food, the eliminated urea naturally increased. Furthermore, it seems probable that the competent kidney was brought to this increased degree of efficiency by a gradual process, the other kidney being slowly destroyed by disease; therefore there was less danger of overcoming this power for excretion by throwing extra work upon it than there would have been in the case of a perfectly healthy kidney where the other was destroyed by a gun-shot wound or otherwise.

It was a great advantage in this case that the exact amount of work of each kidney could be estimated before the operation. This adds an argument in favor of doing a nephrotomy first in case of doubt or in cases where the patient seems at first unable to stand the severer operation of nephrectomy. He was inclined to feel that even a laparotomy, enabling the operator to examine both kidneys before operation, does not give a really adequate idea of the amount of work that each one is doing. This could be better discovered by catheterization of the ureters in cases of doubt.

In regard to the incision, he liked that employed by Dr. Elliot better than one more on the abdominal surface for the extirpation of an organ so disorganized and filled with pus as this was.

It was particularly proper in the reported case, where the capacity of the other kidney was known and intra-abdominal examination therefore unnecessary. He had pointed out in a paper read in 1891 the advantage that this incision has in enabling one to follow the ureter far down in the pelvis. He was interested in Dr. Elliot's experience in this respect, because, although he had demonstrated the point to his satisfaction on the cadaver, he had not had occasion to deal with the ureter far down in the pelvis through this incision in the living. The fact that Dr. Elliot could get his stitches into the canal at all satisfactorily shows how accessible that portion of the canal was made by this incision.

In regard to the treatment of the stump, he liked Dr. Elliot's method of closing it off. In case the whole canal was suppurating and in a foul condition, one would be warranted in spending the extra time necessary for bringing the end down into the vagina in the manner carried out by Dr. Kelly.

DR. RICHARDSON: I feel a very great interest in this subject, and especially in the two points Dr. Elliot has made. The first point is with reference to

the treatment of the ureter after removal of the kidney. I have seen in 20 nephrectomies, of which I can recall only 16 at this moment, no trouble at all after cutting the ureter and leaving it. Some of these cases have been fatal, but the fatalities have been immediate, with one exception; and the greatest mortality has been in those cases in which the whole work of urinary secretion has suddenly been thrown on the remaining kidney, for example, in traumatism and in cases of malignant tumor, in which there is a large amount of secreting substance left undoubtedly.

I have brought a drawing which illustrates a case of tubercular pyonephrosis in which the ureter on the left side was diseased as far as I could reach. I think this is very similar to Dr. Elliot's case. I first removed tubercular tubes and ovaries; then I removed the kidney. She recovered from the operation, but died later from tuberculosis of the lungs. This is a picture of the kidney with a contracted ureter. The second shows a section of the same kidney, and I would like to show that with reference to the second point Dr. Elliot raised. It does not seem to me necessary to look after the ureter unless that is distinctly diseased. The second point brings up the question of nephrotomy and nephrectomy in cases of pyonephrosis, whether the latter is not better for various reasons, and among others that the remaining kidney does better work untroubled by the remnants of a diseased kidney. I have felt in many cases that there is no use at all saving a kidney like this one and the one I am passing round. Here is a kidney I removed yesterday, a case of pyonephrosis, in which I thought of doing an operation, which consists in converting a number of small cysts containing pus into one large one, and in overcoming the obstruction which causes the condition. Here is the pelvis of this kidney, and there was no escape of pus at the operation. As far as my experience goes, these kidneys are all very foul; the pus is very disagreeable; and it always has seemed to me, until talking with Fenger, that it was folly to try to save such a kidney. There may be cases in which it would have been wise if it were not a tuberculous kidney, to save this secreting substance; but my feeling is that in cases of this kind in which patients have suffered many months from the chronic poisoning of such an offensive mass as that, reduced excessively in weight, and life a burden, it is much better to remove the kidney entirely if it is diseased as this is. If by nephrotomy we can preserve the kidney, it is perhaps a wise thing to do; but the results, as I have seen them, have been so encouraging in the removal of kidneys of this kind that I am inclined not to subject the patient to the risk of prolonged drainage; not that those risks are very great, but, as Fenger has reported, it takes three, four or more operations. My opinion is that, first, in the majority of cases it is not necessary to bother yourself about the ureter; and, in the second place, in cases of complete disorganization of this kind, it seems to me not the best thing to try to save, but to remove the kidney immediately.

With regard to the incision, I feel that the operation should be done in the right flank; and, in the question of incision, it seems to me there should be but one principle, an incision which will allow one to tie the vessels without trouble, and that can be done by the lateral incision; and, secondly, to follow the ureter that incision need never be carried long in either direction. I do feel very strongly the importance of open-

ing the peritoneum and determining the condition of the kidney on the other side. I do not think it adds to the danger. I have seen the removal of a kidney in which there was a quart or more of this pus which flowed into the peritoneal cavity, but not the slightest trouble from it. I have never seen a case of death from peritonitis after the removal of these kidneys with the peritoneal cavity open. I think the results show there is little or no danger of peritonitis.

DR. REYNOLDS: I came not intending to speak, and cannot give figures as accurately as I should like, but I have had some experience on one of Dr. Elliot's points. I have catheterized the ureters in quite a large number of cases, both in cases of comparative health, and in cases of pyonephrosis, and have had most of my urines studied with care, owing to the kindness of Dr. Ogden. I feel very sure that the introduction of the ureteral catheter has some effect in lessening the amount of urea which is secreted during the time it is in the ureter; but I feel very confident that its use enables us to estimate the relative importance of the two kidneys with considerable accuracy, and I have never any diminution after its use. As regards the information that can be occasionally derived from such careful study of the urine before operating, I should like to relate briefly a case in which the ureteral catheter has so far saved me from operating, and certainly saved me from a very serious mistake. A patient was sent me not long ago with the diagnosis of a probable pyonephrosis. She had been ill twenty years, dating her disabilities from an illness at that time called typhoid fever, but which may well have been the onset of the suppuration. She was complaining of frequent, more or less painful micturition, and of residual urine which had to be drawn by catheter. Asking her whether there was anything else the matter, she acknowledged a pain in the right side far up under the ribs, and in the right groin. I examined her vaginally, and found the right ureter thickened and tender. I introduced a vesical catheter, after she emptied the bladder, and drew off six ounces of about the foulest fluid I ever met with. That was examined by Dr. Ogden, who reported that it contained a fair percentage of urea. I made the provisional diagnosis of a right-sided pyonephrosis. The patient was in a pretty ragged state of health, and was not a good subject for operation. I introduced the ureteral catheters the following day. I obtained from the presumably affected right side, a normal urine containing almost exactly the amount of urea that had been found in the mixed specimen, and from the left and presumably normal side nothing but foul disorganized pus with the merest trace of urea. Had I been forced to operate on that case without the ureteral catheter, I should have opened the sound kidney and killed the woman, the other kidney secreting about .2% (0.002) of urea. As I shall probably report the case in detail, I shall only add now, that the patient improved greatly after ureteral drainage, that the thickened right ureter, the right-sided pain, and a tuberculous family history made me doubtful of the condition of the right kidney, and that I have therefore as yet avoided operating upon the left side.

DR. BURRAGE: I would like to mention a case I operated on two years ago, where I made the diagnosis with ureteral catheters. The case had been under treatment five years in Nova Scotia, and had a tubercular cystitis. I diagnosed tubercular pyelitis of one

side, and afterwards removed the kidney. Dr. Ogden, of the Harvard Medical School, kindly made a quantitative estimation of the urea in the urine from each kidney. I have heard from the patient recently, and she still suffers with cystitis more or less, but made a good recovery from the operation. As regards the ureter which was enlarged, I simply tied it off and left it. I afterwards, in examining and treating the bladder for tubercular cystitis through the Kelly cystoscope, saw pus coming from the ureteral orifice on that side, so that it seemed to me in this case, the cystitis was kept up by pus which came from the diseased ureter which had been left long, and that the patient would have done better had the whole ureter been taken out.

DR. ELLIOT: I recognize the value of ureteral catheterization; and in this case I was urged to do so, but declined. I had agreed to take the kidney out for her condition in life, without any regard to the pathology of the case, and I had made up my mind to do it. I did not care to run any risk of diminishing the amount of urea which was already small. I had first-rate evidence of what was going on in the kidneys. The only doubt I had, was whether all the urine came out of the fistula or only a part, and the ureteral catheter would have been of great value to me, but I did not care to run the risk of having the patient slip through my fingers. I had made up my mind that her condition warranted nephrectomy for social reasons.

As to Dr. Richardson saying after 20 nephrectomies the ureters had been all right, I am quite prepared to agree with that and more too. Disease of the ureter is very rare. Having had this case, I should always look at the end of the ureter before I cut it off, that is all. I did not mean the ureter should be taken out in every case. It is merely suggestive to have had a case where the pyonephritis was in the ureter itself.

DR. CABOT thinks I made rather a strong point of the increase in the urea after the kidney was removed. I tried to explain this increase in the way Dr. Cabot does. It was my first impression that it was due simply to an improvement in her general health. But what made me think that is not a true explanation, was this: before the operation this patient had increased the amount of urea, under tonics and being sent out of doors, from 180 to 240 grains a day. This was our best showing while she used the diseased kidney. The first week after the operation she had uremia and two or three days of vomiting most of the time, and ate very little, and yet the average amount of urea for the first four days of the second week was quite as much as before the operation; also, in five weeks from that time her general health was probably about the same as just before the operation, but the amount of urea had increased very much. But suppose the general health was better, that would be practically the same point I mean to make: if a piece of a kidney suppurating moderately after a nephrotomy will impair the general health or the amount of urea, or both, for months, it pays to take out that piece of kidney rather than leave it. What the exact explanation is I do not hope to be successful in making, merely that it is quite startling to look at this chart and see how much the urea increased, and it is more startling considering her condition at the time. Whether there is anything in the point of reflex irritation I cannot say, but if it is shown that the general health improves my point is made.

DR. A. T. CABOT showed a specimen from a case of

ADENOMA OF THE SIGMOID FLEXURE,

which was removed by operation. The specimen consisted of a tight annular stricture of dense hardness, less than an inch in width, which, by its contraction had closed the lumen of the gut.

The patient was a young woman of thirty-one who, always of a constipated habit, in the winter of 1895-96 had an attack of stoppage of the bowels which was relieved by medicine. A second attack followed in April, which led to such complete occlusion that an operation had to be done for relief.

An opening was made in the descending colon, and an artificial anus established. At this operation search was made for the cause of obstruction; but, in the enormously distended condition of all the intestines, this was not found. Later, the continuing obstruction in the sigmoid flexure led to the suspicion of malignancy, which was confirmed by the appearance of mucus and, occasionally, of blood in the washings of the rectum.

Examination under ether now revealed the presence of a little, hard, annular stricture in the sigmoid flexure, with a small amount of nodular new growth projecting into the bowel from the inside of the stricture. So close had been the contraction that the lumen of the gut was completely occluded. The abdomen was opened, and this mass cut out with considerable margin of healthy intestine above and below. The disease apparently had not extended deeply into the mesentery, nor were any glands found which indicated a generalization of the growth. The bowel was united by an end-to-end suture, and the patient did well, except that the wound through the abdominal wall suppurated in consequence of the close proximity of the artificial anus.

The microscopical examination of this growth showed it to be an adenoma.

A LARGE ABDOMINAL TUMOR.

DR. MIXTER: Yesterday I took out a large abdominal tumor. As that was not a cyst and this is the same tumor, it is rather remarkable on that account, and also remarkable because it is an uncommon form of abdominal tumor. The patient was a married woman, thirty-one, never pregnant, but had noticed the abdominal enlargement over a year. It did not feel like a fibroid, but more like a multilocular ovarian tumor. On opening the abdomen, I found a mass rather doughy in feeling, and on putting a trocar into it no fluid escaped except a little serum when the trocar was withdrawn. The incision had to be continued up above the umbilicus two-thirds of the way to the ensiform cartilage. I found the ovary attached to the top of it, and on one side was a mass which was evidently uterine fibroids. This tumor would weigh about fifteen pounds. I split the peritoneum and began to shell it out, tied off the broad ligaments, uterine artery, etc., and finally the whole thing was shelled out. The lower part of the body of the uterus and cervix was tied off; and after stopping the hemorrhage, which was considerable from a great many small points, the peritoneum was finally sewed up, and completely covered in the whole bottom of the pelvis and left no raw surface exposed. This tumor extended down in between the bladder and the uterus, so that the whole posterior surface of the bladder was exposed and I could see the ureters. It oc-

curred to me that this might possibly be a form of tumor of which I had seen one case before, but it seemed so intimately attached to the uterus, it never occurred to me it was not an edematous uterine fibroid.

AN X-RAY PHOTOGRAPH.

DR. BOLLES, through Dr. Burrell, showed an x-ray photograph of a needle which rested on the palmar surface of the fifth metatarsal bone beneath the flexor tendon.

TUMOR OF THE KIDNEY.

DR. WENTWORTH showed a tumor of the left kidney, removed by Dr. Burrell from a female child two and one-half years old. The greater part of the kidney is present on one side of the tumor. The capsule of the kidney is continuous with that of the tumor, and is much thickened over the tumor. The consistency of the tumor is very soft. On section, in one portion there is an area of necrosis, about four centimetres in diameter, which is brownish-red in color. The remaining portion shows areas which are gray and translucent, and others which are more white and opaque. There are numerous cysts of various sizes, up to two centimetres in diameter, which contain clear fluid. The tumor is very vascular. A narrow rim of cortex is all that remains of the kidney. The pelvis is much dilated, and is filled with a papillary growth which extends down into the ureter for a distance of five centimetres; extension into the vessels of the kidney cannot be made out. The weight of the tumor is 770 grammes. The nature of the tumor cannot be made out with certainty from frozen sections: but it is evidently of a malignant and complex nature.

Recent Literature.

System of Surgery. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc., assisted by JOHN S. BILLINGS, M.D., LL.D. Edin. and Harv., D.C.L. Oxon., Deputy Surgeon-General U. S. A. Vol. IV. Tumors, Hernia, Surgery of the Alimentary Canal, Appendicitis, Surgery of the Liver and Biliary Passages, Surgery of the Uterus and of the Ovaries and Tubes, Gynecological Surgery, Symphysiotomy, Surgery of the Thyroid, Surgical Peculiarities of the Negro, Surgery of the Female Breast, Use of the Röntgen Rays in Surgery. Profusely illustrated. New York and Philadelphia: Lea Brothers & Co. 1896.

In this volume we have the completion of the work. The articles presented are of great interest, and the excellent standard of the previous volumes is fully maintained. The most notable articles in the volume are: "Surgery of the Alimentary Canal from the Pharynx to the Ileo-Cæcal Valve," by Maurice H. Richardson, M.D. and Farrar Cobb, M.D.; "Surgical Treatment of Appendicitis," by Charles McBurney, M.D.; and "Surgery of the Thyroid Gland," by Robert F. Wier, M.D. But we do not wish to imply that the others are not admirable. Dennis's "System of Surgery," as a whole, must be considered one of the most complete systems that has been presented to the profession.

THE BOSTON

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283 WASHINGTON STREET, BOSTON, MASS.**THE DEVELOPMENT OF ABDOMINAL SURGERY DURING THE LIFETIME OF ONE MAN.**

THE recent death of Sir Spencer Wells, naturally brings up the thought of the growth and progress of abdominal surgery during the lifetime of him who might be called its father. It was the birth of abdominal surgery from ovariectomy, coincidently with the introduction of the antiseptic treatment of wounds by Lister, that has made its progress so rapid and brilliant. The greatest discovery of modern surgery is the discovery of anesthetics; the greatest advancement of modern surgery has been the introduction of aseptic surgery, and particularly of aseptic abdominal surgery. The lifetime of Sir Spencer Wells has witnessed both of these great events.

He saw much surgery, in his youth, in the Leeds Infirmary, and later attended the lectures of Hey and Teale. He afterwards studied in Dublin and in St. Thomas's Hospital in London. Later on he entered the British Navy as an assistant surgeon, served through the Crimean War, and at its close returned to London. He had learned much in regard to the tolerance of the peritoneum, from having seen recoveries after severe injuries from military projectiles, and this knowledge and experience he soon turned to account.

Spencer Wells was the first to note the importance of this remarkable tolerance of the peritoneum. The occasional, in fact frequent, occurrence of stabs in the abdomen, letting out the intestines, in which the patient, covered with dirt, was carried to the hospital, where his bowels were washed clean and replaced in the abdomen, and where he almost invariably recovered, had taught surgeons nothing in regard to the innocuousness of wounds of the peritoneum; on the contrary, such cases were regarded with dread, and their convalescence was looked upon with wonder. Still more severe injuries by stakes and pitchforks penetrating the abdomen only served to cause the in-

struments of these wounds to be preserved in museums and the patients to be exhibited as surgical curiosities. No one saw and acted on the evident truth that a clean, simple, incised wound of the peritoneum, such a wound as we should now call aseptic, was as harmless to the peritoneum as to any other tissue. Spencer Wells saw this; he was an observer; and the wonderful recoveries he had seen after shell-wounds were not exhibited to blind eyes.

His first completed ovariectomy was done in 1858, the pedicle was tied with whip-cord and the ligature was brought out through the wound, and came away on the twelfth day bringing a large slough with it. The patient recovered. During the eight years from 1858 to 1864 Sir Spencer operated one hundred times with thirty-four deaths. This mortality was very large; but Wells was honest, reported all his cases at great length and established the operation on a firm foundation.

After ovariectomists had proved that the abdomen could be freely opened, and that the abdominal organs could stand any necessary handling without injury, other abdominal tumors were successfully removed, the first being fibroids of the uterus. After it had been learned that wounds of the bowel, made during an ovariectomy, united if carefully sewn together, and that the functions of the bowel were restored, then, as a sequence of this discovery, laparotomy was done for the purpose of curing fecal fistule and other troubles in which the continuity of the bowel had been obstructed, or obliterated; and these operations soon became almost always successful. Intestinal surgery had its origin in ovariectomy.

Next, gangrenous portions of bowel in umbilical or other herniæ were excised, and the cut ends of the bowels were successfully united. The abdomen was opened on account of gunshot injuries and the perforations of the bowels were sewn up. Various devices were brought forward to unite the disconnected bowel, such as Senn's plates, Abbé's rings, and the very successful invention of Murphy's button. To American surgery the world is indebted for these inventions, as it was to McDowell, of Danville, Ky., for the invention of ovariectomy in 1809.

Soon all sorts of operations began to be done. The spleen was removed; cancers of the stomach and intestine were cut out: perforations of the intestine by bullets were sewn up; gall-stones were removed from the gall-bladder; foreign bodies from the stomach and bowels; calculi from the kidney; cancerous, sarcomatous, cystic and otherwise diseased kidneys were extirpated; divided ureters were sewn together or transplanted into the bladder or intestine; the pain and discomfort from floating kidneys was relieved by sewing these organs in place; tumors of the liver (*mirabile dictu!*) were successfully cut away; supra-vaginal hysterectomy in cases of confinement with deformed pelvis was done; Casarean section became almost always successful; Fallopian tubes distended with pus were discovered and removed; the abdomen was

opened in cases of intestinal obstruction; tubercular peritonitis was cured by simple abdominal incision; pressure forceps for saving time in securing bleeding vessels were invented by an ovariologist; Loreta, of Bologna, cured an aneurism of the mesenteric artery by filling the sac with fine wire. To describe all the advances of abdominal surgery during the lifetime of Spencer Wells would far exceed the limits of this notice.

When Spencer Wells began to practise, the distinction between a surgeon and a physician was that the former dealt with maladies and diseases on the outside of the body and the latter with those of the internal organs, now the organs inside the body are almost as freely handled by the surgeon as they are discussed by the physician. To Spencer Wells it was given in his lifetime to witness all this progress and tremendous advance in abdominal surgery and to realize that all these successes within the abdominal cavity owe their inception and execution to the knowledge gained by the ovariologist and communicated by him to the profession. He could not but thrill with the glorious thought that the operation which he had established was the basis from which they had all sprung.

When he began to do ovariectomy, the literature of abdominal surgery did not exist; the operation was not mentioned in the text-books, nor referred to in surgical lectures in the schools. At the present time, no one man can read in twenty-four hours all the articles published in the same length of time in current medical literature. Sir Spencer published four books. The first volume of "Diseases of the Ovaries, their Diagnosis and Treatment," published in 1865, gives a detailed account of one hundred and fourteen cases of completed ovariectomy, and cases of exploratory incisions and partial removal of tumors. It is an octavo volume of some four hundred pages, and every case is given at great length, some of them covering four pages. It is by far the best of all his books, and an ovariologist can learn more from it than from any other work. No second volume was ever issued. His other works were published later: one, under the same title as his first work, in 1872; another in 1882 entitled "Ovarian and Uterine Tumors"; and one in 1885, on "The Diagnosis and Surgical Treatment of Abdominal Tumors."

To no one surgeon perhaps will it ever be given to do so much for humanity. To have done any operation twelve hundred times is a wonderful thing. It is no exaggeration to say that this great surgeon has added at least one hundred centuries to human life.

If we credit him with one thousand recoveries and allow twelve years on the average, as an expectation of life of each of these recovered patients, we shall have twelve thousand years of life added in the aggregate. Deduct two thousand years for the loss of expectation in the two hundred fatal cases and we have ten thousand years left. This is his direct contribution; indirectly he has contributed much more by his influence, example and teachings.

THE PRACTICAL BENEFITS OF SANITARY LEGISLATION.

It is always gratifying to physicians and sanitarians to see the fruit of their labors in the department of public health, result in the actual diminution of infectious disease and the consequent saving of life. A striking instance of the practical effect of municipal sanitary legislation in the control of pulmonary tuberculosis, a disease so wide and fatal that its control means a great saving of life, is found in the annual report of the New York State Board of Health for 1896. It appears by this report that while the number of deaths in that State from pulmonary tuberculosis during the year 1896 amounted to 13,257, about the average mortality from this disease, there was a material reduction in the number of deaths from this cause in the district including New York City and Brooklyn, the percentage of mortality from it being less than in any previous year for the past ten years. The comments on this decrease in the report are of such great interest and significance that we may be pardoned for making a short extract from it.

"In the congested portions of these municipalities are found the largest percentage of deaths from nearly all infectious diseases, and but slight variations from previous years; but in tuberculosis of the lungs decrease has been steady for the last five years. The only explanation of this gratifying exhibit is in the fact that the local boards of health in these cities have recognized that the disease is due to infection, and have, therefore, taken unusual precautions to prevent its spread by a more rigid scrutiny of the food-supply, especially the quality of the milk and the examination of the cows supplying it, as far as their jurisdiction extends."

The facts thus stated have been presented to the Legislature with a view to securing liberal appropriations for the work of reducing the danger of tuberculosis from infected cattle.

Such evident results as these from the regulation of the milk-supply over a limited area, certainly ought to influence legislators in other States as well as New York, to provide so liberally for the proper examination of cattle, that tuberculosis from infected milk shall no longer seriously threaten any community in our country.

MEDICAL NOTES.

PIGEONS AND THE PLAGUE.—It is reported that pigeons are dying in great numbers of the plague in Bombay, just as the rats have died in former epidemics. They might very properly be termed "carriers" of infection.

THE CZAR PROMOTES MEDICAL EDUCATION OF WOMEN.—The czar has assigned a sum of 65,000 roubles from the imperial treasury for the erection of residential quarters for the female students attending the St. Petersburg Medical Institute for Women. The building will be opened this year.

PROFESSOR NOCARD'S WORK ON TUBERCULOSIS.—The Laclaze prize of the Paris Faculty of Medicine has been conferred upon Professor Nocard, in recognition of his recent work on tuberculosis.

PRECAUTIONS AGAINST PLAGUE.—The governments of England, France, Germany, Austria, Russia and Turkey, have agreed to hold an international conference for the purpose of considering precautionary measures against the spread into Europe of the bubonic plague which is raging in India.

THE BACILLUS OF BUBONIC PLAGUE.—It is reported that Dr. Roux, head of the Pasteur Institute, Paris, has found that the bacillus of the bubonic plague has little power of resistance, and that all antiseptics kill it. It dies at a temperature of 140° F., but it retains vitality in the soil, which is an explanation of the fact that it is never eradicated from Eastern countries.

PLAGUE IN INDIA.—Seven months is the average period during which plague has been found in previous epidemics in a given district, so that no great abatement of the disease in Bombay is to be expected until seven months from the time of the appearance of the epidemic last September. It is reported that the parts of that city in which the plague first appeared, are already enjoying a cessation; and if it be true that the disease was present, though not recognized, last August, the seven months for those districts are nearly at an end.

THE SERUM TREATMENT OF PLAGUE.—Lord Lister in a communication to the *British Medical Journal*, announces that he has the profound satisfaction of being able to state, on the authority of the India office, that the Bombay government intends to make use of the services of M. Yersin in the treatment of persons suffering from plague. M. Yersin is now on his way to the stricken region to give a full trial to his method, and Lord Lister has learned through another channel that before the middle of February the serum treatment will probably have begun in Bombay.

A STEP IN THE RIGHT DIRECTION.—Dr. F. L. Hall, of Perry, Ill., a member of the State Legislature, has introduced the following bill in that body:

A Bill for an act to provide for secrecy in communications between physicians and patients in suits at law or in chancery where the patient is a party in interest to such suit.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly*, That no person duly authorized to practise as a physician or surgeon shall be compelled or permitted as a witness in the trial of any cause at law or in chancery in this State wherein his patient is a party in interest to such cause, to disclose any information which may be acquired in advising or attending any patient in a professional character, and which information was necessary to enable him to advise or prescribe for such patient as his physician or to do any act for him as a surgeon, unless the consent of the patient to the making of such disclosure is first had and obtained.

THE ANNOYANCES OF EUROPEAN QUARANTINE.—A traveller who arrived at Trieste on an Austrian-Lloyd steamer a few weeks ago has involuntarily acquired a large amount of the sort of fame which results

from the baffling of public curiosity. He was from Bombay, and the Italian authorities were intensely alarmed lest he had brought the bubonic plague along with him. At first they refused to let him land at all, but finally permitted him to do so, on condition that he submit to a dreadfully thorough course of disinfection and would promise to continue his journey in a private car into which he and his baggage should be carefully sealed. To this he consented, and in his prison on wheels, which was placed between the engine and the baggage car, he started for the north. At Udine, the formalities of inspection and fumigation were again carried out. At Verona the process was repeated, and then Milan's officials tried their hands at the work before sending him on towards the Swiss frontier. There they were still more cautious, for they refused to let him enter the republic on any terms whatever. So back to Milan he was taken, still in the sealed car. Here the farce ended, for after a fifth examination and disinfection the man was released and permitted to go where and as he chose.—*Medical News*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, February 24, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 87, scarlet fever 39, measles 150, typhoid fever 7.

A BALL IN AID OF THE INFANTS' HOSPITAL.—A brilliant and successful charity ball in aid of the West End Infants' Hospital, Boston, was held in Mechanics Hall on February 16th.

A GIFT TOWARDS A HOSPITAL FOR PAWTUCKET.—Abbie T. Fowler has given to the city of Pawtucket, R. I., property worth \$20,000 to aid in the establishment of a City Hospital.

PROF. T. M. ROTCH ADDRESSES THE NEW YORK ACADEMY OF MEDICINE.—Prof. T. M. Rotch, M.D., of the Harvard Medical School, by invitation, addressed the New York Academy of Medicine on Thursday, February 18th, his subject being "The Use of Modified Milk in Health and Disease." Dr. E. G. Janeway presided. The discussion was introduced by Prof. J. P. Crozier Griffith, of Philadelphia, and Prof. A. Jacobi. They were followed by Drs. L. E. Holt, N. Allen Thomas, W. P. Northrup and J. E. Winters. There was a large attendance. The lecture was illustrated by means of lantern exhibits, charts and blackboard drawings. The evening closed with some very complimentary remarks by the President upon the work done by the reader of the paper. A collation followed.

LEGISLATION RELATING TO CONTAGIOUS DISEASE.—A bill relating to contagious and infectious disease is under consideration by the Massachusetts House of Representatives. The object of the bill is to prevent the building of private sanatoria for contagious diseases in cities and towns. Section 1 of the proposed act

provides that "no infectious or contagious disease or other disease dangerous to the public health shall be treated or cared for in any city or town in any hospital, home, or other like institution, not a public hospital maintained at the expense of said city or town, or of the Commonwealth, or receiving endowment or assistance therefrom; *provided, however*, that the board of aldermen of any city, by unanimous vote, with the approval of the mayor and board of health thereof, and the board of selectmen of any town, by unanimous vote, with the approval of the board of health thereof, may license any private hospital, home or other like institution, of said city or town, to treat and care for any of said infectious and contagious diseases or other diseases dangerous to the public health."

And Section 2 provides that "the following diseases are infectious and contagious diseases and diseases dangerous to the public health within the meaning of this act: small-pox, diphtheria, phthisis or pulmonary tuberculosis, membranous croup, measles, scarlet fever, typhus fever, yellow fever and cholera."

NEW YORK.

DEATH OF DR. JIMENEZ. — Dr. Saturnino M. Jimenez, a well-known Cuban practitioner, died at his residence in New York on February 17th, of pneumonia. He was born in 1851 in Matanzas, Cuba, and studied medicine at the Jefferson Medical College in Philadelphia, from which he was graduated in 1878. He afterwards spent some time in professional study abroad, and in 1882 came to New York, where he succeeded to the extensive practice of Dr. Juan Cisneros. He was a patriotic Cuban and a member of the Marti Relief Association.

PHTHISIS IN THE ADIRONDACKS. — From the report of the State Board of Health it appears that the death-rate from consumption in the Adirondack district increased during the year, and has shown a steady increase for the past five years. This is accounted for by the fact that an increasing number of individuals affected with the disease have been resorting to this region in the hope of relief.

Miscellany.

A CASE OF NUMEROUS HYDATID CYSTS DISSEMINATED IN THE ABDOMINAL AND PELVIC CAVITIES.

CASES of disseminated hydatids are so rare in medical literature that the report of such a case, and especially of one which throws light on their mode of dissemination, is of considerable interest. Such a case is reported by Farrar in the *Quarterly Medical Journal* for January, 1897.

The patient, a small, thin woman, twenty-four years old, had suffered for some time from spasmodic pains in the abdomen, irregular menstruation, and a fetid intermenstrual discharge. For about a year she had noticed the development of "lumps" in the abdomen, which in the beginning were about the size of a walnut.

Two months before entrance she had had an attack of acute abdominal pain with collapse, which had been taken for hepatic colic. When she came under the care of Mr. Farrar, he found the abdominal cavity enlarged, and containing four or five masses, one of which resembled in shape, size and motion, a floating kidney. There was a large, immobile mass in the right lumbar region, just below the liver. The uterus was ante-flexed and held forward by a mass which filled the whole pelvis. The diagnosis was thought to lie between hydatid disease and sarcomatous, or even tuberculous, deposits in the omentum and the pelvis.

Laparotomy disclosed hundreds of hydatid cysts disseminated throughout the abdominal cavity, and lying chiefly in the omentum. The larger masses were shelled out and removed, as were also several pieces of the omentum, but considerable hemorrhage resulted; and after a prolonged operation, the operator was obliged to leave behind the pelvic cyst and the large cyst under the liver, as well as hundreds of smaller cysts, owing to the collapsed condition of the patient. Some of the cysts had clear, and others caseating contents.

The patient recovered from the collapse, and in a few days began to gain. Eighteen days after the operation the wound burst open with a discharge of grumous, offensive pus, and twenty days later there was a discharge of pus from the bladder. The patient gained flesh and strength, and two months after the operation, the cyst in the left hypochondrium was aspirated and three or four ounces of fluid withdrawn.

Three months after the operation fever supervened and a second laparotomy allowed the escape of a quantity of extremely fetid pus from the right side of the pelvis. Six months after operation the patient was fat and well, and the abdominal cavity free from tumors.

In view of the history of the case, Farrar naturally concludes that the attack of supposed hepatic colic two months before he saw the patient was in reality an acute peritonitis due to the rupture of the primary cyst in the liver, which rupture resulted in the escape of its contained daughter cysts, and their implantation in the abdomen and pelvis. The case is a remarkable one in view of the fact that rupture of an hydatid cyst into the peritoneal cavity has heretofore been considered a fatal accident, and also of the fact that operative interference seems to have put a check to the development of the innumerable small cysts which were left in the abdomen at the first operation.

The case cannot, of course, be pronounced cured, until after a much longer time has elapsed, but the fact that a complete check was put to the progress of the disease for six months, is certainly a fact of great interest. There would seem, in spite of the improvement, to be great probability of the ultimate return of the disease.

PATHOLOGICAL RESEARCH AND HUMANITY.

THE following extract is taken from the address of Lord Lister at the opening of the new Physiological and Pathological Laboratories at Belfast, Ireland, on January 20, 1897.¹ After speaking of the value to the medical student of a thorough training in bacteriology, he continues as follows:

¹ British Medical Journal, February 6, 1897.

There is another aspect of a pathological institute which I feel some delicacy in alluding to, because there are some people who take strange views with regard to these matters—exaggerated views. There are people who do not object to eating a mutton chop—people who do not even object to shooting a pheasant with the considerable chance that it may be only wounded and may have to die after lingering in pain, unable to obtain its proper nutriment—and yet who consider it something monstrous to introduce under the skin of a guinea-pig a little inoculation of some microbe to ascertain its action. Those seem to me to be most inconsistent views. With regard to all matters in which we are concerned in this world, everything depends upon the motive. A murderer may cut a man's throat to kill him; any one of you medical students may have to cut a man's throat to save his life. The father who chastises his son for the sake of the good of his morals is a most humane man; a father who should beat his son for the mere sake of inflicting pain upon him would be an inhuman monster. And so it is with the necessary experiments upon lower animals. If they were made, as some people seem to assume, for the mere sport of the thing, they would be indeed to be deprecated and decried; but if they are made with the wholly noble object of not only increasing human knowledge, but also diminishing human suffering, then I hold that such investigations are deserving of all praise. Those little know who lightly speak on these matters how much self-denial is required in the prosecution of such researches when they are conducted, as indeed they always are, so far as I am aware, with the object of establishing new truth. The exercise of a little charity might lead those who speak of us as inhuman to reflect that possibly we may be as humane as themselves.

The profession to which I have the great honor to belong is, I firmly believe, on the average, the most humane of all professions. The medical student may be sometimes a rough diamond; but when he comes to have personal charge of patients, and to have the life and health of a fellow-creature depending upon his individual care, he becomes a changed man, and from that day forth his life becomes a constant exercise of beneficence. With that beneficence there is associated benevolence; and in that practical way our profession becomes the most benevolent of all. If our detractors knew this, common-sense would enable them to see that our profession would not be unanimously in favor of these researches if they were the iniquitous things which they are sometimes represented to be.

I was reading the other day a very interesting account of Pasteur's work on rabies, written by one who was associated with him from an early period (M. Duclaux). It had been established that the introduction of a portion of the brain of a mad dog under the skin of a healthy animal was liable to cause rabies, and Pasteur had reason to believe that it was principally in the nervous centres that the poison accumulated. He felt a very strong desire to introduce some of the poison into the brain of an animal; but he was a peculiarly humane man. He never could shoot an animal for sport. He was more humane than the great majority of human beings; and for a long time he could not bring himself to make the experiment of trephining an animal's skull, and introducing some of the poison of rabies into the brain. He was exceedingly desirous of doing it to establish the pathology of the disease, but he shrank from it. On one occasion, when he was absent from home, one of his assistants did the experiment, and when Pasteur came back he told him that he had done so. "Oh!" said Pasteur, "the poor creature! His brain has been touched. I am afraid he will be affected with paralysis." The assistant went into a neighboring room and brought in the animal, which was a dog. It came in frisking about and investigating everything in a perfectly natural manner; and Pasteur was exceedingly pleased, and though he did not like dogs, yet he lavished his affection upon that particular animal and petted it; and from that time forth he felt his scruples need no longer exist.

EUCAIN AS A LOCAL ANESTHETIC IN OPHTHALMIC SURGERY.

NUMEROUS reports of the advantages of eucain over cocaine as a local anesthetic in ophthalmic surgery have attracted a good deal of attention to this drug. It is reported to be about equal in effectiveness to cocaine, and to be free from danger of poisonous effects.

A recent report by Wüstefeld¹ tends to show that it is not as free from ill effects as previous reports have shown. Wüstefeld noted a temporary smarting on instillation of a five-per-cent. solution of eucain followed by injection of the conjunctiva. The anesthesia produced was complete, and lasted about as long as that produced by cocaine.

The statement of Vinci,² that no dilatation of the pupil or disturbance of accommodation resulted from its use was not borne out by the observations of Wüstefeld, who found that in almost all his cases dilatation of the pupil and paresis of accommodation ensued.

Although macroscopically no effect upon the scleral surface was noted (the eye was uniformly protected by a wet cotton compress after the operation), experiments upon animals showed a distinctly destructive effect of the drug upon the scleral epithelium. Microscopical sections of the eyes of a guinea-pig into which eucain had been instilled, and the eye subsequently protected, showed the epithelial cells swollen and lifted out of position, the outer layers being partially desquamated. These results seem to Wüstefeld to militate against the use of eucain as a substitute for cocaine in ophthalmic surgery.

The claim that eucain is entirely without toxic effects cannot be said to have been clearly established. Dr. Thomas H. Shasted of Galesburg, Ill., publishes in the *Journal of the American Medical Association*, the account of a case in which transitory amblyopia followed the employment of a five-per-cent. solution of eucain as an anesthetic for the cauterization of the inferior turbinated bones.

Correspondence.

THE HIGH VOLTAGE CURRENT IN ALVEOLAR INFLAMMATION.

BOSTON, February 18, 1897.

MR. EDITOR:—The generator used was described and figured in the *International Dental Journal* for October, 1896. One electrician has placed the voltage at 57,000, another at 100,000, a third at 250,000. The ampère is equally indefinite. The speed was 1,400 revolutions. The length of the apparently continuous spark was three-quarters of an inch when the machine was tested before use.

The patient held the negative terminal in his hand, the positive covered with cotton against the most painful place on the roof of the mouth. The generator was then started by closing a foot switch placed in the armature circuit. Used in this way there is at no time any sensation from the current. The feeling of great cerebral congestion stopped in fifteen minutes; the severe pain in an hour. The gum which beat visibly like a heart became nearly normal. There was no return of the symptoms.

I describe the method to induce some one to try it in other parts of the body.

Yours truly,

WILLIAM ROLLINS.

¹ Münchner med. Woch., December 22, 1896.

² Deutsche Medicinal Anzeiger, 1896, No. 36.

METEOROLOGICAL RECORD

For the week ending February 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...7	29.66	42	45	38	100	100	100	E.	S.W.	21	10	R.	C.	.40
M...8	29.83	40	45	36	93	89	91	S.W.	S.W.	8	10	C.	O.	
T...9	29.99	36	40	31	91	87	89	N.W.	N.W.	8	12	O.	C.	
W...10	30.20	28	37	20	79	88	92	N.W.	N.W.	10	11	C.	C.	
T...11	30.27	22	22	14	61	57	59	N.W.	N.W.	12	12	F.	C.	
F...12	29.87	19	24	14	71	100	86	E.	N.	15	15	N.	N.	.54
S...13	30.06	23	31	15	82	54	68	W.	N.W.	9	9	F.	C.	.38

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 13, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	782	273	12.25	18.72	1.30	.39	5.85	
Chicago	1,619,226	452	183	15.40	27.94	5.72	2.20	2.86	
Philadelphia	1,164,000	—	—	—	—	—	—	—	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	210	58	6.11	20.20	.94	.94	1.41	
Boston	494,205	247	75	8.40	16.40	.80	.80	4.00	
Baltimore	496,315	190	56	4.24	14.31	.53	—	2.65	
Cincinnati	336,000	101	—	6.00	12.00	—	2.00	3.00	
Cleveland	314,537	—	—	—	—	—	—	—	
Washington	275,500	147	37	4.08	28.64	—	1.36	2.04	
Pittsburg	238,617	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	33	9	12.12	27.27	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	96,687	—	—	—	—	—	—	—	
Fall River	88,020	34	14	14.70	29.40	5.68	5.68	—	
Lowell	84,359	41	24	6.81	18.16	—	—	—	
Cambridge	81,519	27	12	7.40	7.40	—	—	—	
Lynn	62,355	17	—	23.52	—	—	—	—	
New Bedford	55,254	20	12	5.00	40.00	—	—	5.00	
Springfield	51,534	24	4	—	21.96	—	—	—	
Lawrence	52,153	25	8	—	32.00	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	9	2	—	—	—	—	—	
Brockton	33,157	—	—	—	—	—	—	—	
Haverhill	30,185	—	—	—	—	—	—	—	
Malden	29,709	9	3	—	22.22	—	—	—	
Chelsea	31,295	19	3	5.26	31.56	—	—	—	
Fitchburg	26,394	8	2	—	12.50	—	—	—	
Newton	27,422	10	0	—	20.00	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	10	1	10.00	10.00	—	—	10.00	
Waltham	20,877	7	2	—	14.28	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Fittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	4	1	—	—	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	3	2	66.66	—	—	—	66.66	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,461; under five years of age 790; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 242, acute lung diseases 502, consumption 309, diphtheria and croup 88, diarrheal diseases 40, scarlet fever 26, typhoid fever 24, measles 22, cerebro-spinal meningitis 18, whooping-cough 18, erysipelas 6.

From scarlet fever New York 17, Boston 5, Chicago 2, Cincinnati and Chelsea 1 each. From measles Chicago 11, New York 9, Lowell and Cambridge 1 each. From cerebro-spinal meningitis Chicago 5, Nashville and Lynn 4 each, Baltimore 2, St. Louis, Boston and North Adams 1 each. From whooping-cough Chicago 6, St. Louis 5, New York 4, Washington, Fall River and Cambridge 1 each. From erysipelas Boston 3, New York 2, Chicago 1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 13, 1897, TO FEBRUARY 19, 1897.

Leave of absence for four months, to take effect upon his relief from duty at Fort McPherson, Ga., is granted to PHILIP G. WALES, assistant surgeon.

MAJOR ROBERT M. O'REILLY, surgeon, will be relieved from duty as attending surgeon in this city (Washington, D. C.), by MAJOR WILLIAM R. HALL, surgeon, and upon the expiration of his present leave of absence will proceed to Fort Wayne, Mich., for station, relieving LIEUT.-COL. JUSTUS M. BROWN, deputy surgeon-general.

LIEUT.-COL. BROWN, on being thus relieved, will proceed to New York City, and upon the retirement of COL. CHARLES T. ALEXANDER, assistant surgeon-general, May 3, 1897, will take charge of the Medical Supply Depot in that city.

PROMOTION.

CAPTAIN JOHN M. BANISTER, assistant surgeon, to be surgeon with the rank of Major, January 26, 1897.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 20, 1897.

R. WHITING, surgeon, placed on retired list, February 15th.

J. C. ROSENBLUTH, assistant surgeon, detached from the "Raleigh," February 20th, and ordered to the "Massachusetts."

SOCIETY NOTICE.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION. — The Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, March 3, 1897, at 8 o'clock.

At 8.05 p. m. "The Permanent or Later Results of Fracture of the Skull," by Dr. W. N. Bullard. Dr. D. W. Cheever will open the discussion of this paper.

At 8.35 p. m. "Gauze Drainage," by Dr. F. B. Harrington.

At 8.55 p. m. The Presentation of Pathological Specimens by Dr. E. H. Nichols.

At 9.15 p. m. "The Choice between the Abdominal and the Vaginal Incision in the Operative Treatment of Acute Pelvic Inflammations; with some Remarks upon the Technique of the Vaginal Operation," by Dr. Edward Reynolds. Dr. W. L. Bur-
rage will open the discussion of this paper.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

RECENT DEATHS.

HENRY HARTSHORNE, M.D., University of Pennsylvania, 1845, died at the age of seventy-three years at Tokio, Japan, February 10, 1897. He was at one time professor of practice of medicine in the University of Pennsylvania and later became professor of hygiene in the latter institution.

SAMUEL H. CHARLTON, M.D., of Seymour, Ind., a former president of the Indiana State Medical Society, died January 12, 1897, aged seventy years.

BOOKS AND PAMPHLETS RECEIVED.

Report of the Commissioner of Education for the year 1894-95. Volume II, containing Parts II and III. Washington: Govern-
ment Printing Office. 1896.

"From Demoniical Possession to Insanity." Review and abstract of the above chapter from Andrew D. White's "Warfare of Science with Theology." By Warren L. Babcock, M.D.

Transactions of the American Orthopedic Association. Tenth Session, held at Buffalo, N. Y., May 19, 20 and 21, 1896. Volume IX. Philadelphia: Published by the Association. 1896.

A Guide to the Clinical Examination of the Blood for Diag-
nostic Purposes. By Richard C. Cabot, M.D. With colored
plates and engravings. New York: William Wood & Co. 1897.

Surgical Clinic at St. Mary's Hospital, September 23, 1896. By H. O. Walker, M.D., Professor of Rectal Surgery, Genito-
Urinary Diseases and Clinical Surgery, Detroit College of Medi-
cine. Reprint. 1896.

The Value of the Pulmonic Second Sound. Report of Three
Cases of Phthisis Pulmonalis following Scald of the Chest. A
Study of Cicatrices, with Reference to Right- and Left-Handed-
ness and Ambidexterity. By J. N. Hall, M.D., Denver. Re-
prints. 1896.

Traitement des Suppurations Pelviennes de l'Hystérectomie
Abdominale Totale. Traitement Chirurgical des Rétro-Dévia-
tions Utérines, du Meilleur Mode de Fermeture de la Paroi Ab-
dominale. Par Eugène Doyen. Tiré a part des Archives Pro-
vinciales de Chirurgie, No. 10, Octobre, 1896, pp. 565-638. Paris:
Institut International de Bibliographie Scientifique. 1896.

Original Articles.

THE PREVENTION OF FLAT-FOOT AND SIMILAR AFFECTIONS.¹

BY R. W. LOVETT, M.D., BOSTON.

THE adult foot of the modern civilized American compares unfavorably, from an anatomical and mechanical standpoint, with the foot of the child or the savage. The child, starting in life with a foot presenting certain definite anatomical characteristics, reaches adult life among savages with a foot but little altered in these essentials; but in civilized life, in practically all cases, with a foot distorted and weakened, and these distortions are more or less uniform. These distortions are so closely allied to the disabling weaknesses of the foot, that their study becomes of interest.

A certain experience among trained nurses which has fallen to my lot, will serve as the text from which to speak.

In April, 1895, I was requested by the Superintendent of the Boston City Hospital to see if any means might be devised to diminish the loss of time caused by the breaking down of the feet of the nurses in the Training School. I undertook the investigation on condition that I might see and examine every nurse coming to the hospital and prescribe a boot for her, just as I would prescribe medicine at a drug store. The work has been conducted in that way, and I have studied with considerable care 160 nurses at that hospital. They probably present a better foot, on the whole, than would the same number of women taken at random in the community, for the reason that the applicants are selected more or less from the point of view of their physical condition, and women of obviously poor development are ruled out. The class of feet that I have seen among the nurses at the hospital, I consider as being fairly representative of the normal foot, as it exists in the women of a highly civilized community.

The distortions that exist among these are practically three: (1) outward displacement of the great toe; (2) crumpling of the toes; (3) excessive pronation of the foot.

OUTWARD DISPLACEMENT OF THE GREAT TOE.

In the foot of the infant and the unspoiled foot of the savage the line of the great toe prolonged backward, should pass through the centre of the heel. This is known as Meyer's line, and indicates the position of the great toe in which the muscles controlling it were meant to keep it. This position practically never exists in the adult civilized foot. In somewhat over 300 feet studied,² comprising those of the nurses, 100 applicants for the position of policemen, and various feet supposed to be normal, the writer has not seen a single adult case where Meyer's line passed through the centre of the heel and in a very large number, the backward prolongation of the great toe did not pass within the border of the heel at all.

The outward displacement of the great toe cripples an important muscle, the flexor longus pollicis, and, by the disabling of the great toe, removes one of the

chief supports of the inner border of the foot, thus predisposing the foot to roll over inward.

CRUMPLING OF THE TOES.

The second distortion consists in crumpling of the toes, which begins in early childhood; under ordinary circumstances and compared to the other two distortions it is of comparatively little importance relatively, from a mechanical point of view.

EXCESSIVE PRONATION OF THE FOOT.

What I speak of as excessive pronation of the foot, for want of a better name, is the most important and the most significant of the three distortions of the foot.

By pronation of the foot I mean the position of weight bearing, the position in which the forward part of the foot is abducted and the inner malleolus becomes more prominent. In the normal foot not bearing excessive weight, the inner border of the great toe, the inner malleolus and the inner condyle of the femur should all be in the same vertical plane. A certain amount of pronation is normal; but in the weak or overweighted foot, the foot is displaced too much outward in its relation to the leg, and by this movement of pronation carried to excess. This condition is often spoken of as "weak ankles" (Fig. 1).



FIG. 1 The position of excessive pronation.

Finally allow me to state it in a mathematical way: Pronation is a compound anatomical movement consisting of abduction of the forward part of the foot *plus* eversion of the sole of the foot.

It is the position associated with "toeing out."

Pronation is the position taken by tired people; the position which the muscles have the least work to maintain. Excessive pronation is both a separate pathological condition in itself and it is also the early stage of flat-foot. If you will allow me to drop the use of the word excessive, I will speak of the pathological condition simply as pronation of the foot. It varies more, I believe, in proportion to the degree of pain than any other factor; and in the work of which I have spoken, I have worked upon the assumption that the prevention of pronation was, in most cases, the prevention of trouble.

If you will allow me once more to speak of my experience among the nurses. It was obvious when I

¹ Read before the Boston Society for Medical Improvement on December 28, 1896.

² Figures 10 and 11, p. 91, Boston City Hospital Reports, Seventh Series, 1896.

began upon this work in April, 1895, that some record of the condition of the feet was necessary. I adopted the conventional one of imprint tracings. Each nurse stepped upon a smoked cardboard, which was then shellacked and preserved. It has generally been assumed that a certain type of imprint tracings represented the normal foot, and that variations from this

teen inches high, in the top of which a piece of plate glass, about 12×12 inches square has been set; or a glass topped table may be used. Under this table, and facing the light, is a mirror set at an angle of 45° to the floor. In this mirror may be seen with great clearness the reflection of the bottom of the feet, bearing weight. The weight-bearing surfaces appear as



FIG. 2. A record of the non-weight-bearing (in black line) and of the weight-bearing (in dotted line) positions of the foot, drawn on the under side of a glass plate on which the patient stands. The two added together give the ordinary imprint tracing, which is a composite.

type in a general way, represented pathological conditions. It became obvious, after a few months, that the smoked tracings afforded little trustworthy evidence of the real condition of the foot. In one or two cases where the nurses were suffering severe and almost disabling pain, when they first came to the hospital no variation from the so-called normal arch was detected when studied by this method; and after a study of a large series of studies taken in this way, I abandoned this plan, even before I had formulated any other method of record. The reason for this unreliability became obvious later. The feet in touching the smoked pasteboard first record indelibly the non-weight-bearing position and then pass into the weight-bearing position, which is also recorded. If the foot is a weak one and gives way under weight, lying over on its inner side, the smoked tracing may show no noticeable variation from the normal, although the weight is borne by the foot in a wholly abnormal way (Fig. 2).

The difficulty, in short, with the smoked tracing is, that it is a composite record of the non-weight-bearing and the weight-bearing position.

The method of observation and record I adopted, and which I wish to demonstrate, was as follows: The patient stands on a small table (Fig. 3) about fif-



FIG. 3. Table for examination of feet.

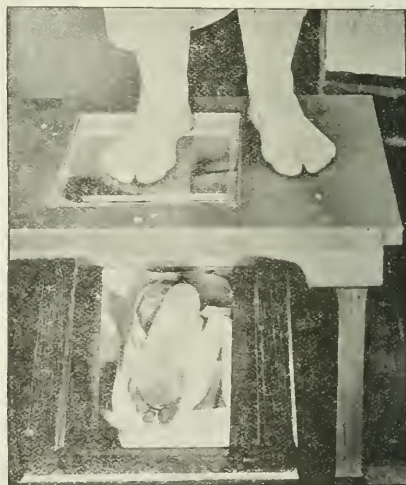


FIG. 4. Patient standing on glass table with a mirror underneath. On the mirror is seen the weight-bearing surface of the foot.

dead-white areas, while the line of contact can be seen easily. The distribution of pressure can be estimated by the intensity of the pressure anemia of the skin (Fig. 4).

For record a photograph may be taken of the image in the mirror, or with a soft pencil held perpendicularly to the under side of the glass, an outline of the pressure areas may be traced on the under side of the glass. Then, after the patient steps down, a thin sheet of paper may be placed over the upper surface



FIG. 5.

of the glass and the lines on the under surface may be readily seen through the paper and traced.²

The value of the method lies in the fact that the surgeon is able to look directly at the bottom of the foot, under pressure.

The problems opened up by this method are too new and too complex to be settled by any small number of investigations. One thing, however, may be said; that in the weak foot the outer border of the foot narrows and lifts when weight is borne on the leg and the weight-bearing surface moves inward. In the ordinary foot seen among the nurses, the outer border of the foot in most instances does not touch the ground during weight-bearing, or, if in contact, it bears little weight. In the majority of weak and painful feet examined, it has been obvious that the weight-bearing surface was too far inside.

The problem which I met, in beginning to work upon these nurses, was this: The amount of trouble had been large; nurses had left the school with disabled and broken-down feet; regulation boots had been tried from various shoe-stores, and had not been successful. In 1892 the aggregate loss of time was 42 days. In

1893 the loss of time was 125 days, and one nurse left the school on account of foot trouble. In 1894 the loss of time was 41 days, and one nurse left the school on account of foot trouble. Previous to the adoption of the regulation boots, the superintendent thinks that there was even more trouble than that recorded. Since April, 1895, when I adopted the principle of trying to prevent pronation of the foot among the nurses, no nurse has been off duty for trouble with the feet. The time now recorded is twenty months (January 1, 1897); and it seems to me fair to assume that the method employed is of value and that the element of luck is not enough to account wholly for exemption for so long a time.

The conditions described afford a good test for the utility of any boot. These nurses are on duty from seven A. M. to eight P. M., with the usual time off. They stand or walk on hard-wood floors, and the conditions are not favorable for the welfare of the foot.

There was no boot in the market suitable for use, and one was constructed on theoretical lines to meet the practical need. It has been modified in some ways, and must be still further changed in details, but in every case the boot to be described has been used.

² Hall: Trans. American Orthopedic Association, vol. ix.

It is of interest, inasmuch as it is the practical demonstration of the application of a theory to meet a practical requirement.

The endeavor has been to prevent excessive pronation by the use of a boot embodying certain principles which are neither new nor original with me.

(1) The inner line of the sole should be straight, or nearly so. In children it should diverge inside of the straight line to allow the maintenance of the great toe in Meyer's line. This requirement is necessary to prevent the displacement of the great toe.

(2) The shank should be fairly high and stiff and not cut away at its inner border, where its support is most needed to prevent the foot from rolling over on its inner side in weak feet. Cutting away of the inner side of this is almost universal in women's boots. As a rule the shanks of boots are too low, especially this is to be noticed at their inner edge and one improvement to be made is so to manufacture the boot that the shank shall be oblique, highest at its inner border and sloping from that downward.

(3) The sole of the boot should be as wide as the foot opposite the great-toe joint. It is not necessary to demonstrate that, for proper weight bearing, the ends of the metatarsal bones should be free to spread out and not to be crowded one over the other. This width of the foot is the most difficult thing to obtain, not only on the part of the wearer, but from the maker. At the hospital all boots are rejected at once, where an outline tracing of the sole of the shoe is not practically as wide as the outline tracing of the bare foot, with weight borne upon it.

What this pressure does may be seen in the radiograph taken by the kindness of Dr. E. A. Codman, of a model standing in one bare foot and one boot. The overlapping of the metatarsal bones should be especially noted (Fig. 5).

(4) The forward part of the sole should diverge inward from the long axis of the foot. That is, it should be made to hold the foot in an adducted position. This is because the prevention of abduction of the forward part of the foot is the prevention of pronation, because the position of adduction is the position of strength and of muscular activity. Holding the foot adducted tends to throw the weight onto the outer border of the foot and to preserve the arch.

When it is seen through the glass that the weight is borne too much on the inner part of the sole, some means, more than adduction of the boot is necessary, and among the nurses I have the inner side of the sole and heel made one-eighth or one-fourth of an inch thicker than the outside, whether they complain of trouble or not, using this in addition to the adducted boot to prevent pronation of the foot.

I have reserved to the end what seemed to me to be, on the whole, the most important part of the subject, namely, the use of a boot for children which shall be of the same shape as the human foot, a boot which conforms to the principles already laid down. I need not do more than comment before this audience on the manifest injustice of making children wear shoes of the ordinary symmetrical pattern, favoring those distortions of the foot which lead to weakness and to mechanical disadvantage and perpetuating the present condition of distorted feet. If persons who have reached years of discretion choose to wear boots which are unreasonable and harmful, they have a perfect right to do so; but children should at least have the chance

given them of reaching years of discretion with their feet comparatively undistorted, to be spoiled later if their inclinations lead them to do so.

Finally, the prevention of disabled and disabling feet is, I believe, in general to be attained by the use of a boot holding the foot in its position of greatest mechanical strength. The prevention of excessive pronation by adducting the forward part of the foot and preventing eversion of the sole of the foot is, I believe, the means by which this is to be done in general. And if you choose to make a wider application of my work among the nurses, the purpose of this paper will have been accomplished.

HERNIA EPIGASTRICA, WITH A REPORT OF CASES.

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(Concluded from No. 8, p. 178.)

Anatomy.—A study of the regional anatomy in dissecting-room subjects has rendered the suppositions of Cloquet and Witzel more comprehensible, and has suggested possibilities which may be of value in understanding the mechanism of the formation of epigastric herniæ. Limiting our description to the area included in the definition given above, we reach the external abdominal aponeurosis after passing through the skin, subcutaneous fat (very variable in thickness), and the superficial and deep layers of connective tissue. The fibres of this aponeurosis, derived from the external abdominal muscle, arising just outside of the linea semilunaris, pass downward and inward, forming an oblique angle with those of the opposite side at the linea alba, and are continued beyond a short distance on either side. The tendinous fibres derived from the internal oblique muscle split into two layers at the linea semilunaris, one of which passes inward and upward to the linea alba forming a strong fibrous sheath, anterior to the belly of the rectus abdominis muscle. This double sheath is practically one layer in that the oblique fibres derived from these two muscles cross each other at an angle and are more or less intricately united by inosculating fibres which continue their original direction and thereby form rhomboid meshes. The posterior sheath of the rectus in this region is formed by the union of the posterior division of the internal oblique aponeurosis with the tendon of the transversalis muscle. As in the anterior sheath, these fibres cross and inosculate so as to form similar meshes, and join in the linea alba with the corresponding fibres of the opposite side together with the fibres of the anterior layers.

The linea alba, therefore, is a comparatively thick and very dense mass of oblique inosculating fibres, crossing in two directions. It is narrowest below the umbilicus where the bellies of the recti muscles are in fairly close apposition, wider above, and toward the xiphoid cartilage its width may be considerable. In this line, no muscle tissue intervenes between the skin and peritoneum. The lineæ semilunares mark the division of the tendon of the internal oblique muscles, separated above at their origin, near the tip of the ninth costal cartilage, by the recti muscles, below they join the semilunar fold of Douglas. The tendon of the transversalis muscle may arise external or considerably internal to the lineæ semilunares, so that in

these lines we may have only fibrous and fat tissue between the skin and peritoneum, as is invariable in the median line. The tendons are generally broader in subjects poor in muscle tissue.

The recti muscles are crossed anteriorly by three transverse zigzag tendinous intersections. The lower one, opposite the umbilicus, is only superficial, the middle one, half-way from the umbilicus to the xiphoid cartilage, sometimes includes the thickness of the muscle, so that in this line, also, the abdominal wall

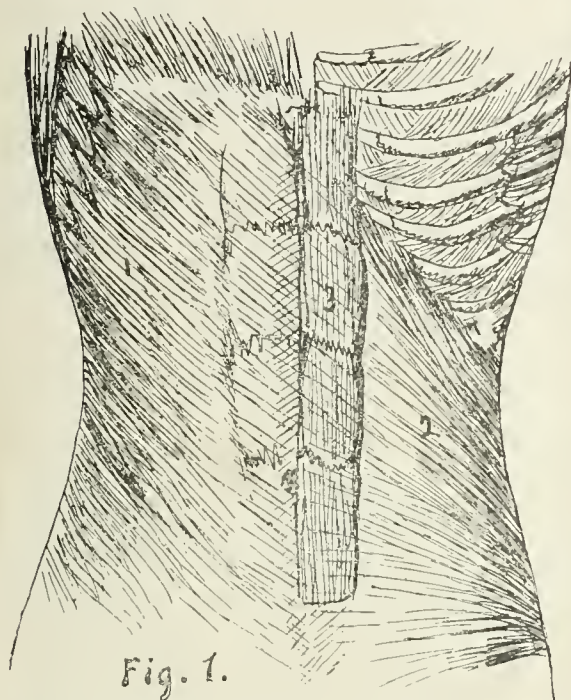


FIG. 1. Showing general direction of fibres of aponeurosis of (1) external and (2) internal oblique muscle as they cross and pass beyond the linea alba. Left rectus sheath removed anteriorly. (3) Rectus abdominis.

may be deficient in muscle tissue. The superior linea transversa is in close proximity to the cartilages of the ribs and the tendinous insertion of the muscles. This area just below the end of the sternum is frequently devoid of muscle tissue, and protected by fairly tense fibrous tissue stretched between the rigid edges of the thorax, consequently a well directed trauma might result in laceration.

Lying between the abdominal muscles and the peritoneum is the fascia transversalis, a thin layer of connective tissue which is of little account in the epigastric area, but closely associated with it is the subperitoneal fat layer, which plays a very important rôle in the formation of epigastric herniæ. This fat layer may be a quarter of an inch thick and line the whole epigastrium, or it may be almost wanting, but it is invariably present in the shallow depressions corresponding to the linea alba, lineæ semilunares and transversæ. The peritoneum is nowhere firmly attached, but is everywhere loosely connected by delicate fibres to the layers in front, forming areolar spaces which are more or less filled with fat.

Normally in the adult, a cord passes upward from the umbilicus, in the abdominal wall, just posterior to the transversalis muscle, roughly parallel to the linea

alba. At a variable point, generally a little below the centre of the distance between the umbilicus and xiphoid cartilage; it leaves the abdominal wall and passes upwards and backwards and to the right to the under surface of the liver. This is the round ligament of the liver, the remnant of the fetal umbilical vein, it is questionable whether it ever remains patent, as some maintain, but is not rarely found as a cord complicating these herniæ (Case II). The peritoneum is reflected over the round ligament, so as to

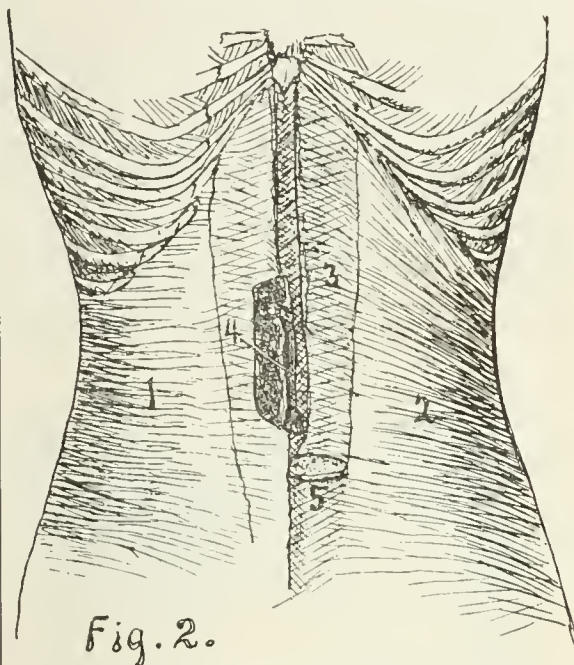


FIG. 2. Showing direction of fibres of aponeurosis of (1) transversalis and (2) internal oblique muscles forming (3) posterior rectus sheath, and inosculating at the linea alba with all the fibres of the anterior sheath so as to form a dense mass. Part of posterior sheath removed so as to show position of (4) round ligament and parumbilical veins. (5) Portion of left rectus muscle and its anterior sheath intact below showing direction of fibres.

form the falciform ligament of the liver, in the free edge of which are the parumbilical veins (Sappey, Luscha), which are occasionally found considerably dilated, and this round ligament. Accumulations of fat are very constant where the falciform ligament is joined to the abdominal wall, and pockets in the peritoneum are very common here. Lastly, there are small perforations in all the abdominal layers of the epigastrium, for the transmission of vessels and nerves, which are frequently distended with fat according to the nutrition of the patient.

PATHOLOGICAL ANATOMY.

By the term hernia, we mean the protrusion of a portion of the abdominal contents through an opening in the abdominal parietes. These openings may exist normally, and predispose to hernia, as in the femoral and inguinal variety; they may be the result of trauma, causing a rent in strong tendon or muscle; or finally may develop slowly in consequence of the atrophy of fat or muscle, particularly along the course of vessels. In the epigastric area, there are no preformed openings, therefore the hernia must make its way through a rent in the tissues, or gradually force a passage along the course of vessels, especially

if favored by atrophy of fat tissue. A common point of origin for these herniæ is where the round ligament and parumbilical veins leave the abdominal wall, on their passage to the liver, which is also in the vicinity of the middle linea transversa.

On considering the arrangement of the fibres of the tendons of the broad abdominal muscles, it will be seen that their meshes are kept closed when these muscles are in action, but that force tending to overextend the trunk will tend to open these meshes and may result in an oblique rent in their continuity (Case I). Owing to the great density of the linea alba, this rupture generally starts just to one side of the median line, as is verified by careful observation while operating. Now, as first pointed out by Cloquet, when once there is a small rent in the fascia, the abdominal pressure forces a small portion of the semi-fluid and pliable subperitoneal fat through the slit, both of which slowly enlarge and the slit gradually becomes oval. In the dissecting-room, and at operation, it is very noticeable how readily this fat protrudes when the fascia is nicked. The delicate fibres connected with the peritoneum in the line of the vessels or which bind it to the fascia transversalis, tend

is not aware of its presence. Its growth is very gradual and it is seldom larger than an English walnut. In cases of long standing, there is always a certain looseness of the skin to be observed over the site of the hernia, even when reduced (Case II).

(3) Number. One hernia is the rule, two are unusual, and Neihues, Pantzer and Witzel have observed three, and Berger four herniæ existing simultaneously in the same patient.

(4) Abdominal Layers. These consist of: (a) skin; (b) superficial fascia; (c) deep fascia; (d) fascia transversalis, often containing subperitoneal fat in its meshes; (e) peritoneum.

(5) The Sac is often overlooked on account of its thinness, or it may be discovered only after the excision of an obscure mass of fat, passing into which is a blind pouch. The sac passes through the ring and is there continuous with the peritoneum, and along the neck may be fat in continuation with the subperitoneal fat.

(6) The Ring is an oblique slit with sharp edges in early cases, but in time it becomes oval or round. It is usually too small to be detected with much degree of certainty through the skin.

(7) Contents of Sac:

(a) Very rarely the neck of the sac becomes obliterated with consequent cyst formation in the distal portion.

(b) The omentum is by far the commonest organ present within the sac which it is more or less adherent in most of the cases, particularly around the ring and on its under surface. Hence these herniæ are only partially reducible either in consequence of adhesions, or as a result of hypertrophy of lobes of omentum already within the sac. This fixation of the omentum is responsible for most of the symptoms.

(c) Intestine occasionally enters the sac, and may have been a complication in Case II, but authorities differ as to whether colon or small intestine is the commoner. Greiffenhagen has published the only authentic case of strangulation.

(d) The falciform and round ligaments may be complications (Case II, Lucas-Championnière) and this can be readily understood from the local anatomy.

(e) The earliest writers believed that the stomach was invariably associated with these herniæ, hence their term "gastrocele," but there is no very reliable evidence to show that this organ is ever involved.

SYMPTOMS.

For the sake of description, the clinical history of these cases allows us to consider them under three groups:

(1) On making a careful physical examination for some cause or other, a small tumor is accidentally detected in the epigastrium, which may or may not have been noticed by the patient. Such a tumor is generally slightly tender on palpation, but otherwise it is free from causing subjective or objective symptoms. It is generally made up of subperitoneal fat containing a prolongation of peritoneum. It may remain thus for years, or at any time become the source of severe suffering.

(2) By far the great preponderance of cases arise insidiously, continue a chronic course, with slowly increasing severity of symptoms, and with no hope of spontaneous relief. Symptoms referred to the stomach first attract the attention of the patient and the

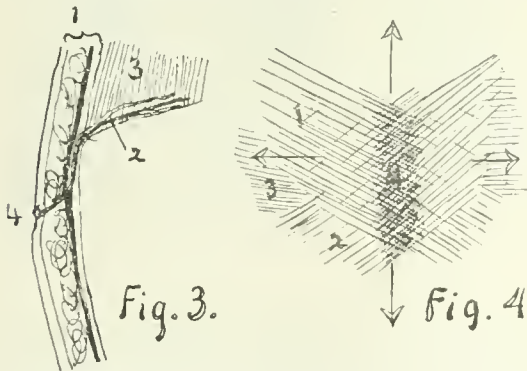


FIG. 3. (1) Section of abdominal wall to show course of (2) round ligament and parumbilical veins, as they ascend for a variable distance before entering the (3) falciform ligament. (4) Umbilicus.

FIG. 4. Showing comparative density of (4) linea alba. Lateral tension tends to close the meshes, vertical tension to open them just to one side of the linea alba. (1) External oblique muscle. (2) Internal oblique muscle. (3) Transversalis muscle.

to drag a portion of the peritoneum through the ring after the fat mass, and thus we have the beginning of a hernial sac the outer surface of which may be covered with this layer of fat. This condition has been found repeatedly at operation, was present in Case I and may be the condition in Case IV. When once this peritoneal pouch has been formed, the entrance of omentum or gut is readily understood. The case of Witzel of triple herniæ, cited above, is a most convincing example of these transition stages.

In brief, the considerations pertaining to the tumor and its immediate surroundings are as follows:

(1) Location. Commonly just to one side of the linea alba along the lower half of the distance between the xiphoid cartilage and umbilicus, and just below the cartilage. It may appear at any of the tendinous intersections already described. The axis of the tumor may be in any direction.

(2) Size. It may be too small to be detected, but has never been reported larger than an average apple. Ordinarily, when patients are seen for the first time, it is too small to be seen on inspection, and the patient

physician. There is but little characteristic in them, they usually persist for years with varying intensity, and are but little amenable to internal medication. The patient learns sooner or later that it is better not to indulge in hearty meals, and to rest after eating. Gastric symptoms of some sort are present in eighty per cent. of all cases of epigastric hernia. They are more marked after eating and are manifested as eructations, nausea, sense of weight in the epigastrium, and pain. The appetite becomes variable, and vomiting may follow the nausea, the vomitus consisting of ingesta, mucus and bile. Vomiting is often a source of relief. The bowels are generally constipated.

The pain experienced in these cases generally comes on after eating, particularly if the patient moves about, and centres in the epigastrium whence it may radiate in any direction. During digestion there is a dull dragging sensation which may be supplemented by severe, sharp, spasmodic cramps known as "crises"; these compel the patient to remain absolutely quiet in bed. All motions of the body, and coughing, sneezing and vomiting augment the pain, but relief frequently follows the vomiting, in consequence of the removal of so much weight. Drugs, other than morphia, avail nothing. The gastric symptoms are probably due to the pull of the omentum on the stomach, consequent on its fixation in the hernia, which will explain the severity of the symptoms when the stomach is full, or as the result of movements of the body. Hence the value of emptying the stomach or assuming any position which will tend to reduce the hernia. Some are relieved by lying on the back, for the hernia becomes reduced and the tension removed; others have learned to lie on the abdomen and thus remove the tension. If the hernia is irreducible, this is their only alternative.

Pain and gastric symptoms very frequently accompany the protrusion of the subperitoneal fat without omental complication. Various explanations are offered, but it is sufficient here merely to mention the minute and intricate anastomoses between the thoracic, phrenic and sympathetic nerves.

In time, a new chain of symptoms may appear, consequent on mal-nutrition, as a result of frequent gastric disturbance. The patient visits one physician after another with the hope of obtaining relief, becomes worried and anemic, loses weight and strength, and not rarely becomes hypochondriacal. Meanwhile, the attacks of pain become more frequent and alarming in that they have been mistaken for peritonitis and intestinal obstruction, while the only apparent external sign may be a very small tumor in the epigastrium, which will be overlooked unless its presence is suspected.

As regards the tumor, there is little more to be said, except that all gastro-intestinal cases should suggest the possibility of an epigastric hernia. The patient should be seen at different times, examined in different positions, with the abdominal muscles tense or flaccid, and an impulse looked for on cough.

Jaundice has been recorded six times as a complication in these cases, where at operation, the gall bladder and ducts were normal. Two cases were operated for gall-stones, and these were considered as a possibility in Case II. In all cases, there was an adherent omental hernia, the tension of which may have obstructed the gall ducts at times. All cases were relieved of this complication by the operation.

(3) This group contains a few well-authenticated cases where the symptoms follow immediately after some trauma as described above. The injury is often sufficient to cause complete collapse, followed by vomiting and epigastric pain and tenderness, sufficient to keep the patient in bed. Gradually these very acute symptoms pass off, and the patient may or may not recover his usual health, but in either case he finds that he is very subject to what he terms "dyspepsia." He dates all of this trouble from the time of injury, and the further history of the case corresponds to that described under Group 2. On several occasions, the tumor has been noticed as early as three hours after the injury, although usually its discovery is a matter of months or years. Two cases have been diagnosed by subjective symptoms and operated successfully, where the hernia was too small to be detected on account of a well-developed panniculus adiposus (Wild, Niehues). There is no sure means of differentiating subperitoneal fat tumors from omentum before operation; both may give rise to precisely the same subjective and objective symptoms and demand the same treatment. Bohland states that in ten per cent. of all cases, the stomach becomes dilated from atony.

DIFFERENTIAL DIAGNOSIS.

It will suffice at this time merely to mention the lesions which must be considered in this connection, remembering that most errors in diagnosis are attributable to neglect to make an accurate physical examination. Such an examination is of primary importance in all gastro-intestinal cases, at different times and in different postures. An enumeration of diseases which may be grouped in this connection is as follows:

- (1) Diseases of the stomach: gastralgia, ulcer, carcinoma, catarrhal.
- (2) Biliary calculus, inflammation of the gall-bladder.
- (3) Renal calculus.
- (4) Caries of sternum, with the abscess over xiphoid cartilage or just below it.
- (5) Dermoid cysts.
- (6) Gumma.
- (7) Simple lipoma arising anterior to the abdominal aponeurosis.
- (8) Epigastric hernia, containing subperitoneal fat, omentum or gut, singly or any combination of these structures.

COURSE.

Most of these cases run a comparatively mild course for years with occasional gastric "crises," which are apt to increase in severity and frequency, until finally, the general health and mental condition of the patient suffer. Adhesions augment the severity of the case, give rise to incarceration, but very rarely strangulation, and occasionally are peritonitis and intestinal obstruction suspected. A most striking feature is the great severity of the subjective symptoms when compared with the objective signs.

PROGNOSIS.

When these cases are left to run their own course, the outlook is unfavorable, for many of the patients become hopeless invalids, and it has never been demonstrated that spontaneous recovery ever takes place.

As a rule, relief is immediate after operation, and a permanent recovery is to be expected. Recurrences are now rare, and are to be attributed to faulty tech-

nique. In a few cases of long standing, which have resulted in serious derangement of the nervous system or in organic changes consequent on mal-nutrition, the prognosis is unfavorable.

TREATMENT.

(1) Palliative. Numerous devices have been used for the retention of these troublesome herniæ, but their efficacy has been anything but satisfactory. From the fact that these herniæ are so commonly irreducible, any truss serves only as an irritant, becomes unbearable, and makes the patient's condition worse. The adhesions become more extensive, and a local peritonitis not rarely follows. Hence palliative treatment should never be recommended unless some valid contra-indication exists for any radical operation, such as some serious organic lesion or advanced age. Under such circumstances, carefully adjusted swathes with or without a pad, as experience with each case will dictate, may serve to alleviate suffering in some cases. In women, carefully adjusted corsets are occasionally effective. The diet should be regulated so as to avoid overloading the stomach, and the importance of bodily rest after eating should be enjoined upon the patient.

(2) Operative. Many of the early operated cases died of peritonitis. Some years later, deaths were less frequent, and absolute relief was afforded by the operation, but recurrences generally took place because these wounds were left open and allowed to heal by granulation.

Under the present technique of abdominal surgery, the risk of death is practically nothing, the almost immediate relief from symptoms assured, and the chance of recurrence very slight.

The general steps in operating do not differ essentially from those to be followed in any case of hernia. The sac should be carefully isolated deep within the ring, then incised and its contents examined, adhesions freed, redundant omentum excised, and the stump reduced within the abdominal cavity. It is safest to enlarge the ring sufficiently to introduce the finger in order to be certain that no further adhesions exist around its circumference. Such adhesions very commonly exist, and these alone are sufficient to give rise to all the symptoms which the case presents. The entire sac should be excised and the peritoneum closed with slight tension so as to obliterate all folds. The abdominal wall should be closed in layers by buried sutures, and the whole may be supported by a few deep interrupted silkworm-gut sutures. Muscular tissue is one of the best barriers against recurrence, hence it may be advantageous to open the sheaths of the recti muscles laterally, and thus obtain perfect approximation along the line of incision.

CONCLUSIONS.

(1) That hernia epigastrica should be considered in the differential diagnosis of gastro-intestinal disorders in all text-books which deal with internal medicine.

(2) That cases are probably more common than is generally supposed.

(3) That the apparent gravity of the symptoms is far out of proportion to the physical signs.

(4) That in most cases the gastro-intestinal symptoms are probably consequent on tension or constriction of nerve fibres in the omentum and peritoneum.

(5) That the subperitoneal fat tissue plays an important rôle in the formation of these herniæ, the

presence of which alone may give rise to symptoms and signs differing in no respect from cases complicated by the presence of omentum or intestine.

(6) That palliative treatment is practically useless, and should be considered only in exceptional cases.

(7) That operative treatment offers immediate relief with a minimum of risk.

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FIVE CASES OF ECLAMPSIA, WITH COMMENTS UPON THE TREATMENT.¹

BY A. WORCESTER, A.M., M.D., WALTHAM, MASS.

CASE I. Eclampsia following delivery. Recovery.

A primipara, twenty-two years old, after a day of pain which she had concealed, was finally forced to admit her illegitimate pregnancy by the gush of liquor amnii at 5 p. m., December 15, 1885.

At 9 p. m. I found her in a dazed, stupid condition. Her face was decidedly edematous. She had not been passing much urine for some days. After the birth of a six-pound girl at midnight, and in fifteen minutes the delivery of the placenta, she was seized with a convulsion. In fifteen minutes a second occurred, and

¹ Read before the Obstetrical Society of Boston, December 15, 1896.

a third a half-hour later. For several hours she was comatose. During the following afternoon she had several convulsions, finally controlled by the hypodermic injection of a half-grain of morphia, and by the forcible police removal, at my request, of the lady of the house, who persisted in upbraiding the patient for damaging the reputation of the premises.

CASE II. Eclampsia during labor. Recovery.

On June 10, 1887, I found Mrs. S. F. Z. in a most wretched condition. She had previously borne five children without trouble. For several weeks she had been suffering from headache, and for several days she had been having occasional labor pains. The os was not larger than a silver half-dollar, the lips were wiredged. She was vomiting often. Her urine was very scanty, and dark brown. Cream-of-tartar water was given her. A few hours later, during my absence, the five-pound boy was born during a convulsion, and without the nurse's knowledge. Four hours later a second convulsion seized her. The room was then made very hot, and free perspiration obtained. Morphia, half a grain, was given hypodermically to quiet her. After a long sleep she appeared as well as ever, and made an uneventful recovery.

CASE III. Eclampsia. Manual dilatation, podalic version, recovery.

Mrs. C. H. was a primipara twenty-four years old. She was seven months pregnant. One evening she complained of headache. Her feet were much swollen. Her urine contained a trace of albumin, and had not been noticed to be scanty. The next afternoon she vomited, became blind, and soon was in a spasm. She had barely recovered consciousness half an hour later, at the time of my arrival. Immediately there came a second spasm, and in ten minutes a third. She was then etherized and manual dilatation begun; but it was a full half hour before even one finger could be inserted, and nearly two hours before dilatation was completed. Then, by podalic version, a two-pound girl was delivered. The baby lived only for a few gasps. The patient was superheated by means of hot-air from a lamp-chimney carried through a stove-funnel into her bed, and was soon copiously perspiring.

She made a rapid and uninterrupted recovery, but has since had to undergo operation for the repair of her cervix, which was torn through into the vaginal vault.

CASE IV. Eclampsia following labor. Recovery.

Mrs. B. O., a strong, healthy primipara, several hours after a perfectly normal labor, was seized with a convulsion, and became comatose.

I saw her, in consultation. Her urine, drawn by catheter, solidified on boiling. Nitrate of pilocarpine was given hypodermically, and hot air carried directly into her bed. She soon perspired freely. The next day she became conscious, and subsequently made an uninterrupted recovery.

CASE V. Eclampsia without spasms. Partial suppression of urine, recovery.

On September 20, 1896, I found Mrs. B. I. J. suffering with a snapping headache which had lasted for several days, preventing her from sleeping, and which had now become unbearable. She had passed through a former pregnancy nine years before normally, save for a severe post-partum hemorrhage. Now her hands and face as well as her feet and legs were very edematous. Her urine was scanty, and contained one-quarter per cent. albumin with hyaline and granular casts in abundance. She was eight months pregnant.

Phenacetine gave her some relief from the blinding headache. Her bowels were freely moved with Seidlitz powders. Cream-of-tartar water and coffee increased the flow of urine for a time. But soon, on account of her constant vomiting and agonizing headache, morphia and pilocarpine were used hypodermically. But after free perspiration she would be comfortable for several hours. But she was unable to lift her head from the bed. She slept only in naps of a few minutes' duration. She became very restless, and her eyes and face were constantly twitching.

Preparations were made for the induction of labor, but from day to day this was postponed. For ten days she passed only 126 ounces of urine; on one day only 10 ounces; and only 18 ounces the best day.

During each of these ten days she was given at least five pints of liquid nourishment and water. Dinretin, in ten-grain doses every four hours, was given without any apparent effect. But she gradually grew more comfortable; and quite suddenly, after several days' use of Basham's mixture, she began passing more urine, the daily amount jumping from 20 ounces to 37 ounces, and then to 73 ounces. The edema lessened greatly. All medicine was stopped. During the following three weeks she passed sufficient urine, the least amount being 40 ounces. Her appetite returned, and she was able to sit up for a few hours nearly every day, but her headache continued and she slept very poorly.

As her confinement drew near, she became worse again. Her urine amounted to only 163 ounces for the week immediately preceding her labor, to nine ounces the day before, and to eight ounces the day of her labor. The edema returned, together with the severe headache and vomiting. Bromo-cafein was given in large doses, and morphia occasionally. Basham's mixture was again employed.

On October 28th she passed through a normal labor, and gave birth to a large boy. On the following day she passed four pints of urine, and the diuretics were omitted. Her convalescence was rather slow; but she was able to nurse her baby, and she made a perfect recovery. When the baby was a fortnight old her urine again became scanty, one day amounting to only one pint. The headache and vomiting also returned, but under the same diuretic treatment she again rapidly improved. At the end of a month the urine became normal in amount and entirely free from albumin.

She is now (two years later) a perfectly well woman, and her baby is a perfectly well boy.

In previous papers read before this Society and already published² I have reported six other cases of eclampsia, making eleven cases which have occurred in my seven hundred midwifery cases. In four of the eleven cases the mother died. In four cases the premature child died. In two cases the fetus was macerated. In only five cases the child survived.

Inasmuch as both the mother and child lived in the four cases where the labor was neither induced nor assisted, the treatment employed demands close scrutiny in accounting for the frightful mortality.

Two of the four mothers who died were under my own observation for some time previously. Had they been as carefully watched and as faithfully nursed as was my patient last reported (Case V), I cannot but believe they and their babies would have lived. And

² Boston Medical and Surgical Journal, vol. cxx, p. 427; vol. cxxv, p. 28, and vol. cxxxv, p. 353.

I also believe the same of another of the mothers whom I saw only in consultation. The fourth mother who died had not been under medical observation. She died probably from shock or from etherization or from hemorrhage, or, in other words, from too energetic treatment. Her baby survived.

Four premature babies were practically sacrificed where forcible induction of labor was employed, on the supposition that such treatment alone would save the mother's life. Twice this may have been true, but in two of these cases not even the mother was saved. In all the cases fortunately the father survived.

It may be presumptuous to attempt any deductions from such a record as to the proper treatment of eclampsia, especially as it is customary to base recommendations as to treatment only upon uninterrupted successes. Nevertheless, believing as I now do that the treatment employed was not theoretically right, I offer the following criticisms and conclusions:

(1) It is more important to keep account of the amount of urine excreted by pregnant women than it is to test it occasionally for albumin. And if the amount is scanty, prompt measures should be taken to promote diuresis; failing which, then catharsis and diaphoresis should be induced.

(2) In cases of eclampsia, before term, diaphoresis should be tried before resorting to the induction of labor. Hot air is the safest and most effective means thereto.

(3) In cases of eclampsia occurring at term, diaphoresis should be employed *while* inducing and expediting delivery.

(4) The rapid induction of labor by manual dilatation of the cervix is a difficult and dangerous operation, which if combined with forcible delivery of the child is well calculated to add to the shock already caused by the eclamptic attack.

(5) In eclampsia, as in all other cases of kidney failure, ether is contraindicated. Surgical anesthesia is not needed. Chloroform, always the proper anesthetic in obstetric practice, is imperatively proper in cases of eclampsia.

PUERPERAL ECLAMPSIA.¹

A STUDY OF ONE HUNDRED AND SIXTY CASES OCCURRING AT THE BOSTON LYING-IN HOSPITAL AND IN THE PRIVATE PRACTICE OF MEMBERS OF THE OBSTETRICAL SOCIETY OF BOSTON.

BY CHARLES W. TOWNSEND, M.D.,

Physician to Out-Patients, Massachusetts General, Boston Lying-in and Children's Hospitals.

THE following paper, which is offered as an introduction to the discussion of this subject before the Obstetrical Society of Boston, consists first, of a brief analysis of the 67 cases of eclampsia that have occurred at the Boston Lying-in Hospital in the last twelve years, and, secondly, of an analysis of 93 cases occurring in private practice collected from the members of the Society and their invited guests.

I. SIXTY-SEVEN BOSTON LYING-IN HOSPITAL CASES.

I have availed myself of the excellent paper by Dr. Charles M. Green published in the *American Journal of Obstetrics*, Vol. XXVIII, No. 1, 1893, for the cases

of eclampsia occurring at the hospital from 1885² to 1892, inclusive, a total of 36 cases. In the four years (lacking one month) since then, 31 more cases of eclampsia have occurred at the hospital, making a total of 67 cases; 48 of these, or 72 per cent., were primiparae. Of the 67, 48 recovered and 19 died, giving a maternal mortality of 28 per cent.

This compares favorably with other statistics. Thus, Fothergill puts the mortality at 26 per cent.; Braun, of 73 cases, finds it to be 26 per cent.; Dohrn, of 747 cases, 29 per cent.; Dorland, 30; Kaltenbach, 30; Hofmeier (104 cases) 32.4; Shauta, 36.5; Bailly, 42; Madame La Chapelle, 50; Pajot, 50.

The fetal mortality in the ante-partum and inter-partum cases, excluding the non-viable cases, is 24 per cent. out of 32. The following table shows the relative frequency and mortality in the three classes of puerperal eclampsia:

	Cases.	Per cent.	Per cent. fatal.
Ante-partum eclampsia . . .	29	43	38
Inter-partum eclampsia . . .	17	26	23
Post-partum eclampsia . . .	21	31	19

It is seen that the ante-partum cases are the most common and the most fatal; the inter-partum cases are less fatal; while in the post-partum cases the prognosis is the best. Coming now to a more particular consideration of the prognosis, we find that where marked coma was present, always considered an unfavorable sign, about one-half only, or 51 per cent., were fatal.

The average total number of convulsions in the 48 mothers that recovered was 5, the numbers running from 1 to 25. In the 19 that died, the average was 8.2, the numbers running from 2 to 24. It is, therefore, impossible in any given case to form a definite prognosis from the number of convulsions or the existence of coma, as a study of these cases shows that women have died after two convulsions and recovered after 25 and deep coma, although the general rule is, the fewer the convulsions, the better the prognosis.

The effect of the convulsions, or the condition which causes the convulsions, on the child, is also of interest. It is generally assumed that the toxemic condition with eclampsia and coma is, if prolonged, fatal to the child. The Lying-in Hospital cases do not bear this out. Thus, of 19 ante- and inter-partum cases (excluding the non-viable) that recovered, the number of convulsions in the mother averaged 4.8; of seven that died, the convulsions averaged 3.8. One child was born dead after only one maternal convulsion; while four children survived eight or more maternal convulsions, one surviving seventeen maternal attacks and was delivered alive while the mother was comatose. Forced delivery by version is, of course, responsible for the death of the child in several cases, without reference to the existence of toxemia. These cases, therefore, show that it would be unwise to assume that the child was dead even if the mother had had numerous convulsions and was comatose.

The treatment, to quote freely from Dr. Green, in these hospital cases has been essentially the same in all the cases, with minor differences owing to the member of the staff in charge, or adapted to the individual case. It should be remembered that the hospital patients are not received prior to the onset of labor; hence there is no opportunity to observe or relieve the various prodromal symptoms of eclampsia

¹ Read before the Obstetrical Society of Boston, December 15, 1896.

² Cases prior to 1885 are not included, as the aseptic system was not introduced until this date.

and thus to mitigate the severity of the attack or to entirely prevent it.

Moreover, it is the policy of the hospital to admit every case of eclampsia unless the patient is obviously moribund, and this latter rule is sometimes overlooked. Hence all of the ante-partum eclamptic cases were brought to the hospital after one or more convulsions, many of them after a dangerously long delay. Therefore, one would not expect as good results as in those watched in private practice and seen early in the disease.

In brief, the treatment has consisted of the following measures:

In *Ante-partum* cases, if the fetus is not yet viable, and the convulsions are few and mild, the attempt has been successful in a few cases to arrest the convulsions and restore the action of the kidneys by medical measures presently to be enumerated. In the majority of cases interference with pregnancy is practised by manual dilatation of the os and immediate delivery, generally by version.

In *Inter-partum* cases, labor is expedited by forceps, manual dilatation of the os and version being sometimes necessary.

In *Post-partum* cases the following medical measures are resorted to, which are also used to supplement or take the place of obstetric interference in the other classes: Either during the eclamptic seizures and during artificial delivery. Hot-air bath or hot-water bottles, to excite the action of the skin. Pilocarpine, in doses of one-sixth of a grain, is often given subcutaneously. Elaterium or croton oil, the latter if the patient is comatose, to excite the action of the bowels. Acetate of potash and cream-of-tartar water as diuretics. Chloral and bromide by enema in some cases as sedatives. Morphine is not used, and venesection has been employed only a few times, although post-partum bleeding is encouraged rather than quickly checked.

II. NINETY-THREE CASES OF ECLAMPSIA FROM PRIVATE PRACTICE.³

It seems to be a common impression that the mortality in hospital cases of eclampsia is higher than in private practice for two reasons: first, the patients are not seen until eclampsia often of some duration is actually in progress, no prophylactic measures having been used to mitigate its course; secondly, many desperate cases are sent to the hospital as a last resort. I was therefore somewhat surprised to find that the mortality in private practice was exactly the same, 28 per cent., 67 having recovered and 26 died of the 93 cases. The fetal mortality, 21 cases where this was noted, and the infant was viable, was 43 per cent., nearly twice as great as at the hospital; but the numbers are too few to draw any conclusions.

The relative frequency and mortality in the three classes of puerperal eclampsia, corresponds fairly well with the hospital statistics, except that the post-partum cases are less frequent and more fatal than the inter-partum cases, as will be seen by the following table:

	Cases.	Per cent.	Per cent. fatal.
Ante-partum eclampsia . . .	55	59	33
Inter-partum " . . .	22	24	18
Post-partum " . . .	15	16	26

Combining the two sets of statistics, the frequency of the three classes in the 159 cases is in the proportion of 53, 24 and 23 per cent., in the order given above; and the mortality is 34 per cent. in the ante-partum, 21 per cent. in the inter-partum, and 22 per cent. in the post-partum cases. As in the hospital, a large number that were comatose recovered, 41 per cent. proving fatal.

The correspondence in the average number of convulsions in those who recovered and those who died is almost exact. Thus, in private practice the average number of convulsions which ranged from 1 to 18 in those that recovered, was 4.1 against 5 in the hospital. In those that died, the range was from 1 to 20, and the average 8.2, — exactly the same as at the hospital.

As in the hospital cases, there seems to be no relation between the number of the convulsions and the condition of the child at birth, whether living or not. Thus, the average number of ante- and inter-partum convulsions where a living child was obtained was 3.2, the average number where the child was still-born being about the same, namely, 3.6. There were three children born dead where the mothers had each had only two convulsions, the cause of the death being probably the forced delivery, while one child survived nine maternal convulsions.

Dr. R. T. Edes reports three labors of one patient, twice at the sixth month and once at the seventh, in all of which there was eclampsia — from five to twelve ante-partum convulsions, forced labors, and two to six post-partum convulsions. The patient has had a healthy living child born since, without eclampsia. He also reports two other eclamptic labors in another patient, the patient dying in the last one.

Dr. C. E. Stedman reports two eclamptic labors in the same patient, who survived.

The treatment in the private cases collected, judging from the notes sent me, has been in the main essentially the same as the hospital treatment, namely, early delivery and the use of an anesthetic, hot-air baths, purgatives, diuretics and in some cases pilocarpine. The use of chloroform instead of ether is mentioned in only two or three cases.

Dr. J. P. Reynolds reports cases where ether to complete anesthesia was pushed for a long period. His results are certainly remarkable; for, out of twelve cases reported, only two died, and in both of these ether was not thoroughly given. I cannot help feeling, however, that he was particularly fortunate in these results, for series of eclamptic cases have occurred at the hospital where everything seemed powerless to prevent a fatal issue.

Theoretically, I cannot understand why the suppression of the convulsions by ether is going to cure the disease any more than the suppression of the cough in pneumonia would stop the progress of this affection. Both the convulsion and the cough are merely symptoms of an underlying condition. It also seems to me that ether by increasing the pulmonary congestion and cyanosis is helping rather than retarding the effect of the toxins towards a fatal issue. Certainly many of the fatal cases show in the last stages cyanosis and bronchial accumulation which can only be aggravated by ether. Chloroform seems the more rational agent to use.

Pilocarpine, it seems to me, by increasing the danger of bronchial accumulation should not be used in eclampsia.

³ The members furnishing cases are Drs. J. G. Blake, W. F. Boardman, F. H. Davenport, G. J. Engelmann, E. Reynolds, J. P. Reynolds, A. D. Sinclair, C. E. Stedman, J. B. Swift, C. W. Townsend, G. H. Washburn and A. Worcester; the guests, Drs. R. T. Edes, E. A. Bates and H. A. Wood, to all of whom I am much indebted.

The use of morphine is mentioned in nine cases by various reporters, two of these cases proving fatal.

Eight cases were bled, three proving fatal. One of these latter was a case of my own, where the patient was promptly delivered, but where the convulsions continued for two days post-partum until her death, notwithstanding every means that could be employed. Here venesection gave temporary relief. Copious bleeding, followed by intravenous salt-solution injections, would seem to promise good results.

The use of *veratrum viride*, as recommended by many practitioners in the South and West, is not mentioned in this collection of cases.

Clinical Department.

A CASE OF BULLET-WOUND OF THE HEAD.

BY A. T. CABOT, A.M. M.D., BOSTON.

C. H., fifty-five years of age, entered the Massachusetts General Hospital on October 25, 1892. Twenty hours before entrance he had shot himself in the left side of the head with a revolver, the bullet, of 32-calibre, entering just above the left temporal bone. He was a Swede, and talked but little English, but would answer "Yes" or "No" to simple questions.

An examination showed the characteristic wound of entrance of a bullet of the described size. This opening was situated one and a half inches above a line drawn from the external orbital process to the junction of the helix of the ear to the scalp, and was nearly over the centre of this line, being slightly nearer to the ear than to the orbital process. His eyes were moderately contracted, but reacted equally to light. At the time of entrance his temperature was 101.4°; his pulse was 90, his respiration 36. He was seen soon after by Dr. J. J. Putnam, who made the following notes:

"The patient shows complete paralysis of the lower branches of the facial nerve, and difficulty in the movements of the tongue, also complete paralysis of the right hand and arm. Neither leg is wholly paralyzed, but both are equally weak. The knee-jerk is slight, but present at both sides. He is sensible to a prick everywhere. He seems to understand simple questions, and is apparently intelligent, but is evidently aphasic. His pulse is 84, respirations 27. He can swallow."

Dr. Putnam's opinion was that the lower Rolandic region, which lay close to the wound, was evidently seriously injured. How much further the damage extended could not be determined on account of the condition of general concussion. It was decided to operate with the object, primarily, of establishing drainage.

After thoroughly shaving and cleansing the head, the scalp was reflected and a trephine opening was made over the point of entrance of the bullet. A probe was then introduced through the opening in the dura mater, and, with the head turned on the side, was allowed to run by its own weight along the track of the ball. It slipped along easily until it encountered the falx, where it stopped abruptly, but a little gentle manipulation carried it through the opening and it then ran, by its own weight, directly across to the skull on the other side. By taking a probe long

enough to project considerably from the skull, while it lay in the bullet track, it was possible to sight pretty accurately the course of the ball. It was thus found that it had traversed the brain from side to side with an inclination backward; so that it must have struck the inside of the skull, on the other side, under the posterior part of the parietal eminence.

The probable point being determined by careful observation of the probe, a needle was thrust through the scalp, and, reflecting a flap, a trephine was put on; and when the button of the bone was removed, it was found that the probe from the other side touched the dura at the centre of the opening.

An incision was made in the dura, which had not been lacerated by the bullet. At once clots of blood and brain matter began to issue, and a probe, feeling about with great gentleness, demonstrated a cavity in the brain substance posterior to the opening. The finger was carefully introduced into this; the bullet was felt and, with a little difficulty, was seized and removed.

A drainage-tube was introduced into the cavity where the bullet had lain, and another small one was slipped just within the wound of entrance.

The patient gradually failed, and died twenty-four hours after the operation.

The interesting point in this case is that the method adopted succeeded in so accurately locating the point of the probe on the opposite side of the head. The probe was sighted while looking at the head first from the top and then from the side, and in each position a line was drawn passing around the head in the same plane with the probe and the eye. The point of intersection of these lines on the opposite side gave the position of the distal end of the probe. Fortunately, the bullet had not ricocheted after striking the inner surface of the skull, and was found close to the point of impact.

Patients often recover with an injury of the brain as extensive as seemed to exist in this case; and it would seem possible that had this patient come to operation earlier, the result might have been more favorable.

A BULLET-WOUND OF THE BRAIN.

BY DAVID DANA SPEAR, A.M., M.D., FREEPORT, ME.

ON December 30, 1896, a little child, twenty-one months old, was accidentally shot with a bullet from a .22-inch calibre revolver. The missile entered the head on the posterior left side about midway between the upper part of the left ear and the occipital protuberance. The direction of the line of entrance was diagonal. There was no wound of exit. Matted hair, looped, two and one-half inches in length, was taken from the wound; so that it must have been of at least that depth, and how much more is unknown. The wound was not probed.

Immediately after the shot the child fell to the floor, apparently dead; but after a few moments began to breathe irregularly. An hour later she was seen by the writer. The condition was one of severe shock and concussion; both pupils were contracted to a small point and were inclined to roll upward.

Two hours later she was seen by Dr. Twitchell, of Portland, who concurred that the wound should not be probed to find the bullet. The condition of concus-

sion lasted about five days, when consciousness gradually returned, and at the present writing the child is apparently as well as at any time in her short life. There is no paralysis, no change of vision, no fever; since the fifth day of the accident, no vomiting.

The treatment of the wound was antiseptic until healing had taken place. The bullet is still in the brain, and gives no symptoms.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting December 15, 1896, the President, DR. JAMES R. CHADWICK, in the chair.

DR. ALFRED WORCESTER reported

FIVE CASES OF ECLAMPSIA, WITH COMMENTS UPON THE TREATMENT.¹

DR. CHARLES W. TOWNSEND read a paper on

PUERPERAL ECLAMPSIA,²

which was a study of 160 cases occurring at the Boston Lying-in Hospital and in the private practice of members of the Obstetrical Society of Boston.

DR. A. D. SINCLAIR said he could not agree with Dr. Worcester that manual dilatation and version was poor treatment in eclampsia. It is of great importance to fully dilate the cervix before attempting to extract. Cases of eclampsia differ very much in severity; some will get well, and some will die in spite of treatment, but he knew of no one remedy so successful as manual dilatation and version.

DR. J. P. REYNOLDS had never seen any harm from the prolonged and continuous use of ether, neither had he seen any recurrence of the convulsions after its persistent use.

DR. F. B. HARRINGTON remarked that the diminished urine in these cases was probably a symptom of the general toxemia, and not a cause.

DR. J. G. BLAKE said that his own course of action was to give ether and empty the uterus at once, and that he relied on the record of five successful cases to bear him out in this belief. In two others that had come under his observation where other methods were first used the patients were lost.

DR. GEORGE HAVEN said the whole subject was shrouded in mystery, and there is much yet to be learned about the pathology and proper treatment of the affection. On theoretical grounds he would prefer chloroform to ether in these cases, although he had not used it. In some cases hot-air baths will not produce sweating and pilocarpine will.

DR. DOLLIVER stated that Tarnier had reduced the mortality from eclampsia in recent years in his clinic to nine per cent. by means of a milk diet.

DR. ENGELMANN believed if we bleed we must do so freely, and if we use morphine we must give large doses. He had always used chloroform, never having used ether or pilocarpine. He had placed some reliance on calomel. He believed in delivery as soon as possible, in venesection and in large initial doses of morphine. He believes that the ideal treatment would

be venesection with intra-venous injections of salt solution, thus ridding the system of toxins. He referred to a recent report of 31 cases in Geneva, four of which had icterus of which three died, showing that the liver as well as the kidneys is affected by the toxemia.

DR. J. B. SWIFT said he would like to ask what constituted the rationale of immediate delivery. If the child has not reached a viable age, why sacrifice it? It would seem as if we should devote ourselves to the elimination of the poison.

DR. A. D. SINCLAIR said that early statistics give a mortality of 50 per cent. in eclampsia. It is about one-half that now, the improvement being due, he thought, to anesthesia, rapid delivery and the use of prophylactic treatment.

DR. C. M. GREEN said he had seen a large number of cases at the Boston Lying-in Hospital and in consultation practice, but had never had a case in his own practice, although he has, he thinks, prevented a number by prophylactic measures. The most important thing in the examination of the urine is the amount of urea, not of albumin. He has recently had a case where there were headaches, epigastric pain, edema and albuminuria, but under prophylactic treatment no eclampsia resulted. The pathology of the affection is still obscure. In one autopsy made by Dr. Councilman there was found to be general pneumococcus infection of the liver, lungs and all the organs.

He believes in the delivery of the eclamptic patient, experience showing that that gives the best results. He referred to a case where marked edema occurred in the latter part of pregnancy. In spite of most careful prophylactic treatment the patient had convulsions. She was at once delivered, and had no more; and a year later her urine was normal. He does not look on pilocarpine as such a dangerous drug as some think, and he uses it where hot baths do not work. Hot-water baths are excellent, being far better than the hot-air baths for inducing perspiration, but they are more difficult to manage. The patient should be kept in the bath till the forehead is covered with perspiration.

DR. W. E. BOARDMAN said that manual dilatation and delivery was used in the earlier part of the century by Ashwell and Michael Regau. It was given up, but we have again returned to it.

DR. A. WORCESTER said that in eclampsia the common practice is to absolutely disregard the life of the child. He would urgently recommend the practice of prophylactic treatment in all cases indicating approaching eclampsia, and of all symptoms the diminution or suspension of urine is most important. He believes that ether does no good; he has lost four cases where full etherization was employed.

DR. C. W. TOWNSEND, in closing, referred to the great variation as to mortality in cases of eclampsia. Some of those that are apparently most hopeless recover, while others that are seen early and appear to be most promising, die. He read the following reports of post-mortem examinations recently made by Dr. J. H. Wright on cases of eclampsia dying at the hospital.

Synopsis of Autopsy upon H. K.—Body that of a young well-developed woman, showing evidence of recent pregnancy. The chief lesions were as follows:

Liver. Pale, yellowish, opaque, showed some punctate hemorrhages in capsule. The microscopic examination

¹ See page 204 of the Journal.

² See page 205 of the Journal.

showed minute foci of necrosis of the liver cells and invasions of leucocytes, also some fatty degeneration.

In the Endocardium a patch of punctate hemorrhage and some fatty degeneration in heart muscle.

Kidneys. These showed a narrow cortex and considerable evidence of degeneration. The microscope showed the chief lesions to be acute in character. The vessels of glomeruli showed a special hyaline degeneration with a thickening and obstruction of calibre. The secreting tubules showed marked acute degenerative changes.

In the Lungs microscopic examination showed blood plate thrombosis of numerous small vessels and a few multinucleated cells in the capillaries of the alveolar walls. These cells are probably of placental origin.

Spleen. Not remarkable to the naked eye; microscopic examination, however, showed foci of degeneration and necrosis in the malpighian bodies, similar to those seen in diphtheria in this location.

Bacteriological examination failed to show any definite bacteriological infection.

Synopsis of Autopsy on A. B.—The body was that of a young woman well developed and nourished, showing the usual evidences of the puerperal state. The most striking lesions to the naked eye were as follows:

Liver. Soft and generally putty-like in color and appearance. Its capsule showed numerous punctate hemorrhages and reddened discolorations. The organ was not especially diminished in size. In section, scattered throughout the tissues were seen groups of pale, slightly reddish, ill-defined areas, probably foci of necrosis with more or less hemorrhage.

On the Endocardium, and in the Pleura there were marked punctate hemorrhages.

In the posterior portion of the Lungs there were small circumscribed areas, dark red in color, probably hemorrhagic in character.

The Kidney showed very marked degenerative changes of acute character, but no evidence of long-standing disease.

The Uterus was not especially remarkable.

The Spleen was not enlarged, but showed numerous dark-red points and spots in its pulp.

Brain normal.

Bacteriological examination failed to show any definite infection.

NEW YORK NEUROLOGICAL SOCIETY.

STATED Meeting, February 2, 1897, the President, BERNARD SACHS, M.D., in the chair.

CASE SIMULATING SYRINGOMYELIA.

DR. GRAEME M. HAMMOND presented a lady who, ten years ago, after an illness similar to an attack of *la grippe*, began to have loss of sensation to pain and temperature in the left arm. During these ten years the symptoms had extended to the left leg, trunk and side of the face. Dr. Hun had carefully examined her, and had made a diagnosis of syringomyelia. When first seen by the speaker the symptoms had been certainly very like those of that disease—absolute insensibility to temperature and pain, with perfect preservation of the sense of touch. But the absence of paralysis and contractures, the normal electrical contractility, and the fact that the other side was not affected argued against this diagnosis. In addition to this, there were several symptoms of neurasthenia—insomnia, noises in the ears and confusion of ideas. It had occurred to him that the case might be of neurasthenic origin, and acting upon this theory she had been given bromides, together with as much mental impression as possible. The result had not been dis-

appointing. Now, the pain and temperature sense had returned in the face and trunk. The sensation of pain and temperature were not fully restored in the left hand or in the trunk, but were decidedly improved. She had never been told what the symptoms of the disease were, so that there could have been no suggestion.

DR. M. ALLEN STARR suggested that there might possibly be a small area in the cord of disease that had started the symptoms and given the "suggestion," thus making the case a complex one.

CEREBELLAR ATAXIA.

DR. GEORGE W. JACOBY presented a little girl of nine years, a typical case of cerebellar ataxia. In this case there was no heredity. The father married his own niece, but with this exception the family history was negative. This child did not walk until three years of age, and was generally backward, both mentally and physically. Examination showed marked ataxia in both upper and lower extremities. When unobserved, the child exhibited constant choreiform movements of the head and upper extremity. When walking, the body was thrown forward and the head somewhat backward; the legs were spread far apart and there was a constant tendency to falling. In reaching for an object, there was an uncertainty of movement. The eyes showed a slight fixation nystagmus at times. There were no changes in the optic nerve. The reflexes were very much exaggerated. There was no deformity in the lower extremities. He felt that the case should be looked upon as a congenital defect of the cerebellum.

DR. JOSEPH COLLINS endorsed the last statement of Dr. Jacoby. He had looked into the literature of the subject, and had been impressed with the necessity of differentiating between hereditary and familiar changes. In a case that he had had there had been no hereditary history whatever, nevertheless, a younger child, who had died about the end of the second year, and was described as having had from its birth "St. Vitus' dance" and other symptoms, had probably suffered from the same disease.

DEMONIACAL POSSESSION.

PROF. WILLIAM JAMES, of Harvard University, delivered an address on this subject. He said that our knowledge of altered personality had made rapid strides in recent years. We had the transient altered personality of epileptic insanity, and certain dream states that had been described under the name of "ambulatory automatism"—the subject going from home and returning after an interval of, perhaps, weeks, with the memory of what had happened during his wanderings utterly effaced. In one case that he had treated, hypnotic suggestion had brought back the memory of the wanderings. There was still another altered personality, that called "spirit control." This was connected with demoniacal possession. The obsolescence of public belief in the possession by demons was a very strange thing in Christian lands, when one considered that the sacred books of our religion were full of this belief. Every land and every age had exhibited the facts on which this belief was founded. The particular form of supernatural origin varied with the traditions and popular beliefs of each country. When the Pagan gods became demons, after the triumph of Christianity in Europe, all possession was

looked upon as diabolic. It was now replaced by the thoroughly optimistic belief that changed personality is the spirit of a human being coming to bring messages of comfort from the sunny land. The unconsciousness, the speaker said, was usually ushered in by a more or less pronounced convulsion—the person's character became entirely changed in its attitude, voice and manifestations. After an hour or two, the manifestation passed off, leaving a complete amnesia behind of everything that had occurred. During the intervals of the attacks the person was entirely well. The condition was, therefore, entirely distinct from any form of insane delusion. Mr. Percival Lowell had reported that in Tokio, Japan, there were a number of persons who cultivated the power of passing into trances. In China, there was a widespread belief that possession by gods and spirits could take place. Mr. Nevins, a missionary in China, had reported a number of cases of demoniacal possession. In Japan there was a curious superstition that the person afflicted was not affected by a demon but by a fox. In India, instances of this kind were extremely common.

The speaker said that the witchcraft delusion had been explained in various ways, but to him witches were not neuropathic persons, but the accusers were. He had carefully examined the witchcraft trials, and had found that it started in some demon disease in the neighborhood. These "demon diseases" were very common in those days, being any functional neuropathic disease. If there were no obvious physical disorder, and the symptoms did not yield readily to the usual medical treatment, the case was considered to be one of demon disease. Professor James quoted from a book written in 1803, by a French magistrate, in which a detailed description was given of a girl possessed of five demons, and the manner in which they came out of her mouth, and ran around the fire two or three times before disappearing. He said that these descriptions reminded one of the classical hysterical attack—the lump in the throat, the convulsive seizures, etc. The cases appeared to be examples of imitative hysteria, patterned after the cases existing at that time. Differences in the different countries, of course, came from the differences in the psychological climate. Many interesting reports had been published of late years of epidemics of chorea, supposed to have resulted from imitation. These epidemics had been known to last for months or even years. An interesting case of demoniacal possession in France in 1863, had been reported by Dr. Augustine Constance, in Savoy. A similar epidemic had been reported in Italy. The epidemic in France began with hysteria among certain children, and was propagated by example until at last a very large number of persons was attacked with all the symptoms of demoniacal possession. When Dr. Constance arrived upon the scene, a year after the breaking out of the epidemic, 110 persons were affected. He examined a number of these individuals, and found them to be suffering from hysterical attacks, brought on by suggestion. The patients were wisely sent away to other villages, and in that way he broke up the epidemic. Hystero-demonopathy is the name given to these symptoms.

No one could fail to recognize in these attacks the analogy to the performances of the numerous spiritualistic mediums of the present time. It would be strange indeed, if a phenomenon which had played such a large part in history should have died out without leaving

anything in its place. Medical men should learn from all this a certain lesson, that is, that as our views had become optimistic instead of pessimistic, the whole thing had become harmless. We live in a day when there is much alarmist writing in psychopathy about degeneration, and the alarming significance of all sorts of symptoms and signs, so that there is danger of drawing the line of health too narrowly.

DR. C. A. HERTER said that the idea of connecting the powers of modern spiritualistic medium with the peculiar forms of demoniacal possession which occurred in former years was a most interesting one. This fact had been brought out most interestingly and impressively in the address. He had been much interested in the gradual change from the damaging to the comparatively beneficent aspect of these phenomena.

MR. MARTIN said that it seemed to him rather remarkable that the suggestions which occurred to the possessed person, related almost entirely to ethical matters or religious subjects. A large portion of the recorded cases that he had met with referred to the possession by devils, who were leading the person astray or into immorality. He would like to ask if Professor James had observed the same thing.

PROFESSOR JAMES replied that it was a law of the secondary consciousness that it took the religious form. He had no explanation to offer, however, of this law. It was a singular fact that involuntary writing was apt to take the spiritualistic form. This would occur in the case of persons who had no intellectual hospitality for that view, and who had not been exposed to spiritualistic influences. Spirits, religious truths and philosophical discourses were the staple of these communications.

DR. MARY PUTNAM JACOBI said that, as in so many cases of melancholia the grief was about having sinned against the Holy Ghost, even in persons who had had no religious or Calvinistic instruction, she would like to ask if Professor James considered it an example of the phenomena just spoken of. She would also like to ask his opinion of an essay that had been published, entitled, "Were the Salem Witches entirely Guiltless?" According to this essay, although these witches were not possessed by devils, they were abandoning themselves to impulses coming from the lower structures of their natures—the result of ancestral influences.

PROFESSOR JAMES replied that he did not think the delusions of melancholia had anything to do with the subject under discussion. The sin against the Holy Ghost was only an endeavor to explain the grief which was felt. Regarding the essay by Prof. Barrett Wendell, to which allusion has been made, he would say that at the time of the witchcraft belief there were certainly persons attempting to do what they could by diabolical aid, but in all probability they formed a very small part of it. In Salem, the girls from whom the accusations emanated had been having hypnotic seances from a West Indian slave, who was herself practically insane. They passed then into such a condition that they were accused of witchcraft, and were tried under such circumstances as to impress them powerfully by suggestion. From what we know of imitative hysteria, the whole matter was entirely explicable on that basis, without any supposition of guilt upon the part of these children. It was a suggestive epidemic of a semi-hysterical nervous disorder.

DR. C. L. DANA said that the speaker had made

quite clear the relation of trance to demoniacal possession of old, but he would like to know how widespread was this condition now. He knew that about fifteen years ago spiritualism had been immensely prevalent in the Eastern States. If the condition had continued to exist and spread, there was certainly much more in the United States to-day than in civilized countries several hundred years ago.

PROFESSOR JAMES replied that it would be difficult to answer this question statistically, as we had no trustworthy statistics. We knew, however, that at the present time there were many "faith-healers."

Recent Literature.

Text-Book of General Pathology and Pathological Anatomy. By RICHARD THOMA, Professor of General Pathology and Pathological Anatomy in the University of Dorpat. Translated by ALEXANDER BRUCE, M.A., M.D. Vol. I, with 436 illustrations. London: Adam & Charles Black. 1896.

We are glad to note this translation of the "Lehrbuch" of this well-known teacher of pathology.

The book is especially valuable for its presentation of the subject of "Disturbances of the Circulation of the Blood," a subject about which the author is well qualified to write by reason of his important contributions to this department of pathology.

The portions of the book dealing with bacteria, parasites and the general subject of etiology do not call for special commendation, while the chapter on fever is unsatisfactory. The consideration of tumors is good; their histology is well illustrated by wood-cuts.

The work is of interest as containing a presentation of the author's somewhat peculiar ideas on the subject of inflammation, and his reasons for advocating the abandonment of the use of the term in pathology.

The part of the publisher has been well performed, and the volume is a most attractive one.

A Text-Book of Special Pathological Anatomy. By ERNEST ZIEGLER. Translated and edited from the eighth German edition, by DONALD MACALISTER, M.A., M.D., and HENRY W. CATTELL, M.A., M.D. Sections I-VIII. New York: The Macmillan Co. 1896.

This translation of the latest German edition of the "Specielle Pathologie" of Ziegler will be welcomed by medical students who cannot read German fluently. The many merits of the German original and its great usefulness as a help in the study of pathological histology are well-known.

All the wood-cuts of the original are fairly well reproduced, and the book is excellently printed and bound.

The Pathology of the Contracted Granular Kidney and the Associated Cardio-arterial Changes. By SIR GEORGE JOHNSON, M.D. (Lond.), F.R.C.P., F.R.S. With 29 illustrations. Philadelphia: P. Blakiston, Son & Co. 1896.

This little book represents the results of the author's studies in the pathology of interstitial nephritis carried on about thirty years ago. It has considerable historical interest, but it is not to be regarded as an adequate presentation of the present state of our knowledge of the subject with which it deals.

A Text-Book of Diseases of the Nose and Throat. By FRANCKE HUNTINGTON BOSWORTH, A.M., M.D. With nearly 200 engravings, and seven full-page chromo-lithographic plates. New York: William Wood & Co. 1896.

This book is made by condensing into one volume the author's well-known work on the Nose and Throat. The condensation has been admirably done, and gives us the best English text-book on the subject for the use of the medical student and general practitioner. As in the unabridged edition, the arrangement of subjects is excellent, and the description clear and interesting. The choice of methods of treatment must always be a difficult one for a text-book. It might, for instance, be questioned whether the author's free use of cocaine would find favor with other teachers of the art. The most obvious criticism of the book as a whole would be that the reduction had not gone far enough. With the larger work on which to fall back more might have been omitted. Seventy pages are devoted to the external surgery of the nose and throat, subjects which would hardly be looked for in an abridged students' manual. Nevertheless the book is not unwieldy, and we are spared the descriptions of individual cases and unimportant discussion.

Autoscopy of the Larynx and the Trachea. (Direct Examination without Mirror.) By ALFRED KIRSTEIN, M.D., Berlin. Authorized Translation (altered, enlarged and revised by the author) by MAX THORNER, A.M., M.D., Cincinnati, O. 68 pages. Philadelphia: The F. A. Davis Co. 1897.

This is a description of the technique by which the larynx and trachea may be examined and treated directly, without the necessity of reflected images. The principle lies simply in getting the tongue downwards and forward, so that a straight path is opened, a continuation upwards of the line of the tracheal volume. The autoscope consists of a straight grooved spatula, the tip of which is inserted in the groove between the tongue and epiglottis. The author does not claim that the laryngoscopic mirror is to be superseded, but that this is a valuable addition to our present methods of examination and operation, especially for the posterior wall of the larynx and the trachea. On account of individual differences in patients, it is not universally applicable, and its proper manipulation can come only with practice and skill on the part of the operator. It is, of course, too soon to predict its future.

Functional Disorders of the Nervous System in Women.

By T. J. MCGILLICUDDY, A.M., M.D. 8vo, pp. vi, 334. With 34 illustrations, 12 charts and 2 chromo-lithographic plates. New York: Wm. Wood & Co. 1896.

This is one of the books which are manufactured by the aid of the shears and the mucilage-bottle, and contains pages of quotations from familiar sources. The pages not in quotation marks are characterized chiefly by a remarkable lack of knowledge of nervous disorders. Although leading neurologists now look with scepticism upon the so-called reflex origin of certain nervous disorders, the author ascribes to reflex irritation the bulk of nervous affections occurring in women; but his consideration of the subject is unsystematic, his study of cases is superficial, and the book is full of statements that are rarely accepted at the present day.

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NURSES AND NURSES.

THERE has recently appeared in the *Nineteenth Century* an article by Lady Priestley in which the shortcomings of the English trained nurse, or nurse *à la mode* as she is there styled, are vividly portrayed. She is described as too often conceited in her pseudo-scientific "training"; not seldom unwilling to perform the more menial offices of the sick-room; as frequently usurping the functions of the doctor, regulating the diet and treatment of the patient herself; as sometimes frivolous, flippant and flirtatious. She frequently regards herself as above her station and makes herself a nuisance in the houses of people of moderate means, by constantly impressing this fact upon the patient and the family. She has been known to make use of the exceptional opportunities offered her in her personal relations to eligible single gentlemen to entangle them in matrimonial alliances, and if unsuccessful, to sue them for breach of promise, and to mulct them in considerable sums of money. In fact, if the possibilities depicted by Lady Priestley were to be accepted, physicians and patients would prefer to take their chances with any ignorant, untrained, but obedient and kind-hearted woman, who would carry out the doctor's orders in a faithful though clumsy and slipshod manner, to the ministrations of one of the class of trained nurses which she describes.

A reply to this article, by Mrs. Bedford Fenwick, formerly matron of St. Bartholomew's Hospital, in the February number of the same periodical, points out the fact that Lady Priestley has done trained nurses as a class the greatest injustice in attributing to a considerable number of them qualities which are only shown by a very small proportion of the graduates of training-schools, and these few the black sheep of the flock, some of them perhaps sailing under false colors by the aid of forged or stolen certificates.

There can be no question that a certain number of the nurses who graduate from training-schools lack

the tact, kindness of heart, and love of their work to fit them for the successful practice of their profession; but there can also be no question but that a woman who possesses these necessary qualifications is an infinitely better nurse for having gone through the ordeal and experience of a training-school. Without the peculiar qualities of mind and heart and the bodily strength essential to her calling, no amount of training will make a woman a good and useful nurse, but when to these instinctive qualities are added the knowledge of symptoms, the power of dealing with emergencies, the mature judgment, and the mastery of the countless practical details of the care of the sick which the training-schools of our own large hospitals afford, then only does a nurse become fitted for the care of serious cases.

For the seriously sick and even for invalids or for the weary, who can afford the expense, there is no greater comfort next to a skilful, cheerful, sympathetic doctor, than a good, cheerful, tidy, sympathetic trained nurse, and we are glad to bear testimony to the very valuable services rendered to individuals and to families by very many such in our own country. The fees which such nurses command are doubtless too high for many patients of moderate means; but when we take into consideration the arduous nature of the duties, the intervals of rest which a nurse is forced to take in order to keep her health, and the shortness of the active wage-earning period of a nurse's life, they seem none too large.

Nevertheless, the problem of providing good nurses for people of moderate means is a serious one, and we are glad to learn that at the last meeting of the superintendents of training-schools for nurses, held recently in Baltimore, the subject of "visiting nurses" was under discussion. The visiting nurse is ready to be summoned to attend during a confinement, or surgical operation perhaps, leaving the house as soon as the patient is properly cared for, and then visiting the patient once or twice a day for dressing, bathing or such other care as the patient may need. The system has had excellent results, it is reported, in several cities of this country, and is just being introduced in Boston. The advantages of such a system to self-respecting families of moderate means are obvious.

But there are certain other advantages which will accrue under such a system to the nurse herself. She will not, in the first place, be frequently subjected to the wearing monotony of the care for weeks or months of a nervous and often selfish invalid. She will have a constant variety of cases, often serious, instructive and interesting, and will in going from house to house gain the often much needed benefit of air and exercise.

Such a system will resemble in many respects that which is provided already in our city for the very poor by the Instructive District-Nursing Association. Let those who cavil at trained nurses and their work look at the record of a year's work of these eleven trained nurses in our note on page 216 of this issue.

Or, better, let them follow one of these devoted women on their daily errands of mercy. Let them see these nurses, trained in the best of our modern schools, go into the slums of our city, through the dark alleys, among the ash-barrels and swill, up the dark, dirty, rickety staircases of the tenements, and into houses of poverty and filth, unshrinking in their devotion to their duty. See them go there, and minister to the sick and serious cases in these often loathsome surroundings. See them bring with them clean linen from the stores of the Association, teach these ignorant families the value of cleanliness and ventilation, make the patients as clean and comfortable as is possible under the conditions, and coax them back to health. The change which will come over a household after a few of these visits is wonderful. The district physician who works with the nurse can best appreciate it. The poor, ignorant families, who have never before learned the value and comfort of cleanliness, learn it from these nurses, and bless them ever after for having taught it.

These nurses are not paid twenty-one dollars a week; but if ever consciousness of having done great good under the hardest and most repulsive conditions is any reward, that reward is theirs.

The difference between Lady Priestley's trained nurses and the type of nurse we have described is great enough. One is the personification of selfishness, and the other of unselfish devotion to duty. The larger class perhaps will lie between the two extremes; but let us beware of taking as a type the worst examples of the worst class.

SERUM-THERAPY IN SYPHILIS.

THE serum treatment of syphilis has been employed hitherto in the three following ways: (1) Injection of the serum of healthy animals—dogs (Richet, Héricourt, Feulard), sheep and calves (Tomassoli, Kollmann, Mozza, Istomanow). (2) Injection of human serum from patients in the secondary and gumous stages (Pellizzari, Wjewiorowski) and from children with hereditary syphilis (Bonaduce). (3) Injections with serum from animals which had been previously inoculated with syphilis by means of (a) injections of the serum of patients with primary syphilis, or at the acme of secondary manifestations; (b) inoculation of primary syphilitic ulcers, and moist papules, as well as injection of serum of patients with the full development of secondary manifestations. No positive good results have thus far been proved to have followed the serum-therapy.¹

Nevertheless, the great success of the serum-therapy in diphtheria, and the attempts to produce a serum for the cure of erysipelas, pneumonia, cholera, etc., have encouraged students to continue their investigations of a serum-therapy for syphilis. It has been shown in the case of diphtheria, that the blood serum

of animals which possess a natural immunity from diphtheria, has no therapeutic effect. In order to obtain an anti-diphtheritic serum, it is necessary that the animals be in a certain measure receptive for the inoculation. Tarnowsky believes that horses are more or less receptive to syphilis, as in some foals inoculated by him with syphilitic products, nodular interstitial lesions were found in the liver, spleen, kidneys and lymph glands, which showed microscopically a great similarity to those of syphilis. If, therefore, these animals are in some degree receptive to syphilis a serum obtained from them when rendered immune by repeated inoculations, would be completely analogous to anti-diphtheritic serum.

On this assumption three young horses were treated by successive inoculations with the products of syphilis, and the serum obtained from their blood was injected experimentally into six syphilitics who had had no previous treatment. The result of these experiments showed that the injection of serum from syphilized horses had no favorable influence on the course of syphilis, not only in the earlier but also in the later stages of the disease, and that it was not to be recommended as a method of treatment. It was found, moreover, that the injections exercised an unfavorable influence on the general condition of the patients, causing a rise in temperature, albuminuria, outbreaks of purpura, and a loss of weight.

The question of serum-therapy as a cure for syphilis may, however, be approached from a different standpoint. In case, as was conjectured by Behring, the efficacy of autitoxin consists, not in a destruction or neutralization of the toxins, but in an increase of the capacity of the system for resistance, it is conceivable that in the treatment of syphilis by mercurials, we do not directly disinfect the system, but increase its power of resistance. On this supposition it is possible that the serum of animals which are in some measure susceptible to syphilis, and whose immunity has been increased by saturation with mercury, may be effective in the treatment of syphilis in man. Experiments on these lines have been already undertaken by Tarnowsky.

In 1891 Boeck² treated a dozen cases of recent, so-called secondary syphilis by means of injections of syphilitic serum obtained from the fluid of a hydrocele, in a syphilitic subject in the secondary stage. The results were not very striking. Of four patients treated in private practice only one had a slight recurrence of syphilitic symptoms. No news was obtained of the hospital patients.

During the last year somewhat similar experiments were made on seven patients from private practice. The serum was taken from a man who had acquired syphilis six years before and was then suffering from epididymitis and hydrocele. In the first six cases the treatment was begun before the outbreak of secondary symptoms, in the last case after the appearance of the exanthem. The injections were made into the skin of

the back. The results of these experiments were that the primary symptoms disappeared more quickly under serum injections than under expectant treatment. Sometimes the effect was quite striking. The glandular affection of the primary period was also influenced. When the injections were made before the appearance of secondary lesions, the latter were delayed and attenuated, so that the exanthemata were barely visible, and there were few appearances on the mucous membranes. Boeck found that the injections were more effective the earlier they were begun, and that this tertiary serum was far more effective than that of the secondary period. He is forced to admit, however, that the serum injections do not have nearly so quick and decisive an effect on the symptoms of the early period as the ordinary specifics, mercury and iodine. In six cases of those treated by the injection of serum the secondary period lasted on an average four months and twelve days, and all secondary manifestations had disappeared on an average six months and three weeks after the date of infection. These cases were followed for many months; and Boeck is satisfied that the secondary period was surely at an end. The question now arises, How does this result compare with that attained by ordinary specific treatment? Do not secondary appearances last longer on the average, under the latter method?

MEDICAL NOTES.

MEDICAL AND TECHNICAL EDUCATION IN MADAGASCAR.—A medical school is being organized in Madagascar, and a native technical school has already been opened.

DR. CERNA RECEIVES A CONSULAR APPOINTMENT.—Dr. David Cerna informs us that he has been appointed by the Mexican Government, to the Mexican Consulate at Galveston, Texas.

THE GERMAN CONGRESS OF SCIENTISTS AND PHYSICIANS.—The sixty-ninth Congress of the German Association of Scientists and Physicians will be held this year at Brunswick from September 19th to 25th. The work is distributed among thirty-three sections.

DR. DACOSTA APPOINTED TO A PROFESSORSHIP.—The Board of Trustees of the Jefferson Medical College, Philadelphia, recently appointed Dr. J. Chalmers DaCosta, Clinical Professor of Surgery. Dr. DaCosta has been connected with the Jefferson School for many years, and has recently been Demonstrator of Surgery and Chief of the Surgical Out-patient Department.

CASTRATION FOR RAPE.—The house committee on public health of the Kansas Legislature has made a favorable report on a bill which does away with a penitentiary sentence for men convicted of assaulting women, and substitutes castration. The Social Purity League of Topeka has been urging the passage of this bill, and the leaders in the league claim enough votes in both houses to pass the law, and have secured the

promise of Governor Leedy's signature. They say that, following the lead of Kansas, ten other States will pass the same law at the next session of their legislatures. — *Medical Record*.

A DEATH AT THE AGE OF ONE HUNDRED AND TWENTY-THREE.—Mrs. Caroline Woods is reported to have died in St. Louis, Mo., recently, aged one hundred and twenty-three. She was almost the first white child born on the present site of Louisville, Ky., where she was married in 1800. Mrs. Woods had a remarkable memory, and related many incidents of life on the frontier.

PERSONAL CLEANLINESS IN ARCTIC EXPEDITIONS.—At a dinner given in his honor by the Savage Club in London, Dr. Nansen spoke of the great difficulties encountered by his expedition in maintaining personal cleanliness. "We did our best to keep ourselves clean," he said, "and tried all sorts of different ways. We tried the Esquimaux way, but that was no good. What we had to do was to use the knife and scrape ourselves. The Esquimaux method is that of preserving all the urine secreted by the members of the establishment, and using it for all purposes of domestic and personal cleanliness."

THE MEDICAL SCHOOL OF NEW YORK UNIVERSITY.—The trustees of the New York University have accepted the deed of the Loomis Laboratory, and at the same time the Medical School, which, since its establishment in 1841 has been under the management of a separate board of trustees, now passes under the control of the trustees of the University, together with its endowment of \$100,000 and its property valued at about \$300,000.

WHERE ARE THE ANTIVIVISECTIONISTS?—If, instead of trying to retard the progress of true science, the antivivisection fanatics would take hold of a sensational preacher in Michigan, who kills cats in the pulpit, they might be of some use in the world. According to an account in the *Cleveland Leader*, it was announced that the Rev. W. L. Laufman, of Cadillac, Mich., assisted by Dr. C. E. Miller, would kill two cats in the pulpit of the Methodist church, to illustrate Laufman's sermon on tobacco, on February 7th. On that day the church was packed. Prominent on the pulpit were packages of fine-cut and plug chewing-tobacco. Laufman contended in his sermon that tobacco in any form was bound to fill the user with nicotine and eventually produce death. Spain of to-day, he said, was not the chivalric Spain of Columbus's time, because of the prevalent use of tobacco. He commented also on the decadence of Turkey and France, due, of course, to the use of tobacco; but forgot to mention that Russia was making giant strides sociologically, intellectually and politically, despite the almost universal use of tobacco. Then the cats were brought up by Dr. Miller. An assistant held them while the doctor administered the nicotine. The first one died in a minute and a half, while the attendant held it, after three drops of nicotine had been placed on its

tongue. The next cat, a large one, received only two drops, the purpose being to illustrate the sickness and spasms which the first dose of tobacco creates. A second dose of two drops was given, and in a minute and a quarter the cat was dead. This humble follower of the Lord then announced that next Sunday he would kill some more cats, to show the effects of alcohol, and also have on exhibition the stomach of a drunkard. — *Medical Record*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, March 3, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 85, scarlet fever 41, measles 194, typhoid fever 6.

THE BOSTON CITY HOSPITAL NURSES' HOME. — The Boston Board of Aldermen have recently appropriated \$100,000, for the purchase of the land at the corner of Massachusetts and Harrison Avenues for a home for nurses, which is to be erected with the generous legacy of Mrs. Ann White Vose, as was recently noted in our columns. The accommodations for nurses in the present home had long been inadequate, and the new building which is now assured, will amply provide, by furnishing quarters for one hundred nurses in addition to those domiciled in the present nurses' home, for the pressing needs of the hospital.

THE INSTRUCTIVE DISTRICT-NURSING ASSOCIATION. — At the annual meeting of the Instructive District-Nursing Association which was held on February 24th, an interesting report was read, showing the large amount of work done by the Association and its nurses during last year. Eleven trained nurses were employed, and they made 46,933 visits among the poor and sick. On 11,751 of these visits the nurses were accompanied by the physicians of the Boston Dispensary, while 35,182 calls were made by the nurses alone, about 4,200 patients being visited. Any practising physician may secure a nurse under the auspices of the Association, by applying at the office at 2 Park Square.

GYMNASIUMS FOR THE INSANE. — Two gymnasiums have recently been completed and equipped for the use of the patients at the McLean Asylum at Waverly. Beside the gymnastic apparatus the gymnasium building for men contains a studio, a reading-room, a large smoking and card-room, two billiard-rooms, a bowling-alley, and two workrooms, where the lighter kinds of manual labor may be carried on. Besides this there is a Turkish bath in the basement under the gymnasium. The women's gymnasium is similar in equipment, except that it has no smoking-room, but instead a parlor with a piano. It will be seen that the gymnasiums are planned to provide amusement as well as opportunities for physical culture for the patients. Regular classes in gymnastics will be organized, and

instruction provided for those interested in acquiring skill in the lighter forms of manual labor. The building ought to provide excellent facilities for the physical culture and mental diversion of the patients, conditions of very great importance for the cure of many forms of mental disease.

NEW YORK.

THE ABUSE OF MEDICAL CHARITY. — The abuse of medical charity in hospitals and dispensaries is receiving unusual attention from the profession at the present time, and a bill having in view the curtailment of this evil has been prepared for presentation to the State Legislature. A meeting was recently held by the East-side physicians for the purpose of discussing the best means of securing the desired end, and a special meeting of the New York County Medical Association for the same purpose was held on February 23d.

A PLAYGROUND ON THE ROOF. — A new public-school building, the first to be provided with a roof-garden for the use of the children as a play-ground, is about to be erected in the crowded tenement district at East Broadway and Henry Street. The entire roof will be surrounded by a parapet wall seven feet in height, and arrangements will be made for the planting of numerous vines and shrubs.

DEATH OF DR. WOOD. — Dr. Willoughby I. Wood, a nephew of the well-known Brooklyn Surgeon, Dr. George B. Fowler, and a young man of great promise, died at Guilford, N. Y., on February 20th. He was born in Brooklyn twenty-eight years ago, and graduated from Bellevue Hospital Medical College, New York, in 1890. At the time of his death he was chief surgeon of the Norwegian Hospital in Brooklyn.

DEATH OF DR. CREAMER. — Dr. Henry A. Creamer, a son of the late Dr. Joseph Creamer, the first police surgeon appointed in Brooklyn, died at his residence in Williamshurg on February 20th, of pneumonia, after a four days' illness. He was twenty-five years of age and a graduate of Bellevue Hospital Medical College.

THE NEW CHAPEL AT BELLEVUE HOSPITAL. — The beautiful Roman Catholic chapel erected on the grounds of Bellevue Hospital by Miss Leary as a memorial of her brother, the late Arthur Leary, was consecrated with imposing ceremonies by Archbishop Corrigan on February 27th. After the religious services Miss Leary entertained the clergy, the Commissioners of Public Charities and a number of other guests at a banquet at the Hotel Waldorf. There has been for some years a handsome Protestant chapel at Bellevue, which was built in memory of the late Mrs. R. H. L. Townsend.

DEATH AT THE AGE OF ONE HUNDRED AND TWO. — Mrs. Mary Newman died on February 20th, at the residence of a daughter, at Locust Valley, N. Y., at the age of one hundred and two. Her extreme age is well authenticated, as the family records show that she

was born in Thenford, Northampton, Eng., on December 23, 1794. She was twice married, and became for the second time a widow in 1873. She leaves 13 children, the oldest of whom is eighty-two years of age, 38 grandchildren, 52 great-grandchildren, and 33 great-great-grandchildren. Up to within a short time of her death she enjoyed excellent health, and even assisted in the work of the house.

A LOW MORTALITY RATE.—Were it not for the fatality of pneumonia, which, as usual at this season, is very prevalent, the death-rate in the city of New York would be exceptionally low. As it is, the mortality has been lower thus far than for some winters past. During the week ending February 27th the deaths from pneumonia amounted to 140, an increase of thirty-nine over the week ending February 6th. In the same weeks the deaths from pulmonary tuberculosis numbered 106 and 109 respectively. While there has been a slight increase in the mortality from scarlet fever and whooping-cough, the number of deaths from diphtheria has decreased from 38 in the week ending February 13th, to 21 in that ending February 27th. During the latter week eight deaths from influenza were reported, the largest mortality from that disease as yet recorded this season. The total number of deaths in the city for the week was 787, against 782 in the week ending February 13th, and 741 in the week ending February 6th.

Miscellany.

OPPORTUNITIES FOR TRAINING IN PHYSIOLOGY.

THE Department of Physiology in the Harvard Medical School offers to four qualified men positions in which training in physiology may be obtained.

It is expected that these men will give the mornings of the collegiate year to research and the afternoons to the direction of under-graduate students in experimental physiology, under the supervision of a professor in the department.

Every effort will be made to instruct the holders of these positions in the ways of framing problems for investigation, in the principles of criticism, in the technical methods of research, and in the manner in which the results of an investigation should be put together for publication. Instruction will be given also in methods of teaching, including the arrangement of lectures, the division of subject matter between the systematic course, covering the entire field and the advanced special lectures, the physiological conference, the Journal Club, the use of the projection lantern in physiological demonstration, and the demonstration of physiological experiments to large and small classes.

The direction of laboratory work will be an important part of the training. The first-year class in the Harvard Medical School is divided into sections of thirty-two. Each section works twenty-four afternoons in experimental physiology, making more than one hundred experiments, such as the influence of temperature on the form of the muscle curve, the phe-

nomena of electrotonus, the compensatory pause of the heart, the use of the artificial eye, the ophthalmoscope, laryngoscope, sphygmograph, etc. The repetition of fundamental experiments in this course, and the great variety afforded by so many experimenters working at the same time, secure to the directors of the work a thoroughness and a breadth of training in elementary physiology scarcely attainable in other ways.

The administration of a large department will be carefully explained. Attention will be given to the cost of apparatus for instruction and research, the problems of construction and maintenance of plant, the care of storage-batteries, the making of lantern-slides, the cataloguing of physiological literature, the importation of apparatus, and many other details essential to the successful operation of a physiological laboratory. Men intending to devote themselves to clinical medicine will, of course, give less time to these things and will concern themselves chiefly with matters bearing directly on their chosen work.

It is evident that these appointments will afford an admirable training to those intending to make physiology or any other of the biological sciences a profession. To the physician they offer a training not less valuable in the opinion of those who believe that research in the fundamental sciences is the best introduction to the higher walks of medicine.

Applicants for these positions should possess an elementary knowledge of physiology and a sufficient training in one or more of the biological sciences to enable them to profit by the instruction offered. Successful applicants are required to take twelve half-days' instruction in the details of the course in experimental physiology, before October 1st of their year of service.

No charge of any kind will be made for the year's training.

The Harvard Medical School will give successful applicants the title of "Assistant in Physiology," and for the direction of the classes in Experimental Physiology will pay each Assistant four hundred dollars.

Applications may be sent to Prof. H. P. Bowditch, Harvard Medical School, Boston, Mass.

Obituary.

EDWARD PAYSON ABBE, M.D.

ON Monday, February 25th, Edward Payson Abbe, M.D., of New Bedford, Mass., died, aged sixty-nine.

At a special meeting of the Staff of St. Luke's Hospital, of New Bedford, held Monday, February 25th, the following Resolution was adopted:

The Staff of St. Luke's Hospital desire to place on record their sense of inestimable loss in the death of their colleague and President, Edward Payson Abbe. It is largely due to him that New Bedford has a hospital, and it is largely owing to his zeal and discriminating wisdom that our hospital has reached its present high plane of efficiency. His fidelity to his patients, his loyalty to his *confrères*, his genial hospitality, and his solicitude for the best interests of the community endeared him to all. We wish to assure his family and the public of our heartfelt sympathy.

For the Staff of St. Luke's Hospital,
GARRY DE N. HOUGH, M.D., *Secretary*.

Correspondence.

THE MORTALITY OF INTUSSUSCEPTION.

PHILADELPHIA, February 26, 1897.

MR. EDITOR:—In an effort to determine the true mortality of intussusception in children, and thus eliminate the error incident to a calculation based upon reported (and hence as a rule, successful) cases, I have sent out 500 lists of questions similar to the one enclosed.

INTUSSUSCEPTION IN CHILDREN (UNDER TWELVE YEARS).

Seen by Dr.	In personal practice	In consultation
Age of patients		
Cause of intussusception (polyp?)		
Symptoms.—Tumor	Passage of bloody mucus	
Tenesmus	Vomiting	Intense Pain
Treatment.—Medical	Result	
Mechanical (Injection of air	water	Massage
Result		
Period elapsing from first symptom to mechanical treatment		
Treatment.—Operative (Disinvagination through abdominal opening	Result	
Resection	Result	
Seat of invagination	Amount of bowel resected	
Method of joining intestines	Period elapsing from the first symptom to the time of operation	
Results of Autopsies		
Further details not covered by the above headings will be gladly received, such as recovery with passage of slough, etc.		

I have been surprised to find how few men, even those of large experience, have encountered this class of cases. The number thus far reported is scarcely sufficient to serve as a basis for conclusions.

It is in the hope that you may be willing to assist in this work by publishing the enclosed list or one similar to it, and asking your subscribers to forward me their unreported cases, that I write you.

Any help that you may give will be very highly appreciated by,

Faithfully yours,

EDWARD MARTIN, M.D.

A PLAN FOR THE STAMPING OUT OF PULMONARY TUBERCULOSIS FROM THE LAND.

509 FIFTH AV., NEW YORK, February 10, 1897.

MR. EDITOR:—The resolution recently passed by the New York Board of Health, making it mandatory upon physicians residing within the city of New York to report all cases of pulmonary tuberculosis coming under their observation, for the purpose, as President Wilson states, of arriving at statistical results that may be of value in determining the future course of the board, calls up an exceedingly important matter, which it seems to me the various health boards throughout the United States, should take cognizance of, namely, the very large percentage of deaths that result from respiratory diseases. Thirty per cent., I believe, is the estimate given.

That it would be a simple matter to entirely stamp out pulmonary tuberculosis by the removal of all such cases to a dry atmosphere in a high altitude no one who has ever visited Colorado, New Mexico or California can failed to have observed. The wonderful curative influence that high altitude has upon persons suffering from pulmonary tuberculosis is known to every well-read physician throughout the land. I have time and time again conversed with men of wealth, prominent in the affairs of Colorado and New Mexico, who only a few years ago were taken into that country in a condition of extreme emaciation, almost ready to die, suffering from the last stages of pulmonary tuberculosis. To-day these men have not only gained health, but are robust, of large stature, giants in strength and strong in intellect.

What did it? An altitude of from four thousand to six thousand feet and a dry atmosphere. And yet we permit sufferers from pulmonary tuberculosis to walk the streets

of our Eastern cities, tolerating their expectoration *ad libitum*, when it is known that the dry products alone of such expectoration serve as a source of contamination for future cases of pulmonary tuberculosis.

I would suggest that there be established somewhere in the State of New Mexico or Colorado a national home for consumptives. I can picture to myself a beautiful city—something similar to the former "White City" of Chicago—where each State will have its State home. The population of this city, based on the present annual death-rate of persons suffering from pulmonary tuberculosis, would be between 300,000 and 500,000 people.

From conversation with prominent men in Massachusetts, where consumption is rampant, I am led to believe that the State of Massachusetts would infinitely prefer to have a consumptive State home somewhere where there was a possibility that at some time there would be an end to the enormous expense incident to carrying on a consumptive home within its own borders, where they now have such an institution, which is merely the last resting-place of the persons who are received there. People do not go there to be cured; they are supported by the State until such time as death ends their sufferings.

If it can be shown that after a certain period of time the expense of maintaining a State home in a section of country where, and under such conditions, a large percentage of those sent to the home will be cured, would not that be a better plan to adopt than the plan of establishing large hospitals within the limits of the State, which would become, under conditions existing here, the merest makeshift and in no way curative? The Episcopal Home at Denver is a church affair, but fully demonstrates the practicability and desirability of a national home.

I firmly believe that our national representatives would be perfectly willing to take this matter in charge—to allot or assign a certain number of acres of public land immediately adjacent to the foot-hills, say at an elevation of about 4,000 feet, at a point to be selected by a commission to be appointed by Congress. We have plenty of public land available for the purpose not far from the great trunk lines and within sufficient proximity to the foot-hills of the Rocky Mountains to make the matter of irrigation perfectly practicable and with the expenditure of but little money, as convict labor could be employed in bringing the water down from the mountains, which has been done with one of the irrigating systems now being operated in Colorado.

If the full import of this matter were properly placed before our national legislators there can be no question but that a commission would be appointed for the purpose of looking into the question and investigating the proper site for the establishment of such a national home. I believe there will be no difficulty in having this matter taken up and properly carried through, for it must appear perfectly apparent to every right-thinking man that we owe it to ourselves and to our families that we should protect ourselves from the possibility of infection from one of the most fatal of all diseases.

In regard to the maintenance of the several homes and the sanitary and general management of the city, I believe if the government and management of the place were patterned after the general management of the District of Columbia—that is, to be under national control—it would be most expedient and practicable; each State to maintain its respective home and the several State homes to be under the control and management of the United States Government, which will be simply asked to appropriate the land and to furnish the water-supply, the drainage and executive buildings; each State to bear the cost of erecting its own home, plans for the buildings to be submitted to and approved of by the supervising architects.

The medical officers should be appointed to the several State homes after their fitness has been demonstrated for the position by competitive examination by a board selected for that purpose; this measure to be carried out in order to avoid as far as possible all opportunity for medical officers to be sent by the several States in return for political favors. Laws should be passed by the legislatures of

the several States making it mandatory upon every medical man in each State to report each and every case of pulmonary tuberculosis that comes under his supervision, even in its incipient stage, to the health officer of his town or city, failure on his part to report such a case to subject him to a heavy penalty. When such a case is reported that case should be sent at the expense of the State to the State home.

I think sufficient has been said to convey a general idea of the carrying out of this plan, which would not in any way conflict with the establishment in the future of private sanitariums, or interfere with those already established, where it can be shown that the existence of such institutions is not detrimental to the public health. This should be decided by medical officers selected for that purpose.

Our negligence in handling so serious a subject certainly shows a frightful state of ignorance of the condition of affairs, or else an abnormal degree of indifference. It is remarkable what a state of agitation and excitement the public can be thrown into if yellow fever be reported off quarantine, and yet the number of lives lost annually through yellow fever sinks into insignificance as compared with the army of people annually carried off by pulmonary tuberculosis.

If the above plan, or a modification of it, is ever carried out, an object-lesson will be presented in the United States for the whole world to follow. There are many points in Europe available for the carrying out of this plan for the people on the other side of the water.

Very truly yours, ALFRED WALTON.

THE USE OF RINGER'S FLUID.

585 WASHINGTON ST., DORCHESTER, MASS.,
February 25, 1897.

MR. EDITOR:—Mention was made in the JOURNAL of January 21, 1897, page 54, of a modification of Ringer's fluid by Dr. F. S. Locke, the formula being 0.3 gramme CaCl_2 , 0.1 gramme KCl to 1,000 c. c. normal salt solution. This fluid was used by Dr. F. W. Johnson for rectal injection in quantities of about a quart.

A modification of Ringer's fluid has been in constant use in the Massachusetts General Hospital for about two years. The formula is 0.1 gramme CaCl_2 , 0.75 gramme KCl to 1,000 c. c. normal salt solution. This fluid has been used chiefly for intravenous infusion, by means of a canula, in quantities of 500 to 2,000 c. c. Its use in the Massachusetts General Hospital started from a suggestion made to me in 1894 by Dr. Wm. H. Howell, formerly Assistant Professor of Physiology in the Harvard Medical School, who was then repeating some experiments of Sidney Ringer. One set of these experiments showed that calcium salts are essential to the clotting of blood. Another set consisted in passing different fluids through an isolated heart (frog's), and observing the character of the beats and the length of time the beating was sustained by such fluid. Blood serum sustains the beats well and for a long time. A solution of the albumins of the serum without salts does not sustain the beats well, nor does a simple normal salt solution. The addition of a calcium salt alone to the salt solution causes strong beats, which are, however, too prolonged, and therefore inefficient. The addition of a small amount of potassium chloride corrects the character of the beat, and this combination, normal salt solution, plus calcium, plus potassium, will sustain heart beats as well and as long as blood serum.

The idea is very near to supply such a fluid to the circulation in cases of extensive hemorrhage, in place of using simple salt solution, which experimentally, at least, does not sustain the heart so well. Ringer's fluid is 100 c. c. of a .75-per-cent. solution of sodium chloride saturated with calcium phosphate, adding 1 c. c. of a two-per-cent. solution of potassium chloride. This is not convenient, however, for use in surgery, because the boiling necessary for sterilization precipitates a phosphate of calcium. This might

possibly be evaded by sterilizing the ingredients, but it was found in the Massachusetts General Hospital more convenient to use the soluble chloride of calcium. The fluid can be made up in Florence flasks, which can be boiled and the fluid kept sterilized for accident work, and warmed for use by placing in a pail of hot water.

The difficulty of comparing the action of Ringer's fluid with that of salt solution is extreme, as the cases where either is used show such tremendous variations in prognosis independent of any treatment.

It seemed to me when I first used the fluid intravenously in accident cases in the winter of 1894-95, that the effect was more permanent than that of salt solution. Two or three remarkable recoveries from hemorrhage and from shock have occurred with, and possibly because of, its use. It is possible that a modification like that of Dr. Locke containing 0.3 gramme calcium chloride to the litre instead of 0.1 gramme, as used in the Massachusetts General Hospital, is more advantageous; and again, it is possible that one percentage may prove better adapted for intravenous use and another for rectal. It is much to be desired that Ringer's fluid should receive an extensive trial, and, if possible, in such a way that its value compared to that of simple salt solution may be estimated.

Very truly yours,

RICHARD E. EDES, M.D.,
Formerly Surgical Intern, Mass. Gen. Hos.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, FEBRUARY 20, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	835	299	9.72	19.80	1.32	.24	4.08	
Chicago	1,619,226	447	177	14.68	23.98	4.40	4.18	2.42	
Philadelphia	1,164,000	—	—	—	—	—	—	—	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	214	48	4.60	22.54	.46	1.38	1.84	
Boston	494,205	210	66	7.60	23.50	—	—	7.05	
Baltimore	496,315	198	59	5.10	45.81	—	.51	3.06	
Cincinnati	336,000	118	—	5.04	13.44	—	2.52	2.52	
Cleveland	311,537	101	33	3.00	15.00	—	—	—	
Washington	275,500	124	28	4.86	20.25	1.62	—	2.43	
Pittsburg	238,617	77	26	7.74	19.35	1.29	2.58	2.58	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,764	31	8	—	16.15	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	43	15	11.65	18.64	2.33	—	2.33	
Fall River	88,020	58	13	10.52	23.67	10.52	—	—	
Lowell	84,359	32	8	3.13	21.91	—	—	3.13	
Cambridge	81,619	26	4	26.55	30.80	3.85	—	—	
Lynn	62,355	21	7	9.52	4.76	—	—	—	
New Bedford	55,254	20	8	5.00	20.10	—	—	5.00	
Springfield	51,534	16	2	6.25	31.25	6.25	—	—	
Lawrence	52,153	15	8	6.66	26.66	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	28	7	—	25.00	—	—	—	
Brockton	33,157	14	3	21.42	—	—	—	14.28	
Haverhill	30,185	12	5	—	41.65	—	—	—	
Malden	29,709	11	3	9.09	45.45	—	—	—	
Chelsea	31,295	14	4	14.28	7.14	—	—	—	
Fitchburg	26,394	13	6	6.97	6.97	—	6.97	—	
Newton	27,022	—	—	—	—	—	—	—	
Gloucester	27,063	—	—	—	—	—	—	—	
Taunton	27,093	22	3	29.05	8.50	—	—	4.15	
Waltham	20,877	4	0	—	50.00	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	7	0	14.28	14.28	—	—	14.28	
Northampton	16,758	—	—	—	—	—	—	—	
Newburyport	14,554	6	3	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,824: under five years of age 878; principal infectious diseases (small-pox, measles, diphtheria and croup, erysipelas and fevers) 232, acute lung diseases 500, consumption 375, diphtheria and croup 91, typhoid fever 31, measles 20, cerebro-spinal meningitis 17, scarlet fever 12, whooping-cough 11, erysipelas 7.

From measles Chicago 10, New York 8, Pittsburg and Worcester 1 each. From cerebro-spinal meningitis New York 6,

Worcester and Lynn 2 each, Boston, Washington, Cambridge, Somerville, Lawrence, Brockton and Chelsea 1 each. From scarlet fever New York 9, Baltimore 2, Boston 1. From whooping-cough New York 5, Chicago and St. Louis 2 each, Baltimore 1. From erysipelas New York 3, Chicago 2, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending February 6th, the death-rate was 20.8. Deaths reported, 4,375; acute diseases of the respiratory organs (London) 404, whooping-cough 132, diphtheria 69, fever 51, diarrhea 45, measles 34, scarlet fever 30.

The death-rates ranged from 11.3 in Huddersfield to 27.2 in Manchester: Birmingham 20.8, Bradford 19.4, Bristol 23.3, Cardiff 17.8, Derby 19.7, Gateshead 21.2, Leeds 21.5, Leicester 17.4, Liverpool 25.2, London 20.6, Newcastle-on-Tyne 14.6, Nottingham 18.8, Portsmouth 20.3, Sunderland 18.3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending February 13th, the death-rate was 19.6. Deaths reported 4,128; acute diseases of the respiratory organs (London) 373, whooping-cough 108, diphtheria 62, measles 52, diarrhea 49, scarlet fever 35, fever 29, small-pox (London) 2.

The death-rates ranged from 12.5 in Croydon to 26.2 in Plymouth; Birmingham 22.8, Bradford 18.5, Cardiff 12.6, Halifax 14.2, Hull 19.9, Leeds 20.5, Leicester 16.1, Liverpool 25.5, London 18.6, Manchester 23.9, Newcastle-on-Tyne 17.3, Nottingham 21.0, Sheffield 18.8, West Ham 14.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 20, 1897, TO FEBRUARY 26, 1897.

Leave of absence for two months, to take effect on or about March 5, 1897, is granted to FIRST-LIEUT. ROBERT S. WOODSON, assistant surgeon, Jackson Barracks, La.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 27, 1897.

G. T. SMITH, passed assistant surgeon, detached from the "Adams" on reporting of his relief about March 2d, ordered home and granted two months' leave.

L. H. STONE, passed assistant surgeon, detached from the Naval Hospital, New York, March 15th, and ordered to the "Adams."

G. P. BRADLEY, surgeon, detached from the "Indiana," March 3d, ordered home and placed on waiting orders.

N. MCP. FERRELL, surgeon, ordered to the "Indiana," March 3d.

W. F. ARNOLD, passed assistant surgeon, ordered as a member of the medical examining board, League Island Navy Yard.

L. W. ATLEE, passed assistant surgeon, detached as member of the medical examining board, League Island Navy Yard.

SOCIETY NOTICES.

TRI STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI.—The Society will meet in St. Louis, in the Auditorium of the Holland Building, April 6, 7 and 8, 1897.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, on Monday evening, March 8th, at 8 o'clock.

Dr. Maurice H. Richardson will read a paper entitled: "A Comparison between Hospital and Private Surgery."

Dr. George A. Raymond, by invitation: "Treatment of Congenital Cleft Palate by Mechanism."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

RECENT DEATH.

JOHN OSBORN DOW, M.D., M.M.S.S., died at Reading, February 22, 1897, aged seventy-four years.

BOOKS AND PAMPHLETS RECEIVED.

Anesthesia of the Trunk in Locomotor Ataxia. By Hugh T. Patrick, M.D. Reprint. 1897.

Cyclone Neuroses. Imperative Conceptions. By C. H. Hughes, M.D., St. Louis. Reprints. 1897.

The Annual Statistics of Manufacturers, 1895. Tenth Report. Boston: Printed by the State. 1896.

The Appendicitis Craze and the Grape Cure. By Irving C. Rosse, M.D., Washington, D. C. Reprint. 1896.

Twenty-sixth Report of the Board of Trustees of the Connecticut Hospital for the Insane. State of Connecticut, 1896.

Disinfection of Rooms after Contagious Diseases. By U. O. B. Wingate, M.D., of Milwaukee, Wis. Reprint. 1896.

Twenty-sixth Annual Report of the Bureau of Statistics of Labor, March, 1896. Boston: Printed by the State. 1896.

Binasal Hemianopsia, with the Report of an Additional Case. By Clarence A. Veasey, A.M., M.D., Philadelphia, Pa. Reprint. 1897.

Diseases of the Rectum as a Cause of Auto-Infection, with Report of Cases. By J. R. Pennington, M.D., Chicago. Reprint. 1897.

Constitution, By-Laws, Standing Rules, Yearly Organization, Necrology and List of Members of the Maine Medical Association. 1896.

Notes on Some of the New Remedies Used in Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., New York. Reprint. 1896.

A Review of Some Interesting Points in Surgery Observed during the Six Months ended June 1, 1895. Reviews of Some Points of Surgical Interest in Abdominal Cases. By Edmund J. A. Rogers, M.D. Reprints. 1895-96.

Forty-first Annual Report of the Executive Committee of the Hartford Hospital, including the Twelfth Annual Report of Old People's Home and the Nineteenth Annual Report of the Hartford Hospital Training-School for Nurses. Hartford, Conn. 1896.

A First Series of Fifty-four Consecutive Ovariectomies with Fifty-three Recoveries. By A. C. Entler-Smythe, F.R.C.S. Ed., F.R.C.P. Ed., Senior Surgeon to the Grosvenor Hospital for Women and Children; Senior Surgeon to Out-Patients, Samaritan Free Hospital for Women and Children. London: J. & A. Churchill. 1897.

Hand Atlas der Anatomie des Menschen. In 750 Theils Farbigen Abbildungen, mit Text mit Unterstützung von Wilhelm His, Professor der Anatomie an der Universität Leipzig, bearbeitet von Werner Spaltholz, a. o. Professor an der Universität Leipzig, und Custos der Anatomischen Sammlungen. Zweiter Band, erste Abtheilung. Leipzig: Verlag von S. Hirzel. 1896.

Post-Mortem Examinations in Medico-Legal and Ordinary Cases, with Special Chapters on the Legal Aspects of Post-Mortems, and on Certificates of Death. By J. Jackson Clarke, M.B. (Lond.), F.R.C.S., Assistant Surgeon to the Northwest London Hospital, Pathologist and Curator of the Museum at St. Mary's Hospital. London, New York and Bombay: Longmans, Green & Co. 1896.

Traité de Therapeutique et de Matière Médicale, contenant les Principes de la Nosologie Naturelle, de la Prophylaxie et de la Pharmacologie, d'après les Leçons Professées à l'Hôtel-Dieu de Paris. Par Victor And-Houli, Directeur de la Bibliothèque Aldine, Médecin de l'Hôtel-Dieu, Professeur Particulier de Therapeutique et d'Hydrologie Médicale, Médecin des Eaux de Vichy. Paris: G. Steinhil, Editeur. 1897.

Autoscopy of the Larynx and the Trachea. Direct Examination without Mirror. By Alfred Kierstein, M.D., Berlin. Authorized translation (altered, enlarged and revised by the author) by Max Thorner, A.M., M.D., Cincinnati, O., Professor of Clinical Laryngology and Otology, Cincinnati College of Medicine and Surgery; Laryngologist and Aurist, Cincinnati Hospital, etc. With 12 illustrations. Philadelphia: The F. A. Davis Co. 1897.

Anomalies and Curiosities of Medicine, Being an Encyclopedic Collection of Rare and Extraordinary Cases and of the most striking instances of Abnormality in all Branches of Medicine and Surgery, derived from an Exhaustive Research of Medical Literature from its Origin to the Present Day. Abstracted, classified, annotated and indexed by George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D. With 295 illustrations in the text and 12 half-tone and colored plates. Philadelphia: W. B. Saunders. 1897.

Principles or Guides for a Better Selection or Classification of Consumptives Amenable to High Altitude Treatment and to the Selection of Patients who may be more Successfully Treated in the Environment to which they were Accustomed Previous to their Illness. By A. Edgar Tussey, M.D., Adjunct Professor of Diseases of the Chest in the Philadelphia Polyclinic and School for Graduates in Medicine, and Consulting Physician to the Central Branch of the Y. M. C. A. Gymnasium. Philadelphia: P. Blakiston, Son & Co. 1896.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections in Photolithochromes from Models in the Museum of the Saint Louis Hospital, Paris. With explanatory wood-cuts and text by Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Physicians to the Saint Louis Hospital, with the co-operation of Henri Feulard, Curator of the Museum; Secretary L. Jacquet. Edited and annotated by J. Pringle, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part VII. London: The Rehnman Publishing Co. Philadelphia: W. B. Saunders. 1897.

Original Articles.

GENERAL PARESIS.¹

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EVERY disease has its identity. It matters not whether it be one of those terrible scourges that have decimated the human race, or the simpler exanthems of childhood; each is known and recognized by peculiar manifestations. It needs not in many cases the experienced eye nor the acute perception of one skilled in medicine for a correct diagnosis. It is the domain of the expert to detect what the common mind cannot or does not perceive. In this he is aided not only by special training, but by those instruments of precision which will enable him to see what to others is invisible, to hear what to others is inaudible, and to feel what others cannot touch. He summons to his aid not only every sense perception, discarding not even that of smell, but he has learned to marshal them in such order that the judgment seldom fails to determine or classify the problem presented at the bar of consciousness. There are three factors which must enter into the diagnosis of every malady, namely, the disease, the patient and the doctor. Important as is the disease *per se*, its phenomena will be striking, commonplace or obscure to a large degree, according to the kind of man exhibiting them; so also will the diagnosis of perplexing pathological conditions depend much upon the acumen, as well as the experience of the investigator. There are certain diseases whose diagnosis depends on the manifestation of a single symptom, or perhaps it would be better stated to say that the presence of certain single symptoms predicates certain pathological processes; for example, the crepitant r le and the rusty spit are classical and pathognomonic.

Diseases of the body, however, have no comparison with the diseases of the mind, either in their ease of classification or definiteness of causation. Their pathology is as yet largely relegated to the realm of speculation, their symptomatology is much more decidedly influenced by the temperament of the individual attacked. Symptoms are many times obscured and often concealed that might suggest the true nature of mental disease. The consciousness that a court or some legal process must be appealed to soon after the physician is called, does not tend to simplify the matter of diagnosis or re-enforce the method of treatment. It is in the domain of mental medicine, then, that the ordinary physician is most sorely tried, both as to diagnosis and treatment. Here he realizes, if never before, the limitations of medicine as a science. He looks for some signal symptom, some pathognomonic sign; the symptoms of mania, melancholia and dementia he has learned to differentiate, but he finds them all in his first case, or he finds them not all, and yet feels certain that he is dealing with a case of mental alienation. Perhaps he is tempted to hold for advisement his decision, meanwhile invoking the protection of that euphemistic phrase "nervous prostration," to characterize the condition of his patient.

There is no disease probably more protean in its type—more easy at times, or more difficult at others, of diagnosis than that disease of the mind known as general paralysis, general paresis and parietic dementia;

and it may simulate almost any or all forms of mental disease in the same subject. It is popularly known under the head of "softening of the brain," furnishes a goodly percentage of all cases of insanity, and is pre-eminently a disease of civilization and of the white race. Less than a century ago, before medicine had become completely emancipated from the thrall of superstition and ignorance, this disease was unknown and unrecognized, in spite of the claims that the English alienists, Perfect and Haslam, had drawn attention to its characteristic symptoms among the insane at the close of the seventeenth century. It was to the great Frenchman, Esquirol, an illustrious predecessor of Charcot at the Salp tri re, and to the pupils of Esquirol to whom is due the honor of first recognizing under the designation of "incomplete general paralysis," a disease, which, according to Hammond, is the most common, perhaps, of all mental affections, and whose discovery was believed to be "the greatest step in advance that is recorded in the history of mental disease." The new disease was extensively investigated by many observers, inaugural theses were founded upon it, and the whole world of medical science as much stimulated as it is at the present day by the revelations and adaptations of the x-ray. Although Bayle had accurately described this disease in 1822, defined its symptoms and classified them into three groups, for example, one of monomania, another of mania and a third of dementia, it was not until thirty-six years after that the French Medico-Psychological Society endorsed his views after a long and stormy discussion, asserting their recognition of "the principle of the essentiality of general paralysis." The chief opposition came from those who saw in this disease two distinct entities, a paralytic dementia, the chief factor, and one of the stronger, more active forms of insanity, such as mania or melancholia, as an accessory factor; and thus is added a paralytic insanity to a paralytic dementia. These dualists are by no means extinct; commencing with Requin and Baillarger in 1846, they have an illustrious supporter to-day in Dr. Regis, whose "Manual of Mental Medicine" was crowned by the Faculty of Medicine of Paris, and received the Chateaufvillard Prize in 1886.

The early pathology of this disease was believed to be a chronic meningitis; but with the researches of the microscope the minuter changes in the tissue elements of the brain were recognized and recorded. When Ferrier and others, by patient and painstaking research and experiment, had demonstrated the now well-established theory of cerebral localization, this, too, was summoned to the aid of the alienist to assist him in explaining the different and diverse symptoms of this protean disease. There is no doubt but what the near future will see either the history of this disease rewritten, or the dualist theory gaining fresh adherents to its certainly more logical doctrine.

He who has watched the development, duration and termination of this disease in many individuals cannot but be impressed with the fact that these cases travel along two distinct progressive paths, each terminating in the same way—some rapidly; some slowly; some with the attendant fire of mania exhausting the vital units faster by the violence of the mental and physical strain; some, and they are by no means few, subsiding into mental oblivion with scarcely a protest from the deteriorating mind, and the ruin which is wrought is

¹ Read before the Providence Clinical Club, November 25, 1896.

only registered quiescently in progressive loss of function of muscles, nerve and brain. Every nerve tissue, from the cerebral cortex to the nerve terminals of the periphery, and even the ganglia of the sympathetic, may be invaded by the degeneration which attends this disease. The vestiges of its destructive advance are found ascending and descending the spinal cord, permeating the surface convolutions and penetrating the basal ganglia of the brain. Each area invaded responds to and discloses in its own peculiar way its ruined integrity.

The etiology of this disease, which might be called pre-eminently a disease of our age, has been the subject of discussion and difference among alienists of the present day. With regard to the more contributory factors, such as heredity, sex, age and occupation, all are agreed, but with regard to the main or exciting cause there is still much dispute. The contention comes upon the real causative relation of syphilis.

Statistics have been resorted to by more than seventy writers on this subject, and have been used both on the affirmative and negative side of the question at issue, with the classical success of being able to prove everything or nothing, with a well-handled and properly constructed statistical argument. These writers have shown syphilitic history to obtain in every proportion in paretic dementia from the 13 per cent. of Nicoulai to the 100 per cent. of Kjellberg. Asylum records have been appealed to, both public and private; and one writer, not satisfied with the 19 per cent. of actual syphilitic histories recorded at one asylum, assumes 41 per cent. more to average up to his own belief of 60 per cent. that should exist. Where there is so much difference of opinion it is certainly hard to determine the exact relationship of these two diseases; and whether syphilis is a predisposing or a precursory cause, is a question to which all sorts of logic has been applied. One author states that out of 20,000 cases of syphilis only one per cent. became insane, and not one a paretic. Again, says another, among the native Egyptians where syphilis is exceedingly prevalent, not a case of general paralysis has been reported. (It might be stated parenthetically, after such an assertion, that native Egyptians are a colored race, and this race is peculiarly exempt from this form of mental disease.) Another writer reports nine cases of paresis in which syphilis developed after the manifestation of the mental affection.

But the crowning and, seemingly, convincing argument of the objectors to the syphilitic etiology is the fact of the utter futility of mercurial or anti-syphilitic treatment in this disease. The same argument, however, could be used with considerable force against the syphilitic origin of locomotor ataxia, which origin is most universally admitted at the present time. Sachs is responsible for the statement that "The very frequent development of tabes after dementia paralytica and of dementia paralytica after tabes, proves the close relationship between these two diseases; and since tabes is beyond a doubt a form of syphilitic disease, there is sufficient ground for thinking that dementia paralytica bears the same etiological imprint." Obersteiner, of Vienna, has recently affirmed that syphilis is a direct factor in the development of general paresis and regards this affection of the mind as one of the later exhibitions of syphilis. Regis has collected 14 cases of this disease occurring in individuals under twenty years of age; in six of these syphilis was hereditary, in one

it had been acquired, and in two cases there were good reasons to suspect there had been an initial lesion.

The tendency of discussions among medical men for the past five years has been rather to affirm the syphilitic origin of this disease, while alcohol and other toxic agents have been relegated to a subordinate place as contributory rather than exciting causes. One has poetically put the three causes of general paralysis as "wine, women and worry." The arguments of those who would have us believe that alcohol is a prominent causative agent, in this as well as many other diseases, is drawn from purely theoretical dogmas and the production, as they would have us believe, of general paresis in dogs by daily dosing with alcohol. The trend of medical opinion to-day is not only toward the syphilitic origin of this disease in the majority of cases, but also to the doctrine that nearly every case of paresis would present an antecedent history of syphilis, if the investigation could only be carried far enough. The fact that even recent syphilis is the frequent cause of a pathological condition closely resembling general paresis in all respects, has forced those who are loath to admit the causative relation of luetic disease to adopt "pseudo general paresis" as a designation for this class of cases.

The main reasons for regarding syphilis as the exciting cause of general paralysis of the insane may be stated categorically in the following propositions, namely, a large number of syphilitics develop general paresis; this form of mental disease is rare among women; it is rare in rural districts and among religious orders; a syphilitic history can be elicited from the majority of paretics; locomotor ataxia of well-established luetic origin is at times associated with this disease; syphilitic antecedents are usually found in those young persons who are occasionally attacked with paretic dementia.

But without pursuing further the interminable, not to say profitless, discussion concerning its etiology, let us examine it as it is—study as it presents itself the picture of the disease with all its lights and shadows.

The picture at first presented is indistinct, poorly focused as it were. The patient does not appear to be the casual observer different from what he should be or from other men; but to his family, to his employers, to his intimates, he is not the man he was. There is a something which cannot be explained, a vague metamorphosis. He lacks courtesy and consideration for those who have been dear to him. He becomes thoughtless, irritable, absent-minded and has little moral lapses where previously he was most correct. If a skilled artisan, his hand begins to lose its cunning, and he turns out imperfect work without recognizing it as such. Is he a musician, his execution lacks the customary expression, the vivacity is gone, and with it that finer touch which might once have savored of genius. The acute business man begins for the first time in his life to squander. The model and virtuous husband and father begins to frequent brothels. The punctilious gentleman forgets his appointments and becomes rude in his social relations; or without motive and without cunning, but possibly with some display, appropriates things not his own and not needed. In other words, the picture presented to us by the patient is one of faulty fine adjustment to environment. Possibly he only complains of headache, dizziness, perhaps fainting-spells, or more rarely, true *petit mal*. He may have violent, uncontrolled outbursts of anger,

alternating with obtrusive, silly egotism, leading to all sorts of improprieties or even immoralities. He loses flesh and strength, it may be. He is troubled with sleeplessness, yet no one for a moment thinks him insane. His friends call a physician, and he is believed to be suffering from overwork, nervous prostration or cerebral hyperemia, and is perhaps advised to take a change of air and scene.

These are the symptoms of the early, the first or prodromal stage of general paresis. There are no striking, no pathognomonic, no signal symptoms. We are simply confronted with a changed condition. The man, not as compared with others, but as compared with himself, has deteriorated; the deterioration may possibly be undetected, even by an expert, from personal examination; but trustworthy information of what he has been, compared with what he is, will often be the sole means of diagnosis, should we recognize from this a diseased individuality. In this early stage, however, if there are any symptoms which are in any sense diagnostic, they are, impaired attention and transitory loss of memory,—the exaggeration of the "I know but can't think" condition. In fact, the same mental symptoms that characterize age and decrepitude are here noticed. The same stories are told over and over again to the same person. Perhaps the patient is trusted with some trivial commission, a bundle, it may be, to leave somewhere, and he carries it back home with him, forgetting where he got it or what was the errand. Any new business or new details of old business are not entered upon with interest, but are apt to be left unfinished. There are, as one has aptly put it, "lacunæ in the conceptions," and directions have to be repeated again and again before the attention is sufficiently aroused to take them in. In a word, thought is sluggish, perception dulled and memory halting. Not all cases pass through this introductory or prodromal stage, but typical cases do.

The length of the first stage has been variously given us from several months, the usual duration, to several years, an exceptional duration. This stage is often passed unnoticed; and seldom are physicians called in thus early unless, as a result of the patient's deeds, some action at law, either civil or criminal, arises, which renders medical examination of the patient's mental condition necessary.

Often has the general paretic been sent to prison as a punishment for crimes which are only the moral lapses of the prodromal stage of this disease. To recapitulate, the symptoms of the first stage are those of an exhausted and over-irritated brain, giving threefold manifestations, namely: intellectual, as recorded in lapses of memory and loss of attention; moral, as exhibited in forgetfulness of social relations, negligence of dress, debauchery, grossness, peccadilloes and criminal acts; physical awkwardness, unskilful work, with possible vertigo and fainting-spells. Thus, we see, even at its inception, there is a vague impression given of the points of attack, and the course ultimately to be pursued by this disease.

The second is the active or stage of recognition. The symptoms up to this time may have been insignificant and unnoticed, but now there commences a new phase, where the physical deteriorations of the preceding stage are more strikingly manifest, and for the first time the muscles of articulation begin to lose little by little their power of coördination. The speech is blurred or slow and hesitating, the lips

twitch, the tongue trembles; there is a fine tremor in the hands and fingers; the handwriting is changed, the finer lines are wavy and broken. The speech lesion is the most common and diagnostic symptom in this disease, and the defects are of two totally different kinds. The one most frequently observed and called paralytic, is a slow, hesitating, stammering, staccato-like speech or mouthing of words. The other, called ataxic, is a species of incoördination, or a confused, incorrect speech, the labials and linguals being only imperfectly pronounced or not pronounced at all. It is the thick speech of the drunken man; and in fact, this stage of the disease is so similar to the manifestations of intoxication that occasionally a paretic has been taken to a police station for drunkenness, when it was but symptoms of his mental malady. There is the same incoördination of muscular action exhibited in the gait that is found in other muscular action, and the patient is unsteady on his feet, rather shambling in his gait. There is usually a marked intention tremor exhibited, best perhaps in the muscles of the face when an attempt is made to pronounce a difficult word, especially if the patient gets earnest or a little excited. There is in talking sometimes so much marked muscular ado, twitchings and tremblings of the upper lips and muscles of the face, that it is a veritable *montes parturiunt* for the birth of a word. The eyes, also, in many cases are affected with the same paretic taint; and the pupillary phenomena are quite characteristic, having received so much attention that each condition has been accurately described and has received a special designation. Perhaps one of the most important pupillary manifestations is the Argyll-Robertson symptom or "reflex irido-plegia." If the patient's pupils, when tested with light, show no change and yet contract and dilate on accommodation to near and distant objects, we have the form of pupil just mentioned, which is a symptom of great significance in the diagnosis of this form of mental disease. Again, both pupils may be exceedingly small, uninfluenced by changes in light, like the opium pupil, technically known as a condition of "spastic myosis." This condition is more frequently found where locomotor ataxia is associated with the paretic condition. Occasionally the pupils may be widely dilated, acting very slowly or not at all to light; this condition is known as "paralytic mydriasis," and is usually associated with more or less retinal disease and blindness. Again, the pupils may be found to have a loss of the normal consensual movements: for example, in healthy eyes, if one is covered and the pupil of the uncovered observed, it will be found to slightly dilate, and on uncovering, this opposite pupil will slightly contract synchronous with its fellow. This phenomenon is undoubtedly from sympathetic action of the two pupils, and is called the "consensual reflex," which is lost sometimes early in paretic states. There is another pupillary reflex excited normally by pinching the skin contiguous to one of the eyes, or stimulating it with an electric brush. In health such stimulus is followed by a slight dilation of the nearest pupil, or sometimes both pupils. This is known as the "sympathetic reflex," and in paralytic dementia is early found wanting.

The face, then, must be closely examined to find the indices of paretic advance. The lips, the tongue, the eyes, not only separately indicate the advance of deterioration, but the expression becomes changed, dead,

petrified, as it were. There is more or less ocular divergence, the two halves of the face become dissimilar in expression; the naso-labial fold is seldom as well marked on both sides; in fact, it is often obliterated on one side. From a state of repose, the forehead wrinkles irregularly, the eyebrows lift unequally, the cheeks rise tremulously. The occipito-frontalis, corrugators of the eyebrows, elevators of the upper lip, constrictors of the mouth and eyes, and elevators of the chin (or Darwin's grief muscles, as they are sometimes called), seem to start off of themselves and without order when articulation is attempted, the general expression being one of pain.

While progressive paresis, with dementia, is the soul of this disease and in a large number of cases the only phenomena, still there is associated with it in over half the cases, some form of insanity, or some active insane manifestation. So certain is the one, however, and so uncertain the other, that the paralytic dementia has been separated out by many able alienists (as was before stated), and the disease believed to be a dual entity. So Regis of the present day is the able exponent of this theory of some of the early French alienists, but more recently of Baillarger, and states in his excellent work on insanity: "As a partisan with M. Baillarger, of the dualist theory of general paralysis, which seems to me to best correspond with facts, I believe that the disease in its most perfect, uncomplicated and essential type is represented clinically, not by this or that delusional form, but, on the contrary, by general paralysis without delusions, by a paralytic dementia essentially made up of a dementia and a progressive paralysis."

The most marked and usual form of insanity accompanying the second stage of general paresis is characterized by mental exaltation. To the feeling of exhilaration — of *bien être* — of the prodromal stage is added, perhaps, maniacal excitation, with ambitious delusions, motor activity and tendency to all kinds of excess; ideas of grandeur, delusions of power; illogical and absurd ideas of wealth and greatness, which at once stamp them as the vaporings and vagaries of the paretic. Nothing in his consciousness militates against his position of absurd aggrandizement. His delusions readily change from one form of grandeur to another, without the slightest regard for their inconsistency. His environment is nothing; he adapts it to his condition; his fancy moves the walls of his room out, transforms his domicile into a palace, peoples the hall with his vassals, transmutes the baser metals into gold, with which he decorates himself, and imagination runs riot with his inflamed mind.

This is mania, it is not necessary to the disease, but sometimes completely masks the degenerative phenomena and cuts off the patient by its violence, when the diagnosis of paresis has scarcely been made. Often this is the very initiatory manifestation; and it is no uncommon thing for the experienced asylum physician to occasionally transfer his diagnosis from acute mania to the episodic mania, associated with paresis, when the subsiding wave of violence reveals something more than its own devastations. Melancholia may, also, either in the hypochondriacal or simpler forms, be associated with a well developed paresis, or may, like mania, be the introductory episode.

There are certain convulsive seizures that sooner or later obtain; and their advent, in a majority of cases, marks the opening of the closing scene, which has

been categorically termed the third or terminal stage of the disease. Not but that the paretic may have had seizures or "fits," as his friends tell you, before, or the first symptom noticed may have been an epileptic fit or an apoplectic seizure; but in the regular order of the disease the place for the gravest symptoms is near the close; and these fits are no insignificant symptoms when repeated at near intervals. The terminal stage, ushered in by convulsions, cerebral congestions or by gradual, almost imperceptible change, is the stage of hebetude, of gross dementia, when the patient walks with difficulty, becomes self-absorbed, because all the sense avenues between the ego and the outside world are becoming blocked and the central station is becoming disorganized. The reflexes are now sluggish; the animal functions embarrassed. The patient becomes untidy; has a tendency to sleep; eats inordinately, perhaps, and with animal grossness, hardly stopping to masticate the food; becomes almost comatose at times, perhaps suddenly hemiplegic or monoplegic, which, however, soon disappears or becomes greatly diminished. He may have a severe attack of apoplexy, with its sudden onset, stertorous breathing and muscular relaxation or paralysis. This attack does not immediately cause death, but frequently is recovered from and sometimes is repeated as many as a dozen times before death supervenes. The true epileptic convulsion is more frequent, however, going through all the classical stages from the cry to the tonic and clonic convulsions and bloody frothing at the mouth. The convulsions, however, are often limited to one side or one limb, and may be in rapid series or a continuous status, exhausting completely the vital force.

The duration of this disease is usually from three to five years; those exceptional cases which cover many years may start with an ascending sclerosis like locomotor ataxia, or may have been preceded with some other form of insanity to which paresis is the finale. Again, it may itself be of the circular or alternating type, with long remissions.

The pathology of this disease has been variously described from a meningo-encephalitis to an endarteritis. The more recent authors, and chief among them Bevan Lewis, have demonstrated that the initial change in this disease is in the vascular tissues, pre-eminently those of the pia mater and the perivascular lymph spaces of the cortex. The change consists in cell proliferation in the lymph sheath, embracing the smallest blood-vessels, and is a true inflammatory change, followed as elsewhere by free exudation into the meshes of the pia. When atrophic changes occur in the cortex, this effusion becomes increased and perhaps compensatory. A further stage in the pathological change is extraordinary development of connective tissue pressing upon the nerve elements, causing their degeneration and disappearance; while the last change of all is a general shrinking of the cortex. The essential points established by pathological investigations, and which may ultimately be of some aid in suggesting a line of treatment, are, first, extra vascular inflammation; second, pressure upon the minute arterioles by the inflammatory products; lastly, exudation, degeneration and atrophy.

It would hardly seem possible that bacteriology had much to do with this disease; yet in the last number of the *American Journal of Insanity* is an account of Dr. Piccinino's investigations, with sections of the

cerebral cortex, from five undoubted paretics. He made very thin sections and then subjected them to a modification of Lustgarten's stain, and, "When by this method the decolorization could be arrested at the point of leaving a slightly violaceous tint, Piccinino was able to see clearly and in large numbers a rather large bacillus, twice as long as broad, sometimes isolated, sometimes in twos or threes, often slightly or strongly curved." The *Journal* says: "These results, if confirmed by other observers, have an important bearing on the syphilitic theory of paresis, and also are suggestive as to the significance of Lustgarten's bacillus, the connection of which with specific disease has not heretofore been considered fully proven."

The diagnosis of this disease is not difficult if it has become well established upon a typical course. The disease may be, however, and often has been, confounded with many others, for example, other dementias, such as post-paralytic dementia, organic dementia from gross brain disease (such as tumors and the like); other paretic conditions, such as cerebrospinal multiple sclerosis and pseudo-general paralysis; other insanities, such as acute mania, some forms of alternating insanity or melancholia of hypochondriacal character. With regard to the dementias, post-paralytic dementia usually occurs in patients beyond the age of fifty, while paretic dementia is pre-eminently a disease of middle life; nor is hemiplegia usually lasting in paresis. Organic dementia, from tremors and the like, does not give the diffused symptoms of paretic dementia; and there are, beside, retinal changes, persistent headache and vomiting, to characterize cerebral tumor. With regard to other paretic conditions, multiple sclerosis has an intention tremor peculiarly its own, and rarely ever is it associated with dementia. Pseudo-general paralysis is not so easy to differentiate. This name was adopted to mark those cases which are similar to general paresis, except that they yield quite readily to treatment and are the result usually of recent syphilis or alcoholism. In these cases the history is a great help; and while it may be impracticable or impossible to differentiate this from true paretic dementia, the issue will very soon determine the diagnosis under appropriate treatment.

Other insanities may be confounded with the insanity often associated with paretic dementia, for example, the maniacal episodes may be mistaken for true acute mania; yet when there is a good antecedent history, and where there is no mental weakening, or where there is a general air of *bonhomie*, the distinction might possibly be made. With regard to differentiation from alternating insanity, the history of previous attacks, or at least of the cycle, will render the diagnosis easier. Melancholia may be sometimes confounded with the melancholia that is occasionally associated with or manifested in general paralysis. The absurdity of the hypochondriacal delusions will usually suffice to set aside the simpler insanity.

In the examination of a patient it is important to get a history as accurate as possible, in order to establish or eliminate all syphilitic taint. Determine the power of attention by asking the patient to repeat the alphabet. If he is a paretic he is likely to make a skip. Ask him to write his name, a verse from some familiar song or a few sentences of the Lord's Prayer. If he has become paretic at all, these tests will usually detect it. Ask him to pronounce such words as "probability," "artillery," "differentiation," "national in-

telligencer." Ask him to whistle. If the tongue or lips are paretic these tests will detect it. Test the pupils for light and accommodation. Test the reflexes: one of the first to be lost is the cremasteric. Stroke the skin on the inside of the thighs quickly, and if the cremaster does not respond it is suspicious, as in 94 per cent. of paretic cases it is very early abolished. Press the ulnar nerve at the elbow: in a large number of cases it is but little sensitive. Watch for intention tremor; make the patient close his eyes and touch the end of his nose with his finger. Look for the Romberg symptom; make the patient stand with eyes shut and heels together and watch closely for swaying. Omit no little detail that will give you an inkling of a paretic condition anywhere in the body. The dementia will make itself apparent by engaging your patient in conversation.

With regard to treatment, anti-syphilitics should be tried, and especially the iodides, sometimes digitilis, ergot and strychnia. Sequestration is imperative, as there is no form of insanity which has greater possibilities at times for harm to the individual or the community than this.

The surgeon, who in the past decade has been doing many wonderful and almost impossible things, has not hesitated to invade the domain of mental disease; emboldened by the seeming promise attending the excision of the micro-cephalic skull of idiocy, he has at last turned his attention to the problem of operative relief for general paresis, if not of cure. The operation was first suggested by Dr. Shaw, of London, in 1889; and the same year Dr. Cripps trephined one of Dr. Shaw's patients, who reported the case some months after as cured. The patient was in the second stage of the disease, and was trephined over the fissure of Rolando about two inches external to the longitudinal sinus. Dr. Batty Tuke was the next to operate; but the case, a very unpromising one, in the third stage, was only temporarily relieved. Dr. Tuke, however, has great confidence in the working theory of the operation, namely, the relief of pressure, and he later suggested laminectomy with permanent drainage. This operation has not been attended with any very brilliant results, because permanent drainage is difficult and sepsis almost unavoidable in these cases.

Dr. Warren L. Babcock, however, in the July number of the *New York State Hospitals Bulletin*, describes a new operation which is called "The Babcock Operation for the Relief of Intra-cranial Pressure." He also reports some cases where the operation has been attended with sufficient success to warrant its further trial. His description of the operation is as follows: "Table is first prepared by placing upon it a firm hair mattress, covered with a rubber sheet which has been washed in a solution bichloride mercury 1-1000. Upon this the patient is placed, in nightgown, on right side with knees flexed on abdomen, so as to separate lumbar vertebrae posteriorly. Lumbar region is cleansed with suds and water and disinfected with creolin or solution of chlorinated soda. A small sized aspirating needle, four inches in length, is disinfected in solution acid carbolie, 1-20. Two or three drops of a one-per-cent. solution of cocaine are injected one half-inch to the right of the spinous process of first or second lumbar vertebra. Needle is inserted to the right of median line, between first and second or second and third lumbar spines and directed upward and inward, until it enters interval between lamina

and then pushed forward into subdural space. As soon as this is entered the fluid oozes forth from the needle in drops at a rate depending on degrees of intracranial pressure. Head of needle is connected with sterilized glass tube and fluid conducted to a cleau metric graduate. The operation lasts from fifteen minutes to two hours, depending on rate of flow, and the patient suffers little discomfort." He reports 14 punctures in 12 cases, with varying results, over 50 per cent. of the cases being temporarily improved. It is certainly an operation worth a trial in this hopeless disease.

Let us hope that the future, with its possibilities, may have something yet in store for a better understanding of this mental malady; that the means may yet be put in our hands to more successfully cope with this most distressing and most forlorn manifestation of a mind diseased.

DISCUSSION.

In the discussion which followed the reading of Dr. Keene's paper, DR. WILLIAM A. GORTON, of the Butler Hospital, said:

MR. PRESIDENT AND GENTLEMEN:—The very complete paper of Dr. Keene leaves so little to be said that one feels it presumptuous to attempt a discussion of it. I am pleased to see that the general practitioners of Providence are showing so much interest in mental disease, and especially pleased that Dr. Keene has found the time to so concisely, clearly and exhaustively set before them the subject of paresis as he has this evening done. I feel that I may perhaps be permitted to speak briefly of paresis and syphilis, as the intimate relations between the two diseases do not, it seems to me, always receive from even specialists the consideration which their importance demands.

I well remember, that in 1878, when I first began the serious study of insanity, I learned that paresis was a disease almost always due to sexual excesses, but almost never to syphilis; that, indeed, when to sexual excesses syphilis was added, as syphilitic brain disease simulating paresis often developed, but this was called the pseudo-paresis of syphilitic origin. To-day, most observers are agreed that paresis is, in the vast majority of instances, a disease of distinctly syphilitic origin. The recent exhaustive study of the disease made by Hirschl in Krafft-Ebing's psychiatric clinic in Vienna, goes very far toward proving that paresis is in more than eighty per cent. of the cases due to syphilis and possibly in an even larger per cent. is the result of that disease. He further discusses other supposed causes, such as traumatism, overwork, alcohol, simple venereal scars, etc., and concludes that they are but rarely the real source of true general paralysis. As Dr. Keene has told you, the French School still holds to the dualistic theory, which is somewhat opposed to the results of the studies of Hirschl, and of many others both here and abroad. It is but fair to say that Peterson and Syms, of New York, concluded from a study of a comparatively large number of cases that syphilis was the cause in less than fifty per cent. of them. So far as my own observations go, I am obliged to say that they completely sustain the statistics of Hirschl. Formerly I had different views, but I must frankly confess that they were founded upon the results of imperfectly ascertained histories.

Much has been written on the subject of paresis during the past ten years, and the fact that the syphilitic origin of it grows more and more to be advanced as cases have been more carefully investigated shows to my mind at least, that we must admit pretty much the same connection of syphilis with general paralysis that Erb has established between it and tabes dorsalis. Several rather interesting cases of paresis occurring in syphilitic subjects have been reported, going to prove that in a certain percentage of cases showing but slight secondary symptoms, the tertiary period has consisted wholly in the development of general paralysis, and

the inference has been drawn from them that the latter disease might have been averted by more vigorous treatment of the original affection. The number of cases thus far collected as bearing upon this point is too small to warrant any very definite conclusions.

That general paralysis has not been cured by anti-syphilitic treatment has been sometimes urged against its syphilitic origin, but this argument should have no more weight in respect to the etiology of paresis than it has to the causation of tabes dorsalis, which is equally unaffected by anti-syphilitic remedies. No one, so far as I know, claims that syphilitic gross lesions are characteristic of paresis; indeed, it is believed that they are very seldom, in a true sense, present, and that the rôle of syphilis is not so much the direct excitant of the peri-encephalitis as a powerful predisposing condition. So far as I am able to learn from personal clinical observation, and from the study of pathological researches made by competent investigators, it would appear that the profound debility of the vascular system produced by the invasion of the syphilitic elements, lays the foundation upon which, or out of which, under the varying stresses, etc., to which humanity is subject, the true lesions of paresis spring. This explains the failure of specific treatment to produce cures in any considerable number of cases, and is, one would think, in strict harmony with the chronological relation of paresis to the initial specific lesion.

As to prognosis, one is obliged to give a most unfavorable opinion. Still, it is possible that with a more accurate understanding of the very early symptoms of the disease, paresis may ultimately become less intractable with respect to treatment than it now, unfortunately, is at the period when it comes under observation.

HEMOPHILIA.¹

BY H. F. VICKERY, M.D.,

Physician to Out-Patients, Massachusetts General Hospital, and Instructor in Clinical Medicine, Harvard Medical School.

HEMOPHILIA is a congenital and usually hereditary tendency to obstinate hemorrhage, occurring either spontaneously or from seemingly inadequate mechanical injury. The disease is often further characterized by swelling of the joints.

Some cases have been found to develop in previously healthy families, but in general it can be said that the influence of heredity is very great. Dana made up a total of 770 cases of this rare condition in 256 families.

The manner of transmission is interesting. The females usually escape, there being but one female, it is said, to eleven male sufferers; but the women transmit the disease to their sons. If a male bleeder lives long enough to beget boys and girls, it is probable that none of them will be bleeders, nor the sons' sons, but the daughters' sons will exhibit the tendency. Legg reports one family where hemophilia has continued for two hundred years. At Tenna, in Switzerland, there were two unrelated families in which the disease had been known to exist for a century. In 1855 the females of these families renounced marriage for themselves, and in 1879 there was no longer a well-marked case of hemophilia in the village.

All authorities say that the women of bleeder families must not marry. A male bleeder ought not to do so, but a healthy male member of a hemophilic family has a fair chance for healthy descendants.

Pathological researches have not proved fruitful with regard to hemophilia. Occasionally thinness of the walls of the blood-vessels has been observed. Immermann and Winters found the superficial arte-

¹ Read at a meeting of the Clinical Section of the Suffolk District Medical Society, December 16, 1896.

ries large in proportion to those coming from the heart. Sir William Jenner held that there was "a tendency to plethora in the smaller vessels." Certain changes noted in the walls of the blood-vessels may be due to the malnutrition occasioned by anemia. The blood itself has been found normal in its corpuscular elements and its saline constituents. Before a hemorrhage there may be more than the normal number of red globules. Blood withdrawn for examination, while no bleeding is going on, will coagulate, but, as a rule, much slower than normal, for example, in forty-five minutes instead of five minutes.

Prof. A. E. Wright,² of Netley, says: "I have convinced myself by a somewhat extensive series of observations on the blood of hemophiliac families, that the blood of hemophiliac patients and of their female ascendants is characterized by a notable paucity of white-blood corpuscles, and especially by a relative paucity of the polynuclear white-blood corpuscles."

The swollen joints are due to the extravasation of blood either into the connective tissue surrounding the joints or into their synovial cavities. Occasionally there is also evidence of inflammation.

The disease is apt first to manifest itself when the child begins to walk, thus exposing himself to mechanical injury. The cutting of the umbilical cord has caused death in four cases, and vaccination in two (Grandidier). In women, menstruation and childbirth are seldom accompanied with special dangers—a rule to which there are exceptions. Grandidier is quoted by Osler as reporting fatal hemorrhages from the following wounds: blow on head; slight scratches on skin or abrasion of dermis; laceration of the frænum of the lips; bite of the tongue; fall on the mouth; blow on the nose; blow of a stone on the finger; cut in paring the nail; fall on the head, with meningeal hemorrhage (two cases, brothers); and rupture of the hymen on the wedding night. In hemophiliacs, leeching, extraction of the teeth and circumcision are very hazardous operations. Oscar Müller³ reports that a rather delicate new-born girl had a one-per-cent. solution of nitrate of silver put in the eyes and repeated after twelve hours, as a prophylaxis against ophthalmia. Soon after, there was much bleeding from both conjunctivæ, proving fatal after three days. Neither in life nor post-mortem was there detected any macroscopic injury or change in the membrane.

On the other hand, it is consoling to know that Bertrand and Pilcher⁴ both think that the dangers of capital operations in these cases have been exaggerated, because the larger arteries bleed no more than in ordinary patients.

Three hundred and thirty-four spontaneous hemorrhages, tabulated by Grandidier, were: epistaxis, 169; from the mouth, 43; stomach, 15; bowels, 36; lungs, 17; urethra, 16; and, in a few instances, bleeding from the skin of the head, the tongue, finger-tips, tear-papilla, eyelids, external ear, vulva, navel and scrotum.

The first hemorrhage is seldom fatal; but of 152 boy subjects, 81 died before the age of eight years. After adolescence there is a tendency to an amelioration of the condition.

The quantity of blood lost is sometimes enormous. For example, Fagge says that after the extraction of a tooth, half a gallon escaped in twenty-four hours. Epistaxis may destroy life in the same length of time.

With regard to treatment, it is evident that we should guard the patient against accidents, and should abstain if possible from any operative interference whatsoever. For the actual bleeding compression should be tried, combined with absolute bodily rest. It should be remembered, however, that excessive pressure is peculiarly apt in hemophiliacs to cause a slough. Perchloride of iron has proved itself one of the best local and internal styptics in these cases. The actual cautery has sometimes been of service. Iodoform and antipyrine are good local remedies.

Professor Wright⁵ has done some good work on the therapeutics of hemophilia. Briefly, he advises (1) the internal administration of chloride of calcium, of which the dose for an adult is fifteen grains three times a day; or thirty grains twice a day; (2) the local application of one-half of one-per-cent. aqueous solution of chloride of calcium, which may be mixed into a paste with finely powdered chalk; (3) the inhalation of carbonic dioxide gas; and (4) its local exhibition for either epistaxis or menorrhagia or hemoptysis. The stream of gas should be gentle at first, till the mucous membranes have been soothed by it. Also (5) the local application of cell-nucleo-albumin, which may be obtained from a thymus gland or a testicle or even a piece of gastric mucous membrane, mincing it up and extracting its virtues by means of slightly alkaline water.

Apropos of the medical use of chloride of calcium, Professor Wright confirms the observation of Dr. Wickham Legg, that hemophiliac children are often addicted to eating lime and plaster; but he also states that the long-continued or immoderate use of calcium chloride defeats its own object, rendering the blood less coagulable than at first. The ingestion of alcohol, lime-juice and lemon-juice he finds injurious to bleeders—likewise the inhalation of oxygen; yet the carbonic dioxide gas, when inhaled, should be freely mixed with ordinary air, as asphyxia aggravates the bleeding.

Daland and Robinson⁶ published a case in which the application of a four-per-cent. solution of cocaine was useful. They observed an increase in the frequency and violence of the hemorrhages in their patient upon his removal from a height of 1,800 feet to one of 2,200 feet above the sea. A dry and warm climate is favorable for hemophiliacs.

Dr. Olivier⁷ reports the occurrence of severe menorrhagia upon the first menstruation of a girl, age thirteen, who had suffered from hemophilia since childhood. He expressed anxiety as to the future and begged for suggestions from his colleagues; but he had formulated for himself the following line of treatment:

- (1) Injections of hot water every two hours.
- (2) If necessary, the intra uterine application of the galvano-cautery (50 milliampères) followed by packing of the vagina.
- (3) General hygienic treatment.
- (4) Hydrastinine hourly during hemorrhage.

The present writer's personal experience has been

² Lancet, January 18, 1896.

³ Arch. für Gynäk., xlv, 2, p. 263.

⁴ Dennis: System of Surgery, vol. i, p. 382.

⁵ British Medical Journal, July 14, 1894; Lancet, January 18, 1896.

⁶ Philadelphia Medical Times and Register, September 14, 1895.

⁷ Jour. de Méd. de Paris, 1894, p. 379.

limited to three cases. One was a boy, H. G., whose sister and two brothers were healthy and in whom heredity could not be traced. He was rather delicate in appearance, of slight build and with rosy cheeks. His person was never free from ecchymoses, and he occasionally had severe epistaxis—a particularly copious flow during an attack of typhoid fever causing a fall of temperature and other symptoms of collapse. When about fourteen years old, while in swimming, he attempted to dive and struck the water too horizontally, so that he experienced a severe shock. Soon after he began to have a severe neuralgia of the trigeminal nerve and paralysis of a cranial nerve or its branches—the exact notes have been mislaid—and Dr. Geo. L. Walton, who saw the case in consultation, agreed with me that probably a hemorrhage had taken place inside the cranium. The termination was favorable; and the boy has now become quite a robust young man.

A second case was one of menorrhagia in a girl, age twenty-four, who had been subject since childhood to purpuric spots on the arms and legs and to severe epistaxis. In this case again no family diathesis was known. It was reported in the *Boston Medical and Surgical Journal*, November 27, 1890.

The third case, N. O., also had no family history of hemophilia. Her mother's mother had three blue babies who died young. The patient was cyanotic when born, and for three months was regarded as a blue baby, but thereafter her complexion became clear. Until she was four years old she had no natural hair but merely lanugo. While a little baby, she had some bloody fecal discharges, and the pressure of the hands in lifting her would leave black-and-blue spots. Twice when milk teeth were extracted she had serious bleeding. A blow on the leg caused a large hematoma. Her mother had sometimes to get up in the night and change her night-dress and the bed-sheets because of bleeding from mosquito bites. There was never any arthritis.

She first menstruated at the age of thirteen, but scantily. Three weeks later, there was a slight show of blood; and a week after that a profuse and obstinate menorrhagia began, causing great exhaustion. Finally, Dr. W. H. Richardson and Dr. C. W. Townsend were called in by the family physician, Dr. G. W. Tinkham, of Weymouth. The flow had then lasted twelve days; the pulse was 140, and a moderate amount of pale watery blood was leaking through the tampon which had been inserted the day before. The tampon was safely removed two days later. A slight oozing, however, continued for six days more. An interesting account of this experience was given by Dr. Townsend in the *Boston Medical and Surgical Journal* of November 27, 1890.

From that time till her death in January, 1896, this young lady suffered from menorrhagia. On three occasions only were so few as thirty-six napkins used. More often one hundred were needed, and sometimes two hundred. After the bleeding ceased, she would lie one or two weeks in bed, to recuperate, and then would gain color and strength very rapidly; so that after she had been downstairs three or four days she would have so brilliant a color that it was difficult to believe she could have been ill.

The last hemorrhage continued some four months. The patient had complained during some time of pain in the region of the heart, but nothing could be made

out except weakness of that organ, which was naturally ascribed to the profound anemia. The writer was not called to see her till near her end, and did not venture to inaugurate any energetic treatment, for which caution the findings of the pathologist, Dr. Whitney, make him thankful. Hot douches had not proved efficient. Tamponing had once been followed by such septic symptoms that Dr. Tinkham did not feel authorized to repeat it. The autopsy will be reported by Dr. Whitney.

ON THE VALUE OF PROMPT CO-OPERATION WITH THE MUNICIPAL AUTHORITIES FOR THE PREVENTION OF THE SPREAD OF DIPHTHERIA.¹

BY ROBERT W. GREENLEAF, A.M., M.D.

As diphtheria has been so prevalent of late, particularly in our suburban towns, the following cases are of interest. They illustrate what can be done to prevent the spread of this disease when physicians in private practice avail themselves of such measures as those now so efficiently carried out in our City Hospital.

One focus of contagion was as follows: On November 10, 1896, a woman came to my office and asked me to see her little girl, Annie M., seven years of age, about whom she was anxious, as the child complained of sore throat. She had been playing about on that day, but had not been as well as usual for two days.

She lived in another part of the city, was not considered to be very ill, and, as it was already nine o'clock, one might have felt justified in satisfying the mother with temporary measures and postponing his visit till morning. As diphtheria was possible, the visit was made at once. A membrane characteristic of the disease was found in the throat. The glands of the neck were considerably swollen, and the diagnosis, diphtheria of a septic type, was made.

The problem of the household was a serious one. The child had contracted the disease at school. Three younger children, aged respectively five, three and one years, were still well. They, with their mother and father, were crowded together in a tenement, consisting of a kitchen, bedroom and two cold "side-rooms." Could the disease be arrested then and there? I advised immediate isolation and disinfection.

The husband went with me to the City Hospital. Admission was at once secured, and the ambulance sent for the patient, who arrived safely soon after ten o'clock. Notification to the Board of Health that night ensured disinfection of the rooms next morning.

Two days later matters stood in this way: A visit to the hospital found Annie much improved and the membrane disappearing under the antitoxin treatment. The children at home had had their throats cleansed several times a day with a solution of peroxide of hydrogen. All were well except the baby, who was a little irritable. Diphtheria was suspected, but on the next day she was rather better. On the following day, however, she had a characteristic membrane on the tonsil, a culture from which confirmed the diagnosis of diphtheria. The other members of

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 16, 1897.

the household were not affected. The problems then were, Shall the mother accompany a nursing child to the hospital, and leave an infected household to the care of friends who would thus be likely to still further spread the disease by exposing their own children? or would it not be better to let them remain at home? The latter plan was decided upon. The baby was given a full dose of antitoxin, and the other children were given immunizing doses.

At my visit on the 20th, ten days from the appearance of the first case, matters stood thus: The baby was entirely free from any symptoms, and was playing about the room as well as usual. No one else in the household had been ill, and no untoward symptoms had arisen from the antitoxin treatment. The place had been fumigated a second time by the Board of Health on the day before, and a note had just come from the hospital directing the parents to take the child home that afternoon. Certainly a very happy result and markedly in contrast to those of the pre-antitoxin days, when with one case in a family of children the chances were that all would have taken the disease and that one or more would have succumbed.

Another starting-point of infection was as follows: On the evening of November 16th I was called to attend a servant in one of our leading hotels. She was in a room containing about a dozen beds, some of which were occupied by two persons. She had an extensive, foul-smelling, diphtheritic membrane in her throat. That day she had been away, and had just come back to go to bed. She had felt ill only two days. In this case also, permission having been given by telephoning the proper authorities, she was sent at once to the City Hospital. The girl who had slept with her the preceding night, though well, was also sent there for observation and extra security. The bed-clothing was disinfected by boiling water and the mattress burned. Two other maids who felt ill were examined. One had a slight coryza, another had a pharyngitis. Their throats were cleansed with peroxide and they were in good condition the next day. No other cases of diphtheria have occurred since, both maids sent to the hospital are now well; and one may justly feel that a contagious conflagration was averted among the servants and guests of the house.

Another focus was equally instructive. In mid-summer I was called by Dr. D. W. Cheever to aid him in the care of a young girl suffering with tonsillar abscess, by making visits in his absence. Her case was somewhat doubtful as she had a considerable and foul exudation. A culture proved it to be non-diphtheritic. At the same time a servant in the house was just beginning to complain of sore throat. Certain signs suggested diphtheria. Immediate removal to the hospital was advised and carried out. Cultures confirmed the diagnosis, and she finally recovered under the antitoxin treatment.

In this case, had the girl remained in the house, it might have proved a serious matter. Several seamstresses were employed there; and, had illness come among them, not only would it have proved destructive to the business of a hard-working and deserving woman, but each case would have been a fresh distributing centre for the disease. As it was, no other cases resulted.

In offering these cases which show so strikingly the value of prompt isolative measures and of the anti-

toxin treatment, I desire to express my appreciation of the admirable contagious service at the Boston City Hospital; also my indebtedness to the resident physician for the privilege of inspecting it.

To those of us who were almost literally bathed in diphtheria, scarlet fever and the like during our hospital life in the pre-antitoxin days the improved conditions are most welcome.

A word as to what I saw there (when I visited the hospital for information concerning the little patient first mentioned in this paper) may be of interest to those who have not had the opportunity of making such a visit.

Dressed in the ward cap and gown and carefully disinfected at the close of the visit, the likelihood of my carrying contagion elsewhere was minimized.

Instead of our old wards, though they were as neat and clean as careful oversight could make them, all was in the perfection of modern ward construction and appliances.

Instead of signs of suffering in the little patients, with which we were only too familiar, of the 92 cases of diphtheria seen that evening, all appeared sleeping peacefully. Intubation had replaced tracheotomy. There were ten intubated cases present; all doing well. There was not a sound of noisy breathing or coughing in either ward, nor was there a particle of odor once so characteristic and dreaded in this disease. The floors were so clean that the hand or a piece of white cloth could be rubbed over them without being perceptibly soiled.

Results in the pre-antitoxin days showed a mortality of 43 per cent. counting all cases, and 35 per cent. in selected ones. The present figures show a mortality of 13 per cent. for all cases and about 8.5 per cent. in similarly selected ones, that is, excluding moribunds and late-entering cases. This is a just exclusion if both percentages are stated, as such cases are hardly fair exponents of the value of hospital care. Since the introduction of the antitoxin treatment I am told that there have been 1,972 cases treated up to October, 1896. Of these, 70 cases have died within twenty-four hours. Of 200 cases of intubation the mortality had been but 53 per cent., whereas the usual rate previously was 72 per cent. for intubation and 88 per cent. for tracheotomy.

These splendid results are largely due to the antitoxin treatment. There have been no ill results worthy of mention attending its use. It has been shown to be competent in the prophylaxis of exposed patients. Certainly, sufficient data are now accumulated to permit of its unhesitating acceptance as a boon of inestimable value.

It is but fair, however, to consider that some of the success so strikingly evident at the Boston City Hospital was due to the scrupulous care in every detail of ward administration, including the foresight in providing the best appliances for ventilation, for disinfection of clothing, for cremation of ward garbage, dust and the like. Credit must also be given in part to the judicious treatment often associated with the antitoxin, supportive or stimulant in character.

A knowledge of how admirably appointed and how efficiently managed this service is should certainly be widespread in the community. The profession and the laity should be fully aware that by prompt and judicious co-operation with the authorities much can be done to minimize the risk of spreading diphtheria.

THE HOME MODIFICATION OF MILK.¹

BY J. L. MORSE, M.D.

I MERELY wish to make a few additions and corrections, based on my experience of the last summer, to the paper which I read before this Section last spring on the home modification of milk.²

The bottles which I recommended at that time for use in the home modification of milk were those provided by the Walker-Gordon Laboratory at a cost of ten cents apiece or a dollar a dozen. This item for bottles made up considerably more than half the first cost for apparatus. During the summer I received many complaints from patients of the fragility of these bottles; that many of them broke during the process of Pasteurization, that many more broke while heating, and that they almost invariably broke if dropped. As the large initial expense and the expense from breakage was quite an important item to the poor people I looked about to see if I could not find a cheaper and stronger bottle. I found two which are fairly satisfactory. One is that made by Whitehall & Tatum for the Arnold Sterilizer. They retail for five cents apiece or forty cents a dozen for the large size and thirty-four cents a dozen for the small size. These bottles are not quite as large as the Walker-Gordon bottles of corresponding size, and have a smaller neck, which makes them harder to clean; but, on the other hand, are much stronger. It is only fair to say that Whitehall & Tatum make the bottles for the Walker-Gordon Laboratory. The other is a triangular bottle, known as the "Three Star Nurser," which can be bought at Weeks & Potter's for five cents apiece or thirty-eight cents a dozen. This bottle is stronger, and is accurate, but has the disadvantage of a small neck and a broad bottom which render it more difficult to clean. This bottle is, as far as a glass bottle can be, indestructible, and consequently is the most economical. Using either of these bottles reduces the first cost for the apparatus to about \$1.25. The lowest terms I could make before were about \$1.80.

Another summer's experience in out-patient practice with this method for the home modification of milk has only served to confirm me in my previous opinion that home modification is feasible and satisfactory for poor people. The only difficulty I have met with has been in inducing them to undertake it. They are often frightened when told about the process, but I have never yet had a person give it up who once tried it. They all say that it is very little trouble after the first week or two, and that they do not mind it. It does not take them over an hour a day.

I also wish to call attention to the article by Freeman, of New York, read at the meeting of the American Pediatric Society last May. He showed that Pasteurization for thirty minutes at 65° C. is sufficient to destroy pathogenic organisms, and does not cause the same chemical changes which Pasteurization at a higher temperature does. The principle of his apparatus is that a definite amount of boiling water will in a certain period of time raise a certain other definite amount of cold water and cold milk to the temperature of 65° or 66° and keep it so half an

hour. His apparatus is a tin pail in which a certain amount of boiling water is placed, and a case or stand composed of metal cylinders, each of which contains a bottle surrounded with cold water. The pail is partially filled with boiling water, the cylinders placed in it and covered up for three-quarters of an hour. The first fifteen minutes raises the temperature of the milk to 66° and a temperature of 65°-66° is maintained for half an hour more. The hot water is then replaced by cold and the milk set on the ice. The cost of this apparatus is \$3.50 for the cheapest and \$6.00 for the more expensive, which places it somewhat beyond the use of poor people. It may be obtained of J. S. Dougherty, 411 West Fifty-ninth Street, New York.

Clinical Department.

A CASE OF SEPTICEMIA OF OBSCURE ORIGIN.¹

BY JAMES J. MINOT, M.D.,

Visiting Physician, Carney Hospital; Physician to Out-Patients, Massachusetts General Hospital; Visiting Physician, Long Island Hospital.

MRS. K., thirty-five years old, entered the Carney Hospital November 19, 1896. She lived in a district known to be malarial. She had always been well. Had had five children, no miscarriages. Catamenia always regular, and last one three weeks ago. Her present trouble began, two weeks before entrance, with a chill without previous symptoms. The chill has been repeated at frequent but irregular intervals since. On some days there would be one, some two, some three, and again no chill. For nine days there had been considerable diarrhea. For three days there had been a good deal of pain in the left shoulder.

On entrance her temperature was 103°, pulse 140, respiration 30. She was evidently very sick; the face was dusky. Nothing abnormal found about the head, eyes, mouth, lungs or heart. The abdomen was very lax and not tender. The area of splenic dulness was somewhat increased, but the spleen could not be felt. There was a mass below the ribs on the right, which felt like and was considered to be the lower edge of the liver, with below this what was thought to be the lower part of a misplaced kidney. It was hard, not tender, with the liver edge distinctly felt. No rose-spots or other eruption anywhere. By vagina the uterus was found to be large, firm and not tender. There was nothing abnormal felt in the pelvis, and no tenderness there. No vaginal discharge. The urine contained one-tenth per cent. albumin; a few pus cells and one granular cast were found. There was marked tenderness over the anterior part of the left shoulder, but no pain on motion, and no heat or redness there. Blood examination showed 6,000 white, no plasmodium.

There was a chill that night, another the next day, and two on the third day, with a third rise of temperature but no chill. At no time throughout the course of the case did the temperature go as low as 99°.

On the third day there was much pain and tenderness in the calf of the right leg.

On the fourth day there was pain and tenderness in the right abdomen, but nothing could be felt there. This, the pain in the calf and the shoulder gradually

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 16, 1896.

² Boston Medical and Surgical Journal of June 4, 1896.

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 16, 1896.

disappeared in a few days. The blood examination showed now 12,000 white. The patient was thought to have septicemia from the first; but no evidence as to the source of the infection could be found. The question of exploratory laparotomy was considered frequently, but with no good reason for supposing the original trouble to be intra-abdominal, and with the patient in such poor general condition the surgeon was unwilling to undertake it.

On the fifth day there was thought to have been plasmodium found in the blood. The blood was frequently examined by different observers but plasmodium was not again found; but it was admitted by several that the slides taken on the fifth day probably did show some. On the fifth day there were 17,000 white. There had been no distinct chill for two days but irregular rises in temperature, with sweating. The patient had been given strychnia, whiskey and quinine. She was now given quinine in fifteen-grain doses, until cinchonized, but with no result.

On the sixth day the serum reaction for typhoid fever was said to be present, but subsequent examinations failed to confirm this.

On the seventh day the spleen could be felt, and it increased in size until death occurred on the ninth day after entrance to the hospital,—three weeks after the first symptom, the initial chill.

From the fifth day to the end there were only three chills, but a very irregular temperature. The diarrhea ceased a day or two after entrance, and began again a few days before death. From time to time new points of pain and tenderness appeared, but soon disappeared again. At no time was there pain or tenderness over the uterus or pelvis. The patient was delirious the last three days, and passed her urine involuntarily. The day before she died moist râles appeared in both lungs at the back.

The diagnosis was septicemia, possibly following an unrecognized typhoid and perhaps also malaria.

The autopsy was made by Dr. J. J. Curry. It showed the peritoneum to be slightly infected, especially on the left side of the pelvis; and the mesenteric and retro-peritoneal glands moderately enlarged and red.

The tumor felt in the right side of the abdomen was a greatly elongated and curiously shaped right lobe of the liver.

The lungs were edematous, with several small, shot-like areas of consolidation scattered through both lower lobes.

The liver showed fatty degeneration, and was considerably enlarged.

The spleen was greatly enlarged; light purplish color; capsule thin and smooth; old infarction on upper edge; on section, the pulp very soft and of purplish-red color.

The kidneys showed a cloudy swelling.

The Peyer's patches and the solitary follicles of the intestines were much swollen, but nowhere in small or large intestines were there any signs of either old or fresh ulcerations to be found.

The uterus was considerably larger than normal; its cavity was enlarged and contained about half a drachm of necrotic-looking material. Both ovaries firm, and on section appeared to consist mainly of fibrous tissue, a corpus luteum was found in the right ovary. In the left broad ligament the ovarian vein was dilated considerably and filled with pus. The

peritoneum about this area was injected but there was no exudation in it.

The iliac and femoral veins did not contain any thrombi.

In the left sterno-clavicular joint there was a small quantity of thin creamy pus. Both shoulder-joints normal.

No other foci of pus than those described could be found.

The axillary and inguinal glands were large and red.

The brain showed nothing abnormal.

Anatomical Diagnosis: Typhoid (?); acute splenic tumor; broncho-pneumonia and edema of lungs; general acute lymphatic hyperplasia; purulent arthritis (sterno-clavicular); purulent phlebitis (left ovarian vein); fatty degeneration of liver; cloudy swelling of kidneys; white infarction of spleen; enlargement of uterus, with endometritis.

Bacteriological Examination: Cover-slip preparation from pus of sterno-clavicular joint and of ovarian vein, made at time of autopsy, showed numerous chains of streptococci. Cultures from lung, liver, kidney and spleen showed abundant growth of streptococci. The culture from spleen contained pure growth of streptococci. Cultures from lung, liver and kidney showed, in addition, a few large, moist colonies, which, when grown on the various media used to differentiate colon and typhoid bacillus, proved to be colon bacilli, that is, they coagulated and acidulated milk, developed gas in sugar agar, gave indol reaction in Dunham's peptone solution, and showed profuse growth on potato.

Bacteriological Diagnosis: General infection with the streptococcus pyogenes.

Notwithstanding the post-mortem examination the true original source of the infection seems to be unsolved. From the autopsy the question of an abortion would have to be seriously considered; subsequent questioning of friends gave no reason to suppose this had happened.

A CASE OF PRECOCIOUS MATURITY.¹

BY CHARLES W. TOWNSEND, M.D.

THE subject of this note was brought to my clinic at the Children's Hospital on December 7, 1896, when nearly a year old, having been born December 20, 1895. The mother and father are both well, and there is one brother and sister whose condition is normal. The father was born in North Carolina, the mother in Nova Scotia. There is no history of precocious menstruation in the family.

The child weighed nine pounds at birth, was breast fed, and for the last few months has had milk and some cereal. At four months she cut her first tooth, and now has seven incisors. At the age of three months the mother noticed that the breasts were enlarging, and at six months the child apparently menstruated for four days. Every month since then the child has had a bloody discharge from the vagina for from two to three days, amounting to several teaspoonfuls of blood. The child becomes heavy and dull for a day or two before the flow appears, and seems relieved and bright as soon as it is established. There has been a slight growth of hair about the vulva in the last few months.

¹ Read before the Obstetrical Society of Boston, January 19, 1897.

The child has always been well and the family have noticed no mental precocity.

Physical Examination.—A fat, healthy, placid-looking child. Breasts noticeably enlarged; areolæ not pigmented but prominent; nipples not developed; glandular tissue present in both breasts. Straight, downy, light-colored hairs on mons veneris, a quarter-of-an-inch long. Vulva not abnormal in appearance, except that hymen has a large opening. Height of



child, thirty inches; weight, twenty-eight pounds. The child showed no evidence of modesty on being examined.

On January 11, 1897, I saw the child at its home, and found it to be menstruating, the flow having started that day. About half a teaspoonful of blood was on the clothing, and a little was to be seen inside the vulva. The accompanying photograph shows the development of the breasts.

ABSTRACT OF PAPER BY DR. J. L. MORSE ON PRECOCIOUS MATURITY.

The genital hemorrhages of little girls may be divided into four classes:

(1) Genital hemorrhage of the new-born.

(2) Hemorrhages due to tumors of the genital organs.

(3) Precocious menstruation.

(4) Precocious maturity.

The genital hemorrhages of the new-born have nothing in common with menstruation, but are due to some local catarrhal condition or to pelvic congestion.

Certain tumors may give rise to uterine hemorrhage at irregular intervals and to premature development of the genital organs with hypertrophy of the breasts.

Thirty cases of precocious menstruation have been reported, the incidence being almost equally distributed through the first seven years of life. The flow was usually regular, lasted from one to five days, was usually preceded by moulimina and persisted for a variable time. It apparently had no influence on the general health, and was unaccompanied by premature development of the body or genital organs.

Puberty manifests itself by an *ensemble* of symptoms which appear in a variable order. Precocious maturity is the condition in which this *ensemble* of symptoms develops prematurely. Some signs of the condition are always present at birth. Menstruation is never the first symptom, but often the first to call attention to the condition. About sixty cases have been reported. Menstruation began most often in the first two years. In those which were followed it continued as long as when it begins at the usual time. In the only satisfactory autopsy evidences of ovulation were present. Three became pregnant at about eight years. Sexual desire was often present very early. The mental development was not as rapid as the physical and sexual.

Precocious maturity is a physiological anomaly of development. Nothing is known as to its etiology. There is no medical treatment for the condition. The psychological treatment, however, is important. The sexual precocity of these unfortunates must be hidden and their sense of modesty respected. They must be carefully guarded against voluntary or involuntary intercourse.

The following typical case of this unusual condition was observed by the writer:

Louisa J., weighed fourteen pounds at her birth. She presented an undue development of the breasts, and had a little hair on the pubes. She began to menstruate at nine months, and has continued to flow regularly up to the present time, a period of six months. At fourteen months her appearance was that of a child of three years, her weight 36 pounds, and her height 32½ inches. Her intelligence was above normal. She manifested no unusual modesty or evidence of sexual desire. There was a moderate growth of hair in the axillæ, down the back and about the genitals. The breasts each contained a mass of gland tissue as large as a pigeon's egg. The nipples were well developed and the areolæ of dark pink. The external genitals corresponded in development to those of a girl of seven or eight. The vagina was easily distensible, four centimetres in depth, one and one-quarter centimetres in width, and contained rugæ. There was no history of early menstruation in either family.

DISCUSSION.

DR. W. L. BURRAGE said that he was fortunate in having an opportunity to examine digitally Dr. Morse's case. The introitus and vagina were remarkably large for an infant and the cervix and uterus could be plainly made out. Without ether it was, of course, impossible to distinguish the ovaries.

DR. J. R. CHADWICK referred to the extreme rarity of this anomaly and also to the absence of any ascertainable cause.

DR. C. W. TOWNSEND said that we not infrequently see reported in medical journals cases, where bleeding from the vagina occurs during the first few days of life, this being spoken of as menstruation. He believes this is not at all rare, having seen it a number of times in both hospital and private practice. It is quite distinct from the cases reported to-night, as it does not recur and is not associated with any developmental changes. It is of no significance.

Medical Progress.

PROGRESS IN PATHOLOGY.

BY JAMES HOMER WRIGHT, M.D.,

Director of the Laboratory of the Massachusetts General Hospital.

THE EFFECT OF THE BACILLUS OF INFLUENZA UPON THE CENTRAL NERVOUS SYSTEM.¹

A. CANTANI, JR., has subjected this question to a most thorough experimental study. Bearing in mind the fact that the effect of the influenza infection in man is very marked in the central nervous system, he was led to study the effect of the intra-cranial inoculation of rabbits with this organism.

Such inoculation with virulent culture, by trepanation, he has found to produce severe nervous symptoms, high temperature and death in twenty-four hours.

At the autopsy there was often observed at the site of the wound, an edema, containing numerous influenza bacilli and spots of blood. The meninges were always hyperemic, infiltrated with a hemorrhagic exudate and clouded. The brain was markedly hyperemic, the ventricles often containing a purulent exudate in which were numerous influenza bacilli. On section, the substance of the brain appeared usually beset with ecchymoses, and microscopically contained numerous bacilli along with numerous polymuclear leucocytes. In short, the condition was that of an acute encephalitis. The bacteria seemed to spread preferably by the lymphatic channels. To a certain extent the spinal cord was also invaded by the bacilli, apparently by way of the central canal. In sections of the cord there were some hemorrhages to be seen, and in places numerous leucocytes; but, in general, the process was not as severe in the cord as in the brain. The lesions elsewhere most frequently noted were as follows: Bloody serous exudate in the peritoneal cavity, acute congestion of the spleen, hyperemia of the kidneys, hemorrhages into the adrenals, and incipient fatty degeneration of the liver. The lungs were always injected, and in the pericardium there was often an accumulation of clear fluid.

Control experiments of various kinds seemed to show that these results of the inoculation of the influenza bacillus in this manner are peculiar to that organism. The most interesting fact, however, brought out by this investigation, was that practically the same effects as those above detailed might be produced by inserting beneath the dura mater of the animal a few milligrammes of the dead growth of the bacteria which had been previously killed by heat. This result is another confirmation of the idea that the effects produced by the influenza infection is due to a poison closely associated with the bodies of the bacilli themselves.

The investigation must be regarded as a considerable contribution to our knowledge of the influenza organism, in view of the fact that hitherto there has been little experimental evidence of its pathogenic power.

THE TOXINS OF DIPHTHERIA.²

The isolation of the poisonous substance formed in cultures of the diphtheria bacillus, free from all proteid impurities, is claimed to have been at last accomplished by Brieger and Boer.

The bacillus was cultivated upon large quantities of dialyzed human urine; and from this culture fluid there was obtained a small quantity of a substance, barely visible on the filter, which gave no proteid reactions, was optically inactive, was easily destroyed by alcohol, ether, acetone, acids and oxidizing agents, but was only slightly affected by weak alkalies and reducing agents. This substance, by its effect upon animals, showed itself to be identical with the toxin contained in the filtrate of the usual bouillon cultures.

From the bodies of the bacilli themselves, after the removal of all the "toxin" contained in them, the authors have obtained another poisonous material, which is to be regarded as of a different nature from that of the toxin. Ten milligrammes of this substance, when dried, powdered and injected in watery suspension beneath the skin of a guinea-pig, causes the death of the animal, with necrosis and suppuration at the point of inoculation, within forty-eight hours. The lesions of the viscera, however, which are so characteristic of poisoning with the toxin, are not produced.

The substance is insoluble, is not especially affected by boiling in water, and when heated with sodium hydrate gives off gases with odors resembling those of the ptomaines cadaverin and putrescin.

THE VIRULENCE OF THE BACILLUS IN MILD CASES OF DIPHTHERIA.³

In some localities there still seems to remain a deeply-rooted belief among medical men, that only those cases of acute angina which present a pseudomembrane are to be regarded as diphtheria, and are to be isolated and treated as such, notwithstanding the large amount of evidence to the contrary. It seems also to be commonly believed that the bacilli in mild infections, which appear as tonsillitis or pharyngitis, have only a low grade of virulence, which is a false idea.

With the purpose of doing something towards correcting these erroneous views, Dr. H. M. Biggs, of the New York Board of Health, reports 19 cases, which were clinically follicular tonsillitis or pharyngitis throughout the duration of the disease (with late laryngeal symptoms in two), from which the bacillus diphtheriae was isolated and its virulence tested on guinea-pigs. The results showed that the bacilli from 17 of the 19 cases were fully virulent for the animals, which is in agreement with the observations of others.

The author emphasizes the importance, from a sanitary standpoint, of considering these cases as true diphtheria.

DIPHTHERIA BACILLI WITHOUT DIPHTHERIA.⁴

E. Müller has made cultures from the throats of all children who entered the children's division of the Charité in Berlin, with reference to the occurrence of diphtheria bacilli.

Among 92 children examined, 20 were found in whose throats diphtheria bacilli could be demonstrated, although no inflammation of the parts was present. In six of these children the bacilli were present on the day of their entrance, while the remaining 14 became infected during their stay in the hospital. In one of the cases full virulent bacilli could be demon-

¹ Zeitschrift f. Hygiene u. Infect. Krank., Bd. xxiii, 1896.

² Deutsche med. Woch., December 3, 1896.

³ American Journal Medical Sciences, October, 1896.

⁴ Jahrbuch für Kinderheilkunde, Bd. xliii, Hft. 1.

strated during two months and a half, without any symptoms referable to their presence. In this connection, however, it should be stated, that all of the children were treated with prophylactic antitoxin injections.

On the ground of the frequency of the occurrence of infection with the diphtheria bacillus without symptoms, as shown by this investigation, the author explains the frequency of the occurrence of endemic diphtheria cases which had been observed in the children's division of the hospital. The absence of symptoms in these cases he explains upon the hypothesis that a personal immunity exists.

The virulence of twelve of the cultures was tested upon guinea-pigs. Six of them showed themselves characteristically virulent, while in the remaining six a lack of virulence was shown, only local reaction at the point of inoculation and, in some instances, emaciation being observed.

THE SERUM-REACTION IN THE DIAGNOSIS OF TYPHOID FEVER.⁵

Wyatt Johnston and D. D. McTaggart sum up the results of their examination of the blood-serum of over 500 patients with reference to the presence or absence of the "clump-reaction," that is, the property which the blood serum of typhoid fever cases has of causing typhoid bacilli to lose their motility and to aggregate in "clumps," or "agglutinate," when a small portion of it is mixed with a fluid containing the living bacilli in suspension.

Out of 129 cases, which were regarded as typhoid fever, if a few cases be excluded when the examination was made at an early stage or late in convalescence, but one apparently genuine case of severe typhoid fever was met with, which, when examined under satisfactory conditions did not give a decided reaction from the dried blood. Occasionally the first appearance of the reaction was delayed beyond the first week. They have never met with a well-marked reaction in any of the 500 cases, where there were not strong reasons for believing typhoid fever to be present. In the few cases where the result of the examination was doubtful, the mild type of the fever made an accurate clinical diagnosis impossible. In these cases the authors believe a bacteriological examination of the stools or of the spleen (by puncture with a hypodermic syringe) to be the most exact method of procedure.

In regard to the relative value of the dried blood as compared with the fresh serum, they report that they have not yet encountered a case of typhoid fever where a decided reaction was obtained with the latter and not with the former. The reaction, though specific in degree, is now generally considered to be quantitative; and small amounts of the agglutinative substances are admitted to be present in varying amounts in bloods other than those of typhoid fever cases. These specific substances, however, are an hundred-fold more abundant in typhoid blood.

It is the experience of the authors that the use of fresh cultures in bouillon, from stock cultures which have been under cultivation for some time, grown at room temperature, and transplanted at intervals of about one month, are the best to use, for the reason that the bacilli of such cultures seem to be much less sensitive to the small amounts of agglutinative sub-

stances which may be fortuitously present, than bacilli from cultures which have been made active by frequent transplantation and cultivation in the incubator. In this way false reactions may be avoided. They have also found that the dried blood is more potent than the fresh serum in causing the clumping, but not so potent in causing the stoppage of motility. Thus a decided agglutination can be obtained from weak solutions of the dried blood, when none is produced by stronger solutions of the serum.

Owing to this greater potency of the solution of the dried blood, there is a greater tendency to false reactions when active, virulent cultures are used, than is the case with the serum. This difficulty, however, is completely obviated by employing the attenuated cultures for testing purposes. Bacilli, which exhibit darting movements in the "hanging drop" are too sensitive for the test with the dried blood.

The authors also contribute some observations on serum reactions with the colon bacillus in supposed infections with that organism. They state that they have observed "colon reactions" in four cases having a step-ladder temperature curve and other symptoms suggestive of typhoid fever, and also in the one case of apparently true typhoid, which gave no reaction with the typhoid bacillus.

"Colon reactions" in typhoid fever, were found to be rare, even in cases where perforative appendicitis had occurred, provided the "typhoid reaction" was well marked.

THE BACTERIOLOGICAL DIAGNOSIS OF TYPHOID FEVER.⁶

Capaldi reports that he has several times isolated the bacilli from the stools with the aid of a special culture medium upon which their growth is characteristic. This medium has the following composition: water 1,000 c. cm., Witte's pepton 20 gm., gelatin 10 gm., glucose 10 gm., sodium chloride 5 gm., potassium chloride 5 gm., agar-agar 20 gm., and normal sodium-hydrate solution 10 c. cm. For the further proof of the identity of the typhoid bacillus, and to distinguish it from the bacillus coli communis, he inoculated from suspicious colonies two special forms of culture media. On one of these, which he calls Medium I, the typhoid bacillus will not grow while the colon bacillus does. On Medium II both species thrive. But the colon bacillus produces an acid reaction in it, while the typhoid bacillus does not. He claims that the use of these two forms of media is entirely sufficient for the determination of the identity of the typhoid bacillus, provided the microscopical examination shows the bacteria in question to have the usual shape and size of that organism. This statement he considered to be confirmed by the results of a very thorough and systematic study of the subject by himself and Professor Proskauer carried out in the Institute for Infectious Diseases in Berlin.

THE UBIQUITY OF THE BACILLUS OF TYPHOID FEVER.⁷

With the aid of the recently devised culture medium of Elsner, upon which the typhoid bacillus grows fairly characteristically, Remlinger and Schneider have made examinations of various potable waters, of soils and dusts from various sources, and of the intestinal discharges, for the presence of this organism.

⁵ Montreal Medical Journal, March, 1897.

⁶ Zeitschrift f. Hygiene u. infect. Krankh., Bd. xxiii, 1896.

⁷ Annales de l'Inst. Pasteur, No. 1, 1897.

Their results seem to show that the typhoid organism is more widely distributed and of more common occurrence than has hitherto been demonstrated.

Thirty-seven samples of drinking-water were tested and in nine of them bacilli, identical with the typhoid bacillus were found. Two of these samples came from districts in which an epidemic of typhoid fever prevailed; six came from towns where typhoid fever had existed.

With reference to their occurrence in the soil and dust, thirty samples from various places, were examined, and from seven of these the bacillus was isolated. Three of these were dust from inhabited rooms, while the remaining four were samples of soil from various depths down to one metre, taken in the neighborhood of dwelling-houses.

The isolation of the bacillus from the stools of hospital patients, with affections having no apparent relation with typhoid fever, was effected in five out of ten cases.

The bacilli thus obtained from these various sources were rigorously subjected to all the tests at present known for the recognition of the typhoid bacillus and found to conform to all of them, including the recently discovered "serum reaction." The identification of these bacilli as typhoid bacilli must therefore be accepted as justified, in the light of our present knowledge.

PRIMARY CARCINOMA OF THE LUNG.⁸

Hans Pässler has carefully studied four cases of this unusual form of pulmonary disease, and presents an interesting analysis of 70 cases, most of them well authenticated, which he has found in the literature. According to him, clinically, two groups of primary carcinoma of the lungs may be distinguished, depending upon the anatomical situation of the disease. Both groups have in common cachexia, metastases, cough and expectoration. Peculiar pains are rare.

The first group comprises those in which the growth is situated along the course of the bronchi at some distance from the root of the lung. These cases often run a course for a long time like a chronic tuberculosis. Later there usually occur complications in the form of bronchiectasis, pneumonia, and gangrenous processes.

The other group of cases comprises those in which the carcinoma develops at the root of the lung. In these the symptom-complex is much like that of the mediastinal tumors.

The disease is much more common in men than in women, and it makes its appearance nearly always after the fortieth year. It seems very probable that in the majority of cases the growth starts from the bronchial epithelium and not from the epithelium lining the air cells. Whether there is a primary carcinoma of the lung originating from the alveolar epithelium is not yet satisfactorily decided.

The growth of the tumor, in the opinion of Pässler, is in most cases along the lymphatic spaces, but not into the alveolar walls. He is also inclined to the view that small masses or groups of carcinoma cells, derived from a primary tumor projecting into a bronchus, may be aspirated into the bronchioles, and there give rise to secondary growths invading the alveoli. The histological character of the cells and the structure of the growth varies greatly in different cases,

all types of carcinoma apparently occurring. The cylindrical-cell form, however, seems to be the most common one. Metastasis takes place in a large majority of cases.

EXPERIMENTAL INFLAMMATION OF THE CORNEA.⁹

Goecke has studied the cells concerned in the inflammation of the corneas of frogs and pigeons, induced experimentally by injury to a small portion of it.

He finds that the fixed corneal cells assume a certain power of ameboid movement in the inflamed cornea and that the daughter cells which arise from these are contractile and capable of motion. They are typical wandering cells, in his opinion. These newly-formed ameboid cells move into the injured portion of the cornea, and there form new corneal tissue to replace that destroyed. Polynuclear leucocytes also appear from the neighboring vessels and carry off the dead material, etc.

NON-BACTERIAL TOXINS AND THE MECHANISM OF IMMUNITY BY MEANS OF ANTITOXIC SERUMS.¹⁰

From a series of experiments, Calmette and Delorme make the following statements:

(1) The serum of animals refractory to antitoxins which are not of bacterial origin, such as abrin and the venom of serpents, often rarely possesses antitoxic properties with respect to these toxins. The fowl, for example, and the turtle, resist large doses of abrin, but nevertheless their serum is totally inactive toward abrin. This is the same phenomenon which is observed with the bacterial toxins. Thus Vaillard has shown that the fowl, refractory to tetanus, gives a serum inactive toward the tetanus toxin.

When the serum of refractory animals is antitoxic, its antitoxic power is always only slight. There is, therefore, no relation between the naturally refractory condition of certain animals and the antitoxic power of the humors.

(2) The cold-blooded animals which are refractory are capable of producing antitoxin when they are injected with repeated doses of toxin, while, under the same circumstances, warm-blooded animals which are refractory do not produce antitoxin.

(3) Animals, such as the frog, are able to acquire an immunity to fatal doses of toxin without developing any antitoxic properties in their serum.

(4) The antitoxic serums for abrin and the venom of serpents can be utilized practically to give passive immunity to man and animals, and for the diagnosis of toxins in the practice of toxicology.

The anti-abrin serum possesses a very active preventive power when it is applied locally to mucous membranes and this property may permit its use in ophthalmology.

(5) The active substance of the antitoxic serum is not modified by chemical reagents which destroy or profoundly alter the toxins, nor does this substance alter the toxin when mixed with it *in vitro*. This active principle seems to exist normally in great abundance in the protoplasm of the leucocytes of vaccinated animals, and from these it diffuses into the blood serum and other organic fluids. It does not pass through dialyzing membranes. It has the property of acting energetically on the leucocytes of

⁸ Virchow: Arch. f. Path. Anat., Bd. cxlv, 1896.

⁹ Ziegler's Beiträge zur path. Anat. u. Allgem. Path., Bd. xx, 1896.

¹⁰ Annales de l'Inst. Pasteur, Tome x, 1896.

non-immunized animals in the same manner as the preventive anti-bacterial serums.

(6) Various substances having no specific action upon the toxins, such as bouillon, normal beef-serum, and certain serums of animals vaccinated against various infections or intoxications, can, when injected into non-immunized animals, manifest preventive properties toward various infections and intoxications.

Summarizing, the authors think that the immunity of naturally refractory animals, like the acquired immunity, ought not to be attributed to the presence in the serum of a chemical substance having the power to destroy or modify the toxins. In regard to the question whether there really exists a preventive substance in the serum of vaccinated animals, and whether this preventive power of the cells and of the humors is not rather a physical phenomenon like motility, inhibition, chemiotaxis, etc., the authors admit: (1) That the antitoxic power is independent of immunity, since the latter may exist when the antitoxic power is not manifest. (2) That the two kinds of immunity, natural and acquired, are the result of a special power of the cells, which, according to the conditions of their surroundings and according to the composition of their constituent elements (protoplasm and nuclear substance), undergo passively the influence of the toxins, in much the same manner as a piece of soft iron undergoes the influence of the magnet.

When, however, these conditions change under the influence of diverse external conditions, the functional state of the cells will also change, just as the piece of soft iron, transformed into steel by external influences, becomes capable of permanent magnetization and of transmitting this property to other pieces of steel. So, according to the authors, may be explained the susceptibility and the transitory or permanent resistance shown by the animal organism toward infection and intoxication.

HEPATIC CIRRHOSIS.¹¹

Van Henkelom has made a careful review of the many experimental investigations and histological facts which bear upon the question as to whether this condition of the liver is dependent upon a primary degeneration of the liver cells or not.

His conclusions are that cell degeneration and necrosis in the liver, of themselves, do not call forth any new formation of connective tissue which may be looked upon as a cirrhotic process and that in the light of the experimental work it would seem that cirrhosis is independent of parenchymatous degeneration.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR meeting, Wednesday, December 16, 1896, DR. W. F. WHITNEY in the chair.

DR. H. F. VICKERY read a paper on

HEMOPHILIA.¹

DR. H. P. BOWDITCH: I was rather surprised to hear, if I understood the reader rightly, that the blood

¹ See page 226 of the Journal.

¹¹ Ziegler's Beiträge zur path. Anat. u. allgem. Path., 1896.

in these cases has the normal power of coagulation. I have always supposed it was deficiency in the coagulating power of blood which was the essential cause of the bleeding, and the proposed methods of treatment certainly indicate that this is the case.

The question of the coagulation of the blood has been of great interest to physiologists for many years. The striking character of the phenomenon by which a liquid circulating through the blood-vessels becomes a gelatinous solid as soon as it leaves them, early attracted attention and demanded an explanation. The simple experiment of stirring the blood to defibrinate it showed that the cause of the coagulation was a stringy material receiving the name fibrin. The nature and origin of fibrin became then an important study. The chemical analysis showed it was of proteid composition, but it is interesting to note that the earlier chemists in endeavoring to get pure fibrin were never able to get rid of the mineral substances, the ashes. Specimens of fibrin always contain a certain amount of mineral material, notably the tribasic phosphate of lime. They regarded it as an impurity, something attached to the fibrin, but not a part of it. We know now that in all probability this is an essential constituent of the fibrin molecule. It is interesting that our predecessors of thirty years ago should have worked so hard to get rid of it as an impurity.

It is difficult to understand how one and the same substance can be at one time, soluble and liquid in the blood and subsequently insoluble in plasma and serum. The conclusions therefore would seem to be that the blood does not contain fibrin already formed, but some substance which becomes fibrin after the blood is drawn. This is a view which Virchow emphasized very strongly. A further advance in the same direction led to Schmidt's theory which for a long time held its ground as the only practicable theory, namely, that there are two substances in the blood, fibrinogen and fibrinoplastic substance, neither coagulable in themselves but by their union forming fibrin. Soon it was found there were cases where both these substances might be present and yet coagulation did not occur. This led to Schmidt's theory being enlarged by the introduction of fibrin ferment which was necessary to make the fibrinoplastic substance unite with the fibrinogen. Subsequently Hammarsten's theory was advanced, in accordance with which the fibrinogenous substance alone is necessary for the formation of fibrin; this acted upon by the fibrin ferment becomes fibrin. The nature of the ferment was not made clear by Hammarsten, and it is to the elucidation of this subject that the newer researches have been directed. Hammarsten's work and that of Arthus led Schmidt to develop a new theory of coagulation published a few years ago in a work on the theory of the blood which represents the results of Schmidt's labors of a lifetime. According to the newer theory the blood contains a series of different proteid bodies, one derived from another and all having their origin in the tissues generally of the body. According to Schmidt's view the fibrin may have its origin in any of the tissues except perhaps the red-blood globules. According to his present views the substances take their origin in this order: first, a substance called cytin, insoluble in water; second, cytoglobin, soluble in water. This circulates in the blood and subsequently gives rise to a third substance, known as preglobulin, which is insoluble in water, but, like other globulins, soluble in salt

solution. Derived from that we have the paraglobulin, one of Schmidt's original fibrin generators. We come now to the substances with which we are familiar from the earlier history of the subject. Paraglobulin then gives rise to the second fibrin generator or the fibrinogen, and that, being recognized as a globulin, is now to be called metaglobulin. That is the name Schmidt now proposes for what he formerly called fibrinogen. Paraglobulin circulates in the healthy blood and the fibrinogen is formed from it under the influence of a ferment. This is as far as the process goes in the healthy circulating blood. Under the influence of the fibrin ferment the paraglobulin is changed into fibrinogen, and that again gives rise to the formation of what Schmidt calls soluble fibrin, that is, fibrin which is not in the form in which it is precipitated out from the blood, but which is contained in the blood in liquid form, until it reaches a certain density, when it reacts with the salts contained in the blood and is precipitated as fibrin. You see at once that Schmidt has maintained the necessity for paraglobulin, while in Hammarsteu's theory paraglobulin has absolutely nothing to do with the formation of the clot. In Schmidt's new theory it is not an accessory to the formation of the clot as in the former theory but is essential as a precursor to fibrin.

The most recent work has been directed mainly to the determination of the relation of the salts to the fibrin and here Arthus has done more than any one else. He has recently published a theory in accordance with which the fibrin ferment changes the fibrinogen by splitting it up and a part unites with the lime salts of the blood and forms fibrin. If that theory is correct this part of the fibrinogen which splits off from the fibrinogen molecule to make the fibrin, must weigh less than the whole of the fibrinogen, and Arthus has reached experimental results which he considers conclusive in favor of this view. On this theory, moreover, we ought to find that the removal of the lime from the blood must hinder coagulation and that has been found to be the case by Arthus's experiments in which the blood was treated with alkaline oxalates. Schmidt says that in this case, the blood fails to coagulate not because the lime has been removed but because oxalates have been added. The question on this point has been fought out with a good deal of vigor and it cannot be said that absolutely satisfactory conclusions have been reached. Furthermore, if this view is correct, that a portion of the fibrinogen unites with lime salts to form fibrin it would seem that the amount of fibrin must increase with the lime salts of the blood, and this appears to be true. There seems to be no doubt that up to a certain point increase of lime in the blood does increase the amount of fibrin. It is not in direct proportion to it, but does increase with it. It is evident therefore that lime is an essential part of the fibrin molecule in some way or other.

The nature of the fibrin ferment remains to be considered. What is this material which causes the change of one of these proteids into another? It has been generally agreed that the leucocytes and the blood-plates furnish by their breaking down a substance which acts as a fibrin ferment, and two recent observers have succeeded in isolating a nucleoproteid body which seems to have this power, and they have recently advanced theories on the subject which have a good deal in common, but differ in some of the details. The theory of one of them (Pekelharing) is

that a nucleoproteid body, which is set free by the breaking down of the blood-plates and leucocytes, unites with the calcium salts of the blood to form what may be called a fibrin ferment. It is an organic substance which reacts with the fibrinogen, breaks up the fibrinogenous molecule and forms fibrin. The second theory, that of Lilienfeld, is that the nucleoproteid is itself the fibrin ferment and does not need to unite with the calcium salts; that it breaks up the fibrinogen by its catalytic action and a part of the fibrinogen which he calls thrombosis unites with the lime salts to form fibrin. Three things are necessary to make fibrin—fibrinogen, nucleoproteids and calcium salts, and exactly how they react to form it is a question for future investigation. It is probable we shall never be able to come to a satisfactory conclusion until we know a great deal more about the formulæ of proteid bodies generally. Until a good deal of advance is made in organic chemistry we must leave the ultimate cause of coagulation very much in the dark.

DR. A. H. NICHOLS thought that with the hemorrhagic diathesis the danger of post-partum flooding was probably greater than was generally represented. If experience on this point is limited, it is to be ascribed to the fact that very few hemophilic women grow up and marry, as can be illustrated by a simple calculation. If we take, for example, 1,100 children born with this malady, inasmuch as males are affected more frequently than females, in the proportion of 10 to 1, but 100 of this 1,100 will be daughters. Now of these 100 females it is certain that the great bulk will be cut off in infancy or early childhood by hemorrhages produced either spontaneously or by insignificant accidents. Indeed, the rate of mortality is so great in some families as to involve their absolute extinction. Assuming, however, as per estimate of Swett, of New York, that one individual in 18 will reach the age of puberty, then of these 100 females less than six will attain the procreative period.

DR. H. P. BOWDITCH asked if diminution in the number of leucocytes may not perhaps favor the tendency to bleeding. When slight capillary hemorrhages are observed under the microscope a collection of leucocytes is seen to take place around the bleeding point and these, by their viscous character, seem to plug up the opening. Inasmuch as the bleeding in hemophilia is noticeable more in capillary regions than where arteries are wounded, it seems to me that diminution in the number of leucocytes may be one cause that contributes to the production of the phenomenon.

DR. VICKERY: It has seemed to me that in spite of what is not found after death, the fact that these patients suffer so much from ecchymoses under the slightest traumatic influences, such for instance as this patient of ours whose friends in lifting her from the cradle would make black and blue spots, shows a fragility in the vessels. And about the coagulability of the blood, of course it must be unquestionably in many cases difficult to coagulate it; yet sometimes there will be a large clot outside of the bleeding-place, the bleeding still going on. Until I read up the subject I had an idea that fewer women suffered from hemophilia than really do. There are a good many cases. As to the chance of women who are bleeders who come to have babies, the statement is distinctly made by some authorities that while the first menstruation is often profuse, yet most of these hemophilic women go through childbirth without post-partum hemorrhage.

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THE MUSICAL FACULTIES IN HEALTH AND DISEASE.

THE psychological and cerebral relations of the musical faculties have of late years been the subject of considerable study, the results of which have recently been summed up in an interesting article by Ferrari.¹ Although the musical faculties are akin to the general faculties of speech, and are by some supposed to be evolved from them, harmony of sounds appears very low in the animal scale, probably much before speech develops, and certain races speak by monosyllables which have different meanings according to their accent. Certain children, too, learn to sing in harmony or to appreciate music before speech develops. The musical expression apparently needs a much simpler psychological apparatus than that of speech, which explains the occasional musical development of idiots. On the other hand there are persons of good intellectual and esthetic development who can not distinguish one note of an octave from another. As is well known, musical faculties are more frequently inherited than are other faculties.

The physiological action of music has been noted by various writers. Lombard has noted its influence on the knee-jerk, and Dogiel on the circulation; the latter finding in man and animals that the auditory excitement from music was accompanied by oscillations in the circulation dependent ultimately upon the pitch, the intensity and the timbre of the sound. Others have found that music affects muscular activity and the respiratory changes. Some studies on an apathetic and thus unsatisfactory subject, with a trephine hole in his head, made by Patrizi, indicate that music causes an increase in the amount of blood in the brain, and Ferrari himself and Vigna have noted a variation of the pulse synchronous with the rhythm of the music.

Upon the psychological side a few observations

Rivista Sperimentale di Freniatria, xxii, 324, 1896.

seem to indicate that low tones require a longer reaction time for perception than high tones, and that the time varies with the intensity of the sound. Gilbert in school boys, found the musical sensibility to increase with age up to nineteen years, but most rapidly between six and nine. Stricker held that musical representations were dependent upon sensations of movement in the larynx, but Wallaschek proved that the musical image was not simple, but that it might be associated with other processes in the organism which of themselves have nothing directly to do with musical representations. This associative factor is of greater importance in music than in speech, because speech, by defining, limits our psychical activity, while music, by exciting, widens it. Thus musical ideas may be of visual, auditory, motor, and mixed types, and a number of instances are recorded where music has aroused definite and distinct visual impressions, sometimes associated with colored hearing, or, much more frequently, with motor impressions, as when music is associated with the movements of the dance. Those in whom music arouses auditory impressions alone, have merely tonal impressions, and thus, from the artistic point of view, belong to a lower type, to whom music is merely a combination of tones, a formal play of the intellect, but in whom it arouses no wider associations.

The pathological disturbances of the musical faculty, some of which have been classed under the heading of amusia, are usually related to the analogous disturbances of language. These have been classified most elaborately by Wallaschek to harmonize with the varieties of speech disturbance, but as only about twenty cases are on record, the classification is more theoretical than practical. The most common forms, according to Brazier, are vocal motor amusia, where motor images relative to singing are lost, and instrumental motor amusia, where images relative to playing are lost. Brazier cites an interesting and unique case of tone deafness, where this was the only symptom, there being absolutely no word deafness or psychical deafness besides. Visual amusia, note blindness or musical alexia, has also been described. Although as a rule amusia is a corollary of aphasia, it may sometimes, as in such cases, be wholly independent of it.

In mental diseases the musical faculties may persist when other faculties fail. Wildermuth thought that about one-third of idiots had a good musical capacity, but Ferrari, who has himself experimented on this point with Bernardini, puts the percentage much lower. Legge, too, has found that in dementes the musical faculties disappear along with other esthetic faculties, before the mental powers have departed. In mania there may be musical incoherence, in stupor and melancholia the patients lose all interest in music, and in general paralysis musical ideas may become grandiose. Irresistible impulses to sing or play are sometimes noted, and musical hallucinations may also occur.

From the days of Homer and Saul music has been commended in the treatment of disease, but the reported benefits are to be received with some scepticism. Ferrari suggests that we can probably find in music only a massage of the hearing, or a sort of vibratory cure of the cephalic centres. In times past the Sorbonne pronounced music efficacious in disease, and Lichtenthal and Porta prescribed definite melodies and used violins made of special woods, poplar or hellebore, against fever and ascites. Even at the present day Maillet has argued that the use of the piano or violin promoted the growth of the hair, but that the use of brass instruments had the contrary effect. Various men have obtained some analgesic effect from music, but its benefits in disease are probably due solely to its power to amuse and divert.

THE WINTER MIGRATION.

DURING the months of January, February and March many of the well-to-do inhabitants of our Eastern States, and especially of the cities along the Atlantic sea-board, leave their homes for weeks or months and seek at the South—in North and South Carolina, in Georgia and in Florida—that climatic equability and moderation which, out-of-doors, is denied them at home. This migration southward and return northward has at length become almost as regularly periodical a phenomenon with human beings as with birds; and as there are no sportsmen to pick off the men and women who indulge this migratory tendency, their numbers increase. The fact that the numbers do increase tends to show that experience proves there is an excess of pleasure and profit over inconvenience and risk from these changes. At least that inference may be drawn, except in so far as the influence of fashion and the force of habit vitiate it.

That there are inconveniences and risks cannot be denied. People with a sensitive respiratory apparatus or insufficient general vigor can be more in the open air at the South, it is true; but, on the other hand, the anticipated climatic equability and moderation are not always found, as witness the frozen orange-groves of Florida. An extreme confidence is not infrequently treacherously betrayed. A recently migrated patient writes from Florida: "The air is delightful, but I have a tonsillitis." Then there are the risks of tuberculous sleeping-cars and hotel bedrooms. Perhaps these are no greater, though more continuous, than those of street-cars and places of public entertainment at home.

Then there is the inevitable struggle for the best places on crowded trains and the best or any rooms at crowded hotels. And the more crowded the trains, the more pre-empted the hotels, the greater the proof to some minds of desirability, and the more eager the wish to be part of the pilgrimage. Then there is the question of coming back. The return is apt to be too early or too precipitous.

Then, in addition to these regular and certain drawbacks or inconveniences, there are others which may be classified as casual or fortuitous. Of these, two instances have chanced to come to our notice during the last twenty-four hours. A train fails to make connections, and a delicate lady has to stand in a crowded car from Baltimore to Washington; at Washington she is separated from her trunk, which is forwarded by a well-known express company; the express company lets the trunk fall into water, ruins an expensive wardrobe, and offers fifty dollars damages. Instance number two: a gentleman telegraphs his wife at a well-known health resort in Florida not to come home on account of bad news. At the end of twenty hours he receives a reply from the hotel that his wife has gone North. He telegraphs for particulars, and eventually is informed that the first telegram was a mistake, that his wife had only gone out to walk.

We have no desire to unduly decry the winter begira, but it is fair to warn those who join these birds of passage, and also those who profess to care for them in transit and after arrival, that the change is neither an unmixed good, nor an unmixed pleasure, nor an unalloyed comfort. It is worth while to suggest that there is an alternative, of which, after the manner of the serial *à la mode*, we propose to say a word in our next issue.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

RESIGNATION OF DR. PRATT. — Dr. John W. Pratt has resigned his position of Superintendent of the Massachusetts General Hospital, which position he had filled most satisfactorily for sixteen years. Dr. Herbert B. Howard, who is at present Superintendent of the State Almshouse at Tewksbury, Mass., will succeed Dr. Pratt on June 1st.

BEQUESTS TO MEDICAL CHARITIES. — By the will of Mrs. C. V. R. Thayer, of Lancaster, Mass., widow of the late Nathaniel Thayer, the following public bequests were made to medical charities: to the Boston Home for Incurables, St. Luke's Home for Convalescents, Children's Hospital (to be used for the Convalescent Home at Wellesley), House of the Good Samaritan, Boston, \$5,000 each; to the New England Hospital for Women and Children, the Massachusetts Ear and Eye Infirmary, and to the Boston Lying-in Hospital, Boston, \$10,000 each; to the Massachusetts General Hospital, for free beds, \$25,000.

LECTURES ON CLIMATOLOGY BEFORE THE HARVARD MEDICAL ALUMNI ASSOCIATION. — On the invitation of the Harvard Medical Alumni Association, Mr. Robert DeC. Ward, Instructor in Climatology in Harvard University, will deliver four lectures on General Climatology and its bearing upon Medical Climatology, at the Harvard Medical School, Boylston Street.

The lectures will be given in Lecture Room C. on the four successive Tuesdays, March 23d, March 30th, April 6th and April 13th, at 8.30 p. m. In addition to the members of the Medical Alumni Association, the members of the Faculty and the students of the Harvard Medical School are cordially invited to attend these lectures.

NEW YORK.

DEATH OF DR. HUNTINGTON.—Dr. Henry K. Huntington died suddenly, of cardiac disease, at his residence at City Island on February 28th, in the fifty-second year of his age. He was born in Hartford, Conn., March 27, 1845. He was graduated from Trinity College, Hartford, in 1866 and afterwards from the College of Physicians and Surgeons, New York. After serving on the house staff of Charity Hospital, Blackwell's Island, and later as resident physician and surgeon at the Convalescent Hospital on Hart's Island, he removed to New Rochelle, Westchester County, where he resided for twenty years and built up a very large practice. For a number of years Dr. Huntington was Health Officer, and also President of the Board of Education, at New Rochelle.

DEATH OF DR. ILGEN.—Dr. Ernest Ilgen, a native of Bavaria, died at his residence in Brooklyn on March 5th, at an advanced age. He was formerly an active member of the Burschenschaft, in Munich, but, incurring the enmity of the authorities, he was obliged to leave the country in 1851. After his arrival in America he began the practice of medicine in Brooklyn, where he achieved a high reputation as a specialist in diseases of children.

Miscellany.

A NEW BULLETIN OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.

THE Harvard Medical Alumni Association has just issued Bulletin No. 10. This is a well-arranged and very useful catalogue, prepared by the Treasurer, containing the names and residences of all the members. This rapidly growing and prosperous organization, founded in 1890, has now on its rolls more than two-thirds of all the living graduates of the Medical School. There are 1,238 members, scattered throughout thirty-six States and Territories, Canada, Mexico and several foreign countries.

The annual bulletins, containing the reports of the meetings and the speeches of the distinguished medical guests at the dinner, are always of interest, and show how well the society is fulfilling its purpose of advancing the cause of medical education and increasing the usefulness and influence of the Harvard Medical School.

The Association, which all graduates of the school, including the members of each year's graduating class, may join, is to be congratulated on the good work it is doing.

Correspondence.

SURGERY UNDER KOCHER AT BERNE.

PARIS, February 24, 1897.

MR. EDITOR:—Prof. Theodor Kocher, of Berne, is a surgeon whose reputation is of wide extent both this side of the ocean and in the United States. Although we know him through his writings, with his personality and his methods as teacher and operator we are not familiar. I trust, therefore, that your readers will find the following details interesting.

Kocher is now about fifty-five years of age. Slight, erect, active, five feet and six inches in height, with iron-gray hair brushed smoothly back from a high forehead, a brownish-gray beard and moustache closely clipped, eyes of a cold gray until his bright smile makes them warm and winning, a straight, handsome nose and extremely fine profile, Kocher, who is always neatly and well dressed, is a very attractive and noticeable man. He was made professor at the unusually early age of thirty-one years, and is the chief object of interest in the medical department of the University of Berne.

Indefatigable, and capable of performing a prodigious amount of work, winter and summer he rises at 5.30 A. M., and, during waking hours never knows one idle moment. By 7.30 A. M. he is usually to be found among his patients at the Insel Hospital. On five days in the week he begins his clinic at 8 A. M., and thereafter operates until 1 P. M. Once weekly he gives a didactic lecture upon the principles of surgery. Several times during the week, in the afternoon, he makes an additional round among his hospital patients. On four or five days in the week he operates in one or the other of two private hospitals. With the exception of a three weeks' vacation in summer he takes no rest, has no recreation, but works unceasingly from early morning until his bed hour. He does not smoke nor does he touch wine, which, in a European, is very exceptional. He is also phenomenally frugal at table.

His private practice is immense and his patients comprise every rank, including royalty. He is noted for his kindness to those of his patients who are poor. He is called in consultation not only throughout Switzerland but to surrounding countries as well. A voluminous writer, Kocher is author of nearly 4,000 pages of printed matter, including his lengthy and superb folio work upon "Gun-shot Wounds and the Force of Projectiles." He devoted years of labor to this work. His "Operations Lehre" has passed through two editions, the first having been published in 1892. The second (1894), was out of print long ago; and a third, enlarged and perfected, is now being published.

In spite of his unceasing and exhausting activity, I have never seen Kocher show the slightest sign of fatigue, nor have I ever heard, touching any other medical man, such glowing tributes as have come from his private patients, many of whom I have met and all of whom expressed toward him the same warm feeling. I could also see that his hospital patients loved and revered him. His manner toward them is always one of deep interest. At the bedside he is simple, unconscious, very winning and completely absorbed in the case before him. I have frequently met Kocher at the bedside of a private patient, late in the evening, after a day of work the amount of which would have tired two ordinary men, his dinner hour having been long forgotten, and he was always the same bright, cheerful, sunny man.

Even his assistants look upon him with wonder, for, expecting from them the same alertness and activity which are peculiar to himself, they are taxed almost beyond endurance and, as one of them confessed to me, so arduous is the discipline which they undergo, that some of them, but for the reputation which they gain by the honor of having been upon Kocher's staff, would resign their positions, and yet, their chief works far harder than any one of them.

He has been twice requested to accept a chair of surgery

in Berlin with tempting emoluments. But he prefers, and rightly, his friends think, to remain in Berne where he is king.

The people of Berne are prouder of Kocher than of their bears, and one who has brought a patient to Kocher, especially a foreigner, has only to mention the fact in order to receive from the railway officials the most pressing and courteous attention.

Given a man of Kocher's activity, precision, thoroughness and erudition, one would naturally suppose that a clinic conducted by him must be something unusual; and Kocher's clinics are unusual and he is a rare teacher. He is never eloquent, but always incisive, remarkably lucid in statement, not multiplying phrases but thoroughly exhausting every bearing of the case under consideration; he is gifted, too, with a power of sustained, uninterrupted speech, never hesitating for a word. His diction is calm but alive with vigor and trenchant phrase. Throughout sparkles a crisp, quiet humor, made evident by the merest touch in word, more by a quick, bright smile which is contagious.

Kocher's diagnostic ability is exceptionally many-sided. He is equally at home whether examining a hidden tumor, a diseased lung, an abnormal heart, an affection of the skin, a case of renal disease, a result of cerebral or spinal malady, a specimen of urine, a pathological or bacteriological preparation under the microscope. In pure surgery he is a master. His delineation of a case evinces great familiarity with writers of all lands, with the opinions of all authorities.

He opens his clinic by calling two students to pronounce a diagnosis of the case in hand which often they have previously examined. His manner with them is gentle and kindly but thorough to the last degree, for no point is left untouched and one of the students, perhaps, is called upon to go to the blackboard, sketch the limb or what not and, with colored chalks, show the relations of muscles, bones, blood-vessels and nerves, the site of glands, bursæ, etc. Kocher will not release a student until the latter is clear as to the nature of the case, even though his professor find it necessary to guide the hand and direct the touch of the student with his own hand.

Kocher's clinics are models of perfect instruction. Every accessory in form of skeleton, bones, wet and dry preparations, models, colored anatomical plates, blackboard sketches (in which Kocher is very clever) and the microscope, are profusely used. Every wound is at once tested by the bacteriologist who, whenever it is possible, quickly brings a preparation of the bacillus or coccus for the inspection of the students and gelatine or bouillon is inoculated for future study. At every clinic whatever has been removed from the bodies of patients on the previous day is fully described and then passed around the class. If their knowledge of anatomy be imperfect the students before the class are liable to become embarrassed by Kocher's questions which are very searching. But such are his methods and so thorough is his painstaking care that a student who failed to carry away a vivid conception of the patient's condition must be dull indeed.

So many accident cases, in the condition in which they came to the hospital, are brought before the class, that students enjoy abundant opportunity to reduce fractures and dislocations and advise treatment under Kocher's help and suggestion. As will be seen this is a strictly practical and instructive clinic.

Kocher's brilliant power to make a diagnosis by exclusion is very impressive.

At his clinic are always visitors who comprise cultured surgeons from various countries. The judgment of those who were present during my stay in Berne (eight weeks, during which I did not miss a clinic) was uniformly the same, namely, that nothing could be more perfect nor more classic than Kocher's delineation of a case and especially his differential diagnosis. One of these, a surgeon at the head of a hospital containing 250 beds, himself a German and who was educated in Berlin and Heidelberg, and another surgeon, chief of a large Austrian hospital, told me they had made themselves familiar with the operative methods of the leading surgeons in Germany, France and

Austria, and that they considered Kocher *facile princeps* as operator and teacher. The first of these gentlemen added that if he had a son who wished to make surgery a specialty, he would send him to Kocher and not to Berlin.

I would advise young American surgeons, who come abroad to study, not to fail to give several months to Kocher's clinic. Material is abundant, operations are profuse in number and variety and the treatment of medical visitors to the medical school of Berne is courteous in the extreme. The visitor would find it worth his while to make a stay in Berne simply to become familiar with Kocher's operations upon goitre. In this field his experience is very large. Up to January first, of the current year, Kocher had operated upon 1,236 cases of goitre, and in these cases, since he perfected his operation, his death-rate has been less than one per cent. This information was given me by Kocher in person.

In passing I will allude to the distinguished service of Kocher, as chief of a commission of 25 physicians, in examining 76,666 school-children of the Canton of Berne for goitre. He not only passed these children in review, or edited and decided upon the statistics passed in by the other physicians of the Commission, but also made, throughout the towns and villages of the canton in valley and upon mountain, a thorough search for the cause of goitre. The results of this large labor are to be found in a pamphlet written by Kocher, illustrated by a beautiful map and published by the authorities of Berne. To these results I shall refer in another letter.

Visitors to Kocher's clinic will find a knowledge of the German language a *sine qua non*. Even with this aid, however, they will sometimes be at fault, for Kocher is obliged to question many patients in Swiss-German and many others in French. He is equally fluent in English.

His class numbers about one hundred students, sixteen of them, for the most part Russian, being women. These young women possess singularly dull and unattractive faces, and, while they pay strict attention and take copious notes, their reputation for ability does not flatter them. They are allowed to witness Kocher's operations in the private room to which he retires after the regular clinic, that is, they take their turn among the students, six of whose names are written upon the blackboard at each clinic, in token that these six are requested to be present at the operations.

The operating-chamber is of the regulation pattern of iron and glass, having a concrete floor containing drainage-holes for the escape of the sterilized fluids which are used during the course of operations. Opening into this room are two steam-chambers, which have a temperature of 150° Centigrade (300° F.) and a pressure of three atmospheres. Kocher considers damp heat the best means of asepsis. From these chambers are taken all cloths, sheets, aprons, gauze compresses and metal boxes of *Tupfen* (small folds of gauze which are used instead of sponges). The operating-table is a frame of iron having a hollow bed of best burnished copper kept filled with hot water, and moulded to the body in such fashion that the trunk and legs of the patient are higher than the head. There are several similar tables, a patient and one table being wheeled into, as another is wheeled out of the room. A broad, padded strap confines the body of the patient to the table and one of the patient's wrists is held by a leather loop the free end of which is passed over and under the table.

There are four assistants: one is at the wound; one gives ether; another watches the pulse; the fourth, in this case a "sister," supplies Kocher with instruments, *Tupfen*, cloths, fluids, etc., and she is a wonder of quickness, dexterity and forethought. All wear heavy, loose rubber overshoes, rubber gowns which reach the floor and are covered by linen frocks which fall to the knees, and are taken hot and damp from the steam-chambers. On the heads of all are sterilized-gauze caps. This costume is a necessity because, during operations, so much hot water is used that the surgeon and assistants otherwise would become drenched to the skin. Before operations the rubber

gowns are washed always with a corrosive-sublimate solution and attempts to find germs upon them have proved negative.

Kocher rarely employs chloroform. As an anesthetic he uses ether almost without exception. In cases in which it is necessary to avoid all possible irritation of the bronchial mucous membrane, as well as emesis, Kocher operates without an anesthetic. In his clinic narcosis is begun by pouring a half ounce of ethyl bromide upon the ether mask. Within thirty to sixty seconds the patient is unconscious, and the condition is continued by the administration of ether. This practice is sensible because the choking sensation caused by ether at the beginning of the anesthesia, and which costs time, is thus avoided. Ethyl bromide is convenient for operations of brief duration.

Kocher's instruments and bandages are cooked thirty minutes daily in boiling water or in a solution containing 7.5 per cent. of table salt and two per cent. of soda bicarbonate. Bandages are always of gauze deprived of fat. Drainage-tubes are glass with slightly knobbed surface; ligatures are invariably silk, Kocher having discarded catgut six years ago. His sterile silk ligatures are kept in corrosive-sublimate solution.

Before he operates and after cleansing his finger-nails with instruments, Kocher washes his hands and nails several minutes with a brush and soft soap under running hot water, then two minutes with brush and sublimate solution. He advises surgeons who find the sublimate irritating to use a one per cent. and warm solution of lysol, and further advises washing with disinfected brush in sterilized soda or salt water, of which solution I have already given the preparations. Kocher values this solution highly.

In operating Kocher dresses wounds by a profuse use of sterilized water from the steam-chambers, and finally with lysol or sublimate gauze; but unless a wound be purulent, like an abscess, or empyema, antiseptic solutions are rarely poured upon it. If a wound be washed out with a two-per-cent. sublimate solution a thorough drenching with a 7.5 per-cent. solution of hot, salt water follows. The first covering of the wound is a hot, damp, sterilized gauze, followed by a layer of sublimate gauze. Closed wounds are covered with sterilized gauze made adherent by collodion. The usual gauze dressing is then added. In closing a wound Kocher never uses an interrupted suture, but sews the lips together from end to end by an over-and-over stitch. Where there are heavy layers of muscle, he first unites the divided muscles in this manner and secondly the skin. He seldom inserts a drainage-tube into the wound itself, but, making an incision in the inferior lip of the wound he pushes the tube through this opening. Basins of hot water, sterilized by carbolic acid, sublimate and lysol, stand in a row upon tripods. During operations Kocher washes his hands very frequently in one of these solutions; and, in short, as to all possible means of asepsis he is the strictest of martinets, and requires the same care from his assistants. An illustration of the perfection of his asepsis was shown by a case of exarticulation of the femur, healing occurring in two days. His goitre cases are discharged usually at the end of ten days.

Instruments lie in solutions in nickel-plated trays upon a tripod arranged like a bed-table, so that when pushed up to the operating-table the trays are immediately over the patient.

Kocher is extremely particular as to the condition of the stomach during the twenty-four hours preceding an operation. For example, an operation is to be made at noon: On the previous evening the patient is given a cup of tea and a rusk; at 5 A. M. the next day he has a cup of tea containing two or three teaspoonfuls of brandy. With these exceptions the patient receives no food until the evening following the operation. With slight modifications this is the course regularly followed. Kocher, however, in some cases likes to give a dose of brandy immediately before the operation. This care is taken even in a simple case when the narcosis is to be of brief duration.

The preparation of the seat of operation consists of the usual shaving and scrubbing with water and soap followed

by sublimate solution. An antiseptic bandage then covers down a heavy gauze pad. This is done an hour or two before the operation, directly preceding which the bandage is removed, and the same twofold scrubbing is thoroughly repeated, being completed only at the moment when the knife enters the tissues. When the patient is removed from the table, the wound being already perfectly dressed, he is carried to his own bed, which has been wheeled upon a bed truck to the operating-room, and there, by means of flat, oval, metal boxes filled with hot water and which have already warmed the bed, and by warmed blankets, he is made comfortable. This avoids the usual second change and the possible disturbances of the customary methods of transfer.

The amount of subordinate work performed by Kocher and the attention which he gives to minute details, which in my experience surgeons usually pass by or relegate to assistants, is astonishing. He neglects nothing, is unflinchingly particular, and unless pushed for time always dresses a wound with his own hands. He has the reputation of doing with success, operations which other surgeons decline because of their apparent hopelessness or because of the danger to the patient which the operation would involve. This reputation is not only popular but proceeded from the profession. At the operating-table his quiet courage and calm decisiveness, his coolness and even cheerfulness under every surgical exigency, seem almost inconsistent with Kocher's slight figure and delicate appearance, but he is as tough as a fisherman of the Grand Banks. He has great delicacy and surety of touch, swiftness of movement and flexibility in manipulation. This is especially evident in operations upon goitre, which, because of the large number of arterial forceps required, the very numerous blood-vessels and the obstacle imposed by the tumor itself, are a very bothering and trying procedure. It would seem far more trying to patients who undergo the operation without ether. Whenever he can gain the consent of the patient, which he succeeds in doing surprisingly often, Kocher prefers to do this operation without the anesthetic. His reasons for this are the dyspnea, from an almost invariably existing compression of the trachea, and the liability of coughing and emesis. In one forenoon I saw Kocher operate for goitre upon three patients, two girls and a lad whose ages averaged seventeen years, without ether. After making his usual semilunar incision, which merely penetrates the cuticle, an injection of a one-per-cent. solution of cocaine was given through a long flexible needle throughout the course of the incision. This was the only anesthetic which was used; and this, of course, influenced the skin alone. During the operations which followed the patients made hardly a sound, and their courage and self-control were characteristic of the Spartan endurance which seems peculiar to the Swiss patient when under the knife. There must have been a large degree of suffering in these cases, for, given a heavy tumor attached to the trachea in a neighborhood rich in nerves, the tumor having an additional weight of forty to sixty arterial forceps and being tossed from side to side during the progress of dissection, averaging thirty minutes in each case, one can easily imagine that great discomfort must ensue. Kocher's arterial forceps weigh eighteen grammes each. Fifty of these would add about two pounds to the weight of the tumor. The integuments are re-united by the continued suture, and two weeks later, the cicatrix is merely a thin red line. In doing this operation Kocher is extremely careful to prevent bleeding, and the amount of blood which is lost is small.

Another feature of the surgical clinic of Berne is peculiar also to the medical clinic (conducted by Professor Sahli whose book on "Methods of Diagnosis" is the best I ever saw of the kind), and this feature is the thoroughness with which cases are examined and followed. I have seen patients brought before the students in a dying condition. This seems severe for the patient, but is of great value to the student. On the day following an operation Kocher almost invariably has the patient wheeled into the lecture-room in order that the students may observe his condition.

In all medical clinics which I had previously attended it was generally made possible to present several patients during the period of the clinic. In Berne a case of muscular insufficiency of the stomach occupied two entire clinics; a case of syphilis, with consequent paralysis, three clinics; a case of locomotor ataxia and a case of supposed fecal tumor, three clinics each; and in the latter case a transfusion of salt water was made before the class, the patient being in a moribund condition. A case of pneumonia during the height of the disease was wheeled in upon her bed and examined by a student. This is thoroughness to the last degree; and yet, such care is exercised, such gentleness is used, the patient is kept so warm, that objection to this course would seem needless. The patients were invariably calm and apparently willing to be thus used. Entire bodily exposure of both sexes is the rule and appears to be a matter of course.

The skin, the eye, the throat, urine, sputa, the response of muscles and nerves to the galvanic current, the general expression of the face, the position of the body in bed, the condition of all the organs are all noticed, tested and considered.

The *Praktikant* (the student called to the patient) is expected to examine the urine for every possible ingredient which has a bearing on the case. He is called upon to examine the blood by means of a spectroscope, to make a laryngoscopic examination of the throat, to diagnose the condition of heart and lungs and express his results on the blackboard by a system of signs invented by Sahli. Percussion and palpation he must apply exhaustively.

In the entire course of teaching in this school, simplicity, directness and utter absence of self-consciousness on the part of teacher, student and patient are strikingly apparent. The one aim is scientific thoroughness and exactitude.

Kocher has won large fame for his radical cure of hernia, for gastro-enterostomy in cancer of the stomach, for his operations on goitre, his discovery of coxa vara, his methods of reducing luxations and other procedures in which he has shown great ingenuity and originality. In varicocele, serotal hernia, and hydrocele he never opens the scrotum but makes his incision above and parallel to Poupart's ligament. Through this incision the parts involved are drawn and the effusion emptied. In fracture of the patella he passes strong silk ligatures through the fibrous envelope of the fragments. Such is the earnestness with which bacteriology is studied in this school that the authorities have just erected a handsome and spacious building, which will be devoted to this branch of medical science under Professor Tavel, whose reputation has reached a high degree.

With the other departments of the school I am less familiar, but sufficiently so to say that while surgery and clinical medicine are both taught excellently well, surgery brilliantly and exceptionally so, the remaining chairs of instruction are well sustained. Any specialty may be studied here. Pathology is carefully taught and the post-mortems are made as finely and with as much exactitude as in Berlin or Vienna.

Very truly yours,

H. O.

DEFICIENT RESPIRATORY CAPACITY THE HEREDITY CAUSE OF PULMONARY TUBERCULOSIS.

OTTAWA, ONT., March 1, 1897.

MR. EDITOR:—As there is evidence tending to prove the theory that all persons predisposed by heredity to consumption have a respiratory capacity or action insufficient for good vigorous health—probably a proportionately small chest with insufficiency of lung membrane; that the predisposition is mainly or primarily due to this cause; in other words, that the insufficient respiratory function is the special primary feature of the predisposition (a condition which may be, practically, acquired by habit, occupation, etc.), I desire the co-operation of the profession in an endeavor to help to establish, by means of collective investigations, the correctness (or otherwise) of this theory.

In this behalf I hereby ask all physicians who have patients predisposed to, or in the early stage of, consumption, to send to me (a post-card will suffice) the information below indicated. As soon as I can study and collate the replies, I shall make the results known to the profession.

Give (1) name (or initials); (2) sex; (3) age; (4) occupation; (5) height; (6) weight (average, when in usual state of health; (7) circumference of the chest, on a level with sixth costo-sternal articulation, when momentarily at rest after an ordinary expiration, and also (8) after habitual natural expansion or inspiration (which last, usually exceeds the first measurement, expiration, by an increase of only about one-fourth of an inch); finally (9), the circumference after a *forced* expiration, and also (10) after a forced inspiration (these two measurements, 9 and 10, varying or showing a range of from one and one-half to four inches). The patient should, of course, be as calm as possible, and had better, usually, practice the *forced* breathing for a few acts before these two last measurements, 9 and 10, are taken.

To be of value all four measurements should be taken as carefully, accurately and free from haste as possible.

Any further information, in brief, as to degree of heredity (family history) in cases, *prominent* symptoms, loss in weight, cough, dulness on percussion, etc., or any remarks, will be a decided advantage.

Measurements of two cases, or several, or the average, could be given on one card.

With the hope that many will comply with the above request, and with much respect for and interest in the profession, I am,

Yours truly,

EDWARD PLAYTER, M.D.

"THE USE OF RINGER'S FLUID."

PHYSIOLOGICAL LABORATORY, HARVARD MEDICAL SCHOOL, BOSTON, March 6, 1897.

MR. EDITOR:—In reference to Dr. F. W. Johnson's paper in the *JOURNAL* of January 21st, page 52, and Dr. R. E. Edes's letter in the *JOURNAL* of March 4th, page 219, I would point out that the conditions to be fulfilled by artificial fluids as uninjurious as possible, within the limits of our present knowledge, to mammalian tissues were not all mentioned by Dr. Johnson (although I believe the solution used by him satisfied them), and are apparently not known by Dr. Edes. They are to be found summarily stated in the *Journal of the Boston Society of Medical Sciences*, No. 1, January, 1896 (this *JOURNAL*, Vol. CXXXIV, p. 173) where, it may be well to add, *isotony* is misprinted *isotomy*.

Truly yours,

F. S. LOCKE, M.D.

METEOROLOGICAL RECORD

For the week ending February 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
					8.00 A. M.	8.00 P. M.								
S...21	29.84	41	52	30	98	63	80	S.	W.	3	8	O.	O.	.11
M...22	30.10	36	40	31	57	88	72	N.	E.	7	12	O.	O.	
T...23	29.66	34	40	28	100	74	87	N.	N.W.	10	18	R.	C.	.70
W...24	30.12	31	38	30	51	54	52	N.W.	W.	20	10	C.	C.	
T...25	30.09	34	40	28	76	73	74	S.W.	S.W.	10	11	O.	O.	
F...26	30.18	29	34	24	50	50	50	N.W.	S.W.	12	7	C.	F.	C.
S...27	30.42	22	30	14	46	62	54	N.W.	W.	8	9	C.	C.	
Mean	30.06		39	26			67							.31

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, FEBRUARY 27, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrhæal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	787	274	11.44	21.58	1.82	.91	2.39	
Chicago	1,619,266	424	152	10.32	23.04	3.02	2.16	1.68	
Philadelphia	1,164,000	—	—	—	—	—	—	—	
Brooklyn	1,100,000	399	131	11.75	10.25	.75	—	6.50	
St. Louis	560,000	194	56	4.16	25.48	—	1.56	1.56	
Boston	494,265	256	59	8.19	23.35	—	.78	4.68	
Baltimore	496,315	144	41	5.52	16.56	3.07	1.38	—	
Cincinnati	356,000	109	—	—	7.36	—	—	—	
Cleveland	314,537	165	32	3.84	7.68	.96	—	2.88	
Washington	275,000	126	28	4.74	22.91	.79	.79	2.66	
Pittsburg	238,617	15	28	5.32	6.98	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	33	9	6.06	18.18	—	—	—	
Charleston	60,845	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	32	14	12.52	18.78	—	—	—	
Fall River	88,620	44	27	4.54	38.59	2.27	—	2.27	
Lowell	84,953	42	18	2.38	11.64	—	2.38	—	
Cambridge	81,519	19	8	26.50	10.52	5.26	—	5.26	
Lynn	62,335	22	—	4.15	—	—	—	—	
New Bedford	55,254	17	12	7.40	3.70	3.70	—	3.70	
Springfield	51,324	14	—	—	28.56	—	—	—	
Lawrence	52,153	—	—	—	—	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,457	14	6	—	21.42	—	—	—	
Brookton	33,167	11	3	9.09	18.18	—	9.09	—	
Haverhill	30,185	12	2	—	25.00	—	—	—	
Malden	29,709	11	2	9.09	27.27	—	—	—	
Chelsea	31,295	—	—	—	—	—	—	—	
Fitchburg	26,394	9	1	—	22.22	—	—	—	
Newton	27,122	7	1	—	—	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,063	16	0	—	6.25	—	—	—	
Waltham	26,877	9	0	—	—	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	7	4	14.28	42.84	—	—	—	
Norhampton	16,238	—	—	—	—	—	—	—	
Newburyport	14,591	3	2	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,032; under five years of age 940; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrhæal diseases and fevers) 261, acute lung diseases 633, consumption 432, diphtheria and croup 85, diarrhæal diseases 43, whooping-cough 53, typhoid fever 30, scarlet fever 26, measles 25, cerebro-spinal meningitis 12, erysipelas 5.

From whooping-cough New York 12, Brooklyn 10, Baltimore and Washington 3 each, Chicago, St. Louis, Boston, Pittsburgh and Cambridge 1 each. From scarlet fever New York 17, Brooklyn 3, Boston 2, Pittsburgh, Cambridge, Malden and Everett 1 each. From measles New York 8, Chicago 7, Brooklyn 4, Boston and Worcester 2 each, Providence and Lynn 1 each. From cerebro-spinal meningitis New York 6, Worcester 2, St. Louis, Nashville, Cambridge and Medford 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,982,524, for the week ending February 20th, the death-rate was 18.8. Deaths reported 3,970; acute diseases of the respiratory organs (London) 355, whooping-cough 94, diphtheria 59, measles 55, diarrhæa 45, scarlet fever 40, fever 22, small-pox (London) 1.

The death-rates ranged from 13.7 in West Ham to 25.8 in Preston; Birmingham 21.0, Bradford 18.5, Bristol 17.5, Croydon 15.5, Gateshead 20.1, Hull 15.3, Leeds 20.0, Leicester 15.6, Liverpool 23.8, London 17.8, Manchester 22.3, Newcastle-on-Tyne 21.6, Nottingham 23.1, Sheffield 15.6.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE PERIOD FROM FEBRUARY 6 TO FEBRUARY 29, 1897.

MEAD, F. W., surgeon. Granted leave of absence for seven days from March 2, 1897.

BANKS, C. E., surgeon. Detailed for special duty on Ford's Theatre Commission. February 16, 1897.

KALLOCH, F. C., passed assistant surgeon. Granted leave of absence for four days from February 19, 1897.

WASDIN, EUGENE, passed assistant surgeon. Granted leave of absence for seven days from March 4, 1897.

KINYOUN, J. J., passed assistant surgeon. To proceed from Washington, D. C., to Havana, Cuba, for special temporary duty. February 15, 1897.

VAUGHAN, G. T., passed assistant surgeon. Detailed in charge of the Division of Sanitary Reports and Statistics of Bureau and attending surgeon, Port of Washington, D. C. February 24, 1897.

GEDDINGS, H. D., passed assistant surgeon. Detailed by the president as technical delegate to the International Sanitary Conference, to be held in Venice, Italy. February 12, 1897.

WERTENBAKER, C. P., passed assistant surgeon. On being relieved from temporary duty at Philadelphia, Pa., about March 9, 1897, to rejoin his station at Delaware Breakwater Quarantine. February 27, 1897.

BLUE, RUFERT, assistant surgeon. Granted leave of absence for ten days from February 8, 1897. Upon expiration of leave of absence to proceed from New York, N. Y., to San Francisco Quarantine Station for duty. February 8, 1897.

OAKLEY, J. H., assistant surgeon. Granted leave of absence for thirty days from February 8, 1897. Upon expiration of leave of absence to proceed to Philadelphia, Pa., for duty. February 27, 1897.

NORMAN, SEATON, assistant surgeon. Granted leave of absence for ten days from February 8, 1897.

PROCHAZKA, EMIL, assistant surgeon. Upon being relieved from duty at Delaware Breakwater Quarantine, about March 10, 1897, to proceed to Reedy Island Quarantine for duty. February 27, 1897.

TABB, S. R., assistant surgeon. Granted leave of absence for fourteen days from March 10, 1897.

JORDAN, W. M., assistant surgeon. When relieved from duty at San Francisco Quarantine about March 1, 1897, to proceed to Marine Hospital, San Francisco, Cal., for duty. February 8, 1897.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next Thursday evening lecture will be given by ASST.-PROF. E. H. BRADFORD, on March 18th, at 8 p. m. Subject, "Disease of the Hip-Joint." The profession are invited.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet at the Medical Library, 19 Boylston Place, Wednesday, March 17th, at 8 p. m.

*At 8 to 8.30: Short communications by Drs. J. M. Jackson, J. L. Morse and Vickery.

*At 8.30: Dr. Franklin W. White, "The Diagnostic Value of Tuberculin." E. W. TAYLOR, M.D., Secretary.

AMERICAN MEDICAL ASSOCIATION, FIFTIETH ANNIVERSARY.—The forty-eighth (there were no meetings held by the Association during the years 1861 and 1862) annual session will be held in Philadelphia, Pa., on Tuesday, Wednesday, Thursday and Friday, June 1, 2, 3 and 4, commencing on Tuesday, at 10 A. M. Addresses: The Presidential Address, Nicholas Senn, Chicago; Address in Surgery, Wm. W. Keen, Philadelphia; Address in Medicine, Austin Flint, New York; Address in State Medicine, John B. Hamilton, Chicago.

Committee of Arrangements, H. A. Hare, 222 South 15th Street, Philadelphia.

WM. B. ATKINSON, Permanent Secretary.

THE TWELFTH INTERNATIONAL MEDICAL CONGRESS.

The programme of the Section in Surgery of the Twelfth International Medical Congress to be held at Moscow from the 19th to the 26th of August, 1897, is before us, and contains the titles of seven papers by European surgeons of eminence and the promise of seven other reports on surgical subjects. Fourteen special communications on subjects, the titles of which are not given, are promised, and nineteen gentlemen who have not promised communications have signified their intention of taking part in the work of the Section. A collective investigation into the merits of various anesthetics is being conducted, the completed report of which is to be presented at the Congress. The names of very few American, English or French surgeons appear on the programme.

RECENT DEATH.

THOMAS WOMERSLEY, M.D., M.M.S.S., died in Watertown, March 7, 1897, aged eighty-one years.

BOOKS AND PAMPHLETS RECEIVED.

On Cyclone-Neuroses and Psychoses. By Dr. Ludwig Bremer, St. Louis, Mo.

Cooper Medical College, San Francisco, Annual Announcement, Session of 1897.

Original Articles.

TRICUSPID STENOSIS, WITH REPORTS OF THREE CASES WITH AUTOPSIES, TOGETHER WITH ABSTRACTS OF FORTY CASES REPORTED SINCE LEUDET'S THESIS (1888).

BY JAMES E. HERRICK, M.D., CHICAGO, ILL.,

Adjunct Professor of Medicine, Rush Medical College; Attending Physician to Cook County and Presbyterian Hospitals.

TRICUSPID stenosis is a cardiac lesion of such rarity that the finding of three cases within a few weeks is worthy of record. These were discovered in the morgue of the Cook County Hospital, August 12, August 30, October 21, 1896. The third case was seen by me during life. For the facts concerning the other cases I am indebted to the members of the house-staff of the hospital. In none of the three was an ante-mortem diagnosis of tricuspid stenosis made. The specimens were shown by me at the meetings of the Chicago Pathological Society for October and November, 1896.

CASE I. Female, age twenty-six. Rheumatic family history. Following childbirth, dyspnea, edema, cough, palpitation, for five months. Autopsy: tricuspid and mitral stenosis.

Cook County Hospital, Case 158,743. Admitted August 5, 1896. Discharged, dead, August 11, 1896.

Mrs. C. B., Austrian, twenty-six years of age. Had lived in this country seven years. Did general housework. Mother died in childbirth. Father died of heart disease following rheumatism. Three brothers and one sister healthy. No venereal taint in history or on examination. Denies scarlet fever or rheumatism. Measles at six. No miscarriages. Seven months ago gave birth to a healthy child, which she nursed for three months. Five months ago first noticed swelling of feet, shortness of breath, palpitation, pain in back, cough with frothy expectoration. Orthopnea for two months.

Examination showed her to be fairly well nourished; quite anemic. There was noted pulsation in vessels of neck (venous?); the breathing was hurried and there was inspiratory retraction of soft parts of the upper chest. The ankles and legs were edematous. The liver could be made out three fingers below costal arch, and showed slight systolic pulsation. Spleen palpable. No abdominal ascites. Lungs showed flatness and loss of vesicular sounds below seventh rib behind. Over the upper and resonant areas numerous moist râles, with intense respiratory sounds. Urine was pale, acid, 1020; small amount of albumin, hyaline casts.

In addition to the cervical pulsation and the hepatic pulse just referred to, the heart and vessels showed the following: "Dulness one-half inch to the right of the sternum in the second interspace, and extending in a vertical line till it is lost in liver flatness at the fifth rib. Absolute flatness begins on left side at fourth rib. Apex-beat in the fifth interspace one-half inch to left of nipple. It is weak. Over apex a thrill that is presystolic-systolic. Second pulmonary tone accentuated. Loud blowing murmur over apex, systolic, transmitted toward axilla. Also over xiphoid cartilage can be heard a loud systolic murmur. In this region a heaving impulse is plainly felt. There is no murmur heard in the carotids. The pulse is small and weak."

The patient entered the hospital August 5, 1896, and died August 11, 1896. The breathing remained embarrassed, averaging 36. There was an elevation of temperature to 100° on admission, and again for twenty-four hours preceding death, at which time it was 104.4°, axillary. At other times it was normal. The pulse was always weak, rapid and of such unstable quality that the nurse has several times placed an interrogation point after her record. Its average was 124.

Autopsy, August 12, 1896. Sixteen hours post-mortem. Condensing the record, there were found the following:

Heart, 560 grammes. Twice the size of owner's fist. Pericardium and coronaries negative. Marked hypertrophy and dilatation of both left and right ventricles. The same is true of the auricles, particularly the right. Aortic valves fairly competent to water-test; free edges very slightly thickened, with a few vegetations. Pulmonary semilunars show nothing abnormal. Mitral valves show marked thickening, especially toward the edges. The posterior cusp is largely adherent by its margin to the anterior, and seems practically immobile. The anterior cusp is more pliable. The opening is somewhat oval in shape, and admits but one finger-tip.

The tricuspid valves are attached by their margins, and form a ring that admits two finger-tips. The edge of this annular opening is surrounded by numerous easily removable vegetations. There was no defect of the ventricular or auricular septa. The aorta showed a few small atheromatous plaques.

Liver, 1,880 grammes. Showed changes of chronic passive congestion, macroscopically and microscopically.

Lungs. Edema, with numerous infarcts.

Spleen and Kidneys. Infarcts; slight increase of connective tissue in each organ by the microscope.

Clinical Diagnosis. Double mitral disease, with hypertrophy and dilatation of right and left hearts, relative tricuspid insufficiency, edema of lungs, passive congestion of liver and kidneys, hydrothorax and anasarca.

Anatomical Diagnosis. Mitral and tricuspid stenosis, with slight aortic sclerosis, infarcts in lung, spleen, kidney; passive congestion of liver and kidney; hydrothorax; general anasarca.

CASE II. Female, age twenty-four. Rheumatism at eighteen. Evidence of valvular disease two years later. Autopsy: Mitral stenosis, aortic regurgitation, tricuspid stenosis.

Cook County Hospital, No. 159,726. Admitted August 23, 1896. Discharged August 29, 1896.

D. A., female, single, Norwegian, age twenty-four, bookbinder by occupation. Gave a negative family history. Menstruation at seventeen. No evidences of previous pregnancy. Had rheumatism at eighteen. Two years later was told by a physician that she had heart disease. Several months ago was obliged to remain some time in bed on account of general weakness due to overwork.

August 19th, that is, four days ago, was forced to quit work on account of weakness. Overexertion causes pain over the lower portion of the chest. Gets out of breath easily; never faints; never has any headache, never any edema.

Present Condition. Fair flesh. Somewhat anemic. Tongue clean. Chest well developed. Movements

hurried and shallow. Lungs clear in front and behind. Abdomen and lower extremities negative.

Heart and Vessels. Pulse rapid, and counted with difficulty on account of feebleness of the same at the wrist. Relative dullness begins in third interspace in the right parasternal line and reaches to the left two fingers outside the nipple line. Absolute dullness begins in the fourth interspace in the left sternal line; reaches on the left to the mammillary line. Apex impulse visible, and palpable in fifth interspace two fingers outside of nipple line. Systolic murmur at apex transmitted into axilla. The breathing remained rapid during the patient's stay in the hospital, the temperature subnormal. The pulse at the wrist was usually uncountable; the heart's action was always rapid. Urinalysis showed neither albumin nor casts. The patient died suddenly at 6.15 A. M., August 29th.

Autopsy, August 30, 1896. Edema of lungs with infarct in right lung. Double hydrothorax with some old pleuritic adhesions. Chronic passive congestion of liver, spleen, kidney and intestines. Round ulcer of the stomach.

Heart very large, weighed 830 grammes. Over the right ventricle a thick layer of subpericardial fat. Coronaries negative. All the chambers of the heart enlarged. Walls of left ventricle greatly thickened, averaging nearly two centimetres. Excessive enlargement of right auricle. Muscular structure (*musculi pectinati*) of auricle shows great hypertrophy. Eustachian valve prominent. No defect in interventricular or interauricular septa; foramen ovale entirely closed by thick membranous curtain. Myocardium firm, a trifle pale. Aortic valves thickened and retracted; minute granulations on free borders. Sinuses of Valsalva distended. Mitral valves thickened; cusps adherent, forming cone-shaped cavity at the apex of which, and toward the apex of the heart, is the circular opening that admits one finger-tip. Tricuspid leaflets united at margins in a manner similar to mitral. The circular orifice admits one and one-half finger-tips. The endocardium in the vicinity of the tricuspid and mitral valves is grayish and apparently deformed; the papillary muscles show the same change; the chordæ tendineæ are many of them shortened. Pulmonary valves negative.

The anatomical diagnosis of the cardiac lesion would therefore be mitral and tricuspid stenosis, aortic sclerosis permitting regurgitation, with general cardiac hypertrophy and dilatation.

CASE III. Female, age forty-six. Previous rheumatism. For months cough, dyspnea, edema, cyanosis, etc. Autopsy: mitral stenosis; tricuspid stenosis, *gradus levioris*.

Kate J., Case No. 157,962. Admitted July 20, 1896. Died October 18, 1896.

Patient is forty-six years of age, of average size. Had rheumatism some years ago. For months has complained of dyspnea, cough and palpitation. Is found on examination, cyanotic, dyspneic and edematous. Epigastric and cervical pulsation. Positive venous and hepatic pulse. Pulse irregular, small, rapid. Heart boundaries moderately enlarged, especially to right. Apical thrill, systolic and presystolic. At apex a systolic murmur. At most examinations, also, a presystolic or diastolic murmur; at times this murmur is inaudible. First tone at apex loud and abrupt; second pulmonic, accentuated. At first a

systolic murmur over tricuspid area; this later, with rest, disappeared, as did hepatic and venous pulse. At times delirium. Bleeding resorted to with temporary relief to dyspnea and cyanosis. Gradual failure. Death October 18, 1896.

Clinical Diagnosis. Mitral stenosis, with regurgitation; cardiac hypertrophy, with dilatation; relative tricuspid insufficiency; passive congestion of liver, spleen, kidney, stomach and intestines.

Autopsy (Dr. L. Hektoen). Chronic endocarditis of aortic, mitral and tricuspid valves (mitral and tricuspid stenosis); cardiac hypertrophy, dilatation of the auricles; thrombosis of right auricular appendix. Pulmonary edema. Right adhesive pleuritis. Passive congestion of the liver, with atrophy. Passive congestion of the kidney; chronic interstitial proliferation; old infarct in kidney. Chronic gastric catarrh. Ulcer in colon. Edema of extremities.

The heart weighed 370 grammes. There was comparatively little enlargement of the ventricular cavities or thickening of their walls. The auricles, on the contrary, were unusually dilated, particularly the left. The pulmonary valves were negative. The aortics show a little fibrous thickening, but were fairly competent to the water-test. The mitral cusps were thickened and adherent, the opening admitting two finger-tips; a few small, fresh vegetations upon their edge. The tricuspids showed a slighter degree of stenosis, just admitting three finger-tips. The aorta had a few yellowish plaques at its beginning.

FREQUENCY.

Walsh says "excessively rare," and the least common of lesions. Strümpell says "so rare as to have no practical significance." Ashbou¹ in 1,024 clinical diagnoses of valvular disease found no tricuspid stenosis. In St. Mary's Hospital, London, from 1851-1870, there was found but one case of tricuspid stenosis.² But in 1868 Duroziez found records of 21 cases. Bedford Feuwick in 1881 analyzed 46 cases; and in 1888 the younger Leudet, in a Paris thesis, collected 117 cases, 114 of which were with autopsy records. Since Leudet, I find 40 cases with autopsies, making a total of 154. Leudet's thesis must furnish the foundation for future work, and I freely quote his statements.³ Since then several cases have been added to the list, but little has been added to change his conclusions.

CLASSIFICATION.

Tricuspid stenosis may arise as the result of intra-uterine endocarditis or myocarditis, or as an intra-uterine fault of development; or it may be post-natal and the result of an extra-uterine endocarditis. From these facts arise the common classification into congenital and acquired cases.

CONGENITAL TRICUSPID STENOSIS.

This form, the result of a developmental vice or an intra-uterine endocarditis, is generally accompanied by some of the following abnormalities: stenosis of the pulmonary artery, defects in the interventricular septum, patent foramen ovale and ductus Botalli. Clinically these cases present the phenomena of cyanosis, clubbed fingers, diastolic and systolic bruits. Few survive until twenty, succumbing to circulatory dis-

¹ Medical News, 1894, No. 25.

² Day: Medical Record, September 7, 1889.

³ In Leudet's thesis a complete bibliography up to 1888 is to be found.

turbances or to an intercurrent tuberculosis. It is not my purpose further to discuss the congenital forms.

ACQUIRED FORM.

Etiology.—Antecedent rheumatism was found by Leudet in about 50 per cent. In the 154 cases, 51, that is, 30 per cent., had rheumatism. This is more than 50 per cent. of the cases where rheumatism is referred to. (See Table IX.)

Leudet, Fenwick, Duroziez, Baumel, are firm believers in the rheumatic origin. Leudet believes that under this head should be classed the milder manifestations of rheumatism, such as sore throat, muscular rheumatism, etc. Some, however, as Peacock and Rosenstein, regard all cases of tricuspid stenosis as of congenital origin. Flint speaks of an acquired tricuspid stenosis as a rare curiosity; Niemeyer as exceptional; Skoda never saw a case in the living. The view that rheumatism may be an extra-uterine cause is supported not alone by the absence in many cases of symptoms of cyanosis in childhood, the age of some of the patients, the clear history of rheumatism with cardiac symptoms soon following, as in my own case (II), but by the absence of the almost inevitable consequences of intra-uterine right-heart valvular obstruction, namely, patent foramen ovale and ductus arteriosus or deficient septum. Syphilis has been assigned as a cause. Leudet believes the puerperal state explains its greater frequency in women (compare Case 1). Auriculo-ventricular disease, it may be noted, is commoner in women (Bamberger). Of Leudet's 114 cases, 86 were women, 22 men, 6 sex not recorded. The age at death showed the largest number, 38 per cent., dying between twenty and thirty. The youngest to succumb died at fourteen, the oldest at sixty-four. Adding the cases I have collected, I find out of a total of 154, 114 in women, 32 men, 8 sex not recorded. The youngest case is that of Colbeck, a boy, dying at twelve. As in Leudet's series, the largest number died between the ages of twenty and thirty. (See Tables II and VII.)

Pathological Anatomy.—The tricuspid leaflets are commonly found adherent by their free borders. They may be more or less thickened. The neighboring endocardium may show inflammatory change in the grayish, fibrous areas; the chordæ tendineæ may be shortened, the papillary muscles deformed. The opening, linear, oval or circular, is at the base of a cone made of the united cusps and may admit three finger-tips, two, one, or less than one. The latter cases, Bamberger says, merit admission to anatomical museums. These changes are the result of an endocarditis that has been graphically described by Chauffard as follows: "This is the result of a chronic endocarditis that is slow and silent, generalized rather than profound, very slightly vegetative, but rather adhesive and plastic, and that tends to unite the diseased valves by their borders." Vegetations and calcareous plaques may be found. One of Leudet's own cases was an ulcerative endocarditis implanted on tricuspid valves, the site of an old stenosis.

Leudet makes a second class of cases including the stenoses, strictly speaking, and a third class where the obstruction is due to polypoid concretions, vegetations, etc. Symptomatically these are stenoses; pathologically, in a strict sense, they are not.

Tricuspid stenosis is rare as an isolated valvular lesion. Naturally with the stenosis there is regurgita-

tion at this orifice. Other valves are commonly involved. Only 11 of Leudet's cases showed tricuspid disease alone. Many older writers claim that tricuspid stenosis never occurs without lesions of the left-heart valves, and this statement is not uncommonly met with in recent text-books. Leudet's statistics, however, disprove this. His table is as follows:

Tricuspid stenosis alone	11
Tricuspid stenosis with mitral stenosis	78
Tricuspid stenosis, mitral and aortic stenosis	21
Tricuspid stenosis and pulmonary stenosis	3
Tricuspid stenosis, mitral stenosis and pulmonary stenosis	1
	<hr/> 114

For completed table see Table VII.

Usually the mitral is more contracted than the tricuspid, as in my three cases. It is exceptional to find the right auricle of normal size (Hayden, Duroziez). Commonly it is enlarged; it may be truly colossal, three times its normal size, and like "a supplemental heart." Where the stenosis has been marked, there has been found a small right ventricle, and this in spite of the fact that there may be mitral stenosis (*Cf.* Case III). Commonly, however, the combined lesions give general enlargement of the heart chambers, as in the first two of my cases. A patent ductus arteriosus has been found. Ashton calls attention to the fact that no cases are reported where tricuspid and aortic stenosis have been combined without there being an associated mitral stenosis.

SYMPTOMATOLOGY.

The subjective symptoms are those common to valvular diseases. Dyspnea may be extreme. Cyanosis is generally marked. Venous stasis with edema may be pronounced. The pulse, from small supply of blood to the systemic side of the heart, is small, the pulmonic tone commonly feeble. Venous pulse, presystolic in character, is generally seen, often with a positive systolic pulse from concomitant insufficiency. Percussion reveals an enlarged right heart and commonly left also, from mitral or aortic disease. In Case I the high point (second space) at which dullness began to the right of the sternum, would be suggestive of right auricular enlargement. Thrills are at times present.

The murmur is diastolic, heard best over the tricuspid area and is particularly diagnostic when clear-cut over the right fifth and sixth cartilages (Grawitz). The murmur is frequently inaudible. Frequently, too, the presence of other murmurs, or of adventitious pulmonary and bronchial sounds, serves to drown the murmur of this lesion; or tachycardia and arrhythmia make its analysis impossible. That there is no uniformity in the character, intensity, quality, or even presence of the murmur is shown by the diverse testimony of competent observers. To quote only a few who speak of it: Hope says the murmur is a rarity. Walshe knew nothing of it by experience, though thinks he heard one such murmur. Sieveking says it is theoretical but never met. Berth and Roger, Potain and Rendu says it has never been proven. Paul says the same thing. Flint says a "tricuspid direct murmur is one of the rare curiosities of medical experience." Leube says the symptoms are largely theoretical. Da Costa says the same. So rare is this form of valvular disease that Skoda advised that a diastolic murmur over the right ventricle be rather looked upon as pericardial. The murmur in Shattuck's

case was for a long time absent. In some of Colbeck's cases he records a "suspicion of a murmur."

But six of the 114 cases were diagnosticated during life. Since then Shattuck⁴ reports an ante-mortem diagnosis in which a double murmur in the tricuspid area so differed from that heard over the mitral region that the tricuspid was believed to be affected and was so proven post-mortem. Grawitz also made an ante-mortem diagnosis. Duroziez says the tricuspid murmur is audible only in front. Hayden found an area between the mitral diastolic and the tricuspid diastolic where no murmur was heard, hence proving two murmurs. Many other records, for example, Stokes, Haldem, Duroziez, Charteris, Fenwick, Duckworth, and others, show a diastolic murmur. Some of Colbeck's series were diagnosticated *intra vitam*.

DIAGNOSIS.

To judge from the clinical histories of the cases reported, one may conclude that tricuspid stenosis can be suspected when the patient is a female; has had rheumatism; has a history of dyspnea, palpitation, edema, often with remissions and exacerbations; is cyanotic; has rapid, arrhythmic, feeble pulse; has mitral stenosis with enlarged right heart, particularly if auricular enlargement can be made out. Especial value attaches to persistent cyanosis. If, in addition to this, there is a presystolic or diastolic murmur, heard best over the ensiform, or over the right fifth and sixth cartilages, and particularly if this murmur differs in intensity, quality, or pitch from the mitral diastolic, or if there is an area between the mitral and tricuspid areas where no murmur is audible, the diagnosis becomes reasonably certain.

Theoretically, enlarged right heart, feeble pulmonic second sound, diastolic murmur over the tricuspid area, loud right-heart tones, marked cyanosis and weak pulse would be expected in tricuspid stenosis. Its combination with other valvular lesions makes its recognition extremely difficult in practice. One does well if he suspects it. Probably the most certain sign is the diastolic murmur over the xiphoid differing in quality from that heard over the mitral area, such as was heard in Shattuck's case. But this is inconstant.

Colbeck adds that a short, sharp, and loud right-heart first sound not obscured by a systolic murmur that may be present, points toward tricuspid stenosis. Shattuck's conclusion is that, "Whether a presystolic soufflé can be heard or not, tricuspid stenosis can be pretty safely diagnosticated if the patient is a female with rheumatic history, has mitral stenosis, perhaps also aortic disease, and presents the evidences of prolonged or recurrent venous stasis of greater or less degree." The occurrence of serious dropsy in mitral stenosis is, according to Sir William Broadbent (quoted by Colbeck), an evidence of tricuspid stenosis.

PROGNOSIS.

While the prognosis is in general bad, the fact that patients may live for years, even to the age of sixty-four, should be remembered. We commonly, too, hear auricular compensation spoken of as purely theoretical. A glance at the greatly thickened wall of the right auricle in the specimen from my own case (11), with the massive *musculi pectinati*, will convince one that the auricular hypertrophy in this case at least, must have rendered the right auricle, for a

time, competent. The prognosis must be determined by the complexus of symptoms, the general condition of the patient, the nature of the occupation, etc. The relief to, or the prevention of, pulmonary congestion offered by tricuspid stenosis ought, perhaps, to be taken into account as explaining the ripe age attained by some of these patients.

TREATMENT.

This would be governed by the same rules that govern the treatment of cardiac valvular disease.

ABSTRACT OF CASES SINCE LEUDET'S THESIS (1888).

CASE 1. Hebb, R. G. "The Westminster Hospital Reports," 1888. Vol. IV, p. 183. Post-mortem records only are given. Male, age nineteen. Admitted December 1, 1884, under Mr. Cowell; died February, 1885.

Autopsy. Terminal phlegmonous erysipelas. Pericardial fluid. Auricular hypertrophy and dilatation; ventricles small. "Both auriculo-ventricular valves are in the condition of extreme stenosis. The aortic orifice is also stenosed."

CASE 2. Hebb, *ibid.* Female, age thirty-two. Admitted April 27th, under Dr. Donkin; died June 18, 1885.

Autopsy. Heart 14 ounces. Both auricles enlarged and their walls hypertrophied. "There is stenosis of the tricuspid and mitral valves, the latter not admitting the tip of the little finger. The tricuspid measures just three inches. The cusps of all four valves are bestudded with recent delicate vegetations."

CASE 3. Hebb, *ibid.* Female, age forty. Admitted July 12th, under Dr. Allchin; died July 16, 1888.

Autopsy. Heart 12 ounces. Auricles large. Right auriculo-ventricular orifice just admits the tip of forefinger; cusps adherent. Mitral orifice "a mere chink"; cusps adherent. Ventricles small. Aortic valves slightly thickened but competent.

CASE 4. Hebb, *ibid.* Female, age twenty-three. Admitted under Dr. Allchin; died September 24, 1887.

Autopsy. Heart 17 ounces. Auricles dilated. Mitral and tricuspid valves are stenosed from thickening and adhesion of the cusps.

CASE 5. Hebb, *ibid.* Female, age forty-one. Admitted April 24, 1885, under Dr. Sturges; died September 28, 1887.

Autopsy. Heart 16 ounces. Cusps of mitral and tricuspid adherent and thickened. Aortics slightly thickened at bases. Mitral 2.0 inches; tricuspid 4.25 inches.

CASE 6. Hebb, *ibid.* Female, age twenty-six. Admitted September 15, 1885, under Dr. Sturges; died October 31, 1887.

Autopsy. Heart 13½ ounces. "The cusps of the mitral and tricuspid are adherent and thickened." Tricuspid ring 3.0 inches; mitral 1½ inches.

CASE 7. Hebb, *ibid.* Female, age sixty-three. Admitted April 2d, under Dr. Donkin; died May 14, 1888.

Autopsy. "Heart 14 ounces. Tricuspid thickened and its two anterior cusps united by an opaque cicatrix. Aperture 4.5 inches. The cusps of the mitral are thickened and adherent and its aperture linear; 1.8 inches."

CASE 8. R. G. Hebb. "Transactions Pathologi-

⁴ Boston Medical and Surgical Journal, March 26, 1891.

cal Society," London, XL, 60. Female, A. V. At eighteen treated for heart disease. Dyspnea for long time previous. No acute disorder. In 1886 hemiplegia (embolic). Cardiac enlargement, arrhythmia, presystolic thrill and murmur. Died at age of twenty-three, February 1, 1889.

Autopsy. Heart $13\frac{1}{2}$ ounces; mitral and tricuspid stenosis; auricular hypertrophy; some recent inflammation of endocardium of wall of left auricle.

CASE 9. Hay, C. M. *Medical Record*, September 7, 1889, xxxv, p. 256. Woman, age thirty-five. Mania, marked cyanosis, arrhythmia, feeble pulse, and feeble apex-impulse, systolic thrill. Murmurs difficult to analyze, but double mitral and double aortic recorded. Jaundice, temperature 102° , gangrene of nose.

Autopsy. Congestion of brain, lungs, kidney, liver, spleen; old pleuritis. Heart: hydropericardium; aortic stenosis (less than one finger-tip); mitral stenosis (one finger-tip); tricuspid stenosis (two finger-tips); auricles greatly hypertrophied and dilated; ventricles but little changed; no septal defects.

CASE 10. Vaughan, J. S. C. *Medical Press and Circular*, London, 1889, n. s., XLVIII, p. 80. Not accessible, quoted from Ashton's table.

Female, age twenty-six. No rheumatism; tricuspid and mitral stenosis; aortic vegetations.

CASE 11. Vaughan, *ibid.* Female, age fifty. No rheumatism. Tricuspid and mitral stenosis, with aortic vegetations.

CASE 12. Pawinski. *Gazeta lekarska*, 1890, No. 26. Abstract in Virchow and Hirsch's *Jahresbericht*. Female, age thirty. No mention of rheumatism. Cardiac enlargement. Apical double murmur. Pulmonic second accentuated. Death from intercurrent pneumonia and meningitis.

Autopsy. Tricuspid, mitral and aortic stenosis. Ventricles not enlarged; auricles greatly dilated.

CASE 13. Thacher. "Proceedings New York Pathological Society," *Medical Record*, 1889, xxxv, p. 189. Female, age twenty-nine. No rheumatism; scarlatina in childhood. For five months edema and dyspnea. Congestion of the face. Heart enlarged, irregular. Mitral presystolic and aortic direct murmurs.

Autopsy. Tricuspid, mitral and aortic stenosis.

CASE 14. F. C. Shattuck. *Boston Medical and Surgical Journal*, CXXIV, p. 307. H. G., female, age forty-three, seamstress, alcoholic. Admitted February 19, 1886. Doubtful history of rheumatism in 1871. In 1879 was told she had heart disease. Repeated attacks of cough, asthma, dyspnea, dropsy.

Examination showed cardiac dullness, increased especially to the right. Hepatic pulse. Over aortic, mitral and tricuspid areas, double murmurs. "The systolic and presystolic murmurs in the tricuspid area can be differentiated from those in the mitral area, their qualities being different, and the tricuspid presystolic distinctly musical." Diagnosis of tricuspid stenosis made ante-mortem. "Under treatment dropsy disappeared as did also the presystolic tricuspid murmur, and I never heard this again." For two years spent part of her time in hospital and part at her work. Died, May 3, 1890. Clinical diagnosis: Mitral and tricuspid stenosis and regurgitation; aortic regurgitation and stenosis or roughening; adherent pericardium; hepatic cirrhosis, slight interstitial nephritis.

Autopsy. (Dr. Fitz.) Confirmed diagnosis of val-

vular lesions. Mitral admitted less than one finger; tricuspid admits two finger-tips; aortic incompetent; slight and more recent vegetations on pulmonary valves; small aortic aneurism at beginning of arch.

CASE 15. E. Grawitz. *Zeitschrift für klinische Medicin*, Vol. xxiii, p. 168. Case of a man, twenty-four years old. St. Vitus's dance, when a child, for five years. Symptoms of valvular heart disease. Ante-mortem diagnosis of tricuspid stenosis. Autopsy showed aortic, mitral and tricuspid stenosis. The wall of left ventricle very thin. In diagnosis he regards murmur over fifth right cartilages as of great value. In this case with "thud" also.

CASE 16. Delépine. "Transactions Pathological Society," XLII, p. 59. Male, age forty. Old stricture. Repeated attacks of hematuria dating back six years. Five weeks before death, rupture of "anal abscess."

Autopsy. Tricuspid cusps thickened and partly calcified with thick and calcified vegetations. Fibrous thickening and calcification of endocardium of left auricle.

CASE 17. Drummond. *Lancet*, September 10, 1892. Aortic, mitral and tricuspid stenosis in a woman forty years of age. The tricuspid murmur thought to be transmitted. The case is believed by Drummond to be congenital.

CASE 18. Chaplin. "Transactions Pathological Society," London, 1892, XLIII, p. 29. Girl, age eighteen. Dyspnea, edema, cyanosis. Cardiac enlargement. Apical systolic and presystolic murmur. Death in eight days, preceded by hemoptysis. No rheumatic history. Scarlet fever eleven years ago.

Autopsy. Extreme stenosis of mitral and tricuspid valves. Aorta narrow. Regarded as possibly congenital.

CASE 19. Chaplin, *ibid.* Age and sex not given. Distinct history of rheumatic fever. Autopsy showed mitral stenosis and tricuspid stenosis (two finger-tips).

CASE 20. Philip. "Edinburgh Hospital Reports," 1893, Vol. I. Male, age forty-six. No rheumatism. Simple tricuspid stenosis (quoted from Ashton).

CASE 21. Gibson. "Edinburgh Hospital Reports," 1893, Vol. I. Female, age thirty-one. Rheumatism. Tricuspid and mitral stenosis.

CASE 22. Gibson, *ibid.* Female, age twenty-one. No rheumatism. Tricuspid and mitral stenosis.

CASE 23. Colbeck. *Medical Chronicle*, Manchester, 1893, xviii, pp. 297-312. Thesis for degree M.D., Cambridge. John T., age forty-four. Service of Dr. Broadbent, admitted February 24, 1892. Rheumatism at fourteen. Dyspnea, edema, moderate cyanosis, albumin, pulse 90. Heart enlarged, right and left. Apical first sound loud and abrupt; second sound faint. Presystolic thrill and presystolic murmur. Systolic murmur over tricuspid.

Autopsy. Tricuspid admitted two fingers; mitral, one finger.

CASE 24. Colbeck, *ibid.* Kate M., age thirty-two. Admitted December 1, 1891, under Dr. Lees. No rheumatism. Dyspnea for six months; edema, distended veins. Pulse small, 120. Heart enlarged in all directions. Systolic apical murmur; also long, rumbling presystolic murmur, leading up to a very loud snap synchronous with impulse. Second sounds feeble. December 16th, suspicion of presystolic murmur over ensiform.

Autopsy. Great hypertrophy of right auricle. Tri-

cuspid admits one finger. Mitral same. Cavity of left ventricle contracted.

CASE 25. Colbeck, *ibid.* Fanny R., age thirty-eight. Admitted January 6, 1892, under Dr. Broadbent. Cough, dyspnea, hemoptysis. History of rheumatism. Marked cyanosis. Pulse small, irregular, 100. A presystolic murmur heard best over the ensiform differed from a synchronous murmur heard over apex.

Autopsy. Mitral and tricuspid stenosis, each admitting one finger-tip.

CASE 26. Colbeck, *ibid.* E. H., female, age thirty. Admitted May 30, 1887, under Sir Wm. Broadbent. Rheumatism eight years before. Cyanosis, clubbed fingers, dyspnea; pulse, 132, irregular, weak. Toward the last a presystolic murmur was heard over the ensiform. "June 24th, a diastolic murmur was heard at the apex, and a presystolic murmur in the tricuspid area."

Autopsy. Tricuspid and mitral stenosis, each one finger-tip.

CASE 27. Colbeck, *ibid.* John L., age twelve. Case of Mr. Lunn. Rheumatism two years before. Edema, palpitation, cough, cyanosis, venous pulse. Toward the last a short, rough, presystolic murmur was heard.

Autopsy. Mitral and tricuspid stenosis (one finger-tip). Pulmonary cusps slightly thickened.

CASE 28. Colbeck, *ibid.* Margaret S., age eighteen. Case of Dr. Sansbury. Probable rheumatism six years before. Edema, dyspnea, cyanosis; pulse 120, regular. Heart enlarged, upper limit to second rib. Systolic and presystolic apical murmurs.

Autopsy. Tricuspid and mitral stenosis (one finger-tip).

CASE 29. Colbeck, *ibid.* Alice R., age twenty-five. Case of Dr. Eustace Smith. Rheumatism at fourteen. Dyspnea, edema, clubbed fingers; pulse 60 and small; systolic and diastolic murmurs at apex.

Autopsy. Tricuspid, two fingers; mitral, one finger.

CASE 30. Colbeck, *ibid.* Man. Dropsy, cyanosis, dyspnea. Presystolic apical murmur and accentuated right-heart sounds.

Autopsy. Mitral stenosis, with thickening of tricuspid flaps and some narrowing of orifice.

CASE 31. Colbeck, *ibid.* Woman, same as in Case 8, with suspicion of diastolic murmur in tricuspid area.

Autopsy. Tricuspid and mitral stenosis.

CASE 32. Müller. *D. Militärärztl Zeitschrift*, Heft 1, 1894. Case where rheumatism existed for twenty years before. Aortic, mitral, tricuspid disease, and pericardial adhesions.

CASE 33. Middleton. *Glasgow Medical Journal*, April, 1894. Female, age forty-four. No rheumatism; scarlet fever in childhood. Symptoms of cardiac disease for eight years. Admitted to Glasgow Infirmary, May 2, 1893. Palpitation, dyspnea, edema, ascites, cyanosis. Repeated tapplings for ascites. Cardiac dullness greatly increased to right and left; shape and area suggestive of pericardial effusion. Apical thrill. Auricular-systolic and ventricular-systolic murmurs. Systolic murmur over aortic cartilage. Venous pulse; pulmonic congestion not marked. Possibility of tricuspid stenosis discussed.

Autopsy, November 28, 1893. Heart greatly enlarged, 17 ounces. Right auricle enormously distended, and producing greater part of dullness to the right of

sternum. Aortic, mitral and tricuspid stenosis. Mitral circumference $1\frac{1}{2}$ inches; tricuspid 2 inches.

CASE 34. Ashton and Stewart. *American Journal Medical Sciences*, 1895, n. s., cix. Male, age nineteen. Influenza at fifteen. No definite previous rheumatism, though "rheumatic pains." Dyspnea, palpitation for four to six years previous. Heart lesion (mitral stenosis) recognized during examination for life insurance in March, 1894. A few weeks later, increasing dyspnea, marked cyanosis, edema. Examination showed enlarged heart, with feeble impulse. Pulse at wrist imperceptible. Presystolic apical thrill; none over tricuspid area. Apical presystolic and systolic murmurs. Systolic murmur also over tricuspid area and over aortic cartilage. Clinical diagnosis of double mitral lesion with relative tricuspid insufficiency.

Autopsy, July 28, 1894. Hydropericardium, enlargement of chambers of right heart; pronounced stenosis of tricuspid, mitral and aortic valves.

CASE 35. Dock. "Transactions Association of American Physicians," 1896, Vol. xi, p. 186. Male, age twenty. Always weak and sickly. Chorea at eight years; scarlatina at twelve; influenza also. Face was "blue" at sixteen. Several times in hospital under Dr. Dock, with evidences of compensatory failure. Heart greatly enlarged to left and right. Apical diastolic murmur and presystolic thrill, flapping first sound, pulmonic second accentuated. Pulse irregular and quick. Later an apical systolic murmur and systolic musical murmur over ensiform. *Pulsus celer*, and loss of aortic second tone. Thrill also felt in second interspace to right of sternum. Cyanosis always pronounced. Never a positive venous pulse. Liver at first enlarged, later smaller. Numerous tapplings for ascites. Diagnosis of double mitral lesion, aortic insufficiency, tricuspid regurgitation. Possibility of congenital defect or tricuspid stenosis considered.

Autopsy. Tricuspid, mitral and aortic stenosis. Atrophic liver (cardiac).

CASE 36. Balfour. Quoted from Ashton and Stewart. Male, age fourteen. No rheumatism. Tricuspid and mitral stenosis.

CASE 37. Herrick, James B. Current number of this journal. Female, age twenty-six. Rheumatic family history. Two months after childbirth and five months before coming under observation, noticed edema, cough, dyspnea, palpitation, slight albuminuria. Patient was edematous, dyspneic and cyanotic. Jugular and hepatic pulse. Heart universally enlarged especially to right and upwards. Systolic murmurs over apex and xiphoid. Presystolic thrill at apex. Accentuated pulmonic second. Pulse small, rapid, irregular.

Autopsy. General hypertrophy and dilatation of all heart-chambers, particularly right auricle. Septa intact. Tricuspid stenosis (two finger-tips); mitral stenosis (one finger-tip); some thickening of aortic cusps, with a few vegetations.

CASE 38. Herrick, *ibid.* Female, age twenty-four. Rheumatism at eighteen. Evidences of valvular disease two years later. Dyspnea, but no edema. Heart generally enlarged. Apical systolic murmur. Further findings uncertain because of rapid heart action.

Autopsy. Heart greatly enlarged in all its chambers. Right auricle shows excessive hypertrophy and

dilatation. No defect in septa. Tricuspid and mitral stenosis with aortic insufficiency.

CASE 39. Herrick, *ibid.* Female, age forty-six. Previous rheumatism. For months cough, dyspnea, edema and cyanosis. Pulse small, irregular, rapid; positive venous pulse; hepatic pulse. Moderate cardiac enlargement. Presystolic and systolic thrills. Double mitral murmur. Systolic murmur over tricuspid area. Snappy first tone; second pulmonic accentu-

ated. Tricuspid murmur, venous pulse and presystolic murmur not constant. Venesection for extreme cyanosis. Gradual failure. Clinical diagnosis: double mitral disease, with relative tricuspid insufficiency.

Autopsy. Tricuspid and mitral stenosis, with slight thickening of aortic cusps.

CASE 40. Lipari. *Rif. med. Napoli*, 1891, vii. From the *Index Medicus*. Tricuspid and mitral stenosis with *concretio cordis*.

NO.	OBSERVER.	WHERE RECORDED.	AGE.	SEX.	PREVIOUS HISTORY.	VALVES DISEASED AS SHOWN BY AUTOPSY.
1	R. G. Hebb.	West. Hos. Rep., 1888, vol. iv.	19	M.	(?)	Tri., mitral and aortic stenosis.
2	R. G. Hebb.	" " " " "	32	F.	(?)	Tri. and mitral stenosis.
3	R. G. Hebb.	" " " " "	40	F.	(?)	Tri. and mitral stenosis (aortic slightly thickened).
4	R. G. Hebb.	" " " " "	23	F.	(?)	Tri. and mitral stenosis.
5	R. G. Hebb.	" " " " "	41	F.	(?)	Tri. and mitral stenosis (aortic slightly thickened).
6	R. G. Hebb.	" " " " "	26	F.	(?)	Tri. and mitral stenosis.
7	R. G. Hebb.	" " " " "	63	F.	(?)	Tri. and mitral stenosis.
8	R. G. Hebb.	Trans. Path. Soc., Lond., xl, 60.	23	F.	Heart disease at 18.	Tri. and mitral stenosis.
9	C. M. Hay.	Med. Record, 1889, xxxvi, 256.	35	F.	(?)	Tri., mitral and aortic stenosis.
10	J. S. C. Vaughan.	Med. Press and Circ., Lond., 1889, n. s., xlviii.	26	F.	No rheumatism.	Tri. and mitral stenosis (aortic vegetations).
11	J. S. C. Vaughan.	Med. Press and Circ., Lond., n. s., xlv.	50	F.	No rheumatism.	Tri. and mitral stenosis (aortic vegetations).
12	Pawinski.	Gaz. lekarska, 1890, No. 26; abstract in V. and H.	30	F.	(?)	Tri., mitral and aortic stenosis.
13	Thacher.	Med. Record, 1884, xxxv, 189.	29	F.	No rheumatism.	Tri., mitral and aortic stenosis.
14	F. C. Shattuck.	Bost. Med. and Sur. Jour., 1891, cxxiv.	43	F.	Rheumatism doubtful.	Tri., mitral and aortic stenosis (pulmonic vegetations).
15	E. Grawitz.	Zeitschr. für kl. Med., xxiii, 168.	24	M.	Chorea as child.	Tri., mitral and aortic stenosis.
16	Delépine.	Trans. Path. Soc., Lond., xlii, 59.	40	M.	Old stricture, hematuria, etc.	Tri. stenosis; endocardium of left auricle thickened and calcified.
17	Drummond.	Lancet, Sept. 10, 1892.	40	F.	(?)	Tri., mitral and aortic stenosis.
18	Chaplin.	Trans. Path. Soc., Lond., xliii, 29.	18	F.	No rheumatism.	Tri. and mitral stenosis.
19	Chaplin.	" " " " "	(?)	F.	Rheumatism.	Tri. and mitral stenosis.
20	Philip.	Edinb. Hosp. Rep., 1893, i.	46	M.	No rheumatism.	Tricuspid stenosis.
21	Gibson.	" " " " "	31	F.	Rheumatism.	Tri. and mitral stenosis.
22	Gibson.	" " " " "	21	F.	No rheumatism.	Tri. and mitral stenosis.
23	Colbeck.	Med. Chron., Manchester, 1893, xviii, 297-312.	44	M.	Rheumatism at 14.	Tri. and mitral stenosis.
24	Colbeck.	" " " " "	32	F.	No rheumatism.	Tri. and mitral stenosis.
25	Colbeck.	" " " " "	38	F.	Rheumatism.	Tri. and mitral stenosis.
26	Colbeck.	" " " " "	30	F.	Rheumatism at 22.	Tri. and mitral stenosis.
27	Colbeck.	" " " " "	12	M.	Rheumatism at 10.	Tri. and mitral stenosis; pulmonary cusps slightly thickened.
28	Colbeck.	" " " " "	18	F.	Probable rheumatism.	Tri. and mitral stenosis.
29	Colbeck.	" " " " "	25	F.	Rheumatism at 14.	Tri. and mitral stenosis.
30	Colbeck.	" " " " "	(?)	M.	(?)	Tri. and mitral stenosis.
31	Colbeck.	" " " " "	(?)	F.	(?)	Tri. and mitral stenosis.
32	Müller.	Deutsch. Militärärz., Zeitsch., Hft. 1, 1891. (Abstract in V. and H. Jahresbericht.)	(?)	(?)	Rheumatism 20 yrs. previous.	Tri., mitral and aortic stenosis; pericardial adhesion.
33	Middleton.	Glasgow Med. Jour., Apr., 1894.	44	F.	No rheumatism.	Tri., mitral and aortic stenosis.
34	Ashton and Stewart.	Am. Jour. Med. Sciences, 1895, n. s., cix.	19	M.	Possible rheumatism.	Tri., mitral and aortic stenosis.
35	Dock.	Trans. Assn. Am. Phys., 1896, xi, 186.	20	M.	Chorea at 8; also scarlatina and influenza.	Tri., mitral and aortic stenosis.
36	Balfour.	Quoted by Ashton and Stewart.	14	M.	No rheumatism.	Tri. and mitral stenosis.
37	Herrick.	.....	26	F.	Rheumatic family history.	Tri. and mitral stenosis (aortic vegetations).
38	Herrick.	.....	24	F.	Rheumatism at 18.	Tri. and mitral stenosis; aortic thickened and retracted (regurgitation).
39	Herrick.	.....	46	F.	Rheumatism.	Tri. and mitral stenosis; aortic thickening.
40	Lipari.*	Rif. Med. Napoli, 1891, vii.	(?)	(?)	(?)	Tri. and mitral stenosis; concretio cordis.

* I have been unable to consult this article either in the original or in abstract. The title, however, is so full as to enable it to be included in the list. Five or six other references that I have been unable to verify are omitted from the list, though undoubtedly three or four of them should be included.

In tabular form these forty cases show the following summary :

I.—SEX.	
Male	10
Female	28
Not mentioned	2
	40
II.—AGE AT DEATH.	
10 to 20 years	6
20 to 30 years	11
30 to 40 years	7
40 to 50 years	9
50 to 60 years	1
60 to 64 years	1
Not mentioned	5
	40
III.—PREVIOUS HISTORY.	
Rheumatism	10
Chorea	2
Doubtful rheumatism	4
No rheumatism	9
Not mentioned	15
	40
IV.—VALVULAR LESIONS.	
Tricuspid alone	1
Tricuspid and mitral	18
Tricuspid and pulmonary	0
Tricuspid, mitral and aortic	18
Tricuspid, mitral and pulmonary	1
Tricuspid, mitral, aortic and pulmonary	1
Tricuspid and endocardium of left auricle	1
Tricuspid and aortic	0
	40

In the class tricuspid, mitral and aortic are included all cases in which the aortic valves are recorded as "slightly thickened," "thickened," "with vegetations," etc. In ten of these cases the lesion is described as aortic stenosis.

Combining Leudet's series with my own, the following figures are obtained :

V.—TOTAL NUMBER OF CASES WITH AUTOPSY.	
Leudet	114
Herrick	40
	154
VI.—SEX.	
Male	52
Female	114
Not known	8
	154
VII.—AGE.	
10 to 20 years	14
20 to 30 years	50
30 to 40 years	34
40 to 50 years	26
50 to 60 years	7
60 to 64 years	5
Uncertain	18
	154

The youngest of the series is case No. 27 of my series, Colbeck's boy of twelve years.

VIII.—ASSOCIATION OF VALVULAR LESIONS.	
Tricuspid alone	12
Tricuspid and mitral	96
Tricuspid, mitral and aortic	39
Tricuspid, mitral, aortic and pulmonary	1
Tricuspid and pulmonary	3
Tricuspid and endocardium of left auricle	1
Tricuspid and aortic	0
Tricuspid, mitral and pulmonary	2
	154
IX.—PREVIOUS HISTORY.	
Rheumatism	51
Doubtful rheumatism and chorea	6
No rheumatism	28
Not ascertained	69
	154

THE PSYCHICAL NERVE-CELLS OF TWO EDUCATED MEN.

BY HENRY J. BERKLEY, M.D., JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

It is more for the purpose of showing what results can be attained in pathological psychiatry under exceptionally good circumstances, than for positive ones that we present the following cases. The first I consider a standard, a control for future guidance; for in other researches upon human material obtained from the clinic on mental diseases, I have been largely influenced by the doubt, in using the silver methods of staining, if in some instances we were not recording post-mortem, and not pathological alterations.

A rather abundant supply of cerebral tissues, normal and pathological, has led me to the conclusion that the lateral buds on the dendritic twigs are the first portion of the cell to show after-death alterations; and as their relation to the terminal apparatus of the nerve fibres of the cortex is most, indeed in the first degree, important, it may be readily seen that it is necessary to have our material for the newer methods of brain-cell staining of immaculate freshness. Very seldom indeed have the gemmules of the psychical cells shown the same degree of luxuriance, in cases in which the autopsy has been performed eighteen or twenty hours after death, as when it has been made within five, or at the utmost six hours, or, before the bodily heat has entirely disappeared.

Most prominent among the alterations found in all cases of chronic insanity have been departures from the normal in the gemmule; the bodies of the cells may retain their usual form, the branches may be quite as extensive and widespreading as they are in the control preparations, but the delicate round-headed processes are affected in some manner, usually in the acquired mental reductions by an extensive shading of the buds, and in the different forms of idiocy by various defects of development, evidenced in their greater length and sparser numbers than in the normal brain. Like other late developed portions of cellular protoplasm, the lateral buds are the first to show decay and degenerescence when the strain of unwonted conditions is thrown upon their structures.

The subject of our first investigation was a man of not profound mental endowments, and with a decidedly greater tendency to "sharpness" than depth. He began his business life as a drug clerk, and afterwards obtained the degree of doctor of medicine from a respectable school; but obtaining few clients, lived in great poverty. He was a moderate, but so far as could be ascertained, never a heavy drinker. Finally he became involved in various intrigues, and eventually poisoned a woman to obtain her money. For this crime he was electrocuted, and an autopsy performed immediately after the execution. The various portions of the cortex obtained, were fixed in Müller's fluid, and were afterwards stained according to the silver phospho-molybdate formula.

The autopsy showed the cadaver of a well nourished man of medium height. The brain was below the average weight, but was macroscopically normal. The thoracic and abdominal viscera were healthy.

An examination of the psychical nerve cells of the cortex of this physician showed a degree of individual development that was surprising (Figs. 1 and 2). This development lay not in the number and size of the neurons, which were not more numerous stained

than customarily, but in the development of the dendritic branches and their adherent gemmules. The dendrites are stouter and broader than in any brain we have hitherto met with, and the lateral buds issuing from their sides are far more numerous than ordinary, and surpass in closeness of setting on the stem, in stoutness and in length, those upon the pyramidal cells of animals that have had their almost living tissues fixed in a similar bichromate preservative fluid, and stained by the same method.

Each of the gemmule stauds forth from the protoplasm of the dendrite with surpassing sharpness, and shows the round-headed arrangement seen in all the higher mammals. The intermediary and other pluripolar cells do not show the same differences between this perfectly fresh brain and others obtained from cases in which the post-mortem was obtained at a later hour. Their branches were, of course, free from gemmule of the type belonging to the psychical cells,

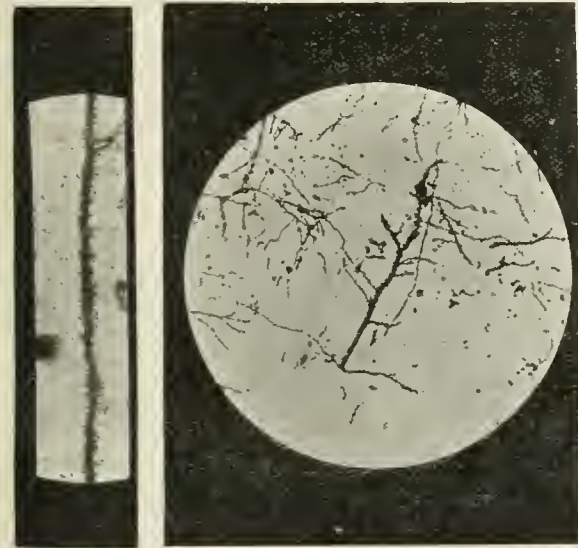


FIG. 1.

FIG. 2.

but showed the usual irregular thorns upon the stems. Very few indeed of the psychical cells showed other than absolutely normal characteristics. In the dozens of sections made, not more than five or six cells with swollen and knotted dendrons, and with the gemmule absent over the site of the thickenings, were found — a proportion so inconsiderable as almost to be passed over without comment, and enable one to determine that the brain was almost histologically sound. What little damage there was present could be reasonably referred to the alcoholic abuse in the years antedating his long imprisonment for the crime of murder.

The appearance of the nerve fibres is absolutely normal; numerous axons and collaterals were stained, but nowhere was there any departure from natural conditions.

The different forms of the neuroglia cells show exactly the same forms and dispositions that we would be led to expect from the previous examination of adult animals, nor do the peculiar endings of the cells upon the outer margins of the blood-vessels' channels present any notable differences.

The second cortex examined came from the brain of

a medical man of vastly greater mental endowments than the first, and who had graduated at the Royal University of Ireland and at Edinburgh. Never very steady in his habits, his career, at first brilliant, soon became erratic. He became addicted to opium and alcohol, and soon began to drift downward in the social scale. In his forty-fourth year he landed in the United States, and commenced to practise medicine in a Northern city. He resumed his evil habits, and five years later found him in a House of Correction. Now he was adjudged to be insane, and was transferred to the Baltimore City Asylum.

The immediate family history showed that the mother died of cancer, and that the father lived to an advanced age. There is a sister living who is deformed. Patient has never acquired syphilis.

On his admission to the institution he was somewhat excited, talkative, with numerous delusions of a



FIG. 3.

personal nature, such as being a great pugilist, a great artist, that he was filled with electricity, and could move great bodies by this force with little effort.

These delusions varied considerably from day to day. There were also some vague aural and visual hallucinations. The mental reductions were considerable. The reflexes of all kinds were normal. There was slight tremor about the hands, of an alcoholic type, readily controllable. The skin over the body was slightly hyper-sensitive. A physical examination showed advanced tuberculosis of the lung apices.

The patient gradually sank, physically and mentally; he became untidy, and the delusions became less vivid. No apoplectic crises occurred. Tubercular enteritis finally ended the scene six months after admission.

The autopsy (eight hours after death) showed extensive tubercular disease of the lungs, pleura, intestines and lymphatic apparatus. The brain was slightly atrophied, and covered with a thin layer of gelatinous lymph. The fissures and convolutions showed no anomalies. The skull was regular, brachycephalic, and of moderate thickness.

Between this brain and the foregoing one the cortical cells show wide variation, both in size and general appearance. Care was taken to make the several regions from which the sections were taken correspond with those of the first brain, in order to have under view cells of approximately similar function. The hardening and staining were precisely similar for both brains.

The differences between the cells consisted mainly in a diminution of the transverse diameter of the dendrites, as well as in the appearance of the gemmule upon the main trunks and branches, slighter variations being noticeable in the size of the cellular corpora. Compared with the first case, the dendrites now under examination show diameters averaging not over one-half those found in the first one. They are, as remarked, thinned in transverse diameter, but do not appear to be shortened in their length, both traversing

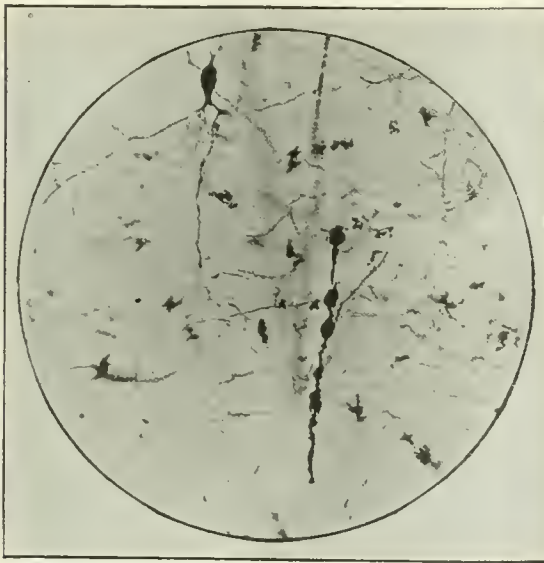


FIG. 4.

equally long distances in the layers, the longer ones reaching far into the molecular lamina.

Most striking is the difference in the appearance of the gemmules, especially those upon the main branches. Where in the first sections they are closely set together (Fig. 1), stout, the knob-ending fairly large, all colored intensely black by the silver salt, now they only begin to appear on the stems much farther off from the cellular body (Fig. 3), and have much wider intervals between each individual member. Furthermore, those present on the stems are thin, and are not robust looking as in the former example, and the knob termination is of lessened diameter (Fig. 4).

Among the cells, though not in any considerable number, are dendrites coming off from both varieties of pyramidal cells that are irregularly thickened in places, the interval between the tumefaction showing what would appear to be the normal diameter of the branch. Upon the knots are seen sparse numbers of the gemmule, and these present no variations from the staining in the control preparations (Fig. 4). The intermediary cells do not show equal differences with the pyramidal.

The axons and collaterals seem to have no departures from the normal. In both brains they are equally well stained, show no unusual varicosity, or spindle thickenings, and the few endings that could be found showed the usual knob-ending deeply stained. Likewise the neuroglia presented no alteration of moment, the different support and vascular varieties were stained as usual in the several layers of the cortex, but gave no evidence of a disposition toward swelling or the reverse.

Our present investigation does not show accurately the condition of the finer blood-vessels in either case, but the larger ones looked healthy, and nothing approaching aneurysmal dilatations or thrombotic plugs were found.

Chiefly remarkable in the cases is the strong contrast afforded by the psychical cells. We must, perforce, suppose from the general history, that Case No. 2, entered into adult life with an equally good, if not better developed brain-cell than No. 1; but in the second example, owing to the continued dissipation and exposed life, together with the subsequent mental trouble, what a contrast is afforded in their condition at the time of decease. One had been protected for several years in his prison life from vicissitudes, well fed, and restrained from the abuse of stimulants; the other ill-fed, unsheltered, constantly under the influence of toxic drugs exercising a well-marked deteriorative influence on brain-cell nutrition; and the latter, finally, when exposed to microscopic view — after making all possible allowance for post-mortem changes — showed most important retrogressive alterations in the condition of the protoplasm of the cell. That there was nothing of an inflammatory nature in these modifications of the normal nerve-cell is shown by the healthy condition of the neuroglia.

To conclude, we have in the first case a developmental condition of the nerve-cells closely approximating — but of a higher type than that in similar cells from animals whose brains have been fixed in preservative fluids immediately after they have been killed, and all changes of post-mortem alterations removed — a control preparation. In the other we find alterations in a comparatively fresh brain, approximating those found in the brains of animals that have been subjected to the long-continued administration of certain nerve-poisons, among which alcohol may be taken as the most prominent example.

SOME THINGS I WAS NOT TAUGHT IN OBSTETRICS.¹

BY E. S. BOLAND, M.D.

WAS it Horace Greeley who said of a certain self-styled "self-made man" that he relieved his Creator of a very grave responsibility? My instructors cannot be held accountable for my conclusions. Possibly a better title would be "Some Things I did not Learn in Obstetrics."

However this may be, the fact remains that I did not know them upon leaving the Medical School, and they had to be developed from experience, or the application of general principles, though often from current literature and oftener still from the suggestions or hints of others.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, December 28, 1896.

That anything new of value can be found in this paper is doubtful. No doubt many of this audience have reached kindred conclusions; but even so, it may be wise to do what is said to be the best of preaching, namely, to tell people what they know.

The subject is so important and the amount unknown to me so great, that no attempt will be made to do other than glance at a few features which have been more or less before the profession of late. Your discussion will give value to this paper and doubtless each can contribute some important truth to fill the many gaps still left.

It is hard after twenty years of active practice to recall just what definite ideas on obstetrics were fixed in the mind on leaving the Medical School. The professor praised ergot, and had talked about and shown the forceps, but advised against taking the latter with us to a case lest we should be tempted (?) to use them.

At the same time, the gynecologists were doing their best to teach us how to cure vesico-vaginal fistula. It was not till years after that the interdependence of these two lines of teaching dawned upon us, and our respect for the Professor of Obstetrics began to wane.

Those were the days when one justified a masterly inactivity by expressed distrust for all so-called "meddlesome midwifery." Antiseptic surgery was preparing the way for later aseptic triumphs, but the application of its principles to obstetrics was not being generally or enthusiastically tried.

About this time, some English medical journals described and figured an obstetrical bag with its suggested contents, and one can remember how pedantic and fussy such an article seemed. But as years went on, the bag became a fixture, and with its general adoption the practitioner found ready at hand anesthetics, well-adapted instruments, antiseptic materials, needed drugs and dressings. Thus the doctor's time was saved, and what is far more to be rejoiced in, woman was relieved of much of her great primal pain and danger, so that for some years past, less has been heard of "meddlesome midwifery," and fewer women suffer from vesico-vaginal fistula, while fewer die from puerperal fever. The obstetrical bag then, with the training to use its well-selected appliances, represents the evolution of anesthetic, aseptic midwifery of today.

Will you try to overlook seeming egotism while I go a little farther into personal experience, since it is that upon which my conclusions are largely based?

The use of anesthetics habitually in labor was not taught us, even when desired by the patient. If, however, any good reason can be produced against such a practice, which would not be equally applicable to general surgery, one would like to hear it, excepting, of course, in such cases of cardiac, pulmonary or renal diseases as make it inexpedient or unsafe. We believe not only in giving it when asked for, but in urging it upon the suffering patient if timid or reluctant.

Preference is given to chloroform, and whether for simply obdurate the pains or for total anesthesia in obstetric operations we urge that it is safe, easy to give, pleasant to take, rapidly recovered from, and not productive of initial excitement or subsequent vomiting. I believe that as an anesthetic in childbirth, it is practically as safe as ether. Whether this is due to physiological hypertrophy of the heart de-

veloped during pregnancy cannot be told; but except in children under eight, nowhere else is seen such immunity from its bad effects or dangers. Special skill is not required to administer it with such oversight as the operator can give during the early stage of anesthesia.

For administration, a single thickness of flannel stretched over a wire ring four inches in diameter will do, care being taken not to touch the face with this inhaler. An ounce, thus inhaled, will suffice for an average case, as total surgical anesthesia is not usually necessary except for turning or high forceps. That it causes or predisposes to hemorrhage has not been evident in my experience although I have used it during the last ten years in more than a thousand cases. Many times when the patient was getting exhausted from the pains, effort and fear, the rapid pulse has been found to go down several beats a minute, but to increase correspondingly in strength after the administration of chloroform.

As a routine practice, the heart is always examined before giving the chloroform. Under these restrictions, it is an ideal anesthetic during the latter part of the first stage and during all of the second stage of labor. During delivery of the afterbirth or for suturing a perineal tear, it will seldom be necessary. Both ether and chloroform are carried in my bag, but ether is not used once to chloroform hundreds of times. To the sceptical, therefore, let me urge a few impartial trials. Justly proud of her great discovery of that great general anesthetic, *ether*, Boston has not been fair to chloroform.

We were not told to do digital dilatation in tedious but otherwise normal labors where the membranes had ruptured prematurely. With the fingers sterilized this is safe and more sure than are drugs. The use of morphine subcutaneously will make it more bearable, though if the pains are severe, chloroform will be best given, just short of producing unconsciousness. The manipulation also distends the entire genital passage.

Another important thing not taught was, that when such measures have been necessary, or forceps have been resorted to, the routine use of the interuterine douche ought never to be omitted, using bi-chloride 1 to 1,000, and for this purpose the fountain syringe (which must be in the indispensable bag) and the ordinary glass irrigator. These latter have the advantage of metal in that they are transparent. The small size will be found to be very convenient in irrigating after incomplete abortions. No doubt sterilizing will make a blood-clot lodged in a metal irrigator innocuous, but it is not pleasant to contemplate the possibility of it.

The necessity of emptying the vagina and uterus of clots before making the final toilet of the patient was not sufficiently emphasized. This important measure ought to precede the douching.

Again, the value of the prompt suturing of perineal and other vulvar tears at the completion of labor was not enjoined. It would seem, at this date, unnecessary to urge the necessity of this operation did we not know that some practitioners still treat such by denying their existence. In my experience they occur as often in natural as in artificial deliveries, though, of course, they may be more extensive in the latter, especially after instrumental delivery of (non-rotating) occipito-posterior head. For some years I have car-

ried the head mirror of the laryngoscope to facilitate the application of the high vaginal sutures in extensive tears. An assistant to hold the lamp is all the help that is needed. Sterilized silk sutures seem best for this purpose. For twenty-four hours after this operation catheterization is advisable, sterilizing the catheter and cleansing the vestibule first.

It is not the fault of our teachers that bi-chloride of mercury was not put in our hands instead of the bulky, benumbing and uncertain carbolic acid. It is indeed a boon, yet we meet some who have not yet appreciated their relative values. The tablets furnished for this night and morning perineal toilet ought to be strongly colored and strict rules given for their exclusively external use.

I am sure that the majority of the profession will agree with me that we are using the forceps much oftener than was thought best twenty years ago. Personally I use them much earlier in all cases seeming to need them than formerly, and with far better results both to mother and child.

It took some time to learn that a severe and protracted labor paved the way for sepsis and hemorrhage, or both, and that almost every instrumental case did well if done early. This fact has permeated the popular mind, too; and now the proposition to use forceps arouses no such dismay and objection as it once did.

I believe axis traction is secured with ordinary forceps by using one hand on the joint as a fulcrum and while less convenient the result is thus obtained. The short forceps have been found of very great convenience; and though both short and long are always carried, the former are much oftener used.

Dismayed by a few unfortunate results in uremic cases, it now seemed best to drop the expectant plan and terminate pregnancy if severe symptoms develop before the seventh month. To delay may cost the patient her reason or eyesight, if not life itself, without giving much chance for a live baby either. After seven months, if within easy reach, and the symptoms are not too urgent, we may temporize. The same line of practice seems best in the case of hydramnios. Very bad results to the mother have been seen from non-interference, with little accruing benefit to the baby.

Little was formerly taught about the mental phases of eclampsia other than the seizure alone. These may be preceded by a period of variable length, of automatic conduct, the patient keeping up and about but in a dazed and uncertain manner. This period will be a blank to her afterward so far as any recollection of it is concerned. If one does not know how to interpret these symptoms, he is liable to be taken unawares by a terrible attack of convulsions or coma which will open his eyes to the real state of affairs with her.

Some women in labor who are not suffering from renal troubles at all, will have what are practically attacks of transient mania during the first and second stages of labor. Morphine hypodermically and chloroform anesthesia will generally give relief, as the cause is pain and dismay.

In the treatment of incomplete abortion it is evident that we have not found it best to keep to the teachings of two decades ago. In some way the impression prevailed that prior to the tenth week there was no placenta, and so when confronted by a case at eight or

nine weeks, giving the history of a ruptured sac with the escape of an embryo, we were inclined to lull ourselves into the fond belief that the worst was over. Soon hemorrhage, pain, and possibly septic absorption with escape of membrane and placental *débris*, made it clear that a slight degree of dilatation might give egress to a small embryo and still be too small to allow the escape of the actually larger mass of secundines even if the latter were detached from the uterine wall. That the placenta may not exist as an actively vascular go between prior to the third month I cannot discuss, but as a matter of fact I *do* find a mass of material very like immature placental tissue after seven or eight weeks. It is the retention of *this* mass with the associated hemorrhage and probability of septic infection and absorption which renders this condition one of insidious and concealed danger. These are often the cases where for moral reasons the fact of an abortion is suppressed until it often becomes its own Nemesis.

Sometimes a frank statement makes the diagnosis easy, but oftener we have to draw our own conclusions from reluctant half-true answers. If we fail to make an examination, valuable time will be lost and the doctor will lose any reputation for acumen which he may have as well. On examination the cervix will usually be found but slightly dilated, but more dilatable than usual. Firm supra-pubic pressure on the fundus and steady gradual insertion of one finger, will find a capacious cavity and touch the mass of membranes, placental tissue or whatever is retained.

The discharge will sometimes have the odor of moist decomposition, but too great reliance cannot be placed on this evidence, as some very septic cases will not give much odor and *vice versa*. The temperature will be up from 102° to 106°, pulse fast and weak from preceding hemorrhage, and an account of chills, sweating, etc., will be obtained.

Occasionally one of these cases will be found presenting an enlarged cervix and an everted os covered with a cauliflower-like granulation. This condition when associated with hemorrhage and fetor may throw one off his guard. Once, after having practised long enough to know better, I sent such a case to Carney Hospital as a case of cancer of the cervix. Luckily for both patient and myself, she fell into the hands of Dr. Swift who relieved her of a retained and fetid placenta.

Since then I have seen another such case, but was forearmed by my previous experience.

The history of an abortion ought to clear up the diagnosis. Whatever question may exist about the treatment of a recent non-criminal abortion, in the case of those with high temperature, chills, fetor, etc., it must be admitted that the only safe course is to empty the womb, and stop further septic irritation and absorption by dilating the cervix, curetting the lining and douching with bi-chloride, 1 to 1,000. The dilatation generally secures subsequent drainage so that I have not found the insertion of a gauze drain necessary. No class of cases has given me more satisfaction in the face of unpromising conditions than these.

Too little stress was laid on the value of correct nursing twenty years ago. Among many of our patients this indifference is still surprising. When I found a nurse telling my patient that her hair must not be combed for thirteen days, after delivery; another that she need not fear taking cold from lying in

her own urine; and half the other nurses using mother's milk in the baby's eyes,—I realized that in justice to the patients it was necessary to train some needy, intelligent women for service, and give them the preference over the officious, untidy and unreliable make-shifts whom one would otherwise have to endure. By so doing the patient is better cared for, the nurse is changed from a drudge to a pupil, and the doctor is sure of a nurse who will be loyal to him, an important matter to a young practitioner.

Right here, let me say that if the doctor's lot is cast among those too poor or to indifferent to employ reliable nurses, he must at whatever sacrifices of time or dignity, take off his coat, roll up his sleeves and attend to the indispensable details of nursing himself. Better a half-hour spent in making an unfortunate woman safe and comfortable than to wake at night and reflect on the danger and uncertain outcome of a case which might have been rendered safe.

In the treatment of puerperal fever, little was formerly advised by way of direct treatment to the utero-vaginal cavities. Curetting or inter-uterine injections were regarded as unsafe or too troublesome to give; but medicine and outside applications were unstinted. It was taught twenty years ago that two ounces of alcohol was as much as the system could assimilate to advantage in twenty-four hours. Of late, however, I have seen a septic case (puerperal fever) take ten times as much as that, with good results.

We were warned in school that if puerperal fever occurred in our practice we must give up all new cases for a period. Acting upon this theory I once lost twenty days' work. Lately, however, while caring for a very severe case of puerperal fever in which I had to make applications, give douches and perform other services involving handling the patient, seven other cases of obstetrics were attended, three of which were instrumental, and though forced to do considerable of the nurse's work in these, too, no case showed infection. Sterilizing all the instruments by boiling, disinfecting the hands and bared arms, are precautions which leave little to be feared from contagion.

For the vomiting of pregnancy, our resources were formerly limited to oxalate of cerium, etc. Later experience has taught me to place more reliance upon painting the cervix with a ten-per-cent. solution of argentic nitras, or slight dilation of the os-externa in cases of such severity as call for any treatment.

The benefit to be derived from position and support by well-applied compresses and bandages in suppuration of the breasts were not taught; those were the days of poultices.

What instruction we had in extra-uterine pregnancy was not encouraging either as to diagnosis or treatment. Within the last decade so much advance has been made that we now know it to be far from uncommon, and while startling in the event of rupture it is easily recognized and very hopeful of recovery, if treated promptly by laparotomy.

I regret to say that I have not as yet mastered examination of fetal position by external palpation, nor incised laterally for rigid outlet, nor attempted the recently suggested primary operation for cervical tear, that is, suturing before leaving the chamber.

No doubt the near future will bring many innovations and improvements in our practice. Some have characterized as officious interference these measures that have proved useful to us. Parturition, they say,

is a natural process which, they argue, can be left to nature. They forget that women at present are not in a state of nature. Engleman says that Indian women have Indian babies very easily, but have hard labors when they bear half-breeds on account of the relatively larger heads of the half-white offspring.

Possibly the "new woman," with the advantage of better living, dress, athletic training and general education may need physicians less; but for the present we have to take cases as we find them; and though it is no new or easy field, opportunity is given to save lives and reduce pain.

It requires some temerity to come to this hall and voice platitudes, much more to claim merit for procedures which do not have the sanction of the experts. If it were not known that within a radius of two miles from where we stand, practitioners are waiting for the extrusion of putrid placenta, and ascribing the associated rigors to cold, that scape-goat of the conservative doctor, or treating perineal tears by not looking for them, a dignified silence would best become one.

Between the experts, who can wave aside as "trite" the problems that daily confront us, and the medical moss-backs who will not learn, there is still the bulk of the profession, who need the opportunity to meet and exchange the small coin of personal experience as well as to draw on those whose greater opportunities and broader views enable them to give us the latest and best teaching. To this middle class then, I hope to appeal in this paper, being wholly willing, however, to abandon my way of doing when I can learn of a better.

We can all read at home; but the placid page cannot give us the mental etching which comes from the face to face discussion.

Clinical Department.

A FATAL CASE OF POISONING BY RED OXIDE OF MERCURY: NECROPSY.

BY LOUIS T. MITCHELL, M.D., CHICAGO.

THE following case seems worthy of record on account of the infrequency of deaths from this cause.

John T., aged forty-seven, a machinist, and a native of Sweden, was admitted to the Cook County Hospital on July 9th at 9.10 A. M. He gave a history of having been sick three days with vomiting and diarrhea. Absolutely denied eating or drinking anything that could give rise to his symptoms, and also denied having taken any poison.

On admission complained only of severe pain in abdomen, and especially on the right side. The patient made frequent attempts at vomiting, but ejected nothing save a little clear or greenish fluid occasionally. According to his statement he had considerable diarrhea before coming to the hospital, but he only had one passage during his stay in the institution, which was serous and colored reddish.

Three hours after admission the temperature was 100.2°, respiration, 26, pulse 108; four hours later, 97.6°, 26, and 104 respectively. The patient gradually grew weaker, and died at 7.45 P. M. on the same day. Just before death he acknowledged having taken an unknown quantity of "red precipitate."

Necropsy, fourteen hours post-mortem. Rigor mortis well marked. Pupils unequal, right larger.

No marks in mouth. Base of tongue and mucous membrane of larynx of a deep purplish hue. Pharynx and esophagus normal. Stomach about one-quarter distended with food, colored grayish pink; small lumps of the mineral visible here and there. The stomach walls were coated with a layer one-quarter of an inch thick of pulraceous matter. On washing this off, the mucous membrane appeared pale; it was much softened, and could be readily scraped off by the finger-nail. The duodenal mucous membrane was also softened and the contents here showed much larger lumps of the mineral. No trace of it was found beyond here. The lower part of the small intestine contained considerable fluid similar to "rice-water." The other organs were healthy.

Upon searching the room of deceased a pint whiskey flask was discovered, containing a small quantity of alcohol, with a precipitate of the mineral. It could not be ascertained how much had been taken, nor how long before admission it had been taken.

GUIACOL IN PUERPERAL ECLAMPSIA.

BY J. F. R. APPLEBY, A.M., M.D., WASHINGTON, D.C.

RECENTLY a number of articles on puerperal eclampsia have appeared in various medical journals. In none have I noted a wide departure, in treating this disease, from methods which have been in use for many years.

On the one hand, such remedies as lessen blood-pressure in the cerebral vessels—as blood-letting, chloral hydrate, bromide of potassium, and veratrum viride—have their advocates; while, on the other hand, those which control nervous irritability, such as opiates and anesthetics, are held in high repute by many. All have been found useful, and may become valuable in peculiar contingencies.

It is my desire to call attention to another remedy of which I have seen no mention in connection with this disease, and which, in a limited number of cases has in my hands, proven so satisfactory, that I am assured it will find a leading place among other reliable remedies in this perilous disorder.

When guaiacol is poured upon the abdomen it is rapidly absorbed. Its physiological effect is to cause rapid and marked lessening of arterial blood-pressure, lowering of temperature and free diaphoresis.

These physiological effects first led me to use it in a case of nephritis attended with slight convulsions and a full, hard pulse. This patient was an adult male. Twenty-five drops were poured upon the abdomen, and rubbed in with the tips of the fingers. Relief was certainly marked.

Next I used guaiacol in two cases of puerperal eclampsia, with surprising and happy results. They were primiparas. In the first, labor was progressing favorably; dilatation had been accomplished and the occiput had begun to descend, when convulsions came on, becoming more profound with each recurring seizure. As soon as practicable chloroform was administered and the child, a large male, was delivered with the forceps. On the effect of the anesthetic wearing off, the convulsions returned, whereupon I poured forty or fifty drops of guaiacol (the case seemed too urgent to take time to count the drops) upon the abdomen and gently rubbed them in as in the preceding case.

In a few minutes the pulse became soft, free diaphoresis set in, and the convulsions died away.

The second patient had been delivered by a midwife. Both baby and placenta had come away, when convulsions set in. On arriving at the bedside, I found that the patient was enormously swollen over the whole body, and the pulse was full, hard and tumultuous. The convulsions were almost continuous. They were as powerful if not more powerful than any I have seen in a practice extending over nearly thirty years. It looked like a hopeless case. As with the other patients, I used forty or fifty drops of guaiacol and gave a hypodermic injection of one-fourth of a grain of sulphate of morphia. In less than an hour the patient was sleeping quietly, and no more convulsions followed.

Both of the above cases had albuminuria and were much swollen, which symptoms demanded treatment for a few days. Both made good recoveries, and are now enjoying ordinary health.

For guaiacol there may be claimed certainty of action, speedy relief of urgent symptoms and ease of application which renders it perhaps more desirable and less objectionable than any one of the remedies heretofore used in eclampsia.

In neither case did I find it necessary to make a second application, but would certainly have done so had it been necessary.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

SARCOMATOSIS WITH PURPURA HEMORRHAGICA.¹

MARTIN and Hamilton, of Montreal, have studied two interesting cases of sarcomatosis associated with so-called purpura hemorrhagica. Fagge, who has reported six instances of this association, advances three possible explanations. First, that a minute development of sarcomatous tissue with vessels made up of embryonic cells, takes place at each hemorrhagic spot; second, that an embolus in the capillary vessels is formed by a metastasis of the sarcoma cells; third, that the cachexia of sarcomatosis may sufficiently account for the purpura.

The first case reported by Martin and Hamilton is that of a woman of thirty-five, who was admitted to the hospital, affected with bleeding from the gums, anorexia, emaciation and numerous areas of subcutaneous hemorrhage. There was vomiting of blood and rapid failure until death in ten days. The cutaneous hemorrhagic areas were in some instances firm, distinctly nodular on deep pressure, and painful. At the autopsy there was found a sarcomatous infiltration of the cervix uteri, ovaries, stomach, spleen, kidneys, adrenals, liver and skin. The growth was shown to have spread by means of the lymphatics, especially those about the blood-vessels, and by an infiltration of the walls of the vessels. The microscopical examination of the skin, showed circumscribed nodules of small round cells, with a great infiltration of the adipose tissue and of the coats of the arteries and the perivascular tissue. No emboli were found.

¹ Martin and Hamilton: *Journal of Experimental Medicine*, November, 1896.

Cultures from the internal organs and from the skin remained sterile.

The second case was that of a woman of twenty-eight who entered the hospital with a history of spitting blood and of the presence of bluish spots on the limbs and body. There was also some hematemesis and a history of gastric disturbance and vomiting during the last five years. On admission she was intensely pale, and was bleeding from the gums and other mucous membranes. The skin lesions consisted of numerous subcutaneous hemorrhages, sharply bounded, slightly elevated, varying in size from a five- to ten-cent piece, and circular or crescentic in form. There were other large subcutaneous hemorrhages that were not raised, which were situated mainly in the folds of the buttocks and the inner surface of the thigh. Before the patient's death, which occurred soon after the febrile manifestations, some of the elevated spots disappeared, others remained stationery. The autopsy showed primary sarcoma of the pelvis which had to some extent followed the course of the lymphatic vessels. The hemorrhagic nodules of the skin revealed the hemorrhage deeply seated in the subcutaneous tissue, and the vessels in the vicinity plugged with spindle cells.

The writers conclude that the purpura in these two cases may be explained by the involvement of the vascular system by the sarcomatous elements. In the first case the perivascular lymphatics were extensively affected, from which point the sarcoma cells invaded the walls of the blood-vessels, forcing their way between the intima and the adventitia. In the second case emboli of sarcoma cells were found in the lumina of the blood-vessels, and at these points hemorrhages were always found. Hence the conclusion that we are here dealing with an embolic purpura. Yet it is not possible to explain all the hemorrhages in this way, as in some places there were extensive hemorrhages with no vascular invasions, and the writers are forced to seek for other factors, one of which is the general condition of the patient, and an altered condition of vessel walls. In the second case the raised nodules cannot be looked upon as sarcomatous metastases as there was no evidence of new growth. They regard it as possible that the ring-like spots are related to the embolic process or to a direct invasion of the cutaneous vessels.

X-RAY DERMATITIS.

Fuchs² relates a case where, after exposure of the left hand to the Röntgen rays for about an hour, intense pain was experienced, especially in the finger-joints, which later became unendurable, so that the test had to be abandoned. The skin was colored a dark brown, especially in the places directly opposite the cathode; the hand was greatly swollen and the skin, especially about the joints of the first and second phalanges, raised in thick folds, with a bluish tint. Close inspection showed that the entire territory exposed to the rays was covered with fine cracks, and the whole produced very much the appearance of a frozen member. At the end of a quarter of an hour, bullæ appeared in different places, some of them of large size. In this case the exposure was certainly long, and the number of rays large.

Drury³ reports the case of a man of thirty-five who

was exposed to the rays for an hour, in order to determine if possible the presence or absence of a renal calculus. He experienced some nausea three hours afterward, but no cutaneous phenomena; and six days later he was exposed again, this time for an hour and a half. Immediately afterward he experienced nausea and weakness, and on the following evening the abdomen at the point that had been exposed to the rays was somewhat reddened as if sunburnt. Later, vesicles and large bullæ developed and were ruptured. There was no pain or itching. The lesions were not seen by Dr. Drury until eighteen days after the second exposure. At that time the patch had all the appearances of an acute eczema, with profuse discharge, and exfoliated epidermis. It was sharply bounded, and measured $7\frac{1}{2}$ by $8\frac{1}{4}$ inches. In about ten days the exudation began to lessen and the epithelium to creep in from the edges. Attempts were made at skin grafting; but two months later there still remained an irregular patch 3 by $3\frac{1}{2}$ inches just above the umbilicus. After the patch began to heal it became very painful and was very sensitive to various applications. Cauterization with nitrate of silver failed to produce granulations, and the wound was covered with a thick, false membrane, which was later on curetted and the actual cautery applied. Sixteen weeks after the exposure an ulcer still remained, covered with a thick, leathery, insensitive false membrane. It was thought that the patient's general condition had much influence on the course of the lesion, as he had a severe renal attack intercurrently, and was in a condition of much mental worry and anxiety. This, together with the pain suffered, Drury believes is answerable for the non-healing of the ulcer, rather than any peculiarity in the process itself.

Dr. King, of Toronto, reports in the *Canadian Practitioner* a case that is reviewed in the *British Journal of Dermatology* for February, 1897; from which we quote. The patient, experimenting with the x-rays, was exposed to them for two hours daily on the average through May, and for six hours daily during June and July. The right side was nearest the tube and coil, and about the middle of June the right hand became swollen and blistered on its dorsal aspect. There was considerable pain. He continued to use the apparatus without further symptoms. Upon ceasing to use the apparatus the hand became perfectly well. In the last week of August he began to use the rays again for seven to eight hours daily, this time with his left side nearest the instrument. After six weeks his lips and left cheek became swollen and tender to the touch, and soon after the left hand became tender, swollen and painful, bullæ quickly appearing. Later, when seen, the skin of the hands was congested, unusually smooth, and the left hand was almost entirely destitute of hair; on the right this feature was not so marked. All the nails of both hands were affected and in process of exfoliation. On the left side of the face there was an entire absence of hair about the temple and for some distance behind the ear, although in these places there had been no visible inflammation of the skin. The moustache and the whiskers on the left side were almost gone and the skin at these points was very smooth. The eyebrows on each side were almost lacking. There was much congestion of the conjunctiva, and the patient thought that his sight was not so good as before.

² Deutsche med. Woch., No. 35, 1896.

³ British Medical Journal, November 7, 1896.

THE ETIOLOGY OF ACNE.⁴

Lomry has made some interesting investigations of the bacteriology of acne and comedo. As the acne pustule is preceded by the comedo, the work is divided into two parts: (a) a bacteriological study of the inflamed comedo, (b) a bacteriological study of the non-inflamed comedo.

With regard to the inflamed comedo or acne pustule, several theories have been advanced. Barthélemy ascribed it to the action of the staphylococcus pyogenes albus or aureus, Boeck to that of a small micrococcus, while Unna considers it due to a small bacillus which he finds present. Lomry's investigation of the acne pustule in cases of well-declared acne, showed that the staphylococcus pyogenes albus was the only organism constantly present, and that its virulence was weak. By continuous passage of this organism through the animal body, however, it becomes as virulent as the yellow staphylococcus and gradually changes its color until it is indistinguishable from the staphylococcus aureus. It acquires also the property of liquefying gelatine. This micro-organism he considers the cause of the suppuration in the acne pustule.

In the comedo a micrococcus was found, that in its form, white color, feeble tendency to liquefy gelatine and its slight degree of virulence corresponded accurately to that found in the acne pustule. This coccus also assumed a yellow color by passing through the animal body and increased in virulence. The writer concludes that it is the same in both pustule and comedo, and represents the staphylococcus pyogenes albus.

Investigations were then made of the comedones and acne pustules that occasionally occur on the faces of people whose skin is habitually clear. Just as many micro-organisms were found in this class of cases as in people with pronounced acne, and the organisms found were the same.

The small bacillus described by Unna, and regarded by him as of etiological importance, was found both in acne patients and in those free from the affection. A great similarity was found to exist between this bacillus and the bacterium coli commune. After several passages through the animal body the few points of dissimilarity vanished, so that Lomry finally comes to the conclusion that Unna's special bacillus is merely a less virulent variety of the bacterium coli commune.

The conclusion is reached from these investigations that the cause of acne does not lie in the action of a microbe alone, but that we must assume that a modification of the secretion of the sebaceous glands exists, — that the soil must be previously prepared. Contrary to Unna's belief, there is no specific acne-organism. Unna's bacillus of acne is a less virulent variety of the bacterium coli commune, and is not constant, while the staphylococcus albus is found in many other skin affections.

SO-CALLED MERCURIAL EXANTHEM.⁵

Neisser does not question the occurrence of a true mercurial drug-exanthem. He recognizes not only the local follicular-pustular form, the erythemata and eczemas, but also a disseminated scarlatiniform eruption, which is often universal and accompanied by fever and severe general symptoms, and may result in

an exfoliative dermatitis prolonged for weeks. The follicular eruption is especially apt to occur in regions where the hair is thick, and the sweat secretion abundant. This form of mercurial dermatitis apparently occurs only from direct local application of the drug.

The diffuse forms of erythema, eczema and exfoliative dermatitis follow internal and subcutaneous application of the drug, as well as external. Rosenthal has remarked that the portions of the mucous membranes that can be seen are affected in the same way as the skin. The fact that oftentimes very small doses have been followed by the most severe exanthems, proves that idiosyncrasy plays a prominent part in these manifestations.

At Neisser's clinic, two-thirds of all the cases of syphilis have been treated of late by the subcutaneous injection of insoluble mercurial salts. In no instance has a general mercurial exanthem followed their use. Neisser thinks that the subcutaneous injection of insoluble salts has decreased the number of cases of mercurial exanthem, stomatitis and salivation. He has met with no accidents in the thirteen years during which he has practised these injections. He has also never seen a true diffuse mercurial exanthem follow the inunction cure, although follicular inflammations have frequently occurred. No bath is taken until the end of the cure, about the sixth day, and the same woollen garment is worn day and night. Neisser believes that the essential action of the inunction cure consists in the absorption of volatilized mercury, and considers therefore the best method of inunction one that favors this volatilization most. He thinks that many cases of dermatitis are laid at the door of mercurials that are really due to impure constituents or badly prepared mercurial ointments. An analysis of a number of specimens of mercurial ointment bought at various drug shops in Breslau, showed that the irritating effect might be due (1) to the employment of volatile substances, especially turpentine, in the extinction of the mercury; (2) to the use of remnants of other ointments, which were not rancid, but contained irritating substances; (3) to the use of fats with a high acidity. Many of the eczemas seen in cases where mercury is employed correspond completely with the so-called turpentine exanthems.

A large proportion of the mercurial exanthems are caused by the application of a large amount of mercurial ointment for the extinction of pediculi pubis. These are often prescribed by the apothecary without a physician's prescription, and in many instances at least, the irritating effect is due to the presence of impurities.

THE ACTION OF SALICYLIC ACID ON THE SOUND SKIN.⁶

That salicylic acid has a keratolytic action on the skin has long been known, and its use of late years in dermatology has been continually extending. Menahem Hodara undertook to study its action histologically, in order to obtain a better understanding of its effects as observed clinically. Unna was the first to point out its virtues as a sure means of removing the normal or pathologically thickened horny layer in the form of a whitish membrane. The action of the acid is confined to the horny layer, and an oozing surface is never seen.

The experiments were performed by applying sali-

⁴ Dermatologische Zeitschrift, August, 1896.

⁵ Proceedings of the Fifth German Dermatological Congress.

⁶ Monatsheft. f. prakt. Derm., August 1, 1896.

cylic acid in varying strengths, and in the form of both ointments and collodion, to the skin of man, and of rabbits, and examining histologically the parts to which the application had been made. It was found that when applied to the human skin for two to three days in the form of plaster, salicylic acid produced a swelling of the horny layer, which was broken up into lamellæ. These exfoliated lamellæ were thicker, when the percentage of salicylic acid used was greater. There was a moderate intercellular edema of the prickle and granular layers.

When the salicylic plaster was allowed to remain for from eight to ten days, the prickle layer was found necrotic to various depths. This result was not even, however, as there was more necrosis at some spots than at others. After this skin has become necrotic the process of casting off and of new formation begins at once. A vigorous proliferation begins in the deeper layers and in the adjacent epithelium, and a new prickle-cell layer appears beneath the necrotic mass. A new granular and horny layer is also produced.

Salicylic acid (30 per cent.) in collodion acts more energetically on man. As early as the third day after its application there is found, together with the changes in the horny layer, a great swelling of the prickle layer, caused by a pronounced inter- and intra-cellular edema. There is also a necrosis of the prickle layer in places. This portion of the prickle layer is finally thrown off from the young epidermis, which has been formed beneath it.

Salicylic acid in man causes no emigration of polynuclear leucocytes, and they play no part in the throwing off of the necrotic tissue. Its action is far more that of causing in the corium a slight inflammation, which is shown by a dilatation of the vessels and by a proliferation of the perithelial and intervascular connective-tissue cells. In the rabbit a concentrated salicylic acid plaster causes a complete death of the whole epidermis with suppuration.

Briefly, therefore, salicylic acid in small amount on the healthy skin causes an exfoliation of the horny layer; when employed in larger quantity and for a longer time, it produces a scaling which is derived partly from the horny layer, partly from the prickle-layer which has become necrotic in places.

EOSINOPHILES IN DERMATITIS HERPETIFORMIS.

In 1895, Leredde and Perrin⁷ published the results of their study of the pathological anatomy of Duhring's disease, the material in the first instance being taken from a woman who suffered from attacks of erythematous and bullous dermatitis during successive pregnancies, the type of disease known as herpes gestationis. The examination of recent papules surmounted by vesicles, showed the corium to be the seat of an abundant cell infiltration, especially about the vessels, consisting of large oval cells with distinct nuclei, lymphocytes, and smaller cells with nuclei surrounded by granulations which stain deeply with eosine and other acid aniline coloring agents. These latter cells are found almost exclusively at a distance from the vessels and correspond to those described by Ehrlich as occurring in the blood, under the name of eosinophiles. These cells are seldom found in the skin, although occasionally met with in inflammations in the vicinity of the vessels. In this case their num-

bers and their remoteness from the vessels are striking features. As for the epidermis the rete is moderately hypertrophied and at about its centre are seen vesicles, which have evidently been formed between the epithelial cells and not in them. This *intercellular* formation of vesicles in Duhring's disease has been also described by Uuua. The contents of the vesicles consist of cells grouped together, almost all of which contain eosinophilic granules. The liquid from the vesicles, examined according to Ehrlich's method for the blood, gave in a total of 227 white globules, 214 with eosinophilic granulations.

Three other cases of dermatitis herpetiformis, not connected with pregnancy, were examined, with the result that eosinophilic cells were found in great abundance, both in the cutaneous lesions and in the blood. They were also present as migratory cells in the epidermis. An examination of the fluid from other vesicular and bullous cutaneous diseases revealed no increase in the number of these cells. The conclusion is therefore reached that an alteration of the blood is the essential element of Duhring's disease. The theory is advanced that the kidneys fail to excrete a toxic substance, which is taken up by the white blood corpuscles and eliminated by the skin. In a few cases of pure pemphigus no increase in the eosinophiles was found, which the writers regard as an additional reason for the separation of this disease from dermatitis herpetiformis.

Hallopeau and Laffitte⁸ report two cases of dermatitis herpetiformis where numerous eosinophiles were found both in the blood and in the contents of the vesicles, while none were found in a case of pemphigus foliaceus.

Darier⁹ was also able to confirm the observations of Leredde and Perrin. He found the lesions considered by them as characteristic, namely, an edema of the papillary portion of the corium, resulting in vesiculation, and a notable increase of eosinophilic cells. The same increase in these cells was found in the fluid from vesicles and in the blood. He thinks that further researches are necessary before the exact diagnostic value of the presence of eosinophilic cells can be determined. His own investigations have not shown an appreciable increase of the eosinophiles in vesicles of eczema and of different artificial dermatitides. On the other hand, in a case of leprosy with bullous lesions, a great increase was found in the eosinophiles of the blood, none however, in the contents of the bullæ.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 23, 1896, Dr. F. W. JOHNSON in the chair.

Dr. E. S. BOLAND read a paper on

SOME THINGS I WAS NOT TAUGHT IN OBSTETRICS.¹

Dr. TWOMBLY: Experience is a great teacher, and since leaving the school I have learned many of the

¹ See page 254 of the Journal.

⁸ Annales de Derm. et de Syph., 1896, p. 1442.

⁹ Loc. cit., p. 842.

⁷ Annales de Derm. et de Syph., 1895, p. 281.

things which Dr. Boland has mentioned. It is well to call them to mind and discuss them. The paper certainly is very desirable. One of his principal points was the use of chloroform instead of ether. I do not know that the majority of our obstetricians in Boston use chloroform so extensively as he does—not that there is any objection, because we know it is practically harmless in labor, that it can be used and freely used without danger, that the deaths under chloroform during labor have been practically nothing, and, that if there has been a death, it has generally been due to another cause. The majority of us use ether, simply because ether is “the thing” in almost all operations here in Boston. Ether works just as well and gives us practically no anxiety at all. Chloroform ought not to trouble us in such cases, but still we have a confidence in ether as we are using it all the time—at least I do—that we have not in chloroform. I should feel anxious to see that the little disc was held away from the patient, and that they did not give her too much while the pains were going on; with ether I can attend to my own part of the procedure and know that all is well. Ether is said to retard labor. I have seen that occasionally, but I do not think it necessarily is a disadvantage. I have not found that ether causes vomiting where even complete insensibility is produced for any obstetrical operation. Perhaps I should be convinced by Dr. Boland’s large experience that I could use chloroform more freely. Certainly chloroform is all right, and yet for certain reasons—because we are born and bred up to it—we use ether instead of chloroform in the majority of these cases.

As regards the early stage of the formation of the placenta, I too have noticed that, since I came out of the school. Dr. Boland has mentioned that we were taught that the placenta was not formed until the end of the third month. Certainly we find that it seems to be formed very much earlier in cases of abortion; and in almost every case at the sixth week or at two months I find it necessary to dilate and curette with the finger or with an instrument to get out the remaining *débris*. In one case I remember curetting until I could feel the uterine tissue, and I thought everything had come away, but washing out brought away a great deal more. The next day a great mass of placental tissue was expelled, and there had been some hemorrhage and pains in the night. I found my curette had gone round and round this mass while curetting the part of the placenta that adhered to the uterine wall, and it was free in the interior of the uterus and acted as a foreign body until the uterus expelled it. I think we do not always dilate enough to get this free mass out, neither does it always come through the opening when we wash out with a large tube. Here comes in the value of an aseptic finger which ought to be used to prevent such mistakes.

As regards the use of forceps we are all coming to use them very much earlier than we used to, and it certainly is a wise procedure where the labor is prolonged and the patient becoming exhausted. It prevents bruising and wounding of the soft parts by long-continuous pressure, and prevents sepsis through a torn or injured vagina; but I think each case should be treated on its own merits, and each physician must decide for himself. It is better to apply them a little later than to put them on too early in each case.

As regards the intra-uterine douche I know my

friends at the Lying-in may differ; but in my private practice I do not use the douche as often, either before or after labor, and I am coming more and more to palpate the position of the fetus externally, making fewer and fewer vaginal examinations. Leopold, of Dresden, teaches that decidedly, and admits of only one vaginal examination during the whole time. If, however, the hand in the uterus or high forceps are used, I should use the douche afterwards. If the labor has been natural, or low forceps used, and the field aseptic beforehand, I think the douche can be omitted as a general rule in private practice.

DR. GARCEAU: I have only one procedure to relate which, so far as I know, is not to be found in the text-books. I refer to the treatment of certain early miscarriages—those which have been induced by means of the catheter, and in which sepsis has followed the introduction of the instrument. If the sepsis is accompanied by severe general symptoms and the uterus still contains the infected placenta, held there by a rigid os, the placenta necessarily is a menace to the woman’s life. Under these circumstances the saving of a few hours may mean a great deal, for by acting promptly we may prevent serious results. Even if the woman recovers, the invasion of the tubes and ovaries may lead to a chronic inflammation of these appendages which perhaps may necessitate a subsequent celiotomy for their removal. Those who have to do with gynecological work know that a large proportion of cases of salpingo-ovaritis have their origin in a badly managed miscarriage, and a common remark in the out-patient clinics is, “I had a miscarriage a few years ago, and I have never been well since then.”

If sepsis has declared itself, the treatment should be in all cases, early removal of the uterine contents. In most cases this is done without difficulty; but there is a certain class of cases in which there may be some difficulty on account of a rigid os. To overcome this the usual method is, introduction of a strip of iodoform gauze in the cervical canal, which is allowed to remain there for a certain length of time, when it is removed and a larger piece put in. This is repeated until sufficient dilatation is secured. Against this procedure is the fact that it consumes valuable time. In the very early months of pregnancy all that is necessary to do is to dilate with a stray dilator and remove the partially formed placenta with a small curette. But when the placenta is formed, as it is in the later months, a small curette will not suffice to remove it with certainty, and a small piece of infected tissue left behind may do all the mischief that the whole placenta might. The safest way in these cases, it seems to me, is to give ether, dilate as much as possible, and if sufficient dilatation is not secured, to incise the cervical canal with a knife on either side, introduce the finger in the uterine cavity and remove the placenta; the canal and incised cervix may then be sutured.

I have treated two cases in this way. In the first the woman was, when I first saw her, evidently septic. She had a temperature of 103°; was much prostrated, and was having chills; there was likewise a foul vaginal discharge. There was no question that she was not then having a miscarriage. On examination I found a rigid os and a large uterus. I gave her ether, incised the os in the manner described, and removed the placenta. There was no fetus, it having been

passed a short time before. She made an uninterrupted recovery, and became pregnant again in six months. In the second case the pregnancy was advanced to four and a half months. She also was septic, and was having chills and high temperature. Here also I incised the os, and removed a macerated fetus and placenta piecemeal. She recovered perfectly.

The great advantage of the finger is that you can assure yourself that nothing of an infectious nature is left behind.

In reply to Dr. Twombly's question I would say that in incising laterally I merely did so because most lacerations of the cervix are lateral, and I endeavored to follow nature in this respect.

DR. CUMSTON: I was very much interested in the reader's paper, especially in the subject of chloroform, because when I was at the Rotunda Hospital I had considerable experience with that there, and saw it used in confinements; in fact, they never use ether. I agree, as far as my observation goes, with the speaker in that chloroform is a harmless anesthetic in every way, and personally I prefer it to ether in labor when surgical narcosis is not necessary. If operative interference is necessary, I think I should resort to the use of ether. But a very admirable way, to my manner of thinking, of giving chloroform during labor to control the pains is what the French call *chloroform à la reine*, which came from the practice of Dr. Simpson with Queen Victoria, who was the first to take the narcotic as she wished to set a good example to English women. You give the patient a handkerchief and a small bottle of chloroform, and every time she feels a pain coming on she will pour a little chloroform onto the handkerchief, then put it to the nose, and as soon as she gets enough the arm will be relaxed and will fall from the nose; consequently there is no danger of an overdose. We used to employ it in that way in the Maternity at Geneva and Dublin, and it worked very well.

The question of infection in early miscarriage or abortion I was very glad to hear the doctor bring up. I have seen in my dispensary practice a few cases in which I am very positive the miscarriage or abortion had taken place at about two months or two and a half months, and still the patient was septicemic. I make a distinction between septicemia and what is called sapremia. I think the cases in which you have a fever going up to perhaps 38.05° C. where chills are not very marked and the patient feels fairly well, are due to the absorption of the microbic toxins in the uterus without systemic infection from the microbe itself. Septicemia is entirely a different affair. I hardly think unless the miscarriage is artificially produced, that you will find a true septicemia unless there has been some meddlesome work done, unless the *accoucheur* has introduced his finger not properly cleansed, or dirty instruments; in that case he will introduce other germs and add fuel to the fire. In this way, perhaps, a true septicemia may result.

To illustrate the sapremic condition following early miscarriage, that is to say, before the end of ten weeks, I would mention a case that occurred in my private practice not long since, which Dr. Garceau had the kindness to help me with. A physician's wife, twenty-three years old, was said to be quite sick, and the doctor asked me to see her. I saw her about five in the afternoon, found a temperature of 101° F., the face a little flushed. Upon questioning, all the history I

was able to elicit was that the patient had skipped one month, and that it was then the time for the second epoch to occur. At the time of the preceding menstruation there had been a little show, simply a serous liquid tinged with blood. This time there was a slight flow of the same nature. Although I examined the napkins I could not detect any abnormal odor. I consequently was a little lost in the diagnosis. Vaginal examination showed the uterus in physiological anteversion, enlarged to the size of a uterus at six weeks, but deviated to the right of the median line and slightly tender. As it was her first pregnancy, I was rather under the impression that it was probably a little attack of grippe, and that there really was no threatened miscarriage. The next day the temperature had gone half a degree higher, the night had been bad, and the flow had slightly increased in amount, although not more than one napkin would have been necessary to use in the twenty-four hours. The napkin of the morning I examined pretty thoroughly, and found, which to me is a very valuable sign of a septic process going on in the uterus, that the centre was clear in color and its borders dark. Not wishing to act too hastily, I asked Dr. Garceau to see the case with me, which he did; and we decided to wait until evening before interfering. We saw the patient at eight o'clock, and as she was no better, according to Dr. Garceau's suggestion I introduced a strip of iodoform gauze into the os to obtain dilatation, and we saw the patient again in an hour and a half. Although dilatation had not gone on to any extent, I proceeded to dilate and curette with the result that a large mass of fungosities was removed, although no trace of a fetus could be found. The patient was put to bed, and the next morning the temperature was almost normal. The temperature remained normal two days, and then suddenly went up to 38° C. I gave an intra-uterine douche of creoline, and from that time on the recovery was uninterrupted. Now the uterus is normal, no tenderness; and I think she has very luckily escaped a good deal of trouble.

Regarding the removal of the retained *débris*, that has happened to me several times. I had a dispensary patient a year ago in a septic condition, bleeding quite profusely, and the discharge had an extremely bad odor. I removed a large mass of placenta with the curette. I thought I had been over the cavity very thoroughly; but a few days later not only was a large piece of the placenta expelled but the fetus along with it. Consequently, my rule has been, since that time, to use a curette that would cover as large a surface as possible; and I see nothing that would answer the purpose better than Dr. Reyould's instrument.

DR. BOLAND: In regard to the intra-uterine douche, I use it only after some intra-uterine operation. I do not repeat it unless the temperature goes up. I do not leave it to the nurse at all. In regard to incomplete abortion, if I see the ovum in the unbroken sac and the embryo not bigger than a bumble-bee, I feel pretty easy.

I never trust the bottle of chloroform to the attendant or nurse, but keep it within reach; and if I have to use forceps I drop on ten or twelve drops at a time. I think in an ordinary case where surgical anesthesia is not desired an ounce will suffice.

I tried to make a distinction between surgical irritation and septicemia. I am not quite familiar with the

term Dr. Cumston used, but in my paper I spoke of septic irritation in the sense of surgical irritation.

In regard to cancer of the cervix, I felt terribly mortified and sore over that case. I had never met it before. The cervix seemed as large as the end of the closed hand; it was soft, and bled on touching; it was coarsely granular, and I was sure I had a case of cancer of the cervix. I could not get a clear history of abortion. I sent her in, and was nonplussed when I found the doctor had taken away the placenta.

DR. C. G. CUMSTON read a paper on

HYDROCELE OF THE CANAL OF NUCK, WITH REPORT OF A CASE.

DR. GARCEAU: I should like to ask whether the reduction which was done two or three times by other physicians was a reduction *en masse* into the abdominal cavity?

DR. CUMSTON: I do not believe they ever reduced it. I think after a while the tumor became inflamed by the truss, and the local irritation caused the secretion of fluid in its interior to continue. I think the doctors were mistaken when they said they reduced it. That they might have flattened it I dare say, but reduction must have been impossible in this case because, when I operated, the inguinal canal was one of the smallest I ever saw. In the true form, reduction into the abdominal cavity never takes place.

DR. JOHNSON: I once met with hydrocele of the canal of Nuck in doing an Alexander operation. It was on the left side, and it was supposed that the woman had a left inguinal hernia, and she also had a retroflexion of the uterus, and I thought I would do an Alexander to correct the retroflexion and cure the hernia; but I found it was a hydrocele of the canal. That is the only case I have seen.

DR. CUMSTON: Could the tumor be reduced before operation?

DR. JOHNSON: I made no attempt to reduce it. She told me she had worn a truss. Under ether you could push it in so that it did not protrude beyond the level of the skin, but you could feel it. I supposed it was a hernia. It was oblong, about the size of a small hen's egg. It was about one and a half inches in length.

Recent Literature.

A System of Surgery. In contributions, by twenty-five English authors. Edited by FREDERICK TREVES, F.R.C.S., Surgeon to, and Lecturer on Surgery at the London Hospital, Examiner in Surgery at the University of Cambridge. Vol. II. In one octavo volume of 1120 pages with two colored plates and 487 illustrations. Philadelphia and New York: Lea Brothers & Co.

The object of this work is to present a concise account of the science of surgery as it exists to-day, and to present pathology, clinical data, and treatment in a form useful not only to a medical student but also to the surgeon in active practice. Operative technique is omitted, this subject having been thoroughly and very satisfactorily treated in Mr. Treves's excellent work on operative surgery ("Manual of Operative Surgery," by Frederick Treves, two vols.).

The contributors to Volume II are men more or less identified with the subjects assigned them; especially Bennett, Pearce Gould, Henry Morris, Ball, and the editor himself. This book is devoted to the surgery of special regions. It describes the affections of the head, mouth, palate, tongue, tonsil, pharynx, esophagus, ear, nose, neck, chest, spine, breast, abdomen, hernia, rectum, kidney, bladder, male and female genital organs, muscles, tendons and deformities.

The articles are more thoroughly written even than those in Volume I. Some are very valuable contributions. The same satisfactory division of articles into specific subjects by heavy, clear type headings appears in this volume as in its predecessor, making rapid reference easy. The illustrations and diagrams are well chosen and effective.

When one considers the extent of the task of condensing into two volumes practically all surgical science, one is struck with the completeness of Mr. Treves's work. An index to both volumes is appended to Volume II. The book, although containing 1120 pages, is not too heavy to be read without inconvenience, and is surprisingly compact. It is a book that one can unhesitatingly recommend to those whose professional work causes them to be interested in surgery.

Fear. By ANGELO MOSSO. Translated from the fifth edition of the Italian by E. LOUGH and F. KILSON. Authorized translation. London, New York and Bombay: Longmans, Green, & Co. 1896.

This is one of the works which the brilliant physiologist of Turin has written more especially for a popular audience, and is a good example of the somewhat peculiar method followed by him in making books of this kind. Nothing comes amiss that can in any way be brought into connection with the subject he is writing about: physiology and psychology, art and literature, the professional and general experiences of the author himself and of others being all called upon to furnish material for the work, which in its final form suffers from considerable diffuseness and lack of sequence, much that is introduced failing to make its structural importance felt. On the other hand, nothing can be said to be without interest, the writer's geniality (in the German as well as in the English sense of the word), freshness and spontaneity (often indeed *naïveté*) quickening everything.

The book contains a brief sketch of the functions of the central nervous system, an account of the influence of emotion on the intra-cranial circulation, and a discussion of the effects of psychical conditions upon the circulation, respiration, and other bodily functions. A large part of the work is given to the discussion of the expression of the emotions, particularly of fear, in which Mosso shows himself to be largely a disciple of Spencer and Darwin. The medical and educational influences of fear are also entered into.

The translation is, on the whole, fair. It is to be regretted that here and there such sentences occur as: "In the middle of the auricle of the rabbit's ear there is an artery, running from the base to the summit, which ramifies and winds in such a manner as to form two veins on the edge of the auricle" (p. 11), and "The turbidness appearing on the whitish leaflet of the germ seems to be regulated from the beginning of the division of labor" (p. 262), where at least "from the beginning" should be replaced by "by the principle."

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THE REPORT OF THE COMMISSION ON THE
PUBLIC CHARITABLE AND REFORMATORY
INTERESTS AND INSTITUTIONS OF THE
COMMONWEALTH OF MASSACHUSETTS.

THE Commission, consisting of Hon. William F. Wharton, Dr. C. F. Folsom and Prof. Davis R. Dewey, appointed last May by the governor, to investigate the charitable and reformatory interests and institutions of the Commonwealth of Massachusetts, has sent in its report, which is now before the legislature. The report with appendices will be published and ready for distribution at an early date.

The Commission recommend:

First, the creation of a Department for Children, for the care, custody and control of the more than two thousand juvenile offenders, dependent and neglected children and foundlings or destitute infants now under the charge of the State, to be composed of seven unpaid members.

Second, the creation of a State Board of Insanity, to be composed of a chairman and two other members serving without pay except their expenses, and two members to receive each a salary of \$5,000 a year and necessary expenses.

Third, a State Board of Charity, of seven members, of whom the secretary is to receive a salary of \$3,500 and expenses.

Fourth, a simplification of the settlement laws and less difficulty in acquiring settlements.

Fifth, certain changes in the laws to render the Foxboro Hospital (for dipsomaniacs and inebriates) experiment more successful.

Sixth, State control of all the penal and reformatory institutions, and the abolition of the county houses of correction as such, with the following ends in view:

- (1) The abolition of unclassified prisons.
- (2) The initiation and development of reformatory measures for a larger number of prisoners who are susceptible to reform.
- (3) Uniformity in the management of the prisons and the prisoners.
- (4) Uniformity in the terms of sentences and in the granting of permits to be at liberty.

- (5) The better regulation of labor in the prisons.
- (6) The more complete separation of the sexes.
- (7) The abandonment of prisons now quite unfit for their purpose, as, for instance, the House of Correction at South Boston, and wiser provisions for relieving our overcrowded prisons.
- (8) The more intelligent study and treatment of the problem of drunkenness.

Seventh, the abolition of fines as punishments for drunkenness, the placing of occasional drunkenness without other offence against the law outside the list of crimes and misdemeanors, and the subjection of habitual and confirmed inebriety to reformatory treatment.

The Commission also recommends that the Board of Commissioners of Prisons consist of two salaried members and of three members, including the chairman, who receive no pay except for necessary expenses.

The Commission recommends that all insane persons, acute and chronic, who are supported at public expense, be placed under the care, custody and control of the authorities of the Commonwealth, and that the expense of their support be borne entirely by the Commonwealth, taking them entirely out of the hands of the local authorities and from the uncertainties of almshouse treatment. It also advises that the State Board of Insanity should have charge of the boarded-out insane until their number reaches such proportions that a separate department should be created to take charge of the work. The trustees of the several hospitals for the insane are to be allowed to board out any of their patients, subject to the supervision of the State Board of Insanity.

The recommendations as regards the insane chiefly interest the medical profession, and we quote the Commission's general suggestions upon that point in full:

Great weight should be attached to the thorough inspection of all the hospitals and asylums for the insane brought under the supervision of the State Board of Insanity, and in order to insure such inspection we would suggest that the following provisions be incorporated in the law and made mandatory:

- (1) That the Board or any two members of it should visit every hospital and asylum under its supervision at least twice a year.
- (2) That every part of the institution visited should be carefully inspected.
- (3) That every patient should be interviewed, or an opportunity offered to each one to hold an interview.
- (4) That every certificate of commitment entered or filed since the last visitation should be inspected.
- (5) That entries should be made by the visiting Board or the visiting members in a visitor's book of minutes of the condition of the institution at that time, of the patients therein, of the patients under restraint and their number, and any criticisms or observations that the Board of visiting members may have to make, — for instance, as to the occupation, amusement or classification of the patients, as to the cleanliness and sanitary condition of the institution, as to the diet of the patients, and any other matters that they may deem worthy of observation or criticism.

We further recommend:

That all patients in any hospital, asylum or receptacle for the insane shall be allowed, subject to the regulations of the Board, to write freely to the State Board of Insanity, if created, and that the letters so written shall be forwarded unopened by the superintendent or person in charge to the said Board, for such disposition as it shall deem right; and that the said Board shall have the right to send any letters, or other communications that it may deem proper, to such patients.

That whenever any person is received by the superintendent or physician in charge of any insane hospital or asylum, and

there is a question as to the propriety of his or her commitment, the said superintendent or physician shall immediately notify the State Board of Insanity, who shall inquire into the insanity of such patient and into the question of the propriety of the commitment.

That, in taking and transferring patients to and from the institutions for the insane, the nurses of the hospitals and asylums should be employed, as far as practicable, instead of officers of the law.

That a uniform system of keeping accounts in the several State hospitals and asylums be prescribed by the State Board of Insanity, and that the same be universally adopted by those institutions.

That the State Board of Insanity and the boards of trustees of the several hospitals and asylums for the insane, whose responsibilities should not be lessened, meet quarterly for purposes of consultation and harmonious action. Some of the topics to be considered at such meetings might be the apportionment of patients to the several hospitals and asylums, the examination by experts of questions of diet, ventilation, drainage, new construction, improved facilities for treating acute curable cases, occupation for the patients and gymnastics as a means of physical and mental training.

That there be referred to the Board or its officers questions of the sanity of inmates of the penal, reformatory and other institutions who present indications of insanity.

That the use of the word "lunatic" be abandoned, and that the term "insane" or "insane person" be substituted for it wherever it occurs in the names of the several hospitals and in the laws relating to the insane.

The presentation of this admirable report marks an epoch in the history of the charitable and reformatory work of our Commonwealth. The three commissioners were men of eminent intelligence, and unswayed by selfish or political considerations, and they have had the opportunity, and seen fit to utilize it, of looking over the whole ground, and formulating a comprehensive and consistent scheme, whereas the General Court is ordinarily called upon to make one and another single change which the exigencies of the moment seem to demand, so that their reforms are almost necessarily a sort of patch-work.

The task set before them has been accomplished by the commissioners in a masterly way and evidently as the result of deep study and thought, after consultation with every one who wished to be heard on any part of the problem. Their recommendations can hardly fail to be a guide for present and future legislation, for they express the best knowledge of the best men in the community.

With the general aim of carrying out fully the plan which is already somewhat in vogue, they propose to place the different blocks of work—the care of the paupers, of the children, of the insane—under the charge of unpaid boards of trustees, who shall be or become, to a certain extent, experts in their several departments; and to provide for adequate supervision of their work by the appointment of a Board of Charities and a Board of Insanity, who shall not be hampered by administrative duties.

The supervision thus provided for is not a mere contrivance for criticism, but a scheme for the encouragement and stimulation of the individual boards of trustees, with due regard to the general interests of the Commonwealth.

The State Board of Health occupies already a truly judicial position, and its opinions are respected by the

local boards, because its members are recognized as authorities in their branch; and these proposed boards would soon come to occupy the same position as regards scientific charity and insanity. It is probable that any measure asked for by the boards of trustees, and endorsed by these supervising boards, would promptly be granted by the legislature; and so the supervising boards would inevitably have both a stimulating and a restraining influence on the trustees of the individual institutions.

The recommendation that all the penal institutions and the institutions for the insane, should be placed under the charge of the State, so as to bring about a more efficient and more uniform administration of them, would be a step forward of which physicians should eminently approve.

There may be objections to this arrangement, on the part of the county and municipal officers, because it takes away some of their present power and prerogatives, or for other reasons; but in the end they must surely see that it will work to the general good.

Under the present arrangement each of the local boards must study by itself the subject of crime, of pauperism or of insanity on such a small scale that its conclusions are likely to be narrow and its methods inharmonious; whereas the supervising boards would be able to collate the best experience of the world, and to suggest such methods of application as would be suitable for individual cases.

The changes suggested by the commissioners in the Settlement Law, by which settlement is acquired in three years instead of five, may also meet with opposition. But it must be remembered that if paupers are not taken care of by the towns they must be taken care of by the State, so that the taxes come ultimately from the same persons; and also that large sums of money which are now spent in determining settlements will be saved to the tax-payers under the new scheme. These changes in the Settlement Law have, as a matter of fact, been approved by the Association of Relief Officers of the towns.

Among the most valuable of the recommendations of the report is that providing for a special department for all the children now placed out in families throughout this and neighboring States.

There are, it should be said, well-informed persons who doubt whether it would be wise to change the status of those children of the Lyman and Industrial schools not actually in the schools but placed out under their custody, on the ground that the selection of the best places for these children and the return of them to the school when necessary, cannot be conducted by anybody else so well as by the officers and trustees of the schools themselves.

Well informed persons differ with the Commission in other matters, and other plans will be proposed. The sincerity of the opposition of members and officers of the Board of Lunacy and Charity, their zeal and the excellence of much of their work under difficulties entitle them to a respectful consideration.

These reforms seem to us so important that the legislature must in the end adopt them, in all essential respects, and if it does not do so this year, it may delay but it cannot permanently check the tide of progress. Public opinion is now strongly roused; and its force can be counted upon by those public-spirited legislators who are endeavoring to accomplish the adoption of these improvements.

THE REGULATION OF PRIVATE HOSPITALS FOR INFECTIOUS DISEASES.

IN a recent number of the JOURNAL (February 25, 1897) the provisions of a bill introduced in the Massachusetts State Legislature, for the regulation of private hospitals for infectious diseases were published, and since then several hearings have been given at the State House before the Committee on Public Health to the supporters and the opponents of the bill.

Although including all of the various so-called infectious diseases like small-pox, diphtheria, typhus fever, etc., the bill was professedly framed by owners of real-estate in Dorchester who have strenuously opposed the further existence of two private institutions for the care of consumptives in that district on the ground of the great danger in which these hospitals are supposed to place the surrounding community.

During the past year or two we have had some extraordinary examples of the lengths to which the laity will go in their discussions upon matters pertaining to public health. Views even more extreme than those of some of the medical profession themselves are expressed; and in the late discussion upon tuberculosis at the State House the almost frenzied statements of the laity would be ludicrous did they not reveal at times an underlying selfishness anything but edifying to witness. The opposition we believe to be based upon a false conception of the danger of infection from such institutions when properly regulated.

We have been taught that the chief danger lies in the dried sputa inhaled as dust. In all properly managed hospitals strict attention to the disposal of sputa is now insisted upon, and the recent experiments of Dr. Irwin W. Hance with the dust taken from the rooms of the Adirondack Sanitarium, as well as the tests made by the bacteriologists of the New York City Board of Health, show conclusively how little danger is to be apprehended when the sputum is disposed of suitably.

In the villages near the two largest sanatoria for consumptives in the world, Goerbersdorf and Falkenstein, the death-rate from consumption among the native population has steadily decreased since the foundation of these two institutions.

A statement has recently been made also by an eminent physician and climatologist in Colorado Springs that since the settlement of the town only

twenty cases have been known to begin in the native population, and this in spite of the fact that the place is filled with consumptives from all parts of the world.

Recent experiments, moreover, by Delépine and Ransome in England, have shown that the effect of sunshine upon the bacilli has been to render them inert. James B. Russell, the senior medical officer of health in Glasgow, in a pamphlet entitled "The Prevention of Tuberculosis," lately reprinted by our State Board of Health—a pamphlet to which we have before referred and which in our opinion should be read by every member of the profession—confirms this view by statements which should make us pause before we speak of *danger* from sputa expectorated into the open sunlight, even while we condemn and prohibit the practice of expectoration in public anywhere.

We have the sincerest desire to be just to the advocates of this bill who seek to remove these hospitals from their district, but we maintain that the bill in its present shape is not only unjust (to say the least) but unnecessary. By its very stringency it excites an unwarranted fear in the minds of the community and while its advocates vaguely say that they wish the institutions to be in less thickly populated districts they would make it practically impossible for any individual or set of individuals to establish such a hospital in any town in the State, and this at a time when the importance of special institutions for consumptives is being recognized and acted upon all over the civilized world.

There doubtless exists in the minds of many people a sentimental objection to the neighborhood of any or all hospitals. This objection is not easily combated by facts or by reasoning. It is fomented and increased by such an agitation as has been going on with reference to these hospitals for consumptives in Dorchester. In so far as it exists and in so far as this feeling is encouraged, it does much more to injure the value of real-estate propinquitous to a hospital than any actual influence from the presence of the sick themselves. This sentiment, this property nervousness, is, however, a positive force and must be reckoned with. It is not always enough to reassure real-estate interests to show, for instance, by irrefutable data, as may be done in the case of the Contagious Department of the Boston City Hospital, that there are within a given radius fewer cases of the disease treated at an incriminated institution than in other parts of the city.

Some suitable method for licensing and supervising private hospitals for certain infectious diseases might probably be devised; but great prudence should be exercised in devising such a method—a prudence of which there is no evidence in the bill which has led to these strictures. It would be very easy by ill-considered and hasty measures to do far more injury to the community at large than could be offset by any sentimental or pecuniary satisfaction accruing to any single locality, or to several localities.

AN ALTERNATIVE TO THE WINTER MIGRATION.

THERE was comment in the editorial columns of the last issue of the *JOURNAL* upon the winter migration to the South, and the suggestion was made for the consideration of some who go away and reap more loss than profit, for the consolation of others who would like to go but cannot, and as a warning to those who undertake to care for the wanderers but sometimes fall short of their promises, that there is an alternative—that alternative is simply to stay at home. For the well-to-do, who form the majority of the travellers, this plan is easy and may be made attractive; for the less well-to-do it is still easier, and at the same time profitable. Few people who have not tried it, with philosophy and ingenuity called to aid, have a realizing sense of how much rest, peace, satisfaction and refreshment can be had in this way.

If about the middle of February or the first of March you are wearied with the exactions of business or what is ordinarily called pleasure, or bored with the routine of the constantly recurring round of daily duties, or disgusted with the extreme changes and buffetings of our overmuch meteorology with the varying ice and slush and mud and dust of the streets; if you have a catarrhal mucous membrane which persists,—send for your doctor and tell him you want a change at home. Let him label you with a suitable disease according to the amount of protection you require from external exactions. Let him order you to stay on one floor, in one room of which, at least, there must be sunshine during part of the day. Have the ventilation and heating carefully attended to. Have your diet changed and regulated. Cast aside the stiff and formal clothing of a perverted civilization—starched shirts and collars, trousers and coats, corsets and starched petticoats, *et id omne genus*. Go to bed as early as you like and get up as late as you like, or as early and as late as your doctor directs. Have a nurse if you are really something of an invalid, or an attendant, at any rate, to wait upon you and respond to your wishes. Collect about you all your favorite old books, and the best new ones. Have some games of chance or of skill. Let your old friends treat you with that kind attention which they will be tempted to show the sufferer. Add to these suggestions anything else which your doctor's ingenuity or your own inventiveness may prompt—it will probably be much—and you who have never tried it will be surprised to find how much refreshment and renewed vigor to body and mind will result from four or five weeks of this kind of change. Try it once and compare it with four or five weeks spent in hurrying to the South and back again.

Those who cannot afford the full programme, may substitute an occasional twenty-four solid hours in bed—a simple therapeutic measure which is not sufficiently resorted to by our overwrought people.

It should not be forgotten that for others who must or will leave home for a comparatively short

period there are places like Newport, the mountains of New Hampshire, the forests of the Adirondacks, which are easy of access, which offer much comfort without crowds, and where a very pure air, free from dust, from rawness or from moisture, may be found.

MEDICAL NOTES.

THE AMERICAN SOCIETY OF NATURALISTS.—The American Society of Naturalists, the American Physiological Society, the American Morphological Society and the American Psychological Association will meet at Cornell University, Ithaca, N. Y., on December 28, 29 and 30, 1897.

A NEW LABORATORY FOR HYGIENE.—A new laboratory for hygiene has been erected and recently opened at the University of Freiburg. It is under the directorship of Prof. M. Schottelius.

THE ARREST OF A DIPLOMA MANUFACTURER.—Frederick Rutland, "Ph.D., M.D.," the president of the Wisconsin Eclectic Medical College, an account of which was given in our issue of November 19, 1896, has been arrested in Chicago on the charge of using the mails to defraud.

ALEXANDER J. C. SKENE, M.D., LL.D.—A cablegram from London states that the senate of the University of Aberdeen has decided to confer the degree of LL.D. upon Professor Skene, of the Long Island Medical College, Brooklyn, N. Y.

THE HEROISM OF TWO PHYSICIANS COMMEMORATED.—A stained-glass window has been placed in St. Peter's Church, Fernandina, Fla., by Dr. J. Baxter Upham, in commemoration of Drs. Francis Preston Welford and James Carmichael Herndon who died there during the epidemic of yellow fever of 1877 in the heroic discharge of their self-imposed duty.

ABNORMAL DEVELOPMENT OF THE RIGHT ARM OF A CHILD.—Dr. Goldstein, of the New York Polyclinic, recently presented at the clinic of Professor Fowler, a child who has in her right arm two distinct humeri, each articulating with separate glenoid fossæ of the scapula; three ulnæ, two radii, and three perfectly formed hands. Each of the hands has four perfect fingers and each a perfect thumb. Not only this, but every muscle of every finger and thumb is under the control of the girl, and she can write and perform other operations with any hand. The girl is quite sensitive regarding her deformity. She is bright and studious, but dislikes attending school because she becomes so great a curiosity among her classmates. An expert medical photographer who is employed by the Polyclinic, has recently made some skiagrams of the arm, which plainly show the existence of the distinct bones, humeri, ulnæ, and radii, and the manner in which the three hands are attached to the wrist.—*Medical News*.

TWELFTH INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.—In a letter dated Moscow, February 14th,

the Secretary-General, Prof. W. K. Roth, communicates the following facts for the information of the American physicians who intend to participate in the Twelfth International Congress which is to be held at Moscow from August 19th to 26th. The Transatlantic Steamship Companies refuse one and all any reduction of the usual charges. In their replies, most of which are couched in courteous language, they admit the existence of a trust, or contract, or agreement, which prevents them from lowering their prices; a few are so polite as to express their regrets. Reductions of fares on Russian railroads are expected shortly. The French, Spanish, Swedish and Hungarian railroads promise a reduction of 50 per cent.; so do the Italian for a distance of 500 kilometres; less (down to 30 per cent.) for shorter distances. The Mediterranean lines (Messageries Maritimes, General Italian Navigation Company, Austrian Lloyd) grant from 25 to 50 per cent. The chairman of the American National Committee is not authorized to issue certificates of any kind in favor of congressists. He will try to ascertain, however, in what way their movements may be facilitated, and may receive a reply in the second half of April. Extracts of papers to be read before any of the Sections ought to reach the Secretary-General before June 1st, in order to be printed in the preliminary volume. A special prospectus containing the final details referring to travelling, lodging, festivities, etc., is promised for the near future. It will be communicated at once to the medical journals, and to the press of the country.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 10, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 84, scarlet fever 45, measles 183, typhoid fever 5. For the week ending March 17, the following cases were reported: diphtheria 74, scarlet fever 58, measles 146, typhoid fever 7.

A DEPARTMENT FOR CHILDREN.—A hearing was held at the State House on Wednesday, March 17th, on the subject of the creation of a Department for Children, to have charge of the State's minor wards, as recommended by the commission to investigate the charitable and reformatory interests and institutions of the State.

THE ADMINISTRATION OF CITY PUBLIC SCHOOLS.—A meeting of the Women's Education Association will be held in Huntington Hall, Boston, March 25th, at 7.45 P.M., at which "The Administration of City Public Schools." will be discussed by Andrew S. Draper, President of University of Illinois, Champaign, Ill., formerly Superintendent of Instruction in the Public Schools of Cleveland, O.; Charles W. Eliot, President of Harvard University, Cambridge, Mass., and others. A letter will be read from Daniel C. Gilman, President of Johns Hopkins University, Baltimore, Md.

THE WEST END NURSERY AND INFANTS' HOSPITAL.—The fourteenth annual report of this hospital, recently issued, shows that 134 cases have been treated in the wards during the year 1896, and 2,285 in the out-patient department. A lecture-room, which provides seats for 150 people, has been added to the hospital. A training-school for graduate nurses is conducted in connection with the hospital; and since this school was opened in February, 1895, 18 nurses have received diplomas.

TO REGULATE THE MILK-SUPPLY.—The following bill to regulate the milk-supply, accompanies a petition which has been presented to the Massachusetts Legislature by the Bay State Agricultural Society: "The State Board of Health and all local boards of health may make such regulations for the inspection and sale of milk within their respective jurisdictions as will protect the public from the consumption of milk from cows which are diseased or kept in improper sanitary conditions."

THE OLDEST MEDICAL STUDENT.—An ex-minister of the Baptist church has begun the three years' course at the Maine Medical School at Portland. He will be over sixty by the time he receives his degree. He will possess a certain advantage over the average medical graduate, in that his services will probably be not often refused because he looks "so young and inexperienced." Most practitioners, unless blessed with a bald head or a gray beard, are objected to on such grounds until they have arrived at about the age at which this student will begin practice.

NEW YORK.

DEATH OF DR. DUSSELDORF.—Dr. Otto L. Dusseldorf, a retired physician of some prominence, died at the residence of his son, Dr. Louis M. Dusseldorf, in Brooklyn, on March 5th. He was born in Germany in 1829 and came to this country when a boy. Another son of his, Dr. John E. Dusseldorf, is a practising physician at Parkville, Long Island.

DEATH AT THE AGE OF ONE HUNDRED AND THREE.—Thomas Baldwin, said to have been the oldest man on Long Island, died at his residence at Seaford, L. I., on March 4th, at the age of one hundred and three.

DEATH AT AN ADVANCED AGE.—Mrs. Yetta Gerler died on March 1st in a New York tenement-house at the reputed age of one hundred and six years. It is stated that she was born in Poland in 1791, and that she was already married and entertained the French soldiers at her house when Napoleon marched through the country on his way to Russia.

DEATH OF DR. SUMNER A. MASON.—Dr. Sumner A. Mason, a well-known practitioner in the upper part of New York City, died of Bright's disease on March 12th, at the age of fifty-eight. He was born in New Hampshire, and commenced the study of medicine in Boston. He afterwards attended the

medical school of the University of Pennsylvania, and was graduated from there in 1868. He had practised in Harlem for more than twenty-five years.

TO PRESERVE THE ADIRONDACK FORESTS.—A bill has been introduced in the Senate at Albany providing for the carrying out of the suggestions made by Governor Black in his recent message for the preservation of the Adirondack forests. The bill specifies that the Governor shall appoint from the State Land Board and the State Fish and Game Commission a commission of three members, to be known as the Forest Reserve Board, who shall serve without compensation, but are to have their expenses paid, as well as such clinical assistance as may be needed. The Commission is allowed the right of eminent domain to acquire any lands within the definition of the present forestry law. If the Commission cannot agree on a price with the owners or occupants of lands the State Board of Claims shall be the court of final appeal as to the money compensation. One million dollars is appropriated for the purposes of the act.

THE TALLEST WOMAN IN THE WORLD.—It is announced that one of the new attractions of the Barnum and Bailey Show, which is shortly to open its spring season at the Madison Square Garden, is to be the tallest woman in the world, and, if the newspaper reports are to be believed, the tallest person of whom there is any authentic record in existence. She is Ella Ewing, a young woman twenty-four years of age, who was born and has always resided on a farm near Gorin, in Missouri. While her exact height is not given, it is stated that it is very nearly nine feet. Chang, the famous Chinese giant, was eight feet and two inches, and Anna Swan, who was exhibited a few years ago as the tallest woman that ever lived, measured seven feet and eleven inches. In the museum of Trinity College, Dublin, there is a male skeleton measuring eight feet and six inches, and in that of the Royal College of Surgeons of England one measuring eight feet and two inches.

MORTALITY FROM INFLUENZA AND PNEUMONIA.—Influenza has become slightly more prevalent in New York. In the weeks ending March 6th and March 13th the number of deaths reported from it was respectively 15 and 14, against eight deaths in the last week of February, which was the largest mortality from the disease noted up to that time during the present season. There has been no increase in the deaths from pneumonia, which numbered 140 in the week ending February 26th; 137 in that ending March 6th; and 138 in that ending March 13th. These figures compare very favorably with those of the same season in past years. In 1891, for instance, when influenza was widely epidemic, no less than 167 deaths from that disease and 271 from pneumonia were reported in a single week. The mortality from the various zymotic diseases continues small, and that from pulmonary tuberculosis has also been smaller than the average for this time of the year, the deaths

from it numbering 96 in both of the past two weeks. In the same weeks the total number of deaths reported in the city was respectively 824 and 819.

Miscellaneous.

MEDICAL REGISTRATION IN NEW HAMPSHIRE.

A MEDICAL Registration Bill has been passed by the legislature in New Hampshire, entitled "An Act to Regulate the Licensing and Registration of Physicians and Surgeons." The act provides that after September 1, 1897, no person shall have the right to the use of the title M.D., or Dr., or to advertise himself as a physician or surgeon, unless previously registered and authorized, or unless licensed and registered as required by this act.

The examinations for registration are to be conducted by three separate boards of medical examiners, of five members each, to be appointed by the governor and council, and representing the New Hampshire Medical Society, the New Hampshire Homeopathic Medical Society, and the New Hampshire Eclectic Medical Society, from a list of ten nominees submitted by each society to the governor and council for that purpose. The superintendent of public instruction is to be the regent of the State Board of Medical Examiners.

The fee for registration is to be ten dollars, and the applicant must be over twenty-one years of age, of good moral character, and have graduated from a registered college, or satisfactorily completed a full course in a registered academy or high school, or had a preliminary education considered and accepted by the regent as fully equivalent. He must have studied medicine not less than four full school terms, of at least nine months each, in four different calendar years, in a medical college registered as maintaining at the time a satisfactory standard and have received the degree of bachelor or doctor of medicine. The regent may accept as the equivalent of the educational requirements, evidence of five or more years' reputable practice.

The questions for the examinations shall be the same for all candidates, except in the subjects of therapeutics, practice, and materia medica, which shall be chosen from the questions prepared by the board selected by each candidate, in accordance with the school of medicine under which he wishes to practice. Examinations are to be held at least twice annually, and are to be in writing exclusively.

Licenses shall be granted by the regents on receiving from the State board a report that the applicant has successfully passed the examination.

Applicants examined and licensed by other State examining boards registered by the regent as maintaining standards not lower than those provided by this chapter, and applicants who matriculate in a New Hampshire medical school before January 1, 1898, and who receive the degree M.D. January 1, 1903, may, without further examination, on payment of five dollars to the regent, and on submitting such evidence as may be required, receive an indorsement of their licenses or diplomas conferring all rights and privileges of a regent license issued after examination.

The provisions of this act do not prevent the calling of regular physicians practising in other States in consultation, nor do they prevent physicians practising in other States near the boundary lines of New Hampshire, from attending patients in that State.

The provisions of this act do not apply to clairvoyants, or to persons practising hypnotism, magnetic healing, mind-cure, massage, Christian Science (so called); or any other method of healing, if no drugs are employed or surgical operations are performed; *provided*, such persons do not violate any of the provisions of this act in relation to the use of M.D. or the title of doctor or physician.

Every person who is in the practice of medicine or surgery in the State prior to the passage of the act is entitled to registration on payment of a fee of one dollar.

The punishment for infringing the provisions of this act is a fine of not more than one hundred dollars or imprisonment for three months for the first offence, and a fine of not more than \$250 and imprisonment for not less than six months for any subsequent offence, or both fine and imprisonment.

Correspondence.

SOUTHERN GEORGIA AS A WINTER RESORT.

THOMASVILLE, GA., March 9, 1897.

MR. EDITOR:—While spending a few weeks among the pines of Southern Georgia I have been struck with the desirability of this portion of the country as a place of residence for those who find the Northern winter and early spring to be a time of special hardship.

In the treatment of pulmonary and bronchial troubles it is, of course, admitted that suitable out-of-door life is of the utmost importance, and the locality selected should be one where the atmosphere is dry and sufficiently warm to enable the patient to spend nearly all of his time out-of-doors. It is not my intention to compare the various resorts for pulmonary invalids. I simply desire to call attention to a certain section which seems to me to be worth the notice of the medical profession.

The city of Thomasville, where I am at present stopping, contains about 7,000 inhabitants, and is situated 260 miles south of Atlanta. It is 200 miles from the Atlantic and 53 miles from the Gulf of Mexico. The elevation is 330 feet, and it is surrounded by forests of long-leaf pine. The sea atmosphere can only reach it after traversing miles of pine woods, which sift it of its saline elements and lessen its moisture. The soil is a mixture of sand and clay, dries very quickly after a shower, and the natural drainage is excellent. There is almost an entire absence of swamp lands, which always load the air with dampness, and which is so noticeable in many parts of Florida. The average winter temperature is 54°; the average spring temperature is 67°; the relative humidity is 65 per cent.

The dryness of the atmosphere and the soft, warm air, laden with the odors of the pine, have brought this place into considerable repute; and many Northern and Eastern people have erected fine residences and made this their winter home. Their presence changes the character of the place somewhat, and increases its desirability as a place of residence; while largely through their influence the city has been provided with artesian water-works, a system of drainage, and other necessary improvements.


The summers are long, and the heat then must be enervating; but from December to May the climate is delightful, and must be beneficial to those who need to escape from the rigors of a New England winter.

Very truly yours,

LUCIUS W. BAKER, M.D.

METEOROLOGICAL RECORD

For the week ending March 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-meter		Thermom-eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8,00 A. M.	8,00 P. M.	Daily mean.	8,00 A. M.	8,00 P. M.	8,00 A. M.	8,00 P. M.	8,00 A. M.	8,00 P. M.	
S. 28	30.53	21	30	12	61	58	60	N.W.	N.W.	11	17	C.	C.	
M. 1	30.70	22	36	7	70	94	82	N.	S.	9	12	C.	O.	.02
T. 2	30.24	42	50	33	74	87	80	W.	N.E.	18	9	O.	O.	.01
W. 3	29.86	44	54	33	100	90	95	W.	N.W.	6	15	G.	O.	.14
T. 4	30.74	34	39	30	60	52	51	N.W.	N.W.	21	7	C.	C.	
F. 5	30.10	38	50	26	77	92	74	S.	S.	7	22	O.	R.	.20
S. 6	30.20	37	50	24	77	78	58	N.	N.	16	12	O.	F.	.05
	30.35	44	23	71										.42

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 6, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	824	321	9.00	21.00	.72	.36	3.84	
Chicago	1,019,246	410	166	10.56	19.00	4.80	2.40	2.64	
Philadelphia	1,164,040	—	—	—	—	—	—	—	
Brooklyn	1,100,000	337	133	11.10	22.20	.30	.50	3.00	
St. Louis	560,000	196	51	3.57	28.48	.51	1.02	—	
Boston	491,005	250	61	8.40	25.20	—	1.20	5.20	
Baltimore	496,315	201	71	6.00	11.00	1.50	—	3.50	
Cincinnati	336,000	103	—	—	—	—	—	—	
Cleveland	311,537	—	—	—	—	—	—	—	
Washington	275,500	119	39	1.96	18.42	—	.98	.98	
Pittsburg	238,617	75	28	11.97	14.43	2.66	2.66	4.00	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,764	47	15	10.65	27.69	6.39	—	—	
Charlotte	65,165	30	8	3.33	—	—	3.33	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	31	12	19.38	15.15	3.23	—	—	
Fall River	88,000	49	27	14.28	22.44	8.16	2.64	4.08	
Lowell	84,359	38	11	2.03	21.04	—	2.63	—	
Cambridge	81,519	26	9	11.52	7.68	—	3.84	3.84	
Lynn	62,355	17	—	—	41.16	—	—	—	
New Bedford	55,254	32	17	15.65	21.91	12.52	—	3.13	
Springfield	51,594	16	6	3.85	14.40	—	—	—	
Lawrence	52,153	22	11	4.15	8.50	4.15	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	14	7	14.28	28.56	—	—	14.28	
Brookton	33,167	8	3	12.50	12.50	—	—	12.50	
Haverhill	30,185	11	4	18.18	—	—	9.09	9.09	
Malden	29,709	6	1	—	50.00	—	—	—	
Chelsea	31,295	13	1	—	33.07	—	—	—	
Fitchburg	26,394	2	1	—	50.00	—	—	—	
Newton	27,022	4	0	—	75.00	—	—	—	
Gloicester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	11	1	—	9.09	—	—	—	
Waltham	20,877	7	0	28.56	14.28	—	—	—	
Quincy	20,712	7	3	14.28	28.56	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	4	1	—	—	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,021: under five years of age 1,035; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas and fevers) 259; acute lung diseases 610; consumption 365; diphtheria and croup 90; diarrheal diseases 47; typhoid fever 29; whooping-cough 29; scarlet fever 25; cerebro-spinal meningitis 16; measles 14; erysipelas 5; malarial fever 4.

From whooping-cough New York 12, Brooklyn 7, St. Louis 3, Chicago, Boston, Pittsburg, Providence, Nashville, Somerville and Springfield 1 each. From scarlet fever New York 10, Brooklyn 9, Boston 3, Baltimore 2, Waltham 1. From cerebro-spinal meningitis New York 4, Worcester 3, Washington and Somerville 2 each, St. Louis, Nashville, Cambridge, Quincy and Waltham 1 each. From measles New York 10, Brooklyn, Boston, Pittsburg and Worcester 1 each. From erysipelas New York 3, Chicago 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending February 27th, the death-rate was 19.4. Deaths reported 4,096; acute diseases of the respiratory organs (London) 368, whooping-cough 120, diphtheria 88, measles 65, diarrhea 41, scarlet fever 32, fever 32.

The death-rates ranged from 12.8 in Huddersfield to 24.1 in Norwich; Birmingham 20.3, Bradford 16.5, Cardiff 14.1, Gateshead 21.7, Leeds 20.8, Leicester 20.5, Liverpool 24.0, London 19.0, Manchester 21.2, Newcastle-on-Tyne 18.9, Nottingham 17.2, Portsmouth 15.7, Sheffield 19.3, Sunderland 21.3, West Ham 13.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 6, 1897, TO MARCH 12, 1897.

The leave of absence granted CAPTAIN CHARLES WILLCOX, assistant surgeon, U. S. Military Academy, West Point, N. Y., is further extended one month and fifteen days, with permission to go beyond sea.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MARCH 13, 1897.

T. C. CRAIG, surgeon, detached from the Marine Rendezvous, New York, and ordered before retiring board March 16th, then home and await orders.

R. G. BRODRICK, assistant surgeon, detached from the "Constellation," March 15th, and ordered to the New York Navy Yard, March 17th.

JAMES C. PRYOR, commissioned as assistant surgeon from February 27th.

H. E. AMES, surgeon, detached from the "Detroit" and ordered to the "Cincinnati."

D. N. BERTOLETTE, surgeon, detached from the "Minneapolis," ordered home and granted three months' leave.

N. H. DRAKE, surgeon, detached from the "Cincinnati" and ordered to the "Minneapolis."

G. C. HUBBARD, assistant surgeon, detached from the "Cincinnati" and ordered to the "San Francisco."

EVENING LECTURES ON CLIMATOLOGY.

By the invitation of the Harvard Medical Alumni Association, Mr. Robert DeC. Ward, Instructor in Climatology in Harvard University, will deliver four lectures on "General Climatology and its Bearing upon Medical Climatology," at the Harvard Medical School on the successive Tuesdays, March 23d, March 30th, April 6th and April 13th, at 8.30 P. M. The profession are cordially invited.

First Lecture, March 23d. "The General Relations of Meteorology and Climatology; the Importance of a Study of Climatology by Medical Men; the Composition of the Atmosphere and the Variations in the Amounts of its Constituents, considered especially in the Relation of these Constituents to Health and Disease."

Second Lecture, March 30th. "The General Distribution of Temperature, Pressure, Winds and Rainfall over the Earth and the resulting Climatic Conditions." This lecture will be illustrated by means of a series of large charts.

NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.

The Seventh Annual Meeting of this Confederation will be held in the small banquet hall of the Hotel Walton, at Philadelphia, Monday, May 31, 1897, at 10 o'clock, A. M.

The object of the Confederation is to consider questions pertaining to State control in medicine, and to compare methods in vogue in the several States; the collection and dissemination of information relating to medical education, and to consider propositions that have for their purpose advancement of the standards in the United States. A cordial invitation is extended to all members and ex-members of State medical examining-boards, and to physicians, sanitarians and educators who are friendly to the objects named, to attend the meeting and participate in its proceedings.

WILLIAM WARREN POTTER, M.D., *President*.
A. WALTER SUITER, M.D., *Secretary*.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 22d, at 8 o'clock.

The following papers will be read:

Drs. W. L. Richardsou and G. L. Walton: "A Case of Tem-

pero-sphenoidal Tumor presenting Symptoms suggestive of Abscess."

Dr. E. W. Dwight: "Medico-Legal Aspects of Rupture of the Viscera."

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, March 24, 1897, at 8 P. M.

Subject, "Gonorrhea in Women." Sociologic side, E. W. Cushing, M.D. Pathology, J. H. Wright, M.D. Treatment, Edward Reynolds, M.D.

F. W. JOHNSON, M.D., *Chairman*.
C. H. HARE, M.D., *Secretary*.

AMERICAN PEDIATRIC SOCIETY.—The ninth annual meeting of this Society will be held at Washington, D. C., May 4, 5 and 6, 1897. One session is to be devoted to the demonstration of apparatus and pathological specimens.

WILLIAM P. NORTHRUP, M.D., *Chairman of Council*,
57 East 79th Street, New York.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.—The fourth session of this Congress will be held in Washington, D.C., May 4, 5 and 6, 1897. The meetings of the Congress will be held in the Columbia Theatre, corner of Twelfth and F Streets, N. W.

On Tuesday, May 4th, a Business Meeting of the Congress will be held from 1.30 to 2 P. M. From 2 to 3.30, there will be a general meeting of the Congress under the direction of the American Ophthalmological Society, Subject, "The Gouty and Rheumatic Diatheses and their Relation to Diseases of the Eye." From 3.30 to 5 P. M., there will be a general meeting under the direction of the American Otological Society, Subject, "Otolology in its Relations to General Medicine."

On Wednesday, May 5th, from 2 to 5 P. M., will be held a general meeting of the Congress, under the joint participation of the Association of American Physicians, the American Physiological Society and the American Pediatric Society, Subject, "Internal Secretions considered in their Physiological, Pathological and Clinical Aspects." At 8.15 P. M., Address by the President of the Congress, Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, Baltimore, Md., to be followed by a Reception by the President, at Rauscher's, corner of Connecticut Avenue and L Street.

On Thursday, May 6th, from 2 to 3.30 P. M., there will be a general meeting of the Congress, under the direction of the American Orthopedic Association, Subject, "Deformities of the Hip-Joint, especially Congenital Dislocations." From 3.30 to 5 P. M., will be held a general meeting of the Congress, under the direction of the American Surgical Association, Subject, "The Classification of Acute General Peritonitis: The Prognosis and Treatment of the Different Varieties."

WM. H. WELCH, M.D., LL.D., *President*, Baltimore, Md.
WM. H. CARMALT, M.D., *Secretary*, New Haven, Conn.

HARVARD MEDICAL SCHOOL.

EVENING LECTURES.

The next Thursday evening lecture will be given by Dr. F. E. CHENEY, on March 25th, at 8 P. M. Subject, "Injuries of the Eye." The profession are invited. The lectures announced early in the season to be given by Prof. J. C. Warren will be omitted.

BOOKS AND PAMPHLETS RECEIVED.

Gonorrhea, Its Ravages and Its Prophylaxis. By Albert H. Burr, Ph.B., M.D. Reprint.

Sixteenth Annual Report of the State Board of Health of New York. Transmitted to the Legislature February 17, 1896. New York: Printed by the State. 1896.

The Year Book of Treatment for 1897; A Critical Review for Practitioners of Medicine and Surgery. By twenty-six English authors. Philadelphia and New York: Lea Brothers & Co. 1897.

The Medical Annual and Practitioner's Index; A Work of Reference for Medical Practitioners. By thirty-nine English and American contributors. Fifteenth year. Bristol: John Wright & Co. New York: E. B. Treat. 1897.

Organ Diseases of Women, Notably Enlargements and Displacements of the Uterus, and Sterility, considered as Curable by Medicine. By J. Compton Burnett, M.D., Author of "Tumors of the Breast," etc. Philadelphia: Boencke & Tafel. 1897.

The American Year-Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Text-Books, of the leading American and Foreign Authors and Investigators. Collected and arranged with critical editorial comments by twenty-seven American Authors under the general editorial charge of George M. Gould, M.D. Profusely illustrated. Philadelphia: W. B. Saunders. 1897.

Original Articles.

THE TREATMENT OF BRONCHIAL ASTHMA.¹

BY FREDERICK I. KNIGHT, M.D.

THE term "asthma" has been applied to every form of dyspnea, paroxysmal or not, which is known to medicine.

What is properly so called at the present time is a paroxysmal difficulty in breathing due to temporary obstruction of the bronchial tubes.

The cause of this obstruction is now usually attributed to spasm of the bronchial muscles, or hyperemia and swelling of the bronchial mucous membrane, or both. In a certain number of cases the onset and termination of the attack are both so sudden and so free from catarrhal products as to indicate that it is purely spasmodic; on the other hand, in a much larger number of cases the preliminary cough and subsequent expectoration of Curschmann's spirals from the bronchioles indicate an obstructive affection of the bronchial mucous membrane.

The mechanism of an attack is varied, and much needless controversy has arisen from the fact that the discoverer of it in one case has too often endeavored to make this account for all other cases.

We have several factors to take into consideration in looking for the cause and later for a guide to the rational treatment of this affection. It may be due to one morbid condition, or to a combination of several. The principal conditions, which either alone or in combination, may be concerned in an attack of asthma are:

- (1) Disease of the lungs or bronchi.
- (2) Pressure on, or hyperesthesia of the vagus nerve.
- (3) Direct irritation of the bronchial mucous membrane.
- (4) Some peripheral morbid condition acting by reflex on the bronchi.
- (5) Toxemia.

Exactly how often an attack may be caused by one of these conditions, or to what extent a combination is always present, is not determined; but there is undoubtedly in a very large number of cases an abnormal condition of the lungs or bronchial tubes, which attracts the reflex. Hyde Salter and Berkart claim respectively that eighty and ninety per cent. of cases of asthma in the young date from some inflammatory affection of the lungs.

(1) Disease of the lungs or tubes, often the result of some acute inflammatory affection, makes the tubes prone to spasm or hyperemia. In case such morbid condition exists, the patient may probably have asthmatic attacks from this local cause of irritation without the assistance of any other factor, but is especially liable to attacks in case of the presence of either of the other factors at the same time.

(2) Louget, C. J. B. Williams, Lazarus, and others have demonstrated experimentally that spasm of the bronchi could be produced by direct irritation of the lungs or vagus. So an attack of asthma may be produced by the pressure of tumors or enlarged glands on the vagus. Of course, an attack would be favored by a morbid condition of the lungs at the same time.

The phenomenon being produced through the ner-

vous system, hyperesthesia of this system is naturally oftentimes a factor in the production of it, though it is doubtful if there are any purely nervous cases, idiopathic, so called, in which no other factor is present except vagus-hyperesthesia. Certainly the cases in which we can discover no organic cause are becoming fewer and fewer.

In the few cases in which the exciting cause is psychic, other factors are, as a rule, probably present.

(3) The inhalation of mechanical irritants, dust, pollen, fumes of sulphur matches, etc., is the exciting cause in many cases. Some odors of flowers, animals, etc., act as direct irritants, others come rather under the toxic class.

(4) The sources of reflex from peripheral irritation are various, the nasal and gastric being best known, but may occur in many other regions. They may be traumatic. Nasal surgery, like that of other regions, has been wonderfully extended and improved in recent years, and many cases of asthma arising from irritation or obstruction in this field have been discovered and cured, and not unaturally the nose has assumed an undue prominence as a factor in the production of asthmatic breathing.

Digestive derangements have long been known as excitants of the paroxysms, and are still potent.

(5) Under toxic causes we find the renal, gouty and malarial cases, as well as those due to carbonic acid, lead and other chemical poisons. The gouty and malarial origin has been too often overlooked. Some of my hearers may remember the cases of this kind reported by Beverly Robinson at the meeting of the American Climatological Association in this hall in 1889.

When we reflect upon this brief outline of some of the factors which may be concerned in producing an attack of asthma, it may be seen that the question of treatment is by no means a simple one. The relief of the paroxysm may be easy, but the prevention of recurrence requires a careful study of possible causes, as indicated above.

Berkart in his monograph which calls attention to the large number of cases of asthma in which antecedent pulmonary disease will be found, says of his study of the affection that "little perspicacity is needed to discover that the prevailing obscurity in the nature and treatment, primarily and mainly, arose from the exclusive attention bestowed upon the dyspneal paroxysms, whereas their constant antecedents and sequelæ, which form the life history, as it were, of the disease, were either neglected or erroneously interpreted.

The treatment of the paroxysm, however, is often what first demands our attention. We will consider this first, and afterwards the treatment in the interval between the attacks, including the radical treatment of the underlying cause, when that is possible.

The first thing which demands brief consideration, when called to a patient in a paroxysm, is whether it may be possible to remove at once one of the factors, and thus perhaps put an end to the attacks. If the patient has had attacks before, he has probably learned to avoid direct irritants, like dust, odors, etc., which are most evident, so that it is not worth while to spend much time during a paroxysm in hunting for these; but some peripheral source of irritation by reflex may be seen at once, as, for example, a nasal polyp or an overloaded stomach, the relief of which

¹ Read before the Boston Society for Medical Improvement, December 14, 1896.

will end the attack for the time being. So carbonic-acid poisoning may be relieved by exercise of the lungs in fresh air.

In most cases, however, some medical treatment will be called for. We probably cannot determine at once whether we have predominant spasm or hyperemia and swelling of the mucous membrane, but practically the treatment of the one is not antagonistic to the other. The efficient remedies are those which reduce the irritability of the nervous system, relax spasm, thin the mucous secretion, and even produce a kind of bronchorrhea.

As any patient with asthma may have an underlying condition very difficult of removal, and may require frequent repetitions, at longer or shorter intervals, of the treatment of the paroxysm, it is important to use, unless absolutely necessary, only such remedies as may not incapacitate the patient for the next day's duties, and such as will not be likely to inaugurate the drug-habit. If there is evidence of an underlying condition of bronchitis it is well to put the patient on the internal use of potassium iodide at once. The simplest remedies, and those attended with the quickest relief, if relief comes at all from them, are those which are taken by inhalation. They all of them act more or less by exciting secretion, and most of them by relaxing spasm also. Some act well in one case, and some in another; and those remedies which have most success are usually combinations of various drugs. Nitrate of potassium, stramonium, belladonna, hyoscyamus and arsenic are found in variable numbers and proportion in most of the powders and cigarettes in the market. One drug or one combination affects one, and another, another; and only trial will decide which is best for any particular case.

If no relief comes from such inhalations then the milder internal remedies may be tried. Phenacetin and other remedies of its class may give relief. Strong coffee or hot alcoholic drinks may suffice. If necessary we proceed to less simple measures, such as the inhalation of ethyl iodide, or the amyl nitrite, or the internal use of nitro-glycerin. The latter drug is very efficient in the relief both of spasm and of hyperemia. A large proportion of cases recover quickly on the combined use of potassium iodide and nitro-glycerin. Unfortunately the system soon becomes very tolerant of the latter, and the doses have to be constantly increased.

If still more powerful measures are called for, then those agents must be used which have a profound effect in diminishing the irritability of the nervous system. The hypodermic injection of morphia and atropia is one of the best, and will usually give relief, though I have seen a case, which always resisted morphia, yield readily to the inhalation of chloroform. The use of chloral, which often gives speedy relief, is to be avoided, if possible, on account of the very depressing after-effects. I must utter again a warning note against the use of any but the simpler remedies for the paroxysm unless absolutely required.

We now come to the treatment of patients in the intervals, to the treatment of the underlying conditions which, singly or combined, cause the attacks.

The first factor to which I have directed attention is the condition of the lungs and bronchi. As I have said, a previous inflammatory condition exists in many, according to some authorities in a very large

majority of cases. In some we have physical evidence of a chronic bronchitis. It is in these cases especially that the potassium iodide gives so much relief, either as an absorbent, or as an alkali, increasing and thinning the bronchial secretion. Certain it is that this remedy when properly given relieves and cures more asthmatic patients than any other one. Sometimes, no doubt, the relief comes from its action on enlarged glands which compress the vagus.

The potassium iodide should be given in doses from five to sixty grains, if needed, for a thorough trial, unless contraindicated. The syrup of hydriodic acid is sometimes useful, but needs to be given in larger doses than those usually prescribed. The dose should be from a dessertspoonful to a tablespoonful. This is not nearly so efficacious as the potassium iodide.

In case of derangement of the stomach I have found the sodium iodide and strontium iodide better borne. I have lately used the latter a good deal, and find that it is much more acceptable to the patient. All of the iodides should be given largely diluted on an empty stomach. I usually give them ten or fifteen minutes before meals. The continued use of a vasomotor depressant, such as one of the nitrites either alone or with an iodide, when that is indicated, is of great benefit. Nitro-glycerin may be used, but the nitrite of sodium has a more lasting effect. The dose of this drug given in many books is too large, one or two grains being usually enough, and large doses dangerous.

In case of emphysema, strychnia is useful — also expiration into rarefied air.

The second factor on my list is pressure on or hyperesthesia of the vagus nerve. As I have said, potassium iodide may act favorably on enlarged glands which press on the vagus. The same is true of arsenic, which is also a good nerve tonic and is said to act favorably on the bronchial mucous membrane. Practically arsenic has shown itself of great value. Other nerve tonics are indicated, especially quinine, which in large doses may even abort a paroxysm.

The removal of the direct irritant is possible in many cases, and efficacious in preventing the paroxysms, though hyperesthesia of the nervous system may be a prominent symptom. Feather beds, animals, kerosene lamps, arsenical wall-paper, various kinds of dust and many other objects, when found to be excitants, may be easily removed; but others cannot be, and yet it may be possible to remove the patient from them, as in the asthma of autumnal catarrh or other less defined climatic or atmospheric conditions. Certain regions of this country are known to be exempt from all of the symptoms of autumnal catarrh, asthma included.

In other cases the atmospheric condition which provokes the attack is not so well defined, and relief may be obtained only after repeated changes. The slightest change in location will sometimes give relief. More patients get relief by going from the country to the city than from the city to the country. A curious feature of the immunity of location is that in time it often fails, and another change is necessary. I remember the case of a physician who changed his residence and practice several times during his life, on account of asthma, and who finally got relief by going back to the place from which he started.

In making any change consideration must, of course, be paid to the probable effect of the climate on other

factors, for example, on the condition of the lungs and bronchi and on the nervous system.

Of peripheral origin of reflex irritation the nasal region furnishes a good many cases, so many that the digestive and other important regions have recently been too little investigated. The nasal polyp is easily recognized, and so usually are other morbid conditions which are likely to set up reflex action. Contact of a turbinate bone with the septum may be a source of great irritation, less frequently chronic disease of the turbinates, tonsils, pharyngeal-adenoid, etc. The whole naso-pharynx must be put in as healthy a condition as possible.

As I have just stated, digestive derangements have been in recent years far too little considered. Indigestible food, especially when taken at night, is often the cause of an attack; though other factors may be present, it is this added irritation which determines the paroxysm. The digestive tract is so much under our control that it is very important to regulate the quality and quantity of food, and time of meals, and perhaps also to treat some evident morbid condition. The intestinal tract must be investigated, especially for parasites. The sexual system and possible trauma must be considered.

No study of an obstinate case is complete without the consideration of toxemia. Lead and arsenic should be sought, and especially should the lithemic condition be looked for. An anti-lithic diet, regimen and medicine will relieve many otherwise incurable cases. The same is true of the appropriate treatment of malarial cases. In cases of renal dyspnea due to uremic intoxication there is sometimes an apparent increase of suffering, due perhaps to spasm of the bronchi, as indicated by sonorous râles, but it is better not to consider these cases under the head of bronchial asthma such as we have been considering.

It will be seen from this brief sketch that many morbid conditions may be concerned directly or indirectly in the production of a case of bronchial asthma, which act singly or combined, and that the treatment should be directed towards the removal of as many as possible of these conditions. The result will be more satisfactory the nearer we get to a removal of all of them.

The more of these factors we can diagnosticate the simpler may be our treatment. Grand combinations of many drugs either for inhalation or internal use are to be avoided unless single remedies fail. Patent and proprietary medicines and treatment of patients at a distance without examination for differential diagnosis must naturally be compound, including everything known to be "good"; but when a physician can have his patient under observation this can often be avoided.

In conclusion, I will add a few words in a general way as to the selection of a climate for asthmatics. As I have already said, the influence of climate is often very subtle, yet if we proceed on the same lines as I have suggested for medicinal treatment, of considering what factors we may influence by change of climate, we may yet often guide a patient successfully. Can we remove him from some direct irritant, as in the hay fever cases? Shall we find a climate which will fortify or calm a hyperesthetic nervous system? Or shall we (which is perhaps oftenest required) put him in a climate which will act favorably on his bronchial inflammation? If we wish to do the latter, a

dry, elevated region is indicated if the bronchitis is moist, but a warm, moist climate will probably be better if the bronchial mucous membrane is dry and irritable. As in all other means of treatment the nearer we get to an exact diagnosis of the exciting and underlying causes of asthma, the more intelligently and successfully will we be able to advise in regard to change of climate.

CASES OF GALL-STONE SURGERY.¹

BY J. W. ELLIOT, M.D.

I WOULD like to arouse the interest of this Society, composed as it is of both physicians and surgeons, in biliary lithiasis.

(1) Because these cases are sadly neglected, or treated by solvents when there is no known medicine that will dissolve gall-stones.

(2) Because modern surgery offers a first-rate chance of cure. The general mortality in these cases was about 17 per cent. in 1893, but I feel sure that this figure is too high. My own operations for gall-stones now number 16, without a death.

When we remember that ligation of the gall-ducts in animals² causes a destructive process in the liver, and that the liver is capable more than any other organ of regeneration when the duct is reopened, we have the scientific basis for a great surgical opportunity which has not been disappointing. The obvious chance for improvement is in early diagnosis and early operation.

The cases I have to report to-night were operated on in my last hospital service. They illustrate various conditions due to the presence of gall-stones and the corresponding operations for relief. In five of the cases the trouble was limited to the gall-bladder and cystic duct. In one case the stones had obstructed the common duct. Of the five cases in which the gall-bladder alone was affected, in two it was possible to close the gall-bladder with sutures at once, and in one the gall-bladder was in a state of acute inflammation simulating acute appendicitis. In the latter case the gall-bladder was drained at first and extirpated at a later operation.

CASE I. Chronic inflammation of gall-bladder. Immediate suture after removal of a large stone.

The patient, a married woman, aged fifty-three, entered the Massachusetts General Hospital November 16, 1895.

History.—She represents the fourth generation on her mother's side afflicted with gall-stones. One sister died of gall-stones. There is a family history of gout on her father's side. She has had chronic dyspepsia for years. From 1870 to 1884, she had a great many attacks of pain referred to the epigastrium, and was often slightly jaundiced either during or after these attacks. In 1884 she became a chronic invalid, and took the "cure" at Carlsbad with great relief. This was repeated in the following year. Since then, up to 1895, she has been treated with Carlsbad salts and diet.

One year ago she was laid up for three months with an attack. A very severe pain in the region of the gall-bladder was continuous for six days, requiring opiates. After the attack there was great soreness and tenderness in that locality. The pain would shoot

¹ Read before the Boston Society for Medical Improvement, December 14, 1896.

² Nasse: Arch. für klin. Chir., 1894, H. 48.

through the back up the right chest to the shoulder. There was frequent vomiting while the pain lasted. During October she had three attacks lasting three or four days. The stools have never been clay-colored, nor has jaundice been extreme.

On examination an indistinct mass could be felt in region of the gall-bladder. Temperature 99°, pulse 90.

Operation (November 19th). — When the gall-bladder was exposed it was found adherent to the intestine and omentum. It contained four ounces of clear mucous fluid and a stone as large as a pigeon's egg. The stone had no facets. The ducts were sounded and palpated, but no more stones were found. A part of the gall-bladder wall had become ulcerated by the pressure of the stone; the rest was moderately thickened, but tolerably normal. The ulcerated part was cut out, and the gall-bladder was then closed tight with two rows of stitches. The abdomen was closed, leaving a gauze wick down to the sutures in the gall-bladder.

The patient made a good recovery, the wound healing by first intention. She left the hospital on December 16th.

In December, 1896, more than a year after the operation, she was known to be well.

CASE II. Severe colic of gall-bladder. Immediate suture after removal of several stones from the cystic duct.

The patient, a married woman, aged thirty-two, entered the hospital May 27, 1896.

History. — Eight months previous to entrance she had had an attack of very severe pain in the epigastrium and right hypochondrium lasting several hours. There was vomiting and slight jaundice, but no chills. In the last eight months had had ten or twelve attacks at intervals of one to three weeks. Each attack seemed more severe than the previous one. The last attack, three weeks before entrance, lasted thirty hours. There was pain, vomiting and jaundice, followed by soreness in the right side.

On examination the temperature was 99.8°, pulse 80. The patient was very large and enormously fat, so that there was no hope of feeling the gall-bladder. Tenderness in the right hypochondrium was the only physical sign present.

Operation (May 29th). — The gall-bladder was found to be rather small. Palpation disclosed a small stone in the cystic duct. When the gall-bladder was opened an ounce of dark bile flowed out. Six small, light-yellow mulberry stones were removed by milking the cystic duct and gall-bladder with the hand outside. No stone was felt in the hepatic or common ducts. The gall-bladder showed no signs of inflammation and no adhesions. The opening in its fundus was closed with a double row of sutures. The abdomen was closed tight without drainage. An umbilical hernia the size of a pigeon's egg was also closed.

Recovery was uninterrupted and complete. Discharged June 21st.

A letter, dated July 29th, states that the patient was restored to perfect health.

CASE III. Adhesions of gall-bladder, the result of a former operation, removed.

The patient, a married woman, aged thirty-eight, entered the hospital for the second time April 1, 1896.

On July 6, 1894, I had removed several large stones from the gall-bladder and cystic ducts, closing the gall-bladder with sutures and stitching it to the ab-

dominal wall. She was much relieved after the operation and gained twenty pounds in three months. Since then her old attacks of pain had returned, and had increased in frequency and severity. She had become very neurasthenic.

Nothing found on examination except tenderness in epigastrium and right hypochondrium.

Operation (April 6th). — The gall-bladder was found attached by numerous adhesions, the fundus being adherent to the abdominal wall so that it was drawn out. The duodenum was adherent to the edge of the liver and the gall-bladder to the lesser omentum. When all the adhesions were freed, the gall-bladder was found to be entirely normal, no thickening and no stones.

Recovery was rapid, and followed by absolute relief.

CASE IV. Acute inflammation of the gall-bladder. Cholecystotomy, later cholecystectomy.

The patient, male, aged thirty-one, was sent to the hospital as a case of appendicitis. On arrival he had a temperature of 100.4°, with a tense and swollen abdomen, and complained of severe pain in the right side.

History. — He had been very thin for ten years. For the last two years had suffered from digestive disturbances, pain, gas formation and vomiting. About two years before entrance he had had two attacks of severe pain in the "pit of the stomach"; since then he had had fifteen slight attacks; he had never been jaundiced. The present attack began ten days ago, with a pain in the small of the back which gradually came forward to the pit of the stomach. Four days before entrance he was obliged to go to bed, with nausea and vomiting and a very severe pain in right abdomen. The abdomen became very tender and he felt feverish, but had no chill.

On examination the abdomen was found to be tense and generally sensitive. The right rectus muscle was rigid in the region near the ribs, but much less so in the pelvic region. At the border of the ninth right costal cartilage a tender swelling could be indistinctly felt through the rigid rectus muscle. A diagnosis of acute inflammation of the gall-bladder was reached.

Operation (March 6th). — A longitudinal incision was made from the ninth right costal border, downward three inches, into the abdomen. The gall-bladder presented. Its walls were deep red, almost black. It was glued to all the surrounding organs by recent adhesions. A caudal drew clear fluid at first, but later it came yellowish and thick. The peritoneal cavity being walled off with gauze, the gall-bladder was freely incised. A yellowish, thick, foul-smelling fluid came out — apparently pus mixed with dark, fine crystals. The bladder wall was dark, thick and friable, almost in a sloughing condition. I should have removed the gall-bladder at once but for fear of infecting the peritoneal cavity in breaking up the adhesions.

The gall-bladder was washed out with an antiseptic solution. No stones came out, and the ducts were not examined. It was partially surrounded with gauze and stitched to the abdominal wound as well as its friable condition would permit. A drainage-tube and a piece of gauze were placed inside the gall-bladder. The temperature fell to normal, and the abdomen became soft in a few days.

The recovery was uninterrupted.

On April 24th the patient was looking well and felt well. There was a sinus into the gall-bladder, which would close for twenty-four hours and break out again, discharging a greenish mucus. The patient was discharged much relieved.

May 1st. The patient appeared, complaining that the wound had been closed for thirty-six hours, which caused him great pain in the gall-bladder. The sinus was opened with a knife allowing the escape of two ounces of clear mucoid fluid, giving immediate relief.

May 4th. The patient re-entered the hospital, complaining that the continual closing of the sinus gave him much trouble and pain. It was quite evident from the collecting of the clear, mucous fluid, that the cystic duct was closed, and that the gall-bladder already diseased would be liable to another acute inflammation. Removal of the gall-bladder was therefore advised.

Operation (May 7th). — The old scar was cut out, and the gall-bladder and sinus freed from the abdominal wall. It was bound firmly to all the neighboring organs by adhesions. The dissection was slow and difficult. A stone, the size of a cherry, was found blocking the cystic duct. It was in a pocket off the duct, and was completely covered with mucous membrane so that it felt like a fibroma. The separation of the bladder was finally completed after much difficulty, especially on the side towards the liver. The bleeding surface of the liver was packed with gauze.

Recovery was rapid and uneventful.

Since the last operation the patient has had no pain and no digestive disturbance. He has gained flesh, and was in perfect health December 16th, seven months after operation.

CASE V. Acute symptoms in a chronically inflamed gall-bladder; cholecystotomy.

The patient, a married woman, thirty-six years old, entered the hospital May 26th.

History. Eight years previous to entrance she had had an attack of inflammation of the bowels on the right side. Eight days before entrance, without previous symptoms, she was waked in the middle of the night with pain, and discovered a bunch in her right side. She went to work the next morning, but vomited. The vomiting continued for twenty-four hours, very severe. The pain also continued to be severe.

On examination the general condition was found to be poor; patient thin and pale. Temperature 99°, pulse 88. The abdomen was not rigid or distended. In the right side there was a tense, smooth, movable mass, size of a coconut, extending from the costal margin to the median line, below navel, and to the lumbar region. It descended on inspiration, and was slightly dull on percussion. On May 29th, it was aspirated and three ounces of yellowish, quite clear mucous fluid evacuated — evidently from the gall-bladder.

Operation (May 30th). — On opening the abdomen a large, chronically inflamed gall-bladder was seen. A stone was easily felt in the cystic duct, and others in the gall-bladder. About twelve stones were removed. The gall-bladder was large, thick walled, deep-red in color, and was firmly adherent to the liver. It was thought best to remove it, but the adhesions proved so dense and the patient's condition so poor that the removal was abandoned; the opening in the fundus was stitched to the peritoneum in the lower angle of the

wound, and the gall-bladder was drained. In examining the ducts it was noticed that there was no kidney in the right side but that there was a mass of about kidney consistency lying across the vertebral column at about the level of the pancreas, probably a horse-shoe kidney.

The wound healed by first intention, leaving a sinus which closed in about six weeks. A cough appeared, and tubercle bacilli were found in the sputum. She left the hospital July 22d.

CASE VI. Cholemia and cholangitis. Stones removed from gall-bladder, cystic and common ducts; suture of the common ducts; and cholecystotomy.

The patient, a married woman, aged forty, entered my ward of the hospital February 19, 1896.

History. — For a long time she had had several attacks yearly of gastric distress, with vomiting, but no sharp pain. Had malaria (?) in July and August, 1895. From November, 1895, had had distress after meals and vomiting daily for several weeks, usually two or three hours after meals. No abdominal pain. For last two months symptoms somewhat less distressing. Became jaundiced about two months before entrance; this had gradually increased. Urine had been dark and she had suffered from pruritis. She gave up work two months ago, and since then had lost strength and twenty pounds in weight. Had occasional headache.

On examination the patient appeared to have a dull expression. She was well developed but thin. Deep icterus of skin and conjunctivæ; dark circles about the eyes. Abundant small papules and crusts all over the body, partly the result of itching and scratching. No glands. Considerable enlargement of liver. There was an indefinite resistance just below the edge of the liver. The vomitus contained free hydrochloric acid. The stools were clay-colored. Blood-count as follows: reds, 4,520,000; whites, 13,000; hemoglobin, 60 per cent.

Operation (February 25th). — On making the usual incision the gall-bladder was found covered with adhesions so as to obliterate all landmarks. The stomach was so adherent to the gall-bladder as to give the appearance of malignant disease. When the bladder was finally freed and opened, it was found full of soft, small stones and a thin, brown fluid. The cystic duct was much dilated and filled with stones. The finger was passed down through the cystic duct into the common duct where more stones were felt. In attempting to remove these stones the common duct was torn open. The stones were then easily removed through the tear, and a sound was passed into the intestine, showing that the duct was clear. Stones were also pushed down from the hepatic duct through the opening in the common duct. The tear in common duct was then closed with a double row of sutures. The opening in the gall-bladder was stitched to the abdominal wound and drained. A gauze drain was left in region of common duct. The patient suffered considerable shock from the operation, but soon rallied, and made a good recovery. No bile leaked from the wound of common duct.

March 2d. Constant drainage of bile. Stools clay-colored. Less jaundice.

March 11th. Ox-gall was given in the hope of stimulating the flow of bile and improving digestion.

March 19th. Stools have gradually become normal in color. Discharge from gall-bladder has gradually ceased. Skin clearing up.

March 29th. Great improvement in every way.

April 3d. Sinus healed. Discharged.

June 9th. Three and one-half months after operation, patient seen and found to be well in every way.

In a former paper,⁸ read before the American Surgical Association in 1895, I expressed the opinion that cholecystotomy had become too much the routine practice, that immediate closure of the gall-ducts and the gall-bladder by suture was the operation of choice, and could, as a matter of fact, be done in a large proportion of cases. The advantages of immediate suture over tedious drainage are obvious, provided it can be done with safety to the patients. My cases of immediate suture have all been successful, and they now comprise five cases of suture of the gall-bladder, one case of suture of the hepatic duct, and two cases of suture of the common duct.

Case IV was evidently an acute infection of the gall-bladder, and was on the point of causing general peritonitis. The symptoms and conditions found were almost exactly like an appendicitis; furthermore the operation for drainage, followed by removal of the organ in a quiescent stage of the disease, carries out the analogy to appendicitis.

I have changed my views somewhat in the last year in regard to removal of the gall-bladder. I now believe it is better to do cholecystectomy instead of cholecystotomy in cases where the gall-bladder has been the seat of a destructive inflammation as evidenced by extensive ulceration or greatly thickened walls, or extensive adhesions to the surrounding organs, or the condition known as "contracted gall-bladder." In cases of acute infection it should remain a matter of judgment in each particular case whether it is safer to do a cholecystectomy at once, or a cholecystotomy as an emergency operation, and a cholecystectomy later, as in Case IV. I also think that in case of a recurrence of stones in the bladder, cholecystectomy should be done. Not that removal of the gall-bladder will absolutely prevent the formation of stones, but it will do away with one important condition which favors their formation, namely, a diseased gall-bladder.

HYDROCELE MULIEBRIS, WITH THE REPORT OF A CASE.¹

BY CHARLES G. CUMSTON, B.M.S., M.D.,
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Tufts College, etc.*

Cysts of the canal of Nück are not frequently met with, and the report of a case operated on by the writer a short time since may not be without interest, followed by a few remarks on the pathology of the disease.

The patient, Mrs. O. H., age sixty-three, was kindly referred to me by Dr. L. in April, 1896. The patient stated that she had always been in very good health, with the exception that she was rather of a nervous temperament. The menses appeared for the first time at the age of fourteen and one-half years, and were always regular up to the time of the menopause, which occurred at the age of fifty-two. They were not attended by any pain, and appeared to have been in every way normal. The patient had had

three children at term and two miscarriages. Fifteen years previously the patient had first noticed a small lump in the right groin which was about the size of a cherry. The only symptom to which this small tumor gave rise was a dragging pain in the groin when the patient had walked a great deal and was tired. About two years previously the patient had slipped on an icy sidewalk and fell, but this fall only produced slight nausea, which was due to a pain which was started up in the region of the tumor. After this accident the patient noticed that the tumor had increased in size.

She consulted a surgeon, who informed her that she had a hernia, and ordered a truss; and, according to the patient's statement, before the latter was applied, the so-called hernia was reduced. The wearing of the truss irritated the skin over the tumor to a certain extent, and obliged the patient to occasionally leave the support off; and two weeks previously to seeing the writer, after she had removed her truss she noticed that the tumor had increased considerably in size and was painful to the touch. A physician was sent for, who found the tumor irreducible, and sent for another doctor, who gave ether; and, according to the statements of this gentleman, they reduced the bunch and applied the truss. But finding that the seat of the tumor was a source of great pain to her, the patient consulted Dr. L., who kindly gave the case over to me.

The patient was a well-nourished woman, intelligent and apparently in very good physical condition. Examination of the tumor showed a lump in the left groin, situated in just the position that would be occupied by an inguinal hernia and about the size of a large hen's egg. Standing up or lying down in no way changed the shape of the lump, and there was no impulsion when the patient coughed. Palpation showed an elastic tumor which could not be reduced into the abdomen. The Trendelenburg position did not facilitate reduction of the tumor. Percussion gave a dulness over the tumor. Skin moved freely over the growth.

From the history of the case and from the fact that the patient said that the tumor had been reduced on several occasions, I was inclined to admit the diagnosis of an inguinal hernia, which had probably become inflamed and was adherent to the inguinal ring, thus preventing its entrance into the abdominal cavity; but I had never felt such an elastic, tense tumor before in the region, and I doubted the correctness of my diagnosis.

The patient entered the Elliot Hospital, and the operation was performed the following morning. An incision through the skin was carried over the long axis of the tumor, the subcutaneous fat carefully incised, and the hernia sac was searched for, but none was to be discovered. With a Kocher's director the tumor was separated from the surrounding tissue, and suddenly an apparently cystic growth came up into the wound. Dr. Maurice H. Richardson, being at the hospital at that time, was good enough to see the case and confirm the diagnosis that I had already made, namely, a cyst of the canal of Nück.

The tumor was connected in the abdominal ring by a long pedicle. It was transparent, its surface lobulated and over which ran a certain number of small vessels. The tumor was perfectly transparent; but in order to be sure of my diagnosis, a puncture was made; about three ounces of a clear, straw-colored

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Gynecology, December 23, 1896. Discussion in *Journal* of March 18, 1897, p. 264.

⁸ *Annals of Surgery*, July, 1895.

liquid escaped and the tumor collapsed. The cyst was then drawn up out of the incision as far as possible, traction being made on the pedicle, and a stout silk ligature tied around the base, after which the tumor was severed from its attachment by scissors.

The wound was sutured with silk and an occlusive dressing applied. The subsequent events were of the simplest. There was no elevation of the temperature; the sutures were removed at the end of a week; and the patient left the hospital ten days after the operation in excellent condition.

Dr. L. has had the goodness to inform me recently that the patient is in every respect in the best of health, and that there is no complication at the site of the incision.

For many years, and even now, a certain number of surgeons refuse to admit the existence of cysts of the canal of Nück; but having carefully gone over the literature of the subject, and from the case here reported, the writer has no hesitation in believing that this condition is an actuality. As we all know, the round ligament is covered during fetal life by a prolongation of the peritoneum, which forms a complete envelope around it. According to Sappey, the peritoneum in the fetus reaches as high as the end of each round ligament, and forms an intra-inguinal canal known by the name of the canal of Nück, who was the first to give a description of the anatomy of this peritoneal prolongation in the year 1692.

In order to thoroughly understand the development of this canal, it is only necessary to say that the peritoneum adheres in its entire length to the round ligament, and that in the beginning of intra-uterine life the internal orifice of the inguinal canal is situated behind the external orifice. The peritoneum comes up near the latter, but later on the internal orifice is directed outwards, and little by little, as it becomes farther and farther away from the external opening, the round ligament with its peritoneal covering is drawn along with the internal orifice as it recedes, and thus is formed the canal of Nück. From the fourth to the sixth month it is very marked, and measures about six millimetres in length. Its evolution is exactly the same in both sexes, because the gubernaculum testis, which in the male goes through the same orifices, in order to reach the scrotum, is also drawn upwards and outwards, as the distance between the external and internal orifices of the inguinal canal becomes greater. Consequently the inguinal canal is occupied by the peritoneum when the testis enters, and traverses the canal when no obstruction is present. The gland at this time is about equal in size to the gubernaculum. In the female the canal surrounding the intra-inguinal portion of the round ligament no longer exists at birth, as it rapidly becomes atrophied. It often disappears at the eighth or even seventh month of intra-uterine life.

The question now arises, Can this peritoneal prolongation still be present after birth?

Duplay, in his thesis written in 1865, denies emphatically the existence of the canal of Nück, basing his assertion on personal researches carried out in 21 fetuses, who varied in age from four months to nine months, and in which he was unable to find this canal. However, Duplay's opinion has been since upheld by two of his pupils, Rabère in 1883 and Beurnier in 1885. The majority of anatomists are opposed to Duplay's opinion. Wharton has found a small canal,

the size of a goose-quill, measuring about a centimetre and a half in length and limited to the lower part of the inguinal canal, in young female cadavers. Out of 200 female cadavers Wrisberg found the canal of Nück in 19 of the subjects. Camper examined 14 newly born female children, and in 11 he was not able to detect any trace of the canal, while in the remaining three it was present; twice it was found on the left and once on the right side. The same writer in another series of 20 subjects found this canal closed up in 15, traces of it in three on the right side, while in two it was patent on the left. Sacchi found the canal in one out of three female fetuses that he examined.

Tillaux says that the canal of Nück is a prolongation of the peritoneum accompanying the round ligament, similar to the peritono-vaginal canal, which results from the descent of the testis into the scrotum. It is most often obliterated, but its remains may persist, which later on can become filled with fluid and thus form a cyst, constituting a hydrocele muliebri; and this is probably what happened in the writer's case, when we consider how late in life the tumor developed in his patient. Cruveilhier states in his work on anatomy that he had found this canal not infrequently in elderly women, and this statement is also upheld by the researches of Ramonede. The more recent anatomical researches of Richet, Féré, Senn, Virchow, Zuckerkandl and Hugo Sachs better demonstrate the possibility of the presence of the canal of Nück after birth. Out of 158 cadavers of subjects varying in age from birth up to three years, Féré found the peritoneal process accompanying the round ligament and perfectly patent on both sides in one, on the left in three, and on the right side only in one. The canal was incompletely obliterated on both sides in one subject; in nine the canal on the right, and in all on the left side were obliterated. Of these 17 subjects, eight were one month, two were over two months old, while the remaining seven had attained a certain age. Of 19 subjects varying in age from one to twelve months Zuckerkandl found the canal present on both sides in three.

Sachs examined 105 female infants, varying in age from birth up to one year, and found that 11 presented a canal of Nück on both sides; in 16 the canal was patent on the right and obliterated on the left side; while in nine, five were completely obliterated on the right and incompletely so on the left. In only one case did this writer find the canal perfectly permeable on the left. It may reasonably be concluded from what has been said that no doubt should any longer remain as to the possibility of the persistence of the canal of Nück in adult life; and thus having endeavored to prove this, we will now consider the pathology of the subject.

Serous cysts in the groin and labium of women were probably first mentioned by Aëtius in the year 543 A. D., who gave the first description, after the writings of the midwife, Aspasia. Ambroise Paré reports that he operated on a hydrocele in a young girl of six years, in order to give issue to its contents. Désault reported in 1791 that he opened the tumor in a girl of twelve, giving issue to two or three ounces of serous fluid. The tumor had been present for some time; it was soft, transparent, the size of an egg, and situated on the round ligament. Many of the older writers — as Lallement, Palleta, Lecat, Scarpa

and Sacchi and others — attributed these cysts to the persistence of the canal of Nück after birth. Benda also has given a very good explanation; and Schroeder gives an excellent description of the affection in von Ziemssen's Encyclopedia, and divides it into two varieties, namely, an extra- and an intra-peritoneal form. Schroeder, Weber and Koppe admit the possibility of these cysts occurring in the interior of the round ligament. The latter attributes this origin to the hematic cysts which are sometimes met with, and may be properly termed hematocele of the round ligament. Ancelon, Morpain and Brochon consider these serous cysts to be like those developed in the dartol infundibulum, which was first described by John Hunter, and lately more completely by Broca. The dartol infundibulum is similar to the sustaining apparatus of the penis and scrotum, being entirely composed of elastic tissue, and has no relation to the dartos of the male.

The following paragraph is taken from Richet's work on topographical anatomy, from the edition 1866:

"A great rôle has been given by some to this so-called dartol sac, considering it as the seat of hydrocele in the female; but it suffices, in order to reject this manner of thinking to remark that, first, the dartos, which is not a sac, and still less a continuous membrane, is made up of elastic fibres, and can in no manner secrete a serous liquid; secondly, in the cavity covering these fibres only fat and the extremity of the round ligament are to be found; thirdly, the remains of Rosenmüller's body described by Giraldès in the middle of the region of the epididymis, and which are recorded as the origin of encysted hydrocele of the cord, which did not exist here; fourthly and lastly, no worthy pathological report has been given to uphold this opinion, which has not even an analogy, because, in the male, there is no such condition as hydrocele of the dartos."

Consequently it is impossible, as is stated by Vasseur, to attribute a hydrocele in a female to a dropsy of the dartol infundibulum, because this sac does not exist in a strict sense.

Richet gave three causes for hydrocele muliebris: first, hydrops of an old hernia sac; secondly, cysts of the vulvo-vaginal gland; thirdly, serous collections in the organs of the canal of Nück, or old sanguineous collections which had undergone a transformation.

The teachings of Velpeau can no longer be upheld, and the peculiar theory of Vidal (de Cassis) cannot be seriously considered. At the present it is probable that the majority of surgeons consider hydrocele muliebris as a serous fluid developing in the *débris* of the canal of Nück, and comparable to cysts of the cord in the male. Gaillard Thomas considers the affection as probably resulting from a hypersecretion of the serous membrane. If the abdominal opening of the canal remains patent, the fluid which collects may easily be forced upwards by pressure; but, if the orifice is closed, the liquid becomes encysted, as in the writer's case. Hennig, Hegar and Kaltenbach believe that cysts developing in the round ligament generally occur from some abnormal condition in the evolution of the canal of Nück, which is only obliterated at the internal opening of the inguinal canal. These cysts, only typical as in the writer's case, are elongated tumors, usually about the size of an egg, filling the inguinal canal and sometimes extending into the labium majorum of the corresponding side. At the posterior aspect of the tumor a whitish-colored band,

which is sometimes of a pale red hue is found, which is the round ligament. If the peritoneal canal is obliterated at all points, the cyst will have an hour-glass shape. Pozzi, Auvard and Tillaux also believe that these cysts originate in the remains of the canal of Nück. In the writer's case and the one reported by Richelot, the absence of any history of hernia, the isolation of the sac at the top of the labium majorum, the vascular elements in the walls, the interior tortuosity which is in every way similar to the vagino-peritoneal canal of the male, the extreme narrowness of the connecting canal in Richelot's patient and its entire absence in the writer's case, clearly demonstrate that these were liquid collections developed in a *débris* of the canal of Nück.

In 1890 Wechselmann wrote a very important and complete paper on cysts of the canal of Nück, in which he clearly demonstrates that a certain number of cysts developing in the inguinal region in the female, originate in the remains of Nück's canal at its terminal end, its communication with the peritoneum having become more or less obliterated. Recently very conclusive facts have been reported by Berger, Terrillon and others, regarding congenital inguinal hernia in women, coexisting with hydrocele of the canal of Nück. It is certain that the remains of the latter, with the upper portion remaining patent, may cause a congenital hernia in the female in every way like the congenital hernia met with in the male, when the vagino-inguinal canal remains open.

Wechselmann reports three cases of these cysts, which were complicated with hernia, while Berger, Reclus, Routier, Tuffier and Terrillon reported similar cases at the Surgical Society of Paris; and recently Cachau reports two others.

To sum up, it may be said that the many researches that have been carried out amply demonstrate that cysts may form in the remains of canal of Nück, and that they may be complicated with congenital hernia when the upper portion of the canal is not obliterated, the latter having the same pathogenesis as the cyst and developed simultaneously along with it.

The symptoms of hydrocele in the female are often quite distinct, and sufficiently characteristic to allow the making a diagnosis in many cases. The physical signs of these cystic collections are as follows: They are generally oval tumors varying in size from a cherry to that of a large egg; but this shape is not always the same, for they may be cylindrical or more or less pyriform, while the surface may present lobes such as were found in the writer's case. They may be situated in the interior of the inguinal canal or at the *upper and external* aspect of the labium majorum. This latter site is important for the diagnosis, because mucous cysts of the vulvo-vaginal gland are always situated in the *lower part* of the labium; in a number of cases the cyst was found to extend to the upper part of the labium. The diameter of the tumor is usually greater in the direction of the axis of the inguinal canal. In looking over the literature the writer found that these cysts occur more frequently on the left side.

The skin covering the cyst is normal, and can be moved easily over its surface. A kind of pedicle may sometimes be felt by palpation, as in the case reported by Manley, and is directed downwards into the inguinal canal. The consistency of these collections is often soft, but when they are moderately distended

fluctuation may be elicited. In the writer's case, however, the tumor was quite hard and elastic to the feel. Percussion will give complete dullness.

When the surgeon is in the presence of a true cyst of the canal of Nück, the tumor will be absolutely irreducible because the fluid is encysted. Sometimes, however, the tumor may be reduced *en masse* into the abdominal cavity, but it will immediately return to its former position as soon as pressure is removed. On the contrary, if the tumor is a congenital hydrocele, that is to say, a cyst developed in an unobliterated canal of Nück, it can be reduced by pressure or by simple dorsal decubitus. It is in these cases that the diagnosis is sometimes very difficult, and a very careful examination is necessary in order to decide whether we are in presence of a hernia or a simple cyst. However, the percussion, dullness, the ease of reduction (which is progressive and causes no gurgling sound when the sac slips into the abdominal cavity), the transparency of the tumor (which in some cases is quite distinct), are sufficiently good signs of hydrocele, if they are to be found.

There is no impulsion given to the tumor when the patient coughs, and in certain cases the cyst is more liable to retract. The contents of these cysts are usually clear and limpid, but may, however, present the characteristics of a hydro-hematocele, or even a true hematocele.

Generally speaking, the functional signs are of little importance, as the patients rarely suffer from their tumor, even when it has attained a considerable size. The evolution is usually very slow, and the surgeon will rarely see the patient when the tumor is still small. It is only after it has reached a certain size, producing considerable inconvenience, that the patient will ask for an operation.

A condition of affairs that has been observed in several cases is acute inflammation of the cyst, which may produce accidents similar to those occurring in strangulated hernia, and some surgeons have operated on such cases supposing they were in presence of a hernia, and have been much astonished when they cut down and found a simple cyst.²

The diagnosis of this affection would appear to be quite easy; but in reality it is not so, and many mistakes have been mentioned by various authors. The principal affections which are to be taken into consideration are cysts of the labium, hernia, hernia of the ovary, varicose veins of the round ligament, lipoma of the labium, dermoid cysts of the skin, fibroma or fibromyoma of the round ligament, as well as sarcoma, although the latter affection is extremely infrequent in this region.

Regarding the treatment, the writer has little to say. It naturally consists in an extirpation of the cyst and ligation of its pedicle. This, of course, applies to the true form of cysts of the canal of Nück, in which no communication exists between them and the peritoneal cavity.

Puncture, and removing the fluid, followed by an irritating injection, would naturally be bad practice, and is only mentioned here to be condemned.

GOLD FOIL IN CEREBRAL SURGERY.

BY H. H. A. BEACH, M.D.

It is now nearly seven years since I published¹ an account of an operation undertaken June 11, 1889, at the Massachusetts General Hospital to remove the source of irritation in a case of epilepsy. The patient was a young girl and the disease had existed for eight years, following a compound comminuted fracture of the skull at the parietal eminence of the left side. The steady increase of convulsions and the progressive mental deterioration made almost any condition preferable to the future toward which she was drifting. The operation was determined upon without much hope of its affording permanent relief; and consisted of a removal of the soft parts covering the fractured area, and a careful dissection of the dense cicatrix from the bone until the brain was liberated from its anchorage. The removal of fragments at the time of the original injury made trephining unnecessary. The protruding cicatricial tissue was dissected from the brain until the latter seemed to the touch, of normal consistence. The lacerated dura was included in the cicatrix. In the course of this dissection a projecting spicula of bone which had grown from the fractured border of the skull toward the brain was removed, also a small cyst, containing a clear fluid. The wound was closed with sutures, and recovery was uneventful and complete.

A report of the case was delayed for ten months lest the convulsions should recur. The causes of irritation presented by the wound, were the spicula of bone, the cyst, or the rigid attachment of brain and bone by cicatrix, singly or jointly. The latter limited the accommodation of the brain to head movements or skull concussions and favored the direct transmission of any force applied to the skull toward the point of suspension.

In anticipation of a recurrence of convulsions through a new adhesion to the bone I made the following provision in the report of the case: "Should it become necessary to repeat the operation described, it has occurred to me that a sheet of very thin aseptic gold foil might be left between the surface of the brain and the external flap—its ductility should theoretically adapt it easily to any pressure. Being non-corrosive and easily made aseptic, it offers the best and least irritating barrier to adhesion, that through traction might cause irritation of the brain. It furnishes a solution for a possible difficulty, and no objection to its use occurs to me."

For fifteen months the patient was free from convulsions. Then while stepping down from a wagon her dress caught upon the iron step and she was thrown violently to the ground, her head striking upon the site of the old injury and operation. Convulsions began at once, and continued with varying frequency each day until she entered the hospital again for treatment in the spring of 1892.

Bromides were used but with a negative result. The old wound was again opened; and, as before, a tough cicatrix was found firmly uniting the brain and bone. A careful dissection separated them and removed the cicatricial tissue from the brain as at the first operation. The finger could then be swept around and within the entire circumference of the skull opening. To prevent re-adhesion a plate of

² Mr. Wm. Thomson (Dublin Journal of Medical Science, December, 1896) relates a case of supposed strangulated labial hernia. The patient was admitted, suffering from symptoms which suddenly came on. There was a lump in the groin which had suddenly become larger, painful and tense; then followed vomiting and prostration. The tumor extended from the external abdominal ring into the left labium. Incision showed that the tumor was a cyst of the canal of Nück.

¹ Boston Medical and Surgical Journal, April 3 and 10, 1890.

sterilized gold foil (No. 60, Dental) enough larger than the opening to be retained in place against its bony edge by the pressure of the brain from beneath, was inserted, constituting a metallic dura-mater. The skin flap was turned back to its place covering the foil, and sutured. Rapid healing followed, with no evidence of local or constitutional irritation. The patient was exhibited at the annual meeting of the American Surgical Association, June 1, 1892.

After the second operation the convulsions occurred frequently for the following year, but with diminished intensity and much irregularity. They were more frequent at the menstrual period and after over-indulgence in eating. By the following October a favorable change had been noted by her family, which continued to June, 1894 (two years after the second operation), when the seizures had become light and were with few exceptions limited to the menstrual periods. She had become interested in household duties, and attended to them in a manner most satisfactory to her family. One year later she is reported as better in every way. Has had only one slight seizure since January, and in that time performed the duties of nurse for two members of her family in addition to the household work for three others. Her general intelligence, memory and capacity have deeply impressed those most interested in her and she has become less irritable and headstrong.

This general improvement has continued to the present time, and in other directions. She had a number of convulsions for one day in March, 1896, followed by an hysterical condition for a few days; then she is reported as well as usual for nine weeks, when she had a light seizure. Again, in August, she had three in the night (the last reported). Both of the later attacks were associated with the menstrual period.

Time alone can settle the permanency of the relief in this case the report of which has been delayed five years lest the apparent gain should be reversed. If the rigid adhesion of the brain to the bone was the primary source of the convulsions, it is reasonable to believe that the prevention of such adhesions should operate toward their relief. The adoption of a gold plate for that purpose was the result of necessity, for nothing else promised so much. While it is yet impossible to determine the value of the principle, owing to the limited number of operations where it has been used, no unfavorable reports from its employment have been reported. The recorded cases are encouraging in the direction of a procedure that, without delaying union or adding to the common risks, protects the brain from injury and protrusion during and after healing, and provides against such well-recognized sources of brain irritation as the adhesions that may follow any case of compound skull-fracture or its equivalent by operation.

Since this patient was first exhibited to the profession in 1892, the subject has had the kind interest of Drs. Weir, Abbé and Gerster of New York, Keen of Philadelphia, Roswell Park of Buffalo, Tiffany of Baltimore, and Oliver² of Cincinnati, who had the opportunity of examining a case post-mortem. He found upon examination of the wound that the gold plate was in position, and that it had accomplished the purpose for which it was inserted, the prevention of adhesions. Estes, of Bethlehem, Pa., makes a report of

three most interesting and successful cases where the foil has been used to replace the dura and prevent the escape of brain tissue.³ Sachs and Gerster, in their analysis of 19 cases, state that "the only method known to us at the present time, to avoid the formation of these scars is the introduction of some pliable metal plate between the dura and the skull."⁴

Medical Progress.

REPORT ON PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D.

SHOULD CONSUMPTION BE TREATED IN A GENERAL HOSPITAL?¹

APROPOS of three cases of pneumonia treated in his wards, each of whom ultimately died of phthisis, Jaccoud raises the question whether consumption ought to be treated in the wards of a general hospital. In each instance the pneumonia was the result of an injury, and occurred in previously healthy persons without tubercular taint. Although carefully looked for, the tubercle bacillus was not found. The disease ran a favorable course; but shortly after recovery all three patients showed signs of phthisis, to which they finally succumbed. At the autopsy there was nothing to show that the tubercular infection was not of recent date; yet the question must remain unsettled as to whether the bacilli were dormant in the tissues of the patient during health and were started into activity during the progress of the pneumonia, or whether these cases were infected by other phthisical patients in the same ward. In the absence of proof the latter should not be affirmed, as he is convinced that non-phthisical patients can be protected by proper hygienic regulations, which are also essential for the safety of the consumptives, who unquestionably suffer to a considerable extent from the presence of other organisms in the wards. The most important hygienic element is the suppression of dust.

THE PRODUCTION OF PLEURAL EFFUSION.²

Leathes and Starling give details of experiments to determine the cause of the pouring out of fluid into the pleural cavities, and say that if it is permissible to apply these data directly to the explanation of clinical phenomena they may formulate the following conclusions:

(1) So long as the vessels are healthy no change in the pressure of the blood in the capillaries supplying the pleura is able to bring about pleural effusion.

(2) In the hydrothorax of heart disease we have probably the concomitant working of several factors, that is, the raised capillary pressure, and in many cases a certain amount of hydremic plethora. These, however, are acting in the capillaries which are suffering from malnutrition, and are therefore in a subinflammatory condition. There is at the same time an impediment to absorption in the obstruction to the flow through the thoracic ducts caused by the venous engorgement.

¹ Bull. de l'Acad. de Méd., February 11, 1896.

² Journal of Pathology, 1-96, iv, p. 173.

³ Loc. cit., April 1, 1896.

⁴ American Journal of Medical Sciences, October, 1896.

² Journal American Medical Association, May 30, 1896.

(3) In the exudation of pleurisy the chief factor is an increased permeability of the walls in the capillaries of the subpleural and mediastinal tissues. The increased exudation hereby produced makes its way in the direction of least resistance, namely, into the pleura. The clots formed in the inflammatory exudation adhere to the pleural wall, and tend to check absorption, which is also probably hindered by the pressure of the peripleural exudation in the subpleural lymphatics. In every case, therefore, where effusion into the pleura is produced, diminished absorption is associated with the increased exudation of fluid from the blood-vessels.

CAUSATION OF SUDDEN DEATH IN EMPYEMA.³

Hutton divides the cases of sudden death in empyema into three classes, according as it begins from the heart, from the lungs or from the brain. Of these the first appears to be the most common, but has never been satisfactorily explained. With a view of determining the exact condition within the thorax in the presence of a pleural effusion he made a series of experiments on rabbits by injecting the pleural cavities with fluid. He concludes from them that there is danger of fatal syncope with an effusion in either pleural sac, the causes of which are the displacement of the heart and its having to do greater work than normal and under increased difficulties. In left-sided cases the base of the heart rolls around over the inferior vena cava and narrows its lumen, while at the same time the vessel is somewhat stretched and twisted. Any slight movement occurring when these vessels are partially obstructed may cause an increase of the displacement and produce fatal syncope.

In right-sided cases the effusion will press down the diaphragm and stretch the inferior cava. At the same time the effusion will press almost directly on the thin walls of this vessel and interfere with the flow of blood through it. This would be sufficient to account for the edema sometimes seen in right-sided cases.

Of the second group of cases, where death begins at the lungs, some are due to emboli of the pulmonary vessels, others to a rupture of the empyema into a large bronchus producing fatal asphyxia, or to the rupture of a blood-vessel, the blood being drawn into the lungs. Other cases have been described where a pneumo-thorax developed in one side, the other lung being collapsed by a pleural effusion. Cerebral emboli are probably a more common cause than is generally suspected, the most favorable conditions for their formation being found in many cases of empyema.

Of the third group many deaths have occurred while the pleural cavity was being washed out after operation, in some of which hemiplegic attacks and general convulsions have occurred. It has been customary to attribute these accidents to the amount of liquid used and its irritating properties, but probably neither of these factors has much to do with the disastrous results which have followed, although the washing out of an empyema cavity may cause the dislodgment of a thrombus in the pulmonary vessels, or the injection of an irritant lotion cause fatal shock or general convulsions. Among other causes not included in any of these groups, death under chloroform at the time of operation is the most important, while sudden death from hemorrhage may occur.

LATENT AND TRANSIENT PERICARDIAL EFFUSION.⁴

Ewart reports three cases of latent pericardial effusion, which were associated in one instance with nephritis, in another with valvular disease, and in the third with acute rheumatism, where he had an opportunity of following the process from beginning to end. They were similar to the "quiet pleurisy" described by Clifford Allbutt, but he does not yet feel that he possesses a sufficient series of clinical cases to construct a group of quiet pericarditic effusions absolutely analogous to them.

He summarizes his paper as follows:

(1) Effusions may occur in the pericardium independently of acute pericarditis under the influence of rheumatism, of cardiac affections, of Bright's disease, etc.

(2) If of moderate size they may be capable of rapid reabsorption; and in that case, not attracting attention either by the painful symptoms of pericarditis or by the pressure symptoms of fluid, they may often run their course unobserved.

(3) As in the case of analogous pleural effusions they may be dependent on a subacute inflammatory process. More often they are probably passive or mechanically induced.

(4) Rest and diet and the administration of cathartics, of diaphoretics and diuretics are the only treatment needed in the average case. In severe cases, which are usually those of advanced kidney disease, the effusion as it steadily increases becomes obvious and paracentesis may become necessary.

(5) The most important practical conclusion is that our physical examination should be accurate and searching, and that in all cases of enlarged precordial dulness the simple tests for the presence of pericardial fluid should be thoroughly applied. Of these the most important is the alteration of the convexity of the dulness due to the right auricle into a straight line passing outwards and downwards and forming an angle with the hepatic line of absolute dulness.

In a later paper on "The Dorsal Test for Pericardial Effusion,"⁵ the same writer calls attention to the importance in diagnosis of the invariable appearance of an area of absolute dulness quadrilateral in shape and localized to the interval between the tenth and twelfth ribs close to the spine. This cannot be due from its position either to the fluid within the sac or to the heart itself, but probably results from the following influences: a slight downward displacement of the compressed base of the lung, a similar displacement of the anterior portion of the left hepatic lobe under the weight of the pericardial fluid without any marked depression of its posterior portion, and a corresponding depression of the stomach with or without slight displacement to the left. Such an area of dulness occurs normally in children and pathologically in some cases of extreme wasting in adults, but this does not detract from the practical value of the test, since in both instances when pericardial effusion occurs, its detection by the usual methods of percussion is favored by the smallness of the chest and the thinness of its walls; whilst its absence can be readily made out. Difficulties in diagnosis more commonly arise in non-emaciated adults, but among the many healthy adults whom he has examined for this sign

³ Edinburgh Hospital Reports, vol. iv, p. 240.

⁴ Lancet, November 21, 1896.

⁵ Loc. cit., January 23, 1897.

he has failed to find it in a single instance, and he therefore regards it as always suggesting a strong suspicion of pericardial effusion. In cardiac enlargement the dulness in question might be expected, but he has failed to find it in any of the adult cases which he has examined. In young subjects this is a source of fallacy carefully to be borne in mind.

PUNCTURE AND INCISION OF THE PERICARDIUM.⁶

After giving a brief historical review of the subject, Delorme and Mignon discuss the differential diagnosis of pericardial effusion, its clinical history, the indications for operation and its technique. They recommend that aspiration be first performed, since if the fluid is serous or sero-sanguinolent no more radical measures may be required, but if it is feared that adhesions exist between the pericardium and the anterior wall of the heart, it is better to perform incision in the first instance than to run the risk of plunging the needle into an organ the wounding of which may prove fatal to the patient. If pus is found, free drainage should be immediately obtained. If the fluid, however, rapidly re-accumulates and aspiration has to be repeated several times, the indication seems clear that the simple operation is not sufficient and that the more radical method of treatment by free incision is required. No danger from a rapid evacuation of the fluid is to be apprehended.

The authors recommend a somewhat elaborate technique for the performance of paracentesis of the pericardium. An incision is to be made through the skin, starting from a finger's breadth below the lower border of the seventh costal cartilage and continuing upwards across the sixth and fifth intercostal spaces. The needle is then slowly inserted close to the left border of the sternum, preferably in the sixth interspace if it be wide enough to admit the needle, otherwise in the fifth or very exceptionally in the fourth. After the point of the needle has entered to the level of the posterior surface of the sternum, the handle is much depressed, and the point then carried upwards parallel to the sternum for about half an inch. The handle is then raised and the needle is pushed onward until fluid appears. After evacuation the incision is sutured. The internal mammary artery is thus avoided, and the danger of wounding the left pleura or the heart minimized. It is very important to avoid wounding the pleura, although probably little harm would result if the effusion was serous, but if bloody or purulent the effect might be disastrous. It is not always possible to avoid it even by the method advised, as they found that in 32 cadavers, the pleura was wounded twelve times when puncture was made in the fifth space and six times in the sixth. When the third or fourth space was selected it was pierced in nearly every instance. They found but one case where death was directly due to puncture, that reported by Callender. The trocar was plunged into the fourth left space near the sternum and two ounces of blood withdrawn; five minutes later the patient succumbed to a pericardial hemorrhage. Autopsy showed that the ventricle had been perforated in the middle of its anterior surface. In several other instances the heart was wounded, but not deeply enough to give rise to hemorrhage or to a fatal syncope. For the operative procedure recommended in incision of the pericardium reference must be made to the original article.

Of 100 cases which they have collected from literature 82 were cases of simple aspiration and 18 of incision. Of the former 54 died, about 65 per cent.; of the latter, seven, about 38 per cent. These figures are, however, absolutely worthless in estimating the value of either operation as most of the cases were already *in extremis* when it was done. Better results are to be expected when it is resorted to earlier, provided the pathological process which is present permits cure, and even then it may have considerable value as a palliative measure. The successes obtained by the surgeons in tubercular peritonitis give ground for hope that even if cure is not obtained life may be prolonged by a similar procedure in cases of tubercular pericarditis.

A CASE OF CALCAREOUS DEGENERATION OF THE HEART AND ARTERIES.⁷

Bramwell reports what he considers the most remarkable case which has come under his notice during a practice of twenty-seven years.

The patient was a man, twenty-five years old, without suspicion of syphilitic taint. When eleven years old he suffered from what, in the light of later events, was probably a pyelo-nephritis. He apparently fully recovered, and eighteen months before his last illness went to Winnipeg, where he endured great hardship and exposure from which he completely broke down. He never fully regained his strength, but had recently been able to do hard physical work without sense of weakness or shortness of breath.

Three weeks before Bramwell's first visit he strained his back lifting a heavy piece of machinery and had to go to bed. When seen he was extremely feeble, much emaciated and markedly anemic. The skin of the abdomen was very dark, resembling the color of a case of advanced Addison's disease. The areolæ of the nipples were also dark. The heart's action was exceedingly feeble, the impulse imperceptible, the sounds almost inaudible. A soft blowing murmur was present both in the pulmonary and mitral areas. The pulse was small and very weak; but at this time no special abnormality of the radial vessels was noticed. The urine was very pale, and measured from three to three and a half pints a day; its specific gravity was 1.010. It contained a trace of albumin, but no casts were found. On the anterior and posterior folds of each axilla, the flexor aspects of both elbows, the upper part of each thigh, over the superior anterior processes of the iliac bones and over the adjacent parts of the inguinal folds, the posterior fold of each buttock, and in each popliteal space were hard, brawny swellings; while the skin of the affected region was a purple-brown color. The condition of the skin and subcutaneous tissues over the swellings more closely resembled a cancerous or sarcomatous infiltration than in any other condition which has come under his notice. Many hard, small nodules, like small shot, were situated in the margins of the swellings and in the adjacent skin. In the centre the individual nodules seemed to have run together so as to form hard continuous masses. The swellings were hard and dense, and in places gave one the impression of being infiltrated with calcareous matter or with bone. They were not painful, but somewhat tender when pressed upon.

At a later visit both radial arteries were absolutely rigid and pulseless, and could be traced from the wrists

⁶ Rev. de Chir., October and December, 1895, and January, 1896.

⁷ Edinburgh Hospital Reports, vol. iv, p. 175.

to the elbows. The femoral and politeal arteries were also rigid and almost pulseless.

At the autopsy the heart was found to be an extraordinarily good example of calcareous degeneration, which affected not only the interstitial tissue but the muscular fibres as well, while the trabaculæ carniæ and papillary muscles of the left ventricle were almost entirely calcified. All the arteries except the aorta, the carotids and those of the brain were more or less affected — the iliac, femoral, popliteal, tibial and radial arteries being converted into rigid tubes. The subcutaneous swellings were due to calcareous material which had been infiltrated around the blood-vessels, and in that way had produced inflammatory changes in the connective tissue. The right kidney was entirely destroyed, evidently as a result of old disease. The left was in a condition of very advanced cirrhosis. Many minute calcareous deposits were present in the cortex; the arteries in the pyramidal portion were calcareous.

Not the least interesting point in the case is the apparent rapidity with which such marked degenerative changes took place, as it is hardly possible to believe that with such a condition of the heart and arteries that the patient could have been equal to the prolonged and violent muscular efforts which his work required three months before his death, while his own statement and that of the attending physician are positive that the subcutaneous swellings were not present more than six weeks before.

SYPHILITIC DISEASE OF THE HEART WALL.⁸

Phillips gives a brief summary of 25 fatal cases of disease of the heart wall, which was undoubtedly of syphilitic origin, and discusses at length the symptomatology and pathology of the affection. He draws the following conclusions:

(1) Syphilis may produce gummata or general fibroid change.

(2) Gummata in the left ventricle, except of very small size, are dangerous to life, and when near the apex of the left ventricle may cause sudden death.

(3) Gummata in the left ventricle may be suspected if in an individual with syphilitic antecedents there occur signs of derangement of the action of the left ventricle with symptoms of defective or embarrassed action, especially angina pectoris, tachycardia, syncope or epileptiform attacks, or in the right ventricle when dyspnea otherwise unaccountable occurs.

(4) Extreme feebleness of the heart, without dilatation, gradually increasing in young or middle-aged persons who have had syphilis suggests syphilitic disease of the left side of the heart, and long-standing dyspnea may point to similar disease on the right side of the heart.

(5) Dilatation of either side of the heart in syphilitic persons may result from syphilitic fibrosis.

(6) Hypertrophy of the heart without ascertainable cause and without corresponding increase in strength of heart suggests syphilis.

(7) Aneurism of the heart wall may result from local syphilitic lesions and may be fatal with or without rupturing.

(8) It is probable that gummata and fibroid disease in the early stages may be relieved or cured by the usual specific treatment, and there is every reason to believe that syphilitic lesions of the heart wall are not

less amenable to treatment in the early stages than syphilitic lesions elsewhere, though no cure can be expected when advanced tissue changes are already produced.

(9) Syphilitic heart lesion is much more common than is generally recognized, but the importance of recognizing it is greater because it affects persons at an earlier age than the usual degenerative heart conditions, and may insidiously advance till it causes sudden death in persons in the prime of life and of apparent health.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 14, 1896, DR. C. J. BLAKE in the chair.

DR. F. I. KNIGHT, read a paper entitled

THE TREATMENT OF BRONCHIAL ASTHMA.¹

DR. V. Y. BOWDITCH: Dr. Knight has covered the ground so thoroughly there is little left for me to add. The more I see of these cases the more it seems to me that they must be dependent upon some neurosis, that is to say, reflex action from disease of other portions of the body whether from the nose, heart, stomach, lungs or kidneys. As far as medical treatment is concerned, the iodide of potash and syrup of hydriodic acid sometimes in combination with arsenic have met with more success in my hands than other drugs; and here it may be well to state that an examination has been made of a certain remedy used by a famous institute in a neighboring State, from the use of which some persons certainly have got relief from asthmatic troubles. The chief ingredients of the medicine they used were found to be iodide of potash and arsenic, but how much the element of faith comes in as a factor in the relief it is impossible to say.

Dr. Knight has spoken of one method of treatment, namely, inhalation of rarefied air. This is doubtless often a most beneficial method of treatment, the chief difficulty of using it, however, being the usual inaccessibility of the instruments for applying it during the attacks.

Six or eight years ago, when much interest was shown in the so-called pneumatic cabinet, I had opportunities of testing its use in cases of asthma. I recall one young girl, a severe sufferer at times with acute bronchitis accompanied by asthma. By means of this instrument the alternate use of compressed and rarefied air (the so-called "pneumatic differentiation") gave her great relief in her attacks. The neurotic element must always be considered in such cases of course; but the patient was of calm temperament, and the relief obtained in her case was doubtless due to the mechanical effect of forcing open (as it were) the contracted bronchioles in inspiration and of assisting expiration by the use of pneumatic differentiation. The danger of over-distention of the air-cells in such cases, which are prone to emphysema, must be kept in mind, but if judiciously used, no harm can come from the treatment.

For the severe and sudden attacks of spasmodic

⁸ Lancet, January 23, 1897.

¹ See page 273 of the Journal.

asthma doubtless the subcutaneous use of morphine gives greater relief in the majority of cases than anything else; but, as Dr. Knight has said, the danger of forming the morphine habit must be faced.

As to climatic treatment it is impossible to say absolutely to a patient, "Go to such and such a place and you will get relief." In advising patients I usually say all such changes have to be experimental at the outset. There is scarcely any disease in which such diametrically opposite results will be obtained in cases resembling each other. I have known some cases to become much worse in some of the New Hampshire resorts which have a just reputation for the relief of many, and residence at a lower level will often give such cases more relief. We may say, as a rule, however, that the higher altitudes offer relief to the majority of asthmatic patients if the heart is not weak.

It is not an uncommon experience to have patients improve vastly by a removal from the suburbs to the heart of the city. I have two patients in mind now, one a resident of Jamaica Plain, another of Milton, both of whom have lived perfectly comfortably since removing their place of abode to the city.

DR. PUTNAM: I have listened with great interest to the report of Dr. Knight's experience in this subject; and perhaps the most striking thing I can say is that these cases, although considered to be due to a disturbed condition of the nervous system, rarely come to the notice of neurologists. At the hospital, where we have an out-patient clinic of 2,000 nervous cases a year, we almost never have a case of asthma, and those I have seen in private practice have been relatively few. They go very properly to those who have to deal more especially with the lungs. As far as my experience has gone, I can only corroborate what Dr. Knight has said, that the same patient sometimes does well in a climate in which at another time he does badly. When we are studying the general cause of the disease the temptation is very strong to feel that the chemistry of nutrition is sometimes very much at fault, as it is supposed to be in epilepsy and exophthalmic goitre and other periodical neuroses; but the more closely the question is investigated the more difficult to fasten on any special ingredient in the blood or any special fault of nutrition which would account for these states. I have been interested in following the uric-acid theories and observations, and am fairly familiar with those of Haig, who has been the prophet of the uric-acid hypothesis; but I think it is very difficult indeed to verify his statements, and those that seem to come the closest to his work regard it with the most suspicion. That there is something for which that stands for the general expression there seems to be no doubt, but that it is uric acid may be called in question. In the last few years Dr. Rachford, of Cincinnati, has been bringing forward paraxanthine as a cause of some of the symptoms that Haig attributes to uric acid. As time goes on I have no doubt we shall find other poisons. The urine after an attack of epilepsy, and sometimes before an attack, occasionally contains substances very poisonous to animals when injected. Nobody knows exactly what they are. I have been especially studying the epileptic question; and I think it is probable that the disorder of nutrition which causes the epileptic attack is a very subtle one, and I fancy the same is true of asthma.

With regard to the use of arsenic and iodide of

potash, I think the question of dose is interesting; and with regard to their mode of action, why it is some patients require such large doses and others are benefited by small ones, it would seem that the action upon the nervous system must have something to do with solving the riddle. One patient I treated—a gentleman, a lifelong sufferer from asthma—had at the time I treated him, arsenic in his urine, and was suffering from a severe form of multiple neuritis, by which he had been very much prostrated, and it was attributed to the arsenic. I gave him iodide of potash. He did not get better, and put himself in the hands of the persons to whom Dr. Bowditch has alluded, and they gave him a mixture of both of these ingredients, and he promptly got well.

DR. FARLOW: I wish merely to emphasize one point. The reader has spoken of the local treatment of certain parts of the upper air-passages. I believe many of our older patients could have been helped if they had been started in the right way when young. If children and young persons, frequent sufferers from tonsillitis, bronchitis or other diseases of the air-passages, could have their noses, post-nasal spaces and fauces freed from all obstruction and the sensitive areas removed, they would arrive at adult life with much healthier and less sensitive bronchial tubes. I think we should try, as early as possible, to remedy the conditions whose removal are not so likely to cause a cessation of the asthma when they have existed for many years.

There is a form of asthma in young, nervous women where systematic exercise is of great benefit. They wear thick clothes and thin shoes and take almost no exercise, as a general thing. If they can be prevailed upon to go to the gymnasium and get their muscles and skin in a healthy condition, they can often overcome the tendency to the secretion of thin mucus from the nose which is soon followed by an attack of asthma on going to bed. They become able to exercise without the liability to take cold.

DR. COBB: I have been very much interested in this paper for more than one reason. Among other things I think it has been instructive to note in what cases of nasal obstruction one can expect relief from asthma, and it seems to me that those which have a hyperesthetic mucous membrane of the nose were much more easily relieved by nasal operation than other classes of cases. One case especially, which I operated on for large nasal spur, which had this hyperesthetic condition in a very marked way and had constant paroxysms of asthma, was relieved for three years; so much so that when he applied to me three years afterward for an excuse from school drilling, and I told him if he could honestly say that he had any asthma which unfitted him from work I would give him the certificate, he was unable to say it. Five years after operation he had one attack; but during all that time he was practically free from asthma and without any treatment except on the spur. On the other hand, some polypi cases have had more asthma after their polypi were removed than while the polypi were still there; and that has puzzled me, and I should like to ask Dr. Knight if he has had any such experience. I think possibly it was due to the irritation of the mucous membrane of the nose by the removal of the polypi or by some underlying cause of that kind. I have noticed it in two or three cases.

DR. CLARK: I have had a number of cases in which

a diseased condition of the nose has evidently been the cause of asthma, and I should like to ask Dr. Knight if he has any statistics as to the proportion of cases which start from diseases of the nose or throat.

DR. J. MORSE: I should like to ask Dr. Knight more about the climatic treatment of asthma, whether there are any places about Boston, like Lexington, which are favorable, and whether there are any places abroad especially fitted.

DR. KNIGHT: As to Dr. Farlow's suggestion of remedies, the *grindelia robusta* I have used a good many times with relief, and a good many others I might mention; but on the whole they are inferior to those to which I gave prominence. In regard to cocaine, while I might use it if a patient was suffering in my office, without his knowing what I was doing, I would not give a patient a prescription for cocaine because I have seen such deplorable results from it. I do not know how many patients I have seen who have got that habit or that combined with morphine. It is, I think, one of the worst drugs to allow a patient to use for himself. Dr. Farlow, I know, did not mean that. I have done just as he suggests. It is so dangerous I do not use it myself now. It has a very bad effect on the mucous membrane ultimately if used long. In regard to the proportion of cases of asthma due to nasal disease, statistics on that are very unreliable. It is almost impossible to get a correct table. I suppose if cases reported from all sources were gathered together and some statistics made, they might be of service.

In regard to what class of nasal cases are relieved by operation, I have seen a good many cases which are relieved for a short time by removal of polypi, but who begin to have attacks soon afterwards, a few weeks or at most a few months. I have never seen a case immediately made worse by the removal of an obstruction, as Dr. Cobb suggests; but I should suppose that his explanation might be the correct one. The reason that removal of nasal polypi or the removal of any other nasal disease does not effect a cure in all cases is that some other factor, as I suggested, is left. One patient may have asthma because he has got two or three contributing conditions, and the removal of one will not cure. Many of those patients have a hyperesthetic condition of the nervous system that causes them to go into an attack on slight irritation—some remote irritation which it will take long to discover, if discovered at all.

In regard to special climates, I am not prepared to answer that. As Dr. Bowditch suggests, the high altitudes seem to relieve perhaps the larger proportion of cases, but there the purity of the air comes in. A climate like Colorado is freer from irritants than lower altitudes, but many patients suffer in high altitudes. In regard to patients nearer home, I do not know of any difference; one patient will have it at home, others at the shore. On the whole, more patients are relieved by going to the city from the country. In a city as large as London it is common to have patients suffering tremendously come to consult, and find their symptoms all gone when they get to the consulting office. I remember in Berlin one man who used to suffer tremendously from asthma, and if he could get out over the nasty, foul-smelling river, and take a few whiffs of the stinking atmosphere the rest of us could hardly tolerate, he would be completely relieved.

DR. J. W. ELLIOT read a paper on

SOME CASES OF GALL-STONE SURGERY.²

DR. ARTHUR T. CABOT said that he was sorry to have been detained and unable to hear the paper, but that he would like to say a few words on certain points in the surgery of the gall-bladder. In the first place, he thought it extremely important that we should recognize the fact that in gall-bladder surgery, as in most of our abdominal work, an early operation is pretty certainly a successful one, whereas a late operation may often be fatal. He had the misfortune to have several cases (two or possibly three) die after the operation of opening the ducts and removing stones from them. In every case the patient came to operation in a state of extreme icterus and great exhaustion and emaciation from the long suffering and stoppage of the duct.

In regard to total extirpation of the gall-bladder, he said that until this year he had had no case in which a second operation had been required where he had removed stones and left the gall-bladder to close up. He had, however, recently had such a case, in which a recurrence of gall-stones occurred, and which, as far as it goes, is rather an argument in favor of total extirpation when that can be readily accomplished.

Speaking of the matter of diagnosis, Dr. Cabot said that he had seen several cases in which the patients had been thought to have malaria on account of the regularity of the chills accompanying the gall-bladder inflammation. This is not so surprising a mistake as it might appear, for the pain about the gall-bladder is sometimes trifling, while the chill appears as the important symptom, and if the chills are coming frequently, with a little stretch of the imagination, a certain amount of periodicity may be made out.

He spoke of three cases of difficult diagnosis which had occurred to him within the year, in two of which the disease had proved to be cancer of the papilla, while in the last case the symptoms were those of a general peritonitis and pointed to the region of the appendix as the starting-point. On account of the existence of a slight amount of bile in the urine, the incision was made high up for an appendix operation in order that both regions might be explored at once. The gall-bladder was found distended and very much congested, so that it had a deep purplish-red color, and on incision it was found to contain much purulent serum and a single large stone.

In regard to the treatment of cases of stone in the common duct, he thought that where the patient's strength was sufficient it was wise to incise the duct and remove the stone. In one case, however, in which he operated upon a man very much emaciated, who was very feeble at the time, it was felt that the patient's strength was not sufficient to stand a prolonged operation, and on that account the stone, which was found wedged in the common duct, was needled in the manner practised by Mr. Thornton. After this it crumbled under the pressure of the finger and the patient made a good, though slow, recovery. The icterus persisted for considerable time, leading to the belief that the calcareous matter had clogged the duct for some time after it had been crushed. Since the icterus has disappeared, however, the patient has enjoyed perfect health.

He thought that this operation of crushing the stone in the duct was one which perhaps ought to be prac-

² See page 275 of the Journal.

tised more than it usually is, and felt that one of his other cases, that died after an operation for the removal of the stone, might have survived needling and crushing in the manner just described.

He said he had not practised suture of the duct, partly because of the difficulty, which is especially great if the patient is stout, and that he had not made special effort in this direction because the teaching we get from other ducts in the body shows that the healing of a longitudinal cut in a canal usually takes place with extreme rapidity and very satisfactorily. In the urethra we see that fact constantly illustrated. In external urethrotomy we never sew the urethra and it always heals satisfactorily. Once in the removal of a stone from the ureter he had followed the same plan — incised the ureter longitudinally, and the canal closed perfectly. Of course, if the cystic or other duct is torn across so that the ends have any tendency to draw apart, stitching might be of the greatest value to keep the ends together, but it seemed to him that in a longitudinal cut for the removal of a calculus, drainage with gauze was usually sufficient. He had had a number of cases which ran a fortunate course by that procedure.

DR. BEACH: I would like to add my congratulations to Dr. Elliot for the brilliant success of his operation, and speak of one point, and that is, the relief which is given patients in a good many instances by the separation of adhesions, dividing them in front, posteriorly or wherever they may be, tying the gall-bladder to the anterior abdominal wall, to the liver or intestines. In two instances where the symptoms were extreme and suggested an ulcerated gall-bladder with discharge of the gall-stone, I have observed much relief. In both of them the gall-bladder was opened and drained. In one there was no possibility of making any connection between the gall-bladder and the intestine, the common duct having been searched for in vain. It was the case that Dr. Richardson speaks of, and upon which he had already done the ideal operation. When the patient re-entered the hospital she had a recurrence of jaundice with extreme pain and the gall-bladder was much distended. Upon its being opened no stones were found, though the pain was that of an impacted stone. The gall-bladder was therefore drained giving great relief. There was no possibility of closing the gall-bladder without making some connection between that and the intestines. As I had recently seen a case of abscess of the liver due to septic infection through the gall-duct from the intestine, I deferred making any connection between the gall-bladder and the intestine. Meantime she was draining and the question of there being any malignant growth deeply seated at the point where the adhesions were greatest was being settled by time. I told my assistant, Dr. Pegram, one day, that the case would be a most favorable one for making observations upon the action of medicine on the liver and asked him to speak to Dr. Pfaff about it. Since then Dr. Pfaff with Dr. Pegram and other assistance has conducted a long series of analyses and examinations with the effect of finding that bile, either human or ox-gall, dried or made into pills, increased the daily excretion and the amount of solids. I should have been glad at one time to know that ox-gall would supply the place of human bile, for my earliest case was a similar one, where after opening the gall-bladder and removing a few small stones no connection with the intestine could

be made. The patient died, I think, from the continual drainage of bile. This patient with the biliary fistula appeared at the hospital within a few days, and would hardly be known from the great improvement that has taken place since the operation. She is still discharging her bile in a small bottle she carries by her side and declines surgical interference.

As to the necessity of early operation, one of the first cases of peritonitis I ever saw was due to ulceration of a gall-stone from one of the ducts, without any jaundice. Dr. Cutler made the autopsy and found the stone.

Biliary fistulæ are not necessarily permanent; I have known them to close spontaneously and permanently in two instances after drainage. With reference to the removal of the gall-bladder, it should first be made clear that the way is open from the hepatic duct to the intestine. To have removed the gall-bladder in the case of biliary fistula described, would have converted the abdominal cavity into a gall-bladder.

DR. ELLIOT: As showing to what extent these cases are neglected I have noted the number of years the symptoms have existed in the cases I have operated on: in the first case, fifteen years; second case, eight months; fourth case, two years; fifth case, eight years; sixth case, eight months; in another case, five months; in another, ten years; in another, one year; in another, two years. These are pretty typical of the duration of the disease.

In regard to extirpating the gall-bladder, which I think is one of the most interesting questions for discussion, I have rather come to the idea of extirpating all those contracted gall-bladders Dr. Richardson speaks of. In the very acute cases, if you can get the gall-bladder out without infecting the general peritoneal cavity it ought to come out. In a very bad case it is probably pretty dangerous, and much like taking out an appendix when an abscess has formed about it. I think those acute infections are undoubtedly caused by an obstruction of the cystic duct. When the cystic duct is obstructed the gall-bladder is swollen and strained, and the process of necrosis comes about more or less as it does in acute appendicitis. There are plenty of germs present, and when the pressure comes they attack the tissue just as they do when a stitch is tied too tight. In one of Dr. Mixer's cases the colon bacillus was found in the gall-bladder. In two of the cases I have had, the bladder could have been extirpated in one, but not in the other. I think in certain diseases of the gall-bladder you can cut out a slice and sew up the rest. In one of my cases only the ulcerated part was cut out.

Suturing of the gall-bladder in proper cases must be a great blessing to the patient because it prevents the annoying drainage of bile in convalescence. I have now sutured five or six cases and they have all done well. So far as suture of the duct goes it seems to me self-evident that if you can suture a duct it is better than to leave the bile flowing with the chances of its burrowing around in the abdominal cavity. Last year I collected all the cases where it had been incised and drained. A good many of them got well, but a good many of them died from various causes. When you leave a hole in the duct the sides may or may not be in good apposition. The tamponing of them even interferes with the apposition. If you can suture the duct, I think there is no doubt as to the advisability and advantage of doing it.

THE NEW YORK ACADEMY OF MEDICINE.
SECTION ON GENERAL MEDICINE.

STATED Meeting, February 16, 1897, L. F. BISHOP, M.D., Chairman.

DISCUSSION ON STIMULATION IN ACUTE DISEASE.

The discussion was opened by DR. HORATIO C. WOOD, of Philadelphia.

After some general remarks on definition of terms and the difficulty of determining just what a stimulant is, he said that in the animal economy function was always performed at the expense of, and the life of the individual was carried on through the alternate action of, antagonistic nerves. The question then arose, Was a stimulant an agent which caused upbuilding of structure, or was it one that brought about functional activity at the expense of structure? At the present time there were remedial agents coming to the front which acted in neither of these ways, but which in some manner, not as yet clearly understood, had the effect of fortifying the system against the attacks of morbid influences. Of this nature were the antitoxins, now attracting so much attention, which displayed not only a local but a general antagonism to disease. It was also pertinent to inquire if these could be designated stimulants.

Unfortunately, he went on to say, we did not at present know our drugs well enough to apply them in the most efficient manner. Millions of dollars were expended on art galleries, libraries and museums, but not a dollar was to be had to pay men of genius for finding out the issues of life and death. He did not hesitate to say that a million dollars devoted to scientific investigation would soon revolutionize the practice of medicine in the United States.

Referring to the treatment of pneumonia, he said that there was one great principle to be borne in mind. Because the pathologist grouped a certain series of morbid conditions and called it pneumonia, it did not follow that all cases of the disease were to be treated alike. What would be salvation for one man might be death to another. It should be our aim, therefore, to carefully study the special characteristics of each particular case at the particular time at which we were called upon to treat it. In the case of an old, broken-down patient it would be our duty to hold up the flagging system. In another, of sthenic character, we would be imperatively called upon to resort promptly to venesection, or, at all events, to the use of cardiac sedatives like *veratrum viride*. We could not thus put an end to the coccus, but, after all, the coccus was only one of the factors in the case. We would, however, relieve the strain upon the right heart and enable the patient's system to bear up against the attack made upon it.

Digitalis was the one agent which had power over the nutritive process. The pneumogastric was undoubtedly the trophic nerve of the heart, and it was the peculiar function of digitalis to stimulate this. It was this power of digitalis to increase the trophic power of the nerves of the heart which made it so valuable. It was an agent which acted as a stimulus both to function and to nutrition.

Taking up the subject of acute collapse and surgical shock he said that in this class of cases there was vaso-motor paralysis principally. If alcohol had any influence upon the vaso-motor nerves, it was that of a de-

pressant, and it was not therefore indicated. In one of the early cases of death from ether, which occurred in Cincinnati, he recalled that the patient was freely dosed with alcohol. Here we have the depression of ether, *plus* the depression of alcohol, and it was no wonder that the patient died.

In typhoid fever the general consensus of opinion was that alcohol was of great service, but there was still a question as to whether alcohol could be rightly regarded as a cardiac stimulant. The most that could be said was, that it is a very mild stimulant to the heart. In this regard it could not be compared with cocaine, strychnia and other drugs. Notwithstanding this fact, however, it was undoubtedly a most useful remedy in typhoid. It was probable that it had the effect of increasing the resisting power of the tissues, and also that it is to a considerable extent germicidal. There was another very curious thing about alcohol, which set it apart from all other drugs. Opium and other agents, when taken into the system, carried their message to the nerve centres, and were then gradually eliminated; but alcohol, when once taken in, never came out. In health if we gave a man a wineglassful of whiskey or brandy, it could always be detected in the breath; but this was not the case in typhoid if the alcohol was properly given. Here, then, was a useful point in the administration of alcoholic stimulus in this disease. If in any case the odor of alcohol could be detected in the breath, we could be sure that we were overdoing the matter, and that the patient's system had not the ability to make use of all the stimulant given. In typhoid, alcohol acted not only by furnishing resisting power, but also by repairing the tissues which were being burnt up by the force of the disease.

As to the time that the use of alcohol should be begun in typhoid, he thought that this should be at the beginning of the attack, not, he said, as a stimulant, but to fulfil the other useful functions which it performs. For instance, it had a tonic effect upon the stomach and upper intestines, and enabled the patient to take more food than he could otherwise do. When given thus early it should always be administered in small quantities, and always with the food. When the time came for it later, when the vital powers were becoming exhausted and the temperature ran high (in spite of cold baths and other measures), the alcohol should be given in just as large quantities as the system could possibly utilize. Here the only guide to the amount to be given was the power of the patient to burn the alcohol up.

In speaking of other stimulants in typhoid, he said that there was nothing which acted so efficiently on the heart as digitalis. It had been found that high temperature makes this organ in a measure irresponsible to digitalis and therefore it was usually necessary to give the drug in quite large doses.

In conclusion, Dr. Wood spoke of the reinforcement of one stimulant by another, and related some of his experiments on animals in illustration of the point. This he had called the law of crossed action, a double influence being exerted upon the brain centres; and he had found that the principle had proved of practical value in the treatment of typhoid and other exhausting diseases. As an instance of its efficacy he mentioned a case that seemed altogether hopeless, in which double pneumonia supervened upon a severe attack of erysipelas. Here cocaine was administered

on top of strychnia, in the same manner as in one of his experiments where an animal was first poisoned with chloral, and in consequence of the adoption of this treatment the patient's life was saved.

DR. WM. H. THOMSON said that as to what was meant by the term stimulant it might perhaps be well to examine for a moment how agents which are not medicines, but which are really stimulants and sedatives, act upon the system. Dry heat, for instance, was an example of a pure stimulant. It was not preceded nor accompanied nor followed by any depression when used in the manner employed for medicinal purposes. Moist heat, on the other hand, was equally a pure sedative. Cold also was *per se* purely a sedative, but the sedation resulting from it was very different from that produced by moist heat, and a third term was therefore necessary to explain its action. It was an agent which caused shock, and it was the reaction from this which produced stimulation. We should, he thought, learn to discriminate more carefully as to the particular nerve functions which are affected by the most widely acting drugs, and to pick out the particular functions affected by any drug in question.

In speaking of opium he said that it was both a stimulant and a sedative, and both at the same time. The action of alcohol was somewhat different. It stimulated the whole arterial system; but while it was acting on the heart, it was also depressing the entire system of nerves, particularly the sensory nerves. Stimulation and sedation were present at the same time, and we had, therefore, to discriminate as to what functions were depressed and what stimulated.

DR. WM. H. DRAPER said he supposed there was no longer any question as to the value and necessity of stimulants in typhoid fever and pneumonia. He confessed that he had been somewhat surprised at the intimation of Dr. Wood that venesection was sometimes imperatively demanded in cases of pneumonia. For his part, he could only say that cases of this kind had not come under his observation. As to alcohol, he had long believed that it was not only a valuable stimulant, but also a food. All proper food, given in appropriate quantities, acted in stimulating the functions of the body. In the treatment of typhoid he had long been accustomed to carry out the directions for the administration of alcohol in the old Graves and Stokes system of medicine. Having referred to the conditions calling for its use, he said that he entirely agreed with Dr. Wood in his statement that there is no measure to the quantity that may be called for. As long as it was wholly taken up by the system, and was of service in meeting the indications for which it was given, we need not hesitate to pour it into the patient in enormous quantities.

The same was true as regards pneumonia. It could not be claimed that it cured the inflammation or cut short the disease. We know now that pneumonia is a specific fever, due to a specific germ, and that it is self-limited in its course. It was a disease, like typhoid, that pursued its course in spite of all treatment. What alcohol did in these diseases was to stimulate and support the system, and thus enable it to sustain itself until the disease had run its course. This mission of alcohol ceased the moment that the violence of the attack began to abate, and we should then diminish the quantity employed and give more food instead. The smell of alcohol in the

breath was a delicate test, and it was one that we should all do well to bear in mind.

DR. BEVERLY ROBINSON called attention to the different effects resulting from the use of alcohol in hospital and in private practice. In the former we had to depend mostly on other remedies, and he had used coca and strychnia successfully. He also spoke of the great value of coffee and tea as general stimulants. A great deal depended on the manner in which stimulants were administered, and he particularly advocated the hypodermic method as much more certain than that by the mouth. In addition, he referred to the importance of resorting to rectal administration in many cases, not only those in which the stomach was irritable, but in others also, as a supplementary procedure. He had seen the most remarkable results from the use, in urgent cases, of a hot enema containing black coffee and brandy. In conclusion, he said that where there was a question of local stimulation he believed in the direct local application of irritation over the cardiac region. This might be simply heat, or heat combined with mustard, and in some instances even the actual cautery might be called for.

DR. R. W. WILCOX said that it seemed probable that the antitoxins would eventually be found capable of cutting short such diseases as typhoid fever and pneumonia. We should then be approaching a long-looked-for goal, namely, their prevention.

DR. JOSEPH COLLINS spoke of the special value of the different preparations of opium in a class of acute diseases which were not self-limited, ran no definite course, and showed no disposition to result in spontaneous cure. Instances of this were acute melancholia and acute neurasthenia, and in them he had found the action of this nervous stimulant superior to that of all others.

In closing the discussion, DR. WOOD said he would like to warn those present that there is nothing so misleading as clinical results which are unsupported by physiological experiment. For instance, could any one say whether it was the coffee, or the brandy or the hot water which had been the efficient agent in Dr. Robinson's enema? As to the results claimed for opium by Dr. Collins, could it not be maintained with equal probability that the good accomplished was due principally to the hygienic rules and careful manner of living which he had no doubt prescribed for his patients? Personally, he did not believe that there was such a thing as a functional remedy or a functional disease. These terms were simply relics of our past ignorance. A line had, indeed, been drawn between functional and structural disease, but it was a line that man had drawn for himself; it was not of God's making.

Replying to Dr. Draper's criticism of his advocacy of venesection in certain cases of pneumonia, he said that in parts of Pennsylvania there was a population directly descended from sturdy Hessian stock. The people were very robust, leading healthy, out-door lives, and the local practitioners had found that when they had a case of pneumonia to deal with, unless they bled, their patient usually died. For himself, he did not meet with this class of cases in Philadelphia, any more than Dr. Draper did in New York. He would only say, in closing, that not until we learned to correct and supplement the teaching of the bedside with the teaching of the laboratory would we ever grow to be what we are really capable of.

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THE ATTACK ON PRIVATE INSTITUTIONS
FOR THE CARE AND TREATMENT OF CON-
SUMPTIVES.

EARLY in the session of the present Massachusetts Legislature, as was stated in the last issue of the JOURNAL, (p. 267,) a bill was introduced, entitled "An Act Relative to Contagious and Infectious Diseases and other Diseases Dangerous to the Public Health," the provisions of which, in brief, were as follows: No infectious disease to be treated or cared for in any private institution without the *unanimous* approval of the Board of Aldermen or Selectmen and the Board of Health; the diseases specified in the act are small-pox, diphtheria, phthisis or pulmonary tuberculosis, membranous croup, measles, scarlet fever, typhus fever, yellow fever and cholera. The penalty for violation is *imprisonment* not exceeding two years.

Since there is very little probability (and this statement appears to be borne out by the evidence thus far presented) of the establishment of private institutions for the treatment of small-pox, cholera, yellow fever, etc., except phthisis, it appears that the animus of the bill is aimed at private institutions for the treatment of tuberculous patients; and it should have been so labelled at the outset.

This movement is undoubtedly due very largely to an unfounded fear that such institutions might constitute a danger to the surrounding neighborhood, and this fear has been fostered and increased by exaggerated statements in regard to the infectious nature of consumption.

Boards of health in some cities have published regulations tending to make the consumptive a social leper, to placard his house, to isolate him, and to impose such restrictions as, Cornet says, "would consign him to an island in the solitary ocean."

In commenting upon the infectious nature of consumption, one of the most intelligent health officers of the present day, Dr. Russell, of Glasgow, says: "In the *academic* sense it is infectious; in the *popular*

sense it is not. . . . The popular idea of an infectious disease is one from which there is no safety save in keeping away from it. Proclaim a disease 'infectious,' and the people will pay no attention to qualifications. It is very natural. Don't go near the person, and the conditions of safety need give no trouble! Education makes no difference. The fear of infection is indiscriminating to absurdity. Typhoid fever, scarlet fever, whooping-cough, small-pox, all entail the same social ostracism."

There is no evidence to show that tuberculosis is contracted by persons while out-of-doors in the open air. The facts are all the other way, since the mortality from tuberculosis of in-door occupations is everywhere much greater than that of out-door occupations.

The bacteriological evidence also is clearly in the same direction. Experiments are abundant, showing that disease-germs exposed to the enormous dilution of the out-door air are subjected to a severe struggle for existence and soon perish under the effect of sunlight and wind and rain. Cornet, who is certainly good authority, says: "The dust of the streets where consumptives have spat, may be neglected, so far as risk is concerned." He points out that it is the dust of enclosed apartments which is dangerous only. Still further he says, in his own circular, "On the street, where spitting can scarcely be prevented, certain other circumstances diminish the risk of infection."¹

One of the institutions against which this bill appears to be aimed has been in existence about thirty years, and during this time several thousand consumptives have been cared for within its walls; and in all this time none of the nurses or attendants have contracted tuberculosis. How far it has influenced the death-rate of the neighborhood may be known from the following figures, the institution being located at the boundary line of the 21st and 24th Wards of Boston:²

Annual death-rate from consumption in Boston at large, for the six years ending May 31, 1890,	338.5 per 100,000 living
In the 21st Ward	217.6 "
In the 24th Ward	256.4 "
In the 8th Ward	571.6 "
In the 13th Ward	587.8 "

As a matter of fact, the combined death-rate from consumption, of these two wards (21 and 24) was less than that of any other ward in the city except Ward 11.

The fact that this movement is the only instance on record of any attempt to interfere with, or to limit in any way, the usefulness of hospitals intended for the relief of so widespread a disease as consumption, makes it worth while to review the position of foreign governments and medical authorities on the subject.

In Great Britain there are at present eighteen hospitals for the treatment of consumptives, four of which are in London. Of these four, three are in densely settled districts. One of them is on City Road

¹ Ueber Tuberculose, Leipzig, 1890, p. 145.

² Billings: Vital Statistics of Boston, in Eleventh United States Census Reports.

in the most densely settled part of London, a district as fully occupied as State or Milk Streets in Boston. In Burdett's "Hospitals," etc., vol. iv, he says, "This hospital occupies a very confined site, which is almost entirely covered with buildings." On one side the hospital joins a public house. The new wards for male patients at the Brompton Hospital are also separated from the surrounding houses by the width of narrow streets and alleys only.

That, not only has no action ever been taken in England toward restricting such institutions, but also that no such action has been contemplated, is evident from the fact that when a Parliamentary Commission was appointed to consider, among other points of importance, the subject of the influence of hospitals for infectious diseases on the surrounding neighborhood, no one appears to have even thought of including hospitals for consumptives in the list.

The German Government commends such hospitals in the highest terms,³ on the ground that consumption is a widespread disease, and that these establishments furnish a home where invalids may find proper care and treatment; more than this, that, with such care a considerable number of consumptives, taken at early stages of the disease, may be cured and returned to their families. In the document upon this subject recently published, the health board estimates the actual value to the empire of such cured cases as seven and one-half million marks (about \$1,850,000) annually, after deducting the cost of care and treatment. It adds, in closing, "If there is anything that is both a blessing to mankind, and also of pecuniary value to the community, it is the establishment of homes for consumptives."

In the foregoing statement no comments are intended with reference to the therapeutic treatment or the internal management of homes for consumptives existing in Massachusetts. If, as has been claimed, harm to the neighborhood exists, it seems entirely within the power of local boards of health to issue regulations to remedy the difficulty under existing statutes. The Board of Health of Boston, with commendable care for the health of the community, has issued a regulation to prevent expectoration in street-cars which has already had good effect, and only needs enforcement to produce still better results. There is, therefore, no reason why sensible regulations may not also be applied to consumptive homes and their inmates, if such are necessary.

The French League for the Prevention of Pulmonary Phthisis and other Forms of Tuberculosis, in a twelve-page pamphlet, publishes the following statement:

"We know further that the consumptive is not in the least dangerous by contact or proximity; that it is neither his body nor his breath which is hurtful; and that we can chat with him for hours, live with him for years, and even sleep in his room and give him the

most constant care, without running any serious risk, *provided we take certain precautions*, the chief of which is to collect his expectoration, and not to delay the destruction of his sputum until it becomes dry, and is disseminated as dust into the atmosphere."

RESULTS OF THE USE OF DIPHTHERIA ANTITOXIN.¹

The Imperial German Board of Health established an official system of returns relative to the use of antitoxin in hospitals throughout the Empire in January, 1895, and the first annual report appears in the transactions of the Board (Vol. xiii, 1896).²

From the report it appears that the returns were received giving the results of the use of the *heilserum* in 9,581 cases. Out of these cases the recoveries were 7,999, or 83.5 per cent., and the deaths were 1,489 or 15.5 per cent. while one per cent. were still under treatment at the date of the report.

From the total number of deaths there should be excluded 82, which occurred during the first twelve hours after admission to hospital, of whom the remark often appears, "brought in moribund," or "hopeless from the outset."

The board concludes with the following statement: "The medical treatment of diphtheria with antitoxin (*heilserum*) marks a decided advance in the domain of therapeutics. Favorable results are more often noted from its use than are known to occur under previous methods approved by science. The secondary effects occasionally observed are of slight importance when compared with the general advantages of its use."

The fatality of diphtheria in German Hospitals is shown (in the same report) to have been as follows:

CASES OF DIPHTHERIA AND CROUP.

	Admitted.	Deaths.	Fatality.
1883	9,622	2,777	28.9%
1884	10,783	2,716	25.2
1885	10,802	2,532	23.4
1886	11,900	2,918	24.5
1887	11,968	2,838	23.7
1888	10,921	2,839	26.0
1889	13,139	3,344	25.5
1890	12,770	3,617	28.6
1891	11,793	3,201	27.1
1892	13,495	4,115	29.6
1893	19,603	5,903	30.1
1894	20,728	5,348	25.8
1883-94	157,724	42,178	26.7%
April, 1895, to March, 1896	9,581	1,489	15.5%

The fatality by ages was 44.8 per cent. for children under one year; 37.8 per cent. from one to two years; and so on to nothing at the older ages of life.

The value of antitoxin as a life-saver depends largely on the promptness of its use, as is shown by further figures. Of those treated before the end of the second day of illness, the fatality was 7.9 per cent.; of those treated after the sixth day, about 25-26 per cent.

³ Ein Beitrag zur Beurtheilung des Nutzens von Heilstätten für Longenranke, published by the Imperial Health Office of Germany, Berlin, 1896.

¹ Ergebnisse der Sammelforschung über das Diphtherieserum für die Zeit vom April, 1895, bis März, 1896. Dr. Dieudonné.
² Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1897, Vol. xiii, p. 254.

The following figures are presented from other sources:

Author.	No. of Cases.	Fatal ity %	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	After 6th day.
Welch.	14,891	14.2	2.3	8.1	13.5	19.0	29.3	34.1	33.7
Hilbert.	2,428	18.3	2.2	7.6	17.1	23.8	33.9	34.1	38.2
Amer. Ped. Soc.	5,794	12.3	4.9	7.4	8.8	20.7	35.3	..	..
Austrian Health Authorities.	1,103	12.6	8.0	6.6	9.8	25.5	28.8	30.7	21.0
Mass. Bd. Health	562	12.10	0	9.7	8.7	15.4	22.2	20.0	33.3
Boston " "	647	14.99	..	..	..	..	..	..	..

The majority of the cases that were reported by the Massachusetts State Board of Health occurred in private practice. The majority of the cases that were reported by the Boston Board of Health occurred in hospitals. The percentage relating to the fatality occurring according to the day of treatment with anti-toxin in the line for Massachusetts State Board of Health, refers only to cases in which a positive diagnosis was made by culture from the throat. The previous fatality from diphtheria and croup in Massachusetts (1891-94) had been 28.3 per cent. (13,332 notified cases, with 3,768 deaths).

THE BACILLUS OF PLAGUE.

THE report of Dr. H. T. Wilson, of the Hoagland Laboratory, who for some time past has been experimenting with plague microbes at the request of Commissioner Emery, the head of the Brooklyn Health Department, has just been made public. The bacilli came from Yepin, China, and were sent by Dr. W. F. Arnold, of the United States Navy, who is now attached to the Pacific Squadron. In order to test their activity he first inoculated several rabbits, all of whom rapidly succumbed to the disease originating from them. Test-tubes containing cultures of the bacilli in bouillon were then subjected to varying degrees of temperature, and it was found that up to 58° Centigrade the bacilli flourished and multiplied. At 59° their vigor became impaired, and at 60°, or about 120° Fahrenheit, their life became extinct. This relationship to heat reminds us that epidemics of the plague have not been observed south of 19° of latitude north. In the case of bits of paper, cloth and other material infected with the bacilli and then placed in a dry closet the result was the same, the germs not being able to survive a temperature of 60° C., or higher. As a result of his investigations Dr. Wilson concludes that the death-point is one or two degrees higher than that of the bacteria of this class of diseases in general, and that unlike cholera germs, sunlight and dryness cannot be relied upon to limit the life of this bacillus. He recommends that rags, nails, ballast and general merchandise coming from infected ports should be subjected, at either the port of departure or the port of entry, to a thorough system of disinfection. He has made experiments only with carbolic acid, and

with this agent he has found that an exposure for two hours to a one-per-cent. solution suffices to destroy the life of the bacillus.

MEDICAL NOTES.

ANESTHETICS AND THE LAITY. — Governor Black, of New York, has signed the bill making it a felony for a person other than a duly licensed physician to have an anesthetic on his person with the intention of administering the same to another person, and makes the finding of the same on the person by any one presumptive evidence of guilt.

PROFESSOR SENN'S GIFT TO THE NEWBERRY LIBRARY. — Prof. Nicholas Senn has purchased the entire library of the late Prof. DuBois Reymond, and presented it to the Newberry Library, Chicago. The collection consists of 14,000 books, chiefly on physiology and allied subjects, and will form a very important addition to the medical equipment of the library.

THE BEST RECORD FOR HIS AGE. — The Dublin correspondent of the *Lancet* is authority for the statement that a man named James Loder, eighty-two years of age, covered thirty-three feet in three standing jumps at a recent athletic contest in Cork County. Loder weighs one hundred and twelve pounds, and it is stated that his father lived to the age of one hundred and ten years.

CALCUTTA AND ITS SANITATION. — "If any town," says the *British Medical Journal*, "ever deserved the severe visitation of an epidemic for its sanitary sins it is Calcutta. Moreover, they have defied interference, relegated the sound advice of their medical officer to the waste-paper basket, and continued a system which may have done very well for India in the days of Hindu supremacy, but is totally at variance with modern methods and needs."

ORDINANCE AGAINST COCAINE. — It is reported that the victims of the cocaine habit have become so numerous in Chicago that an ordinance has been introduced prohibiting the sale of remedies for catarrh and other diseases, which contain cocaine. In the last two months over forty victims of the drug have appeared in police courts and elsewhere. Several of them have been well-known men and women, who say they were brought to their present condition by using catarrh cures.

HANGING AFTER TRACHEOTOMY. — Dr. Reineboth, of Halle, according to the Berlin correspondent of the *Medical Press and Circular*, reports the case of a man who, in consequence of a sarcoma threatening suffocation had tracheotomy performed and a canula inserted. He got tired of life, however, and put an end to it by hanging, placing the strangulating cord above the canula so that respiration would still go on unimpeded. Death appeared to have taken place rapidly. The case shows that death by hanging is not brought about by preventing respiration, but by

pressure on the large vessels. The position of the body also was such that with continued consciousness the man had not time to get on his feet again. It appears from this that loss of consciousness was as rapid as in ordinary hanging. The autopsy showed anemia of the cerebrum, extreme fulness of the arteries of the base, slighter fulness of those of the pia mater, hyperemia of the pons and medulla. Death by hanging without closure of the air-passages is not unknown in literature, but it would be difficult to find a parallel to the above.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 24, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 64, scarlet fever 43, measles 200, typhoid fever 7.

THE WARREN CHAMBERS.—This new physicians' office-building at 419 Boylston Street, Boston, will be open to physicians for inspection on Tuesday, March 30, 1897, from one to six.

THE FLOATING HOSPITAL.—The management of the Floating Hospital Fund announce that the fund has become sufficient for the purchase of the barge *Clifford*, which they have decided to buy and fit up for their use. The price to be paid for the barge is \$3,500. A ward containing twelve or more beds is to be fitted up for the sick cases.

DR. NORTHRUP LECTURES AT THE BOSTON INFANTS' HOSPITAL.—At the opening of the new lecture-room of the Boston Infants' Hospital on March 17th, Dr. W. P. Northrup, Professor of Children's Diseases in the Bellevue Medical College of New York, addressed by invitation the students of the Harvard Medical School on "Tuberculosis in Children." The lecture was illustrated by lantern slides. The lecture-room has lately been enlarged so that an audience of one hundred and fifty can be seated, and is used for lectures to nurses and to the Harvard medical students.

THE MAYOR OF SPRINGFIELD PROTECTS EXPECTORATION.—Mayor Dickinson of Springfield, Mass., has vetoed an ordinance passed by the city council forbidding expectoration in public places. The editor of the *Springfield Republican* voices intelligent public opinion on the subject in the following terms: "The more Mayor Dickinson's veto of the anti-spitting ordinance is considered the more indefensible it appears. The grounds upon which it was based were utterly frivolous. Here was a reasonable measure wholly in the interest of public health and decency. It had been petitioned for by a large number of our most intelligent citizens, including many physicians. It passed both boards of the city council by large majorities. The enforcement of such an ordinance in the reasonable and fair spirit with which other city ordinances are enforced would have done injustice to no well-meaning and law-abiding person.

There was no call for the mayor to interpose his veto. He has offered an affront to the decent people in the community and pleased the loafers."

NEW YORK.

MEDICINE AND MURDER.—At a meeting of the Society of Medical Jurisprudence held March 8th Stephen C. Baldwin, Esq., a youthful member of the bar, read a paper with the rather startling title, "Are the Doctors all Criminals?" His contention was that probably every physician or surgeon of any experience in New York had committed manslaughter in the second degree, as that crime is defined in the Penal Code. "Section 193 of the Penal Code," he said, "defines manslaughter in the second degree as causing, by any act, procurement or culpable negligence, the death of any person. These words are very plain, and no element of premeditation, design or intended criminality is necessary." After elucidating this idea and citing a number of supposititious cases in illustration, he expressed the opinion that the law should be so amended that a physician or other person, acting according to his best judgment, should not be held guilty. The discussion which followed the reading of the paper showed that the profession is not seriously alarmed at the danger to which it is thus exposed, and that a modification of the law is hardly called for. Dr. Morrell, who opened it, was of the opinion that the statute was really and properly aimed at quacks and other incompetent practitioners, and that it exerted a salutary influence in causing physicians to exercise greater care in their cases. John Sabine Smith, Esq., said that there were many laws on the books that are not intended to be enforced except in extreme cases. The present law is apparently perfectly plain in intent, and this intent would without doubt be clearly defined to any grand or petit jury before which a mischievous person might attempt to make a case.

THE NEW YORK COUNTY MEDICAL ASSOCIATION.—At a meeting of the New York County Medical Association held March 15th, a committee was appointed to confer with similar committees of the Academy of Medicine and the County Medical Society in regard to the abuse of medical charity in the hospitals and dispensaries. Other special committees were also appointed for the following purposes: To wait upon Mayor Strong with the request that he should appoint a medical man to fill the next vacancy on the Board of Commissioners of Public Charities; to wait upon Mr. J. Pierpont Morgan with the request that, in view of the already ample provisions at present existing in the city for the class of cases which it is designed to benefit, he should reconsider his proposed offer of \$1,000,000 for the erection of a new building for the New York Lying-in Hospital. The principal paper of the evening was by Dr. A. E. Gallant, who advocated the use of balsam of Peru and castor oil as a surgical dressing, the efficacy of which, he said, had been demonstrated in 28,000 dispensary cases, including

burns, wounds, ulcers, abscesses, etc. The balsam-oil was applied on pads of gauze, with an external covering of oiled silk, rubber tissue or starch bandage. It is claimed that by its continuous sponge-like action this dressing causes perfect drainage, and thus saves the busy surgeon a great deal of time by rendering antiseptic precautions unnecessary. The balsam is used in the strength of from 20 to 30 minims to the ounce of oil.

MEDICAL INSPECTORS FOR THE PUBLIC SCHOOLS.—At a meeting of the Board of Health, held March 16th, 134 medical inspectors were appointed for the public schools, in accordance with the provision recently made by the city authorities at the recommendation of the Health Department, endorsed by the Board of Education. Dr. A. Blauvelt, formerly Assistant Chief of the Bureau of Contagious Diseases, was appointed Chief Inspector, at an annual salary of \$2,500.

SMALL-POX IN NEW YORK.—In consequence of the discovery of three cases of small-pox, one of which turned up at the New York Hospital, the physicians of the vaccination bureau of the Health Department have been making a tour of the various lodging-houses, 116 in number, with a capacity of from 15 to 400 lodgers, and on the night of March 15th more than 5,000 individuals were vaccinated by them. While the Board of Health cannot force a person to be vaccinated, the sanitary code provides that no building can be used for lodging-house purposes in which the inmates have not conformed to the rules of the Board, which include vaccination. The cases of small-pox mentioned are the first that have been reported in the city for a considerable time.

REAR TENEMENTS MUST GO.—A bill was introduced in the State Senate at Albany on March 16th, prohibiting the erection of any tenement or dwelling-house on a lot in the rear of another dwelling, and also demands the removal of all such buildings now existing within six months after the passage of the act. It will perhaps be remembered that a very large proportion of the tenement-houses which have been condemned by the Board of Health, on account of the high rate of mortality in them, since the authority for such action was granted the Board by the Legislature, have been rear buildings.

Miscellany.

ORDINANCE CONCERNING EXPECTORATION.

THE Board of Health of the village of Saranac Lake, N. Y., issued the following preamble and ordinance several months ago:

Whereas, The expectorated matter discharged by persons having any disease of the air passages (lungs, throat, mouth and nose) usually contains germs capable of communicating the same disease to other persons; therefore, be it

Resolved, That the Board of Health of the Village of Saranac Lake does expressly declare, that the indiscriminate discharge of such expectorated matter, in any place where it may be the means of communicating disease to other persons, is a nuisance dangerous to public health, and that this Board does hereby adopt the following:

SECT. 1. All persons who expectorate in consequence of any disease of the air passages (lungs, throat, mouth and nose), are positively forbidden to spit or discharge such expectorated matter upon the floor of any house, store, church, schoolhouse, hall, or upon any sidewalk, or in any dooryard, or other place where such matter may be the means of communicating disease to other persons.

SECT. 2. Any person who shall violate the first section of this ordinance shall be liable to a penalty not exceeding five dollars for the first offence, nor more than twenty-five dollars for a subsequent offence, which penalty shall be imposed by and at the discretion of the Board of Health.

NOTE.—Hotels, inns and boarding-houses should provide suitable cuspidors for the accommodation of their guests. Cuspidors should be thoroughly cleansed and disinfected daily and should contain a small amount of germicide solution.

Persons who have occasion to expectorate when on the streets should carry small pieces of cheese-cloth, which, after being used, must be preserved, and burned with as little delay as possible. Chinese paper napkins or toilet paper will answer a similar purpose. The casting of any of these aside, after use, where they may affect others, will be regarded as a violation of the ordinance.

CAUTION.—Handkerchiefs should never be used to receive expectorated matter. If so used they must be boiled, or soaked in a germicide solution, with as little delay as possible, and never be put with the other articles to be laundried.

The Chairman of the Board, Dr. E. S. McClellan, writes us under date of the 17th inst.:

"The moral sentiment in support of this ordinance is so general here that we have not found it necessary to impose a single penalty. A first notice usually brings the transgressor to a proper sense of duty, with the assurance of future good behavior."

RESOLUTIONS OF THE BOSTON MEDICO-PSYCHOLOGICAL SOCIETY ON THE REPORT OF THE COMMISSION TO INVESTIGATE THE PUBLIC CHARITABLE AND REFORMATORY INTERESTS AND INSTITUTIONS.

At a meeting on the 18th of March, 1897, of the Boston Medico-Psychological Society, it was

Resolved, That the Society unanimously approves and heartily endorses the recommendations made to the Legislature by the special Commission to investigate the Public Charitable and Reformatory Interests and Institutions of the Commonwealth, as presenting for the first time a systematic and wise plan for caring for the dependent and criminal classes in the most economical, humane and scientific manner.

Resolved, That while endorsing all the measures of reform which this Commission proposes, the Society, taking special interest in the care and treatment of the insane, feels most strongly the wisdom of placing all the insane under the care of the State, and of appointing a Commission in insanity, to consist in part of men skilled in the knowledge of mental diseases, believing that such measures will ensure the most humane care of the insane and will advance our knowledge as to the best method of the prevention and treatment of mental diseases.

Resolved, That the Society urges upon the Legislature the pressing need for the enactment of such laws as may carry into effect the recommendations of the Commission, especially the recommendations relating to the insane.

HENRY R. STEDMAN, M.D.,
GEORGE F. JELLY, M.D.,
PHILIP COOMBS KNAPP, M.D., } Committee.

METEOROLOGICAL RECORD

For the week ending March 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...7	30.73	21	26	16	53	62	66	N.E.	N.E.	6	7	C.	C.	
M...8	30.56	28	36	21	62	80	71	W.	S.	8	8	O.	O.	
T...9	30.20	40	46	34	82	93	88	W.	S.E.	7	6	O.	T.	.01
W...10	29.72	47	56	38	93	75	81	S.	N.W.	10	15	C.	C.	.03
T...11	30.01	45	55	35	57	39	48	W.	W.	17	12	C.	C.	
F...12	29.76	44	53	36	74	92	84	S.	W.	8	9	O.	C.	.06
S...13	30.06	31	43	26	39	62	50	N.W.	N.E.	26	7	C.	C.	.38
☞	30.15		45	29			70							.48

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 13, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	819	319	11.04	20.40	1.20	.24	4.56	
Chicago	1,619,226	442	158	13.80	17.71	4.14	1.84	3.91	
Philadelphia	1,164,000	—	—	—	—	—	—	—	
Brooklyn	1,100,000	—	—	—	—	—	—	—	
St. Louis	560,000	201	40	—	20.50	—	—	—	
Boston	491,205	267	73	7.77	24.05	1.11	1.11	3.33	
Baltimore	496,315	146	45	4.14	13.80	.69	.69	2.07	
Cincinnati	336,000	138	—	2.92	10.65	—	.73	.73	
Cleveland	311,537	75	28	2.66	6.65	—	—	—	
Washington	275,500	131	41	2.28	25.84	—	.76	.76	
Pittsburg	238,617	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	27	9	—	25.90	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	33	13	15.15	21.21	3.03	—	9.09	
Fall River	88,020	55	29	5.46	41.86	3.64	—	—	
Lowell	84,359	42	14	4.76	21.42	—	—	—	
Cambridge	81,519	24	5	8.32	16.64	4.16	—	4.16	
Lynn	62,355	—	—	—	—	—	—	—	
New Bedford	55,254	42	15	14.28	19.04	4.76	—	6.96	
Springfield	51,534	18	9	11.11	27.77	—	—	5.55	
Lawrence	52,153	18	10	—	16.66	—	—	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	11	3	9.09	—	—	—	9.09	
Brockton	33,157	5	1	20.00	40.00	—	20.00	—	
Haverhill	30,185	8	3	—	—	—	—	—	
Malden	29,709	15	5	13.33	26.66	—	—	13.33	
Chelsea	31,295	—	—	—	—	—	—	—	
Fitchburg	26,394	16	3	6.25	25.00	—	—	—	
Newton	27,422	12	2	—	25.00	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	10	3	10.00	30.00	—	—	—	
Waltham	20,877	12	3	8.33	—	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	9	1	33.33	11.11	—	—	33.33	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	11	2	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,691: under five years of age 862; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fevers) 232, acute lung diseases 534, consumption 322, diphtheria and croup 86, diarrheal diseases 42, scarlet fever 24, whooping-cough 23, typhoid fever 19, measles 19, cerebro-spinal meningitis 11, erysipelas 8.

From scarlet fever New York 13, Boston and Chicago 4 each, Baltimore, Cincinnati and Providence 1 each. From whooping-cough New York 10, Chicago 5, Cleveland 2, St. Louis, Boston, Washington, Fall River, Lowell and Springfield 1 each. From measles New York 9, Chicago 6, Cincinnati, Worcester, Lowell and Taunton 1 each. From cerebro-spinal meningitis New York 6, Somerville 2, Brockton, Fitchburg and Waltham 1 each.

In the thirty-three greater towns of England and Wales with

an estimated population of 10,992,524, for the week ending March 6th, the death-rate was 18.1. Deaths reported 3,822; acute diseases of the respiratory organs (London) 307, whooping-cough 103, diphtheria 67, measles 59, diarrhea 45, fever 26, scarlet fever 25, small-pox (London) 6.

The death-rates ranged from 24.2 in Blackburn to 12.6 in Derby; Birmingham 21.0, Bradford 16.9, Bristol 18.6, Cardiff 15.9, Huddersfield 13.9, Hull 19.5, Leeds 20.2, Leicester 15.6, Liverpool 19.4, London 17.4, Manchester 23.0, Newcastle-on-Tyne 17.5, Nottingham 18.1, Plymouth 21.4, Sheffield 17.8, Swansea 15.6, West Ham 15.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 13, 1897, TO MARCH 19, 1897.

FIRST-LIEUT. CHAMPE C. McCULLOCH, JR., FREDERICK P. REYNOLDS and MADISON M. BREWER, assistant surgeons, are ordered to report in person to the president of the examining board appointed to meet at Fort Leavenworth, Kansas, for examination for promotion.

A board of officers to consist of MAJOR HENRY McELDERRY, surgeon; MAJOR JOHN M. BANISTER, surgeon; CAPTAIN WILLIAM F. LIPPITT, JR., assistant surgeon, is appointed to meet at Fort Leavenworth, Kan., on Tuesday, April 13, 1897, at 10 o'clock A. M., for the examination of such officers of the Medical Department, as may be ordered before it to determine their fitness for promotion.

BRIG.-GENERAL GEORGE M. STERNBERG, surgeon-general, and LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general, are detailed to represent the Medical Department of the Army at the Twelfth International Medical Congress to be held in Moscow, Russia, August 19 to 26, 1897.

Leave of absence for one month is granted MAJOR CURTIS E. MUNN, surgeon, Benicia Barracks, Cal.

CAPTAIN PAUL CLENDENIN, assistant surgeon, is transferred from Fort Warren, Mass., to Key West Barracks, Fla., to relieve CAPTAIN JEFFERSON R. KEAN, assistant surgeon, who is transferred to Fort Warren, Mass.

CAPTAIN GEORGE MCCREERY, assistant surgeon, ordered to Fort Warren, Mass., for temporary duty, in addition to his present duties.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING MARCH 15, 1897.

MURRAY, R. D., surgeon. Granted leave of absence for one day. March 17, 1897.

GEDDINGS, H. D., passed assistant surgeon. Upon adjournment of Sanitary Conference at Venice, Italy, to proceed to Marseilles, France, for special temporary duty. March 10, 1897.

WERTENBAKER, C. P., passed assistant surgeon. Granted leave of absence for seven days from March 13, 1897.

PROMOTION.

C. H. GARDNER and RUFERT BLUE, assistant surgeons, commissioned as passed assistant surgeons. March 3, 1897.

MÜTTER LECTURESHIP OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The next course of ten lectures instituted by the late Professor Thomas Dent Mutter, M.D., LL.D., on "Some Point or Points in Surgical Pathology" will be delivered in the winter of 1899-1900, before the College of Physicians of Philadelphia.

The compensation is \$600. The appointment is open to the profession at large. Applications stating in full subject of proposed lecture must be made before October 1, 1897, to Committee on Mutter Museum.

JOHN H. BRINTON, M.D., Chairman,
N. E. Cor. 13th and Locust Streets, Philadelphia, Pa.

BOOKS AND PAMPHLETS RECEIVED.

Observations on the Treatment of Epilepsy. By A. N. Williams, M.D. New London, Conn. 1895.

Nineteenth Annual Report of the Board of Health of the City of Lowell (Mass.) for the Year 1895.

Shortening the Round Ligaments; Indications, Technics and Results. By George M. Edebohls, A.M., M.D. Reprint. 1896.

Ninth Report of the State Board of Health of the State of Maine for the Two Years ending December 31, 1895. Augusta, 1897.

Acquired Nystagmus in Occupations other than Coal Mining, with Cases and Remarks. By Simeon Snell, F.R.C.S. Ed. Reprint. London. 1896.

Lecture.

WHEN TO CALL A SURGEON IN APPENDICITIS.¹

BY GEORGE W. GAY, A.M., M.D.,
Surgeon to the Boston City Hospital.

THE remarks which I shall present to you this evening are intended especially for the family physician, who does not operate himself, and who does not wish to assume the sole responsibility of deciding those important questions peculiar to appendicitis. It falls to the lot of the general practitioner in the great majority of instances to see the victims of this malady in its early stages, and it is scarcely too much to say, that not infrequently the result is largely determined by the measures adopted at that time. It is not worth while to enter upon a discussion as to whether appendicitis is a surgical or medical affection. Suffice it to say, that the general practitioner, from the very nature of his relation to the public, is obliged to meet, to accept, and to treat these patients during the earlier part of the attack according to the best of his ability, and with the resources at his command. For these reasons any suggestions or information which the surgeon can furnish from his standpoint renders the physician more efficient, and better enabled to cope with one of the most formidable maladies of the present day.

Ever since Dr. R. H. Fitz presented his justly celebrated paper to the profession, now more than ten years ago, the subject of appendicitis has occupied a foremost rank in the medical societies and in the medical literature of this country. Physicians and surgeons have vied with each other in studying and in reporting cases, with a view to deciding the many disputed points in relation to the cause of the disease, the treatment and its results. The practitioners are few who have not been called upon to treat these cases, and who have not had reason to feel that much is still to be learned before a uniform standard of treatment will be attained. The last word has not been spoken or written; there are still mooted points to be settled; and for this reason the writer felt that he could not better occupy your time and attention, than by briefly indicating some of the conditions and circumstances under which the general practitioner may very properly and wisely seek the advice, the support and the aid of the practical surgeon.

Much has been learned from the family physician in the past, and will continue to be in the future, in regard to the early symptoms, the course of the disease, the results of the so-called "expectant" treatment, and many other points. While from the very nature of things there can be no hard and fast custom in these matters, yet, as a rule, these patients require both medical and surgical treatment; so they should receive the services of the surgeon in addition to those of the physician. It goes without saying, that many patients cannot command the services of an expert, but must rely upon the aid which is at hand. The heartiest co-operation should, and I believe does, exist between the physician and surgeon in the management, not only of this disease, but of all others in which the services of both may be required. The best interests of the patient, of the profession, and of

the public all lie in the same direction, and the more thorough and cordial is the understanding upon these matters, the better will it be for all concerned.

It is hardly necessary for me to say that I do not belong to the radical wing of the profession, which maintains that every case of appendicitis demands operative interference. The final and conclusive test of experience would seem to prove beyond a reasonable doubt the fallacy of that plan of treatment. According to Hawkins, of 264 cases of appendicitis, 190 ran their course without suppuration. Dr. Fitz thinks "that from two-thirds to three-fourths of all cases are likely to recover from the immediate attack without surgical treatment." Dr. M. H. Richardson says that of the cases to which he is called to decide the question of operation, about half recover without it. Dr. McBurney believes that considerably more than half of the patients will recover from the first attack without operation.

In 46 consecutive cases under the reader's care at the Boston City Hospital an operation was performed 24 times, with nine deaths. Of course, only the severest cases received radical treatment. The lighter cases, 22 in number, were treated "expectantly," and all recovered.

Now, unless a fairly large proportion of all these patients who recover without an operation are again seized with this disease in the near future, it will be difficult to convince any considerable number of our fellow-practitioners, that every one of those patients should have been treated by abdominal section. Many individuals in our midst including several in our own profession, have been through one or more attacks of appendicitis in years long gone by, and have to all appearances reached a safe and permanent recovery without operation. It is difficult for the ordinary practitioner to understand why a radical operation should be universally resorted to in any affection, when about 50 per cent. of the victims will in all probability make a safe and permanent recovery without it. As human nature is at present constituted, a large proportion of our patients will very likely prefer to run their chances of the future, rather than submit to an operation, not wholly devoid of danger, for a single attack of appendicitis which is neither severe nor prolonged. I am fully aware that occasionally an apparently mild case suddenly assumes an alarming and dangerous condition, but I question if this event occurs often enough to justify operation in every instance. At all events, the experience of the past ten years has not yet taught any such lesson to a majority of our best men, who have the most to do with this malady. What the future may have in store for us on this point remains to be seen.

The ground taken by the reader is, that patients with appendicitis, who are in collapse, or who are not sick enough to go to bed, or in whom the symptoms are mild and not prolonged, or, if severe at first, show a decided change for the better within forty-eight hours, do not require an immediate operation. The larger proportion of cases coming between these extremes may or may not require surgical interference, according to circumstances. It is for us to study each case carefully by all the light we can get, and try to decide judiciously as to which cases require operative treatment, and which can be safely carried through without it.

As a preliminary to our subject a few words upon

¹ A lecture delivered in the Graduates' Course of the Harvard Medical School, November 5, 1896.

the diagnosis of appendicitis may be permitted. It is pretty well settled in the minds of the profession that peritonitis in the male means appendicitis, whatever may be the peculiarity of the symptoms. The exceptions to this rule are so uncommon that our treatment need not be influenced thereby. Occasionally a volvulus, an intussusception, a band, or twist of the bowel, or a mesenteric thrombus may be found instead of a lesion of the appendix, but the symptoms will be grave, and an operation will be as certainly indicated, which of itself will, in all probability, clear up the diagnosis, as well as give the patient the best possible chance for recovery.

The most reliable and important symptoms of acute appendicitis are pain and tenderness in the abdomen. They are always present to a greater or less degree in the early stage of the affection, and the latter persists so long as the active process is going on. Of such vital importance is tenderness in the acute stage as a factor in the diagnosis, that its absence would make one hesitate to call the disease appendicitis, even were the other symptoms present to a marked degree. The only time the writer ever opened the belly for supposed appendicitis without finding it, was in the case of a middle-aged gentleman, who had suffered severely for three or four days with pain in the bowels, requiring repeated doses of opiates. The abdomen was distended and tympanitic; there was paresis of the bowels, with obstinate constipation, grayish, shrunken skin, pinched features and prostration. He was evidently a very sick man, and apparently suffering from general peritonitis. For the past few years he had had several attacks of a similar character, but of less severity. There was little or no tenderness of the abdomen. The operation revealed a healthy appendix. The intestines were markedly congested, but free from lymph or adhesions. At the autopsy nothing further was found to account for the symptoms. There was neither band, twist, intussusception or other lesion found upon a careful examination. The only symptom wanting in this case to complete the clinical picture of appendicitis was tenderness. Its absence was fatal to the diagnosis.

Pain and tenderness then are the principal symptoms of appendicitis, which seldom fail to be present from the beginning; and their severity and persistency, as a rule, are an index to the gravity of the attack.

Tenderness is the main feature which distinguishes appendicitis from colic or functional affections of the abdominal organs. The pain is frequently as severe in the latter as in the former, but it is not as persistent nor as prostrating in the functional as in the inflammatory affection.

In the early stages of appendicitis the pain is located in the vicinity of the navel rather than in the right inguinal region. This fact is very misleading to many physicians, who naturally expect to find it referred to the usual seat of the appendix. It is to be distinctly remembered, that both the pain and the tenderness may not be located in the region of the appendix for two or three days after the commencement of the disease. If, however, the patient is very sick and steadily growing worse, be assured that these symptoms will sooner or later declare themselves in an unmistakable manner, thereby removing all doubt as to the character of the disease.

By way of summary it may be said, that the cases

are rare in males and in young girls in which sudden, acute abdominal pain accompanied by tenderness on deep pressure upon the right side of the median line does not indicate a lesion of the appendix. The writer submits that this is a good working rule for every-day practice. The exceptions are so uncommon, and an early diagnosis is so important, that an occasional error resulting from its adoption will be readily overlooked by all concerned.

Rigidity of the abdominal muscles, more marked upon the right side, is an important symptom; and so is intestinal paresis, as indicated by inability to pass off the gas by the rectum. Pulse, temperature, vomiting, restlessness and prostration will also demand attention. These symptoms, however, are all subordinate in importance for purposes of establishing a probable diagnosis to those above mentioned, namely, pain and tenderness, which alone are worthy of the first and most careful consideration. A person may be very sick with appendicitis, and still have nothing the matter with him, if the pulse and temperature alone are depended upon as an indication of his condition.

Occasionally a case is met with in which the symptoms are so slight and so evanescent, that it is only after observation of repeated attacks that the character of the affection can be ascertained with reasonable certainty.

Since this paper was written, a young woman was admitted to the City Hospital with what was supposed to be appendicitis. She had the symptoms of a pretty severe general peritonitis of two days' duration. It was the third attack within two months. There was sudden, severe pain in the abdomen, followed by vomiting, retention of flatus, fever and restlessness; tenderness was more marked on the left side of the median line. She had severe exacerbations every twelve hours.

On opening the peritoneal cavity the appendix was small, moderately congested and surrounded by recent adhesions. It was evidently not the focus of the present trouble, as the greater amount of congestion and discoloration was located in the region of the umbilicus. Here was found a firm band attached to a coil of the small intestines, and running down towards the pubes. This band was separated from the bowel, the appendix was removed, and the wound closed completely. She has made a satisfactory recovery. The only peculiarity of the symptoms in this case at the time of the operation, was that she did not seem to be quite as tender over the appendiceal region as you would expect her to be.

This case is mentioned merely to show, that occasionally on opening the peritoneal cavity for supposed lesion of the appendix, we do not find the exact conditions that the symptoms would lead us to expect. It does not militate against the treatment in any way, but on the contrary it illustrates the wisdom of exploratory operations under certain circumstances.

The diagnosis of probable appendicitis having been established, the treatment of the patient is the next question to engage the attention of the family physician. This is the time, in the majority of instances, when he needs and should have the aid and the support of the surgeon. I want to say here and now in the strongest possible manner, that every case of probable or possible appendicitis in which the symptoms are grave or protracted had better be seen by one who is familiar with the disease and who is accustomed to operating for its relief, for the following reasons: (1) to confirm or establish the diagnosis; (2) to divide

and share the responsibility; (3) to get at the real condition of the patient at the earliest moment practicable, that his measure, so to speak, may be taken before he gets into a dangerous, and hence unsatisfactory, condition; (4) that the patient may have the benefit of early observation by the one who is to decide upon the necessity of an operation and the proper time for its performance; and, finally, for the satisfaction of the friends, as well as for the protection of the regular attendant in the future in case the result should be disastrous. It is seldom that a useless or premature consultation is called in this disease. Too often the surgeon, through no fault of the family physician, is summoned too late to be of any service, except to convey to the anxious friends a statement of the unfortunate condition of affairs, and to offer what consolation he may under the circumstances. Early, and if necessary, frequent consultations should be the rule in all but the very lightest cases of appendicitis.

The laity are now so familiar with this affection, and have such a horror of it, and justly so, that any error in judgment in this direction is not laid up against us. Hence I would urge all physicians who are not pretty familiar with this disease, and who do not feel reasonably certain of their patient's condition, to call a surgeon early. Put him on to the case in line with yourself; keep him posted as to the progress of the symptoms, and summon him whenever you are in doubt as to the true state of affairs. See your patient every six to twelve hours. Because he is comfortable at one visit, do not take it for granted that he will be at your next.

Look out for exacerbations. They mean a fresh extension of the infection, a further invasion of the peritoneum, and a greater menace to the welfare of the patient. You are dealing with one of the most treacherous of known diseases, insidious in its manifestations, uncertain in its career, and liable to sudden changes, which at any moment may put the patient in a condition of extreme peril. Given a case of appendicitis of any severity, your vigilance cannot be too active nor your precautions too complete to guard the patient against the various accidents and misfortunes liable to befall him.

I may here be permitted to digress for a few moments to speak more at length upon the proper treatment to be pursued in the earliest stages of this affection. You are called to a person suffering from pain and tenderness in the abdomen, which in your opinion indicate a lesion of the appendix. What shall be your first treatment? Will you give laxatives or an opiate? Many physicians would recommend the former, most surgeons the latter. If the pain is at all severe, I not only advise, but I urge you to give sufficient morphine under the skin to relieve the pain. That is the symptom which you are called upon to treat, and for the time being it overshadows everything else. Relieve the immediate distress, and then take time to consider as to what further treatment is necessary. The amount of opiate required to effect this object varies in different cases, and is often an index of the severity of the attack, and of the danger to be apprehended.

In fortunate cases the pain once subdued in this manner does not return, as was shown in the following instance: A young gentleman was recently seized with severe pain in the bowels, while in the recitation-room at college. He was obliged to leave the class, and started for home. The pain became so unbearable,

that he got off the electric car, crawled into the nearest physician's office, threw himself upon the floor, and rolled in agony. A half-grain of morphine under the skin relieved him completely in a short time. He at once entered the City Hospital, and remained about a week, having no further trouble, save a slight tenderness or uneasiness in the appendiceal region upon deep pressure or in certain movements.

This gentleman was naturally anxious about the future. He was told that in our opinion he was liable to have another attack at almost any time, and that it might be even more severe than the present one, and less readily amenable to treatment. It was for him to decide whether he would risk it or not. Our advice was that he should wait a few weeks or until every vestige of this attack had passed away, and then have the appendix removed. The operation was done inside of a month, and the appendix was found to be the seat of marked catarrhal inflammation. He made a quick and satisfactory recovery.

Now, no judicious physician could hesitate for an instant on purely theoretical grounds to give morphine, or some other quick opiate, in cases like this. To abolish the pain, remove suffering, and thereby save nerve force is plainly our first duty. As it requires a long time for sufficient opiate to be absorbed from the stomach of a person in great pain, it is far better to put it under the skin in the form of morphia. It is thus quickly and surely taken up, and we are not long left in doubt as to its effects.

So much for the initial treatment of appendicitis in the severe cases. What shall it be in those instances, of which there are many, where the pain is moderate in severity, and hence the necessity for immediate relief is not so urgent? Shall opium or laxatives be given? Experience teaches us beyond a doubt, that many cases recover under both methods of treatment; and yet, in my opinion, there is a very decided preference in favor of the former or sedative plan. Having been a victim to this disease at intervals, for eighteen years, and having twice undergone laparotomy for its relief, the writer feels that he can express an opinion upon this point with some confidence. While relief may follow the administration of castor-oil or other laxative in the lighter cases, yet the severe ones are more often made worse by such medication. Opium judiciously given seldom, if ever, does harm under these circumstances; laxatives oftentimes do great injury, and may turn the scale against recovery. There can be little doubt that the former is the safer and better plan. The writer claims that opiates will relieve every case that laxatives or cathartics will, and very many cases that the latter will not relieve. For these reasons he cannot urge you too strongly to depend upon opiates for the relief of pain in the first stages of appendicitis. It is claimed that opiates mask the symptoms in this affection, and may thus mislead the physician as to the patient's real condition. While this may be true to a limited extent, yet any one accustomed to seeing and studying this disease can form a reasonably correct opinion of the case by making due allowance for the effects of the drug. In rare instances a few hours' delay might be desirable, before a final decision is reached. At all events this objection is not often a valid one in every-day practice.

For the pain of appendicitis, then, opiates are our main reliance in our earliest stages; but we must not

depend upon them for too long a period, or the golden opportunity for permanent relief may pass away never to return. Here comes in one of the most difficult questions of the whole subject for decision, to wit, When shall medical treatment be supplanted by surgical, or, in other words, when shall an operation be resorted to?

The indications may be briefly stated as follows: In very severe cases an operation is called for within twenty-four hours, or, at the outside, forty-eight hours from the commencement of the seizure. In cases of moderate severity, with no signs of amelioration of the symptoms on the third or fourth day, an operation is usually indicated. In relapsing cases, in from seven to fourteen days, according to the urgency of the symptoms. In recurring cases, after the first attack is entirely recovered from, say in from four to eight weeks, if the symptoms were severe, or after the second attack if the symptoms were only of moderate severity. It is to be borne in mind that these periods are only approximate, and not intended to be exact by any means, as each case is to be decided upon its own merits and manifestations. No affection calls for more careful consideration, a clearer understanding and calmer judgment than appendicitis.

It may be said here, that persons having a damaged appendix should be careful about travelling in foreign countries, as the physicians do not seem to be as familiar with this disease as are the American physicians. It is said to be more prevalent here than in other countries for reasons not yet satisfactorily explained.

In as brief a manner as possible, the particular conditions and circumstances, in which a surgeon should be summoned in consultation will now receive consideration.

(1) In cases of the fulminating variety of appendicitis, in which the symptoms are always grave, and generally becoming worse from hour to hour to an alarming degree, it is scarcely possible to obtain surgical aid too early in the disease. An operation may, or may not, be necessary, according to the condition of the patient; but from the very nature of things, an experienced surgeon is the best able to decide that point. No one would think of operating upon a person while in a state of profound collapse. The proper treatment for one in that condition is hypodermic and rectal stimulation and external heat. If he cannot be rallied in that way, he certainly cannot be by an operation. Profound prostration, which differs from collapse in that the clammy sweats, cold extremities, flickering pulse and sighing respiration are lacking, may call imperatively for an immediate operation. By speedily relieving the system of the pent-up septic materials the vital powers are thus enabled to rally, and to regain their normal condition. Hence in these cases of sudden and severe seizure, you want all the aid you can get, and you want it at once. Don't wait till to-morrow.

It may be said here, that, contrary to what might be inferred from some writers of the present day, an operation, however early it may be performed, will not save every case of appendicitis. A small proportion of the victims of this disease will perish whatever may be the treatment, and however promptly and thoroughly it may have been adopted. Operations performed within twelve hours of the onset of appendicitis have failed to give the slightest relief. And yet this fact should not discourage early operations, when

they are indicated, for in very many instances the convalescence dates from the time of the operation. It is simply a reminder that too much must not be expected from surgical measures.

(2) The greater proportion of cases of appendicitis met with in ordinary practice will probably come under this head. The symptoms are moderate in severity at first, but steadily grow worse every twelve hours or so, with perhaps occasional remissions. These cases are often very deceptive. The patient does not seem to be very sick. With an occasional opiate, or perhaps without anything of the sort, he suffers little pain; and the attendants and friends are loath to believe that a serious, if not a dangerous, process is going on in the abdomen, until the vital powers are so exhausted that the patient's chances for recovery are very materially diminished.

In these cases I should strongly urge that the surgeon be called not later than the third day. Very likely the symptoms will be only of moderate severity at that time; but the consultant can form a much more correct and satisfactory idea of the character of the disease before its manifestations have reached the point of danger. He will also be better prepared to attack the case at the proper moment; in fact, he can choose his own time for interference. It is hardly possible to attach too much importance to this point. If the symptoms do not show marked amelioration by the third day, further counsel should be sought, not that an operation may be demanded at once, but that due preparations may be made, and that no time may be lost when time is important.

(3) A patient has a moderate attack of appendicitis. He is to all appearances improving, when without any definite reason, the symptoms are aggravated. He has a relapse, and has to make another start in his convalescence, only to experience the same chain of events sooner or later to prevent his recovery. The patient, and oftentimes the physician, is inclined to attribute these relapses to over-exertion, an error in diet, catching cold, etc. While these factors may occasionally act as exciting causes, yet the essential feature to be borne in mind is a damaged appendix.

Every exacerbation means an extension of the morbid process, and leaves the patient a little weaker and a little worse off, than he was before. The time may come when he fails to rally and he then becomes an invalid from chronic appendicitis.

These cases are not quite free from danger, and sound judgment is required to decide the proper period for interference. Each case must be managed according to its condition and peculiarities, yet it may be said, that, as a rule, two, or at most, three or four relapses, according to the severity, are sufficient to call for removal of the appendix. I presume that every surgeon feels that he has delayed action too long in occasional instances, but I have yet to meet one who has cause to regret a premature operation under these circumstances. It is better to err on the side of safety.

(4) No variety of appendicitis is more embarrassing to the attending physician, or to the consultant, than the following: A man is seized with a sharp attack of pain in the umbilical region, accompanied by tenderness. It knocks him out, so to speak, doubles him up, and sends him to bed. The symptoms may be severe enough to produce a moderate collapse. An opiate under the skin gives him complete relief for

several hours. Seen for the first time during this period, the patient seems to have little or nothing the matter with him. No pain nor tenderness, no disturbance of pulse or temperature. Everything is quiet under the sway of the "divine poppy." In many instances this lull in the symptoms is deceptive, as in from twelve to twenty-four hours they return with increased violence. This is usually the signal for calling the surgeon, and it goes without saying, that he should be prepared to operate at once if necessary.

(5) And, finally, we have the recurring cases of appendicitis to consider, which differ from the relapsing variety in the fact that patients are apparently well between the attacks. Recently a gentleman consulted the reader for the following symptoms: Five or six times during the past year, after a hearty meal he has been suddenly seized with a severe pain in the umbilical region, which gradually worked down into the vicinity of the appendix. The pain is accompanied by marked local tenderness and inability to stand erect. It lasts about twelve hours, but the tenderness persists for three or four days or even longer. He is weak and exhausted for several days — much more so than would be expected after an ordinary attack of colic or indigestion. This man is strong, robust, and is entirely well between these attacks. In the reader's opinion he is suffering from a mild form of recurring catarrhal appendicitis. Now comes the important question of treatment. Is an operation necessary, and if so, when shall it be performed? The temperament of the surgeon and of the patient is a factor in deciding these questions. If the attacks are increasing in frequency or in severity, there can be little doubt as to the necessity of an operation; and the sooner it is done the safer and better for the patient. On the contrary, if the intervals are increasing in length, and the symptoms becoming less severe and of shorter duration with each attack, it might be well to wait a while before resorting to a radical cure, as a certain number of these cases do eventually wear themselves out, so to speak, and entirely disappear, thus coming under the head of "appendicitis obliterans." In the opinion of the writer six attacks of appendicitis in one year, even if mild, are quite sufficient to justify an operation for the removal of the exciting cause.

Not a few physicians entertain the idea that there is no occasion for calling the surgeon until a tumor has formed, indicating that the inflammatory process is limited in extent and has ceased spreading. That this idea is erroneous and misleading, is abundantly proven by the fact that in very many cases no tumor is ever found, and yet the convalescence dates from the moment of operation. It is often impossible to detect a tumor, even when present, by reason of its depth in the pelvis, its shape and size, as well as the thickness and rigidity of the abdominal walls. The presence of a tumor does not of itself indicate an operation, nor does its absence preclude it. In fact, the indications for treatment are influenced very little by this symptom. A tumor shows the variety of the inflammatory processes going on in the peritoneal cavity, and also indicates the site of the incision. The plan of treatment is based upon other and more important factors in the condition of the patient. If he is growing steadily worse, radical means are called for, and the more rapid is the progress of the symptoms, the earlier are effective measures demanded.

In closing I can but repeat what has already been said, that from a surgical standpoint it seems wise and prudent that every case of appendicitis of any severity or duration should be seen in the early stages by one accustomed to operating for this affection, as well as to deciding the many difficult questions which are constantly arising throughout its course.

If the initiatory symptoms were severe; if they are steadily growing worse; if they relapse, or come to a stand-still; if the patient is sick, weak, irritable, impatient, restless; and especially if he cannot pass wind, or is inclined to nausea, vomiting, hiccup or delirium, — then I urge you to be vigilant and prompt in calling for surgical aid, for reasons already mentioned. You will never be criticised for calling it too early or too often. The serious character of the affection, the sudden onset, the insidious course, the rapid and unexpected variations, the startling collapses and excruciating pain liable to occur in this affection, as in almost no other, will protect you from these charges. And should the result be unfortunate, you and the friends will have the lasting satisfaction of knowing that you have done your whole duty in the matter, and are in no way responsible for the disastrous termination.

Original Articles.

OBSERVATIONS ON BRAIN SURGERY SUGGESTED BY A CASE OF MULTIPLE CEREBRAL HEMORRHAGE.¹

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THE patient, a young woman, was out riding horse-back, when the horse became frightened and bolted, throwing the rider headlong, the right side of her head striking against the lower rail of a fence. She was picked up and carried home in an unconscious condition.

About four hours later, Dr. Brooks was called to see her. At that time she was lying on her back, perfectly unconscious, breathing quietly and with a pulse of about 100. The face was flushed, the pupils were equal, somewhat dilated and reacted slowly to light. There was partial paralysis of the left side of the face, and complete paralysis of the left arm and leg. She had vomited once or twice since the accident.

In the right mastoid region, extending upwards and backwards, was a swelling, pressure upon which caused marked restlessness. The patient was immediately taken to the Massachusetts General Hospital. While in the ambulance she became somewhat restless; the right arm and leg were continually tossed about and there was apparently some evidence of returning consciousness, such as indistinct mutterings. The pulse was rapid and varied in strength; the respirations were shallow. The face grew pale and the extremities cool. There was incontinence of urine.

She was admitted to the hospital about five P. M. The hospital record of her condition at that time is as

¹ Read before the Boston Society for Medical Improvement, December 28, 1896.

follows: Pupils equal, somewhat dilated and reacting slowly to light; paralysis of left side of the face; left arm flexed and rigid; left leg rigid and paralyzed; patella reflexes normal. Large hematoma covering the right mastoid region, extending well into the occipital and parietal. Pulse 96, of fair quality but of irregular rhythm; respiration about 24, normal in character. Pressure over the hematoma caused the patient to move the right arm and leg violently.

The scalp was shaved and an ice-bag applied. She was given one-sixth of a grain of elaterium.

During the night the patient became very restless; the right arm and leg were constantly in motion. The left hand was moved a little. There was incontinence of urine. Temperature at one A. M. (rectal) was 102.4°; the pulse varied from 100 to 130; the respiration from 20 to 30. Patient still unconscious.

Second day. In the morning the pulse was more steady and of better quality; the temperature (rectal) was 97.2°. The patient was still very restless, with constant tossing of the right arm and leg. The left arm was moved quite freely when the hematoma was pressed, though both the arm and leg were still somewhat rigid. The bowels were moved after a drachm of jalap powder and a suds and glycerine enema.

In the afternoon the left arm and leg were somewhat less rigid, and the patient groaned when the right side of the head was pressed, at one time making a slight attempt at articulation. Up to this time improvement had been apparent; but in the evening the patient had hardly held her own, the rigidity and paralysis of the left side were quite well marked, and no response was made upon efforts to arouse her. With the advice of Dr. Walton, who had been following the case, it was determined to make an exploratory opening.

OPERATION.

A curved incision was made, extending from the external angle of the right orbit to one inch above and behind the mastoid, and a semicircular flap turned downward. The temporal muscles and pericranium were retracted. The surface of the skull was found to be in perfect condition, with no evidence of fracture. A small trephine was applied about two and one-half inches above the external auditory meatus. On removal of the trephine button, it was noticed that the dura (which was tense and non-pulsating) was slightly nicked on account of its closer approximation to the skull. A quantity of clear serum escaped from the opening. The dura was incised, about half an ounce of clear fluid spurting through the incision. The brain appeared somewhat edematous, but otherwise normal. Exploration under the dura revealed no sign of hemorrhage. The opening in the dura was closed by fine silk sutures, the pericranium was sutured across, and the skin wound drawn together with stitches of silkworm gut.

Recovery from the ether was marked by great restlessness and a weaker and more variable pulse, rising at one time to 150. The left arm and leg again became rigid.

Third day. No particular change; patient very restless, with variable pulse. In the evening the respiration became stertorous. The left arm and leg moved somewhat, and were much less rigid than the day before. The patella reflex was absent. A little milk and lime-water was taken by the mouth. The bowels were moved by croton oil, and nutritive enemata

given. The wound was dressed in the afternoon and looked well. There was considerable serum on the dressing. One stitch was removed and a gauze wick inserted.

Fourth day. The patient passed a fairly comfortable night, seeming rather more conscious in the morning and responding more readily to stimulation. The eyes showed a tendency to roll up. Sordes gathered on the lips and teeth. Some improvement appeared in the character of the pulse and respiration, and there was more motion and less rigidity in the left arm and leg. The patella reflexes had returned. In the afternoon the patient seemed more conscious than in the morning, and made some response to questions. The pulse was 96, and the respiration 20. There was less restlessness and less facial paresis. There was still incontinence of urine, a symptom which persisted throughout.

Fifth day. The patient was very restless and noisy all day, delirious and muttering incoherently. The general appearance, however, was much better, and an attempt was apparently made to respond to questions. The left side was used much better, and there was little, if any, facial paralysis.

Sixth day. Improvement continued. The patient, though still delirious, was much more quiet. Milk and lime-water were taken by the mouth.

Seventh day. The patient was very quiet and drowsy most of the day, talking very little, but apparently understanding when spoken to. The whole appearance was more natural; the left side was moved freely.

Eighth day. No particular change. More nourishment taken by the mouth. Wound looks well.

Ninth day. Patient more quiet and somewhat harder to rouse. The stitches were removed and the wound found practically healed. The hematoma persisted. Over a quart of milk was taken during the day.

Tenth day. Unconsciousness was somewhat deeper, the patient being roused with difficulty. The hematoma was incised, and about half an ounce of dark blood expressed. The condition of the left side was about the same.

Eleventh day. Patient rather more easily roused to-day. The nutritive enemata were omitted, milk being taken freely by the mouth.

Twelfth day. Unconsciousness deeper. Rather more difficulty in swallowing appeared, but a quart of milk and several raw eggs were taken.

Fourteenth day. Patient less conscious and very quiet. No definite paralysis and no trace of rigidity in the left side, though comparatively little movement was made.

Fifteenth day. The temperature, pulse and respiration all rose suddenly; examination of the chest showing nothing abnormal excepting a few moist râles at the base. Strychnia, one-thirtieth of a grain, was ordered every three hours, subcutaneously, without any effect upon the pulse.

Sixteenth day. The patient has grown decidedly worse. The lungs are filling up. Oxygen, digitalis, and enema of salt solution produced no response. The patient died at 8.45 in the evening.

AUTOPSY, BY DR. WRIGHT.

Anatomical diagnosis: Trephination. Multiple cerebral hemorrhage with softening.

Body of tall, young woman. Slender build. Somewhat emaciated.

In scalp. Semicircular wound, nearly healed. Wound extended from right temporal region, over right parietal eminence, downward toward mastoid. Length of wound about twelve centimetres. Edges of wound adherent. No suppuration. Tissue in neighborhood of a dark-red color, evidently from diffused blood. In right mastoid region, subcutaneous tissue contained a flattened cavity about the size of a half-dollar.

In skull, in neighborhood of right parietal eminence, a circular hole, two centimetres in diameter. Through this the dura could be seen, with reddish exudation on its surface. On removing the calvarium, the dura was found to be moderately adherent, but there was no evidence of extra- or intra-dural hemorrhage. Exudation seen through the trephine opening did not extend any farther than the limits of the opening. There was no evidence of any fracture of the calvarium. The brain showed no evidence of meningeal hemorrhage, and externally showed nothing remarkable. On section, several hemorrhagic, softened areas were found in the following situations: In the left frontal, first convolution, about one centimetre from the surface, there was an ovoid area, the size of a common bean, of a dark, brownish-black color, soft consistency and indefinite margin. A similar area was also found in the white matter, about one centimetre anterior to the caudate nucleus. Another similar soft, dark brown area was found just beneath the floor of the right lateral ventricle, near the outer margin of the optic thalamus. In several places throughout the white substance of the brain, there were pin-head-sized, dark-brown areas which did not wash off. Careful inspection of the base of the skull revealed no fracture.

No cause of death was found in the viscera.

The atypical course of this case illustrates the difficulties occasionally encountered by surgeons and neurologists after blows and falls upon the head. The symptoms produced by meningeal hemorrhage, whether extra- or subdural, have been so fully illustrated and discussed of recent years that few surgeons would fail to recognize a typical case. The deepening unconsciousness passing into coma, with or without stertorous respiration, whether following directly the initial effects of the blow, or whether preceded by an interval of consciousness is certainly in itself suggestive of hemorrhage, and if accompanied by unilateral convulsions, paralysis, or both, the imperative demand for operation is generally recognized. It has even been noticed that this set of symptoms may be produced by a hemorrhage upon same side with the paralysis, an unusual condition, the pathology of which is obscure. Possibly in such cases we have to do with a failure of the pyramidal fibres to cross, or perhaps, as Dr. Putnam has suggested, the brain on the side of the hemorrhage becomes gradually accustomed to the pressure, but at a certain point the pressure on the other side becomes more sudden through edema and other pathological changes.

Whatever the pathology of this condition, this fact must be always borne in mind and the question considered, whether both sides should not be trephined in cases positively indicating hemorrhage, in case of failure to discover hemorrhage on the side of the brain opposite the convulsions or paralysis. One of the writers has had an opportunity to see this condition

verified by autopsy, in a case seen with Dr. Swan, of Cambridge.

Another condition had to be borne in mind in our case, namely, that severe concussion of the brain sometimes produces, especially in young women, a condition allied to hysteria, a trance-like state following the unconsciousness of concussion. In such cases, the unconsciousness, instead of gradually deepening, gradually lessens, though its prolongation for a week or even more may cause the attending surgeon great uneasiness and even seem to demand operation.

In the case under consideration, the fact that the patient winced and showed other signs of pain, when the hematoma was pressed upon, on the night following the injury, rendered it possible that there was an element of this sort in the case. The improvement in the mental condition during the following day did not tend to dispel this possibility although the one-sided paralysis excited considerable apprehension, for it must be remembered that meningeal hemorrhage is sometimes followed by paralysis without convulsions. It was decided, however, that should the improvement cease or the unconsciousness deepen, operation was imperative. In point of fact on the night following the accident the condition seemed distinctly worse, rendering operation advisable and even imperative, although the case did not run the typical course of hemorrhage.

The operation, as is seen by the report, proved negative, excepting that a certain amount of pressure, which had rendered the dura tense and prevented pulsation, was relieved by an unusual flow of cerebro-spinal fluid. The improvement caused by this relief of pressure was only temporary, and in the course of the following week the patient on the whole steadily lost ground, and one week from the operation elevation of temperature, pulse and respiration showed that the disturbance was becoming profound. At this time operation was considered by Dr. Porter, to whose service the patient had passed.

The question was then considered whether it were not possible that meningeal hemorrhage was taking place upon the opposite side. The rarity of such a state of affairs, combined with the lack of symptoms pointing conclusively to meningeal hemorrhage, led to the conclusion on Dr. Porter's part that if the patient were to pull through at all, her chances would be as great without as with further operation, a conclusion justified by the autopsy, which revealed no lesion at the surface of either side—in fact, nothing tangible beyond two small hemorrhages in the left frontal region, far removed from the course of the motor fibres.

This case seems to us peculiarly instructive in view of its atypical course. With regard to the question of operative interference the deductions to be drawn, are, of course, purely negative. It emphasizes, however, the importance of remembering that a fatal result may follow severe concussion without tangible gross lesion, unless, indeed, the two small hemorrhages in the frontal lobe with subsequent softening are considered adequate cause for a fatal issue. Whether this be true or not, they were certainly insufficient to produce the paralysis.

The study of this case and the considerations thereby suggested show the complexity of the question from a modern standpoint, compared to the view of former times, when so crude a law obtained as that

unconsciousness of brief duration showed concussion, while protracted unconsciousness pointed to compression; in this case certainly the unconsciousness and death can hardly be attributed to this mechanism. As to the exact cause of the fatal issue we are still unfortunately in doubt.

Assuming that the brain was unable to recover from the general disintegration produced by the mere violence of the blow, we are still confronted by the question, Why should marked unilateral paralysis, including that of the face, be present? Experience certainly would tend to show that the force of so violent a concussion should produce some effect at least upon the opposite side. Great as is the advance in the modern study of cerebral trauma, we are still far from the solution of such pathological problems as these, although a careful study of the subject has led in individual cases to brilliant practical success. Among these cases the one here reported can unfortunately not be counted, but it is offered with the hope of adding something to the sum total of our knowledge of the subject.

It seems not improbable that the diagnosis, *cerebral edema*, will appear more prominently in the future than it has in the past. Attention has been for some time directed to edema as a cause for more or less transient paralysis in non-traumatic cases; and in traumatic cases Dr. Bullard has offered this pathological condition as an explanation of the lack of correspondence between the amount of hemorrhage found in given cases, and the extent of the paralysis. He combats the objection that post-mortem evidence has failed to justify this diagnosis, contending that this fact by no means establishes its absence during life. Our case certainly tends to corroborate this view, for the ante-mortem evidence of increased fluid was demonstrated at the operation, though none was found at the autopsy. That the pressure of this fluid played a part in the production of the hemiplegia can hardly be doubted in view of the disappearance of rigidity, and the improvement in motion following the relief of pressure by operation.

One of the writers, in presenting an argument for the vaso-motor theory of grand hysteria, has called attention to the possibility of localized edema in the brain as productive of so-called functional hemiplegia and monoplegia. We certainly have an analogous process in the peripheral swellings not infrequently found in hysteria, more particularly about the wrist and ankle-joints.

It is not uncommon in children to find localized paralysis following blows upon the head, closely simulating the results of hemorrhage, but completely disappearing in the course of a week or two, a fact which has to be borne in mind in making the diagnosis of middle meningeal or other hemorrhage in early life. The case here reported, together with others which have been called to our attention, would seem to indicate that a similar condition may obtain in adult life. Whether this pathology is accepted or not, the practical bearing of such cases upon our experience is to throw a certain weight in favor of conservatism in doubtful cases, though by no means lessening the demand for operation in the typical case.

It is of the utmost importance that we learn, if possible, to recognize the class under consideration. Towards this result we have only the following suggestions to offer, based upon our own experience. In the

first place, in all of the cases of hemorrhage which we have seen, the unconsciousness, after once appearing, has steadily increased.

The other symptoms have shown, as a rule, steady and continuous progression. The cases simulating hemorrhage, on the other hand, have run a comparatively irregular and atypical course. The insensibility to pain has also been profound in cases of hemorrhage, after reaching the point of unconsciousness. In the cases like the subject of this paper, however, pressure over the hematoma has given rise to signs of discomfort long after the unconsciousness was so profound that no response to questions could be elicited. The so-called pressure pulse has also been absent, though this sign is often wanting in meningeal hemorrhage, probably on account of the laceration, active congestion and other irritative lesions tending to increase the pulse-rate.

Apart from general scientific interest, to the practising surgeon and neurologist the pathological diagnosis of those cases becomes one of sufficient importance to demand discussion. Few more serious questions confront the surgeon than that of operative interference in this class of cases. Notwithstanding the relative innocuousness of trephining, as adduced by some authorities in favor of free exploration in doubtful cases, occasional unhappy results follow this operation, especially if the dura is incised and the brain substance explored. Even were this not the case, the antipathy of the family and friends to opening the cranial cavity presents a serious obstacle, except when the surgeon can promise relief.

The first question to be decided is whether hemorrhage is present. If this question is answered in the affirmative, we have still to consider whether the flow has ceased. If it has not ceased, has enough blood escaped, or is enough blood likely to escape to cause immediate danger, or to result in permanent symptoms? If, on the other hand, the hemorrhage has ceased, will the symptoms disappear on absorption of the clot, or will a cyst be formed which may give rise to future trouble? These questions we do not propose to discuss at this time, having rather to do with cases in which we are not sure that hemorrhage exists.

The points of diagnosis occurring to the writers, apart from the classical symptoms of hemorrhage, have been already mentioned; we would only add here, that when the surgeon thoroughly familiar with the subject feels himself in doubt, the chances are on the whole against hemorrhage, though the case reported by Mr. Hutchinson offers a remarkable exception to this rule. The following is a brief abstract:

Fracture of the right parietal bone, involving base of skull, rupture of middle meningeal artery; death on the ninth day from erysipelas and pyemia.²

The man had fallen head first, with a severe laceration of the scalp over the right parietal bone; exposure of the bone showed no fracture. He was conscious, answered questions, put out his tongue, etc. Was not paralyzed. Six hours later his general condition became worse. Pulse 84, soft and deliberate. Pupils rather small, equal. Left limbs moved much less vigorously than right. Complained when irritated but would not answer questions. Somnolent. Mr.

² Mr. Hutchinson's lectures on "Compression of the Brain," London Hospital Reports, vol. iv, p. 11, et seq; quoted by Jacobson, Guy's Hospital Reports, vol. xliii.

Hutchinson considered the condition, for the most part, severe concussion in the stage of partial recovery from collapse; but he had one symptom which did not fit with mere concussion, that is, partial paralysis of the left arm and leg. Several of the general symptoms of compression, however, were absent.

The man was not insensible, the pulse not impaired, the pupils not dilated, the breathing not stertorous. Mr. Hutchinson suggested the possibility of contusion of the right middle lobe of the brain in addition to concussion, and advised trephining if the paralysis increased and the patient became insensible. On the following day the hemiplegia had disappeared and consciousness returned. The patient had been restless during the night, and had twice got out of bed, but was unable to stand without assistance. Respiration tranquil, pulse 80. Patient was absolutely deaf, a condition which Mr. Hutchinson explained by some central hemorrhage implicating the auditory ganglia. On the third day erysipelas of the scalp appeared and spread to the face; on the sixth day symptoms of pyemia appeared; and the patient died on the ninth day. The only new symptom pointing to middle meningeal hemorrhage was dilatation and immobility of the right pupil.

The autopsy showed fracture of the base, with two lines passing forwards across the petrous bone and meeting in the top of the sphenoid. On both sides the cavity of the tympanum was full of blood-clots, the membrane being unbroken. This explained the absence of bleeding and the complete deafness. On the right side of the skull a fissure passed forwards through the sphenoid and temporal bone into the parietal. By this fracture the middle meningeal artery had been torn, and a large effusion of blood between the bone and dura mater had followed. The clot was an inch thick, and consisted probably of two or three ounces.

It will be noted that Mr. Hutchinson, in explaining paralysis, made the diagnosis *local contusion*. This term, as well as that of *laceration*, is not infrequently used. Post-mortem examination, however, is strikingly negative as regards laceration, except where the brain had been torn up by actual hemorrhage. In our own case, in which a certain degree of laceration was almost taken for granted, the macroscopical examination failed to show any trace of this lesion, either at the operation or at the autopsy. It seems to us more probable that in such cases, local edema, resulting from contusion, is a not unreasonable diagnosis. Dr. Bullard has already called attention to such edema accompanying hemorrhage, but mere bruising might well suffice for its production.

Suppose we have made a diagnosis of local cerebral edema, ought we to operate? If it be determined that such local edema cannot produce paralysis, a negative answer is in order; and even assuming that edema has produced paralysis, is it worth while to remove the fluid, or ought we not rather to wait patiently for its absorption? In considering this question, it seems to us that if the brain injury is so profound that the circulation is unable to re-establish itself and carry off the fluid, the patient is beyond help from operation or other treatment. Our tendency, therefore, in case we were assured that edema was the only lesion, would be to leave the patient alone.

It may be objected that the mere temporary pres-

ence of edema may prove disastrous; but here again we should say, if the patient is so low that temporary local edema will precipitate a fatal issue, he is too low to react from operation. If operation is decided upon, however, and only edema found, the surgeon should not feel that a mistake has been made, for in any such case he could never have been *sure*, without operation, that no hemorrhage existed. In other words, in a case of local paralysis, it can never be a mistake to operate provided the patient is growing worse or has even ceased to improve. In such a case the point of election might seem to be the anterior branch of the middle meningeal artery. Jacobson has, however, called attention to the advisability, in case trephining at this point proves negative, of making another opening in the region of the posterior branch of the same artery. It seemed to us in our case preferable to select a point between the two branches, from which the bone could be removed in either direction by the Rougeur forceps, particularly as the point we selected brought us in the neighborhood of the facial centre, at a place where hemorrhage from the middle cerebral artery (sub-dural) would be likely to show itself, for the symptoms of hemorrhage from this artery are nearly identical, so far as the paralysis is concerned, with those of the hemorrhage of the middle meningeal.

It is desirable that careful reports of similar cases be collected, in order that general rules may be formulated, to aid in the diagnosis of this important and often puzzling variety of trauma.

ARE ESPECIAL HOSPITALS OR HOMES FOR CONSUMPTIVES A SOURCE OF DANGER TO THEIR NEIGHBORHOOD?

BY EDWARD O. OTIS, M.D., BOSTON.

ALL authorities agree that consumption or pulmonary tuberculosis is infectious or communicable only through the dried sputum. When this becomes deicated the infecting micro-organism, the tubercle bacillus, is set free in the air and enters the respiratory tract through inhalation. The larger the air space and the more frequently and constantly this changes, the less likelihood is there that any given portion of this space will contain the germs although they may be present somewhere in the given area; hence the chance of becoming infected out of doors is exceedingly small in comparison with the danger in a confined space, like a room occupied by a consumptive or any enclosed space where there are likely to be one or more consumptives and where the sputum is not safely disposed of. Further, air and light—the condition out of doors—are inimical to the life of the tubercle bacillus. Ransome and Professor Delépine communicated to the Royal Society of England in May, 1894,¹ the results of their experiments “to determine how short a period of exposure to air and light would suffice to destroy the virulent action of the microbe.” They found that all specimens of dried sputum exposed to both air and light even for two days only, and for one hour of sunshine, had entirely lost their power for evil.

In concluding his remarks on these experiments Dr. Ransome says, “that where tuberculous sputum

¹ Published in Vol. lvi of the Proceedings; quoted in “The Treatment of Phthisis,” by Arthur Ransome, 1896.

can be exposed to sufficient light and air to deprive it of virulence before it can be dried up and powdered into dust, no danger of infection need be dreaded. It is only when there is sufficient organic material in the air, derived from impure ground air, or from the reek of human bodies, that the tubercle bacillus can retain its existence and its virulent power. Long-lived though it may be under these conditions, it is rapidly disinfected by the natural agency of fresh air and sunlight; so rapidly that where these agents are present, even in comparatively moderate degree, the tuberculous material cannot reach its dangerous state of dust before it is deprived of virulence." Dr. Irwin H. Hauce in his paper upon the infectiousness of the dust in the Adirondack Cottage Sanitarium,² also says, "The most powerful and at the same time freely obtainable agents are the sun's rays and diffused daylight. They can be used by everybody, and have been proved to be the most efficient disinfectants known."

From the above, then, it is a fair inference, that, wherever there is a community of consumptives, either in hospital or at large, in the midst of a town or surrounded by numerous dwellings, if there is an abundance of air, light and sunshine, the danger from infection is exceedingly small, even though no adequate means is employed to destroy or disinfect the sputum. Whereas, I believe there is more or less danger from infection in open resorts—that is, where patients live about in boarding-houses, hotels and the like, not in consumptive hospitals or sanitariums—I believe the danger for the most part arises from the indoor sources of infection, not from sputum scattered out of doors. The inhabitants of these places are brought into intimate contact with the consumptives as servants, attendants, etc., and thus contract the disease from those they serve who are under no such control and supervision as are those in a sanitarium.

On this point, however, others of large experience differ from me, and do not think there is much of any danger, as the following shows: In Colorado Springs, where there is said to be more cases of pulmonary consumption in proportion to its population than any other city or town in the United States and perhaps in the world, Dr. S. E. Solly, a well-known writer and authority on consumption and climatology, says, in a communication to Dr. Clinton Wagner of New York: "The dangers of contagion from a consumptive are so easily controlled that it is by no means necessary to separate consumptives from healthy persons. You ask me concerning my experience here. At least a third of our population are consumptives. The town which contains some 15,000 people, has been established twenty years. An inquiry made by disinterested physicians into the number of cases of consumption that were known to have originated in the town resulted in a report of 20 in all. Although it is probable that our brilliant sunshine and dry air more quickly destroys the vitality of the bacilli than your eastern atmosphere, yet in the poorer lodging-houses of the town there are many ill-ventilated rooms, inside or on the north side of the building, inhabited by consumptives and their families, where recklessness of expectoration and carelessness of ordinary cleanliness are marked features of their domestic *ménage*; yet cases of contagion do not average more than one a year."

² Medical Record, New York, December 28, 1895.

Of Davos Platz, in Switzerland, where also large numbers of consumptives congregate, Dr. Clinton Wagner says:³ "At Davos Platz, in Switzerland, where I spent a winter a few years ago, a very large number of consumptives were staying. The hotels were crowded, and of the 1,500 strangers in the village, above 1,000 were consumptives. At the hotel at which I stayed there were about 120 guests, about 80 of whom were consumptives. At Davos, during the winter, the invalid's day for outing is limited to four and one-half hours, the remainder of the twenty-four hours is spent within doors. No one stood in dread of contracting the disease, and no case occurred in which it was conveyed from person to person. No special precautions were taken by the physicians and local authorities to prevent contagion, other than good ventilation of the living- and bed-rooms. As at Colorado Springs, no cases of the disease originated at Davos."

In health-resorts where the so-called closed treatment of consumptives is carried on in sanitariums, we have evidence that there is no danger of infection to the inhabitants of these resorts; whatever may be the case in the so-called open resorts. At Göbersdorf and Falkenstein, in Germany, are two of the oldest and largest sanitariums. The former has been visited by 25,000 patients during forty years, and the mortality from consumption among the inhabitants has never passed the average, but on the contrary has diminished.⁴ During the period of twenty years preceding the establishment of the Falkenstein Sanatorium an average of four per cent. of the inhabitants died annually of consumption, and 18.9 per cent. of the total mortality was attributed to that disease. After the institution was opened, during the period from 1877 to 1894, the average annual mortality from consumption fell to 2.4 per cent., and the proportion of deaths from consumption to those from other causes sank to 11.9 per cent.⁵

Says Dr. V. Y. Bowditch, of Boston, in a paper presented at a meeting of the American Climatological Association, at Lakewood in May, 1896: "I wish to refute the statements that properly regulated consumptives' hospitals are sources of danger to the community, when I believe them to be exactly the opposite as shown by statistics." Says Knopf:⁶ "Well-conducted sanatoriums for consumptives are not centres of infection; but, on the contrary, places where the tuberculous patient is the most free from the danger of auto-infection, and where there is the least chance of his communicating his malady to others."

There are already existing in thickly-settled centres many hospitals either exclusively for consumptives or which contain large numbers of them: the great consumptive hospital of Brompton,⁷ Victoria Park, Royal Hospital for Diseases of the Lungs, North London Hospital for Consumptives, in London; the Royal National Hospital for Consumptives, in Ventnor, Isle of Wight, a favorite and much frequented seaside resort; the Manchester and Liverpool (Eng-

³ Medical Record, New York, February 6, 1897.

⁴ Rompler: Beiträge zur Lehre von der chronischen Lungenschwindsucht.

⁵ Quoted in the New York Medical Journal, February 22, 1896.

⁶ Are Sanatoriums for Consumptives a Danger to the Neighborhood? by S. A. Knopf, M.D. (Paris and Bellevue, N. Y.), formerly Assistant to Professor Dettweiler, Falkenstein Sanatorium, Germany.

⁷ This hospital is situated in the midst of a dense population in London, where the mortality from phthisis is no greater than anywhere else in the city. Knopf, "Les Sanatoria de Phthisiques, Sont-ils un Danger?" "Revue de Tuberculose," Vol. iii, 1895, p. 317.

land) Hospital for Consumptives; St. Joseph's Hospital (300 beds); Dispensary for Consumptives and Others, in New York City; the Rush Hospital for Consumptives and Allied Diseases, in Philadelphia; a small, charitable hospital for consumptives in Baltimore. In Germany a number of special hospitals for consumptives have recently been established or proposed at Bremen, Breslau, Dresden, Hanover, Cologne, Frankfort-on-the-Main, Worms, Stettin, and two in Berlin.

It is fair to presume that if such hospitals were a menace to the neighborhood they would hardly be permitted to be established or remain. How many of the general city hospitals have constantly numbers of consumptives in their wards: at the Carney Hospital, South Boston, for example, there is always a large contingent of them.⁸

As to the danger of infection in consumptive hospitals or homes *themselves* we have abundant evidence. Dr. C. T. Williams, physician of the Brompton Hospital for Consumptives in London (containing 231 beds), says⁹ that statistics of forty years of the Brompton Hospital and also those of Victoria Park Hospital (consumptive) directly negatives the idea of infection either to the resident staff or to patients admitted to the wards for other diseases than consumption. "It is obvious therefore," he says, "that phthisis is not contagious in the same sense as scarlatina, small-pox or other acute fevers."

Dr. Irwin H. Hance, assistant to Dr. Trudeau at the Adirondack Cottage Sanitarium, in "A Study of the Infectiousness of the Dust in the Adirondack Cottage Sanitarium,"¹⁰ proved by the inoculation of guinea-pigs (an animal much more susceptible to tuberculosis than man) that 16 out of 17 cottages inhabited by consumptives for so long a period as ten years, were absolutely free from infectious material. In the exceptional cottage (the 17th) the patient had disobeyed instructions and expectorated wherever convenient. Dr. Hance further says that "added clinical proof of the non-infectious character of the dust may be deduced from the fact that not one of the twenty to twenty-five attendants has ever developed tuberculosis; and also that no patient who was admitted suffering from pulmonary disease without the bacilli being present ever subsequently developed them."

Dr. G. A. Heron¹¹ inoculated 100 guinea-pigs with dust taken from various sources in the City of London Hospital for Diseases of the Chest; 26 died of acute inflammation spreading from the site of inoculation. Of the remaining 74, two pigs died of tuberculosis; the dust in each case came from the tower of the hospital which acts as up-cast shaft, and was damp and unventilated.

In "A Further Study of Tuberculous Infection of Dust" by Dr. Hance,¹² he took dust from various tenement-houses where there were consumptives, two hospitals (Bellevue and Charity), and from several street-cars. In the tenement-houses where the family had paid attention to the instructions and regulations given them by the Board of Health, none of the

guinea-pigs inoculated with the dust were affected with tuberculosis, while in the dirtier tenements, two out of three were found infected. In the cars one out of five was found dangerous. In the two hospitals, no case of tuberculosis developed in the animals from the dust with which they were inoculated. Dr. Hance also took the dust from the waiting-room of the Out-patient Department of Bellevue Hospital, and found it infected with tubercle bacilli. In the "Winyah" Sanatorium for Consumptives at Asheville, experiments with the dust gave likewise negative results.

Cornet, a well-known German investigator, collected dust from rooms occupied by consumptives, and inoculated 311 animals. One-fifth of the whole number were found tuberculous, but in no case was the dust of the walls infectious when sputum cups were used exclusively to receive the expectorated matter.

The above cases, I think, are sufficient to prove conclusively that in a sanitarium or hospital for consumptives where the sputum is properly disposed of there is no danger of infection either to those within or without them, and moreover that it is possible to properly dispose of the sputum.

With regard to the more infectious diseases of diphtheria, scarlet fever and measles, there is probably less danger from them even than the public supposes, as the following statement from Dr. John S. Billings, late Deputy Surgeon-General of the United States Army, and well-known in this country and abroad as an authority upon hygiene, shows: "It is above all things desirable," he says, "to get the public to understand that there is very little danger in a hospital for diphtheria, scarlet fever or measles, separated the width of an ordinary street, even, from the surrounding houses. If there was a hospital of that kind next door to my house, separated by a brick partition wall, I should not have the least fear of anything coming through it or of any contagion coming from it."¹³

VERATRUM VIRIDE IN PUERPERAL CONVULSIONS.

BY WM. HENRY THAYER, M.D., BERKSHIRE, MASS.

In the treatment of puerperal convulsions — while recognizing uremia as the constant predisposing cause, which may become the exciting cause — we must, of course, consider that the exciting cause may be reflex, requiring evacuation of the uterus, the stomach or the bowels, for their arrest. All practicable measures to that end having been taken, as by active cathartics or emetics, as indicated, we at once address ourselves to the nerve centres, to control nervous excitability until the exciting agent can be eliminated.

For this object, venesection was the reliance until the employment of ether by inhalation largely superseded it. If venesection sometimes failed to relieve, ether never did, while the patient was kept unconscious; and it could safely be continued until delivery or free catharsis occurred, which usually terminated the paroxysms. It has been found, however, that *veratrum viride* in large doses will act as thoroughly as ether; and its effects can be continued, and without producing unconsciousness.

In the condition of the nervous system that exists in puerperal convulsions, there is a peculiar tolerance

⁸ I am informed by the sister in charge that there are never less than thirty, and that the few of those who are able to leave the wards enjoy fresh air on the grounds of the hospital and occasionally on the "Heights." There has been no complaint from the neighborhood in regard to this class of patients.

⁹ Pulmonary Consumption, Williams, 187, page 87.

¹⁰ Medical Record, New York, December 28, 1895.

¹¹ The Relation of Dust in Hospitals to Tuberculous Infection. London Lancet, January 6 1894.

¹² Medical Record, New York, February 13, 1897.

¹³ Dr. John S. Billings, Chairman Chicago International Congress, p. 153.

of veratrum viride, so that the officinal dose has no effect. But large doses quiet the nervous erethism, producing a decided effect in a short time — sometimes in fifteen minutes, but almost certainly within an hour — and keeping the nervous system under control for several hours. The administration is followed by cooling of the surface, great lowering of the pulse in rate but not in strength, and along with this complete arrest of the convulsions. The state of the pulse is the guide in treatment. From a high rate, which rules in the disease, it is reduced to the normal standard or below it; and while it is kept below 60 there need be no fear of a recurrence of the paroxysms. When this effect has been once produced, it will continue several hours, and a single dose will do it; if not apparent within an hour or less, the medicine must be repeated in smaller doses; and it can be safely repeated at intervals until the pulse begins to fall. With the pulse for a guide, no untoward symptoms need occur from its use; the pulse may be brought down to 50, without any general depression; if carried so far as to produce vomiting, we may find great prostration produced by the nausea, which is overcome within thirty or forty minutes by opium, or any diffusible stimulant — perhaps in less time by a solution of morphia hypodermically.

Dr. Norwood, of South Carolina, who introduced the use of veratrum viride as a very efficient agent in the treatment of acute febrile and inflammatory diseases, calls it "an arterial controller or vascular regulator," and says, "its primary effect is to render the pulse slow, full, distinct and stronger. . . . It allays morbid irritability in the nerves and muscles of voluntary motion. . . . We have found nothing that arrests convulsions in children, accompanied with high febrile symptoms, with anything approximating such certainty and speed. . . . Why would it not be the remedy in puerperal convulsions, when accompanied with frequent pulse, great heat and dryness of the skin, alone, or after blood-letting, where venesection was indicated?"

But Dr. Norwood never tried it in puerperal convulsions. In the paper from which I have quoted, published in 1868, he says, "In puerperal convulsions there is no remedy equal to stramonium."

The employment of veratrum viride in large doses in puerperal convulsions was first reported to the King's County Medical Society (New York) by Dr. Herbert Fearn, of Brooklyn, in 1869, substantiated by cases in which he had used drachm doses of the tincture, sometimes required to be many times repeated, with favorable results. This paper was published in the *American Journal of Obstetrics*, etc., May, 1871. I subsequently reported to the Society the following case, which will be sufficient for an illustration.

I was sent for at 9 A. M. to see a patient in consultation. She was a primipara, age twenty-five, two years married; had had one miscarriage; was now at full term. Had had no trouble during her gestation; very moderate edema of lower extremities for several weeks; nothing was known of her urine; her bowels had been evacuated daily. The day before, she was to all appearances well, but in the evening had an attack of indigestion. Her physician was summoned at 10 P. M.; found her vomiting and complaining of cramp in the stomach; gave her ipecac, and afterwards cathartic doses of calomel. She became relieved; but at 4 A. M. had a convulsion, and had had no defecation.

The convulsions continued at intervals of half an hour or more till 9 A. M. They were severe and protracted, with frothing at the mouth, lividity of the face and total unconsciousness, followed by coma and stertorous breathing; then an interval of partial restoration, but with indistinct utterance and without any recognition of friends. Between 4 and 9 o'clock she had been treated with tartrate of antimony in emetic doses; several asafetida enemata, which had operated on her bowels; had been bled four ounces; and had had powerful sinapisms on various parts of her body. When the coma passed off, she was very restless, throwing herself about and talking indistinctly and incoherently. Her pupils were dilated; pulse 120, hard, but not excessively full. The os uteri was high up, slightly dilated, the cervix not entirely obliterated, and a uterine contraction took place during the examination.

Her physician readily acceded to my proposal to give veratrum viride in full doses, and at 9.40 A. M. we gave her nearly one drachm of the tincture. At 10 A. M. a convulsion as severe as before; at 11, another convulsion, and the last. As soon as she aroused from this she took twenty-five drops of Squibb's fluid extract of veratrum viride, which had been sent for on suspicion that the tincture we had administered was not of standard strength. But the relief probably came from the first dose, for she vomited almost immediately after swallowing the fluid extract, and probably rejected all of it. The vomiting continued for an hour, with great restlessness, the patient throwing herself almost incessantly over to the left. At 12.15 P. M. I saw her; found her rational, and inclined to sleep, saying that her head was nearly free from pain; her pulse was 60 and soft. Labor went on well, and she was delivered of a dead child at 2.30 P. M. At 5 P. M. I found her quiet and comfortable, with a pulse of 84.

Since 1869, when Dr. Fearn's paper was read, the treatment of puerperal convulsions with veratrum viride has been slowly gaining favor; of which we have evidence in many communications to various societies and medical journals. Bartholow, in his "Materia Medica and Therapeutics" (1888), says: "Dr. Sullivan, of San Francisco, informs me that veratrum viride (half a drachm of the fluid extract every fifteen minutes, until nausea or vomiting ensues) is invaluable in puerperal convulsions. Barker, in his 'Puerperal Diseases,' had already called attention to its utility; and Boyd confirms the previous observations. Increasing experience adds to the testimony regarding its exceptional value in relief of this formidable malady."

The experience of one general practitioner in puerperal convulsions is not very great; but in the convulsions of children, I have regularly employed veratrum viride for twenty years past with excellent effect; and as a prophylactic in epithermal fever in children who are subject to convulsions.

I believe the use of veratrum viride in puerperal convulsions originated in Brooklyn, where its value is now generally recognized. It has gained ground elsewhere, as rapidly as could be expected of the management of an affection so infrequent, and promises in time to supersede all other methods of treatment.

In Chicago every dealer in cigarettes must pay an annual license of one hundred dollars.

Medical Progress.

REPORT ON PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

WHAT IS A NUISANCE?

A LEGAL definition of a sanitary nuisance is occasionally sought for, and the following comprehensive definitions may serve as an answer to the question. They are quoted from the Public Health Act of Scotland, Section 16.

"(a) Any insufficiency of size, defect of structure, defect of ventilation, want of repair, or proper drainage, or suitable water-closet, or privy accommodation, or cesspool, and any other matter or circumstance rendering any inhabited house, building, premises, or part thereof injurious to the health of the inmates or unfit for human habitation or use.

"(b) Any pool, water-course, ditch, gutter, drain, sewer, privy, urinal, cesspool or ashpit, so foul as to be injurious to health, or any well or other water-supply used as a beverage, or in the preparation of human food, the nature of which is so tainted with impurities or otherwise unwholesome as to be injurious to the health of persons using it, or calculated to promote or aggravate epidemic disease.

"(c) Any stable (byre), pigstye, or other building, in which any animal or animals are kept in such a manner as to be injurious to the health.

"(d) Any accumulation or deposit of manure or other offensive matter within fifty yards of any dwelling-house within the limits of any town, or wherever situated, if injurious to health, or any accumulation of police manure within a quarter of a mile of the municipal boundaries of any city (except the City of Glasgow), or any accumulation of deposits from ash-pits or manure from town or village laid nearer than fifty yards to a public road or dwelling-house.

"(e) Any work, manufactory, trade, or business injurious to the health of the neighborhood, or so conducted as to be offensive or injurious to health, or any collection of bones or rags injurious to health.

"(f) Any house, or part of a house so overcrowded as to be dangerous or injurious to the health of the inmates.

"(g) Any factory, workshop, or workplace, not under the operation of any general act, for the regulation of factories or bakehouses, and not kept in a cleanly state, or not ventilated in such a manner as to render harmless, as far as practicable, any gases, vapors, dust, or other impurities, generated in the course of the work carried on therein, and injurious or dangerous to the health of persons employed therein, or any such factory, workshop, or workplace, as is so overcrowded, while work is carried on therein, as to be dangerous or injurious to the health of those employed therein.

"(h) Any fireplace or furnace which does not as far as practicable consume the smoke arising from the combustible matter used in such fire-place or furnace, and is used within any town, for working engines by steam, or in any mill, factory, dye-house, brewery, bakehouse, or gas-works, or in any manufactory or trade process whatsoever.

"(i) Any chimney (not being the chimney of a private dwelling-house) sending forth smoke so as to be injurious to health.

"Provided that in places where, at the time of the

passing of this act no enactment is in force compelling fireplaces or furnaces to consume their own smoke, the foregoing enactment as to fireplaces and furnaces consuming their own smoke shall not come into operation until the expiration of one year from the date of the passing of this act.

"(j) Any churchyard, cemetery, or place of sepulture so situated or so crowded with bodies or otherwise so conducted as to be offensive or injurious to health."

THE VALUE OF FORMALIN (FORMIC ALDEHYDE) AS A DISINFECTANT.¹

"On the issue of the account of formalin in 1893 it seemed as if an ideal disinfectant had been discovered. Formalin was stated to be a forty-per-cent. solution of formic aldehyde, a product of the oxidation of methyl-alcohol, obtained by passing vapors of this substance mixed with air over a glowing spiral of platinum wire. Under these circumstances a colorless gas is generated, having a pungent odor. It is readily soluble in water, and has a strong tendency when exposed to the air to oxidize into formic acid. Its disinfecting properties are, in fact, due to this reaction. According to the investigations of Löw, Arousohn, Trillet, and Berlioz, the forty-per-cent. aqueous solution of formic aldehyde possesses the following properties:

"(1) Very great bactericidal powers, even in highly dilute solutions.

"(2) Very moderate toxic action.

"(3) Chemical effect of rendering inert the products of putrefaction — ammonia, sulphuretted hydrogen, etc.

"(4) Its solution, in the form employed, is devoid of injurious action upon the skin and upon all other substances with which it may come in contact.

"(5) It is capable of being used as a solid, a liquid or a vapor.

"(6) In a concentrated state it has a peculiar action upon animal tissues, which has been termed 'leather-forming.'

"(7) It is very volatile, which enables it to be rapidly expelled when it has attained its object.

The author quotes the previous investigations of various writers who have dealt with the properties of this disinfectant, and gives the results of his own experiments, which are set forth in a series of tables. Esmarch-tubes were employed, of nutritive gelatine, to which were added solutions of various degrees of strength, containing from two per cent. to 1 per 100,000 parts of formalin. Fresh bouillon cultures of the bacilli of anthrax, cholera, typhoid-fever, and other spores were introduced into the tubes, and the results, after due cultivation, were ascertained at the end of eight days. The solution of 1 per 10,000 parts in strength was fatal in every case, while all the spores retained their vitality when the dilution was 1 per 20,000. The formalin was also tested in the gaseous state. The disinfectant was likewise used practically upon various materials and with results which are tabulated.

The author sums up the conclusions at which he arrived, which were extremely favorable to this compound, and states that formalin furnishes an excellent and readily-employed disinfectant, capable of being used for a variety of purposes. It not only supplies a want in medical practice, but it is well adapted for domestic uses, and will be most valuable in the army.

¹ Dr. K. Walter: Zeitschrift für Hygiene, 1896, vol. xxi, p. 421.

It can be substituted for the steam jet, and surpasses steam in the rapidity of its action. In all cases where steam cannot be employed, as for instance in the disinfection of dwelling-rooms, or of uniforms, formalin may supply its place with complete success.

The results of Dr. Walter's investigations are briefly as follows:

(1) Formalin in the strength of 1 to 10,000 arrests the growth of the germs of anthrax, cholera, typhoid fever, diphtheria and staphylococcus pyogenes aureus.

(2) In the gaseous form it arrests growth, even when greatly diluted.

(3) In one-per-cent. solutions it kills pure cultures of pathogenic germs in an hour. In diluted alcoholic solutions the effect is more intense.

(4) In three-per-cent. solutions, especially with the addition of alcohol, the hands may be freed from all germs. More extended investigations are necessary to show the degree to which the skin is affected.

(5) By spraying artificially infected matter with formalin solution, and afterward enclosing it in airtight vessels, such matter may be sterilized.

(6) By means of formalin (or in other words formaldehyde) leather articles, uniforms, etc., may be thoroughly disinfected in large quantities, and without in any way injuring these articles. Twenty-four hours' exposure are requisite for such disinfection. The possibility of disinfecting rooms may be considered as demonstrated by other experts.

(7) Feces are almost instantly deodorized by a one-per-cent. solution, and are disinfected (germ free) in ten minutes by a ten-per-cent. solution.

(8) Formalin acts as well as a caustic.

(9) It is an excellent preservative.

In the following table the author compares the results obtained by the use of formalin, with those published by Koch and Jäger for other disinfectants.

DISINFECTANT.	STRENGTH.	OBJECTS SUBMITTED TO EXPERIMENTS.	TIME REQUIRED FOR DESTRUCTION.
Hydrarg. bichlorid.	{ 1 to 20,000 1 to 1,000	Anthrax spores. Anthrax spores.	10 minutes. 1 minute.
Silver nitrate	{ 1 to 12,000 1 to 4,000 1 to 2,500	Anthrax spores. Cholera and typhoid. Diphtheria.	70 hours. 2 hours. 2 hours.
Acid hydrochloric	2 to 100	Anthrax spores.	10 days.
Acid sulph.	{ 2 to 100 15 to 100	Anthrax spores. Anthrax spores.	53 days. 8 days.
Ferrum chlorat.	5 to 100	Anthrax spores.	6 days.
Calcium chloride	5 to 100	Anthrax spores.	5 days.
Potass. permanganate	5 to 100	Anthrax spores.	1 day.
Caustic lime	{ 0.0246 to 100 0.0074 to 100	Cholera. Typhoid.	6 hours. 6 hours.
Acid carbolie	{ 3 to 1,000 10 to 100	Staphylococcus and streptococcus pyog. Anthrax spores.	8-11 seconds. 24 hours.
Lysol	1 to 100	Anthrax spores.	5 minutes.
Formalin.	{ 1 to 100 3 to 100	Nearly all pathogenic germs. Anthrax spores. All other pathogenic germs.	Less than 30 minutes. 15 minutes. 1 minute.

(Report on Progress in Public Hygiene to be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 28, 1896, DR. C. J. BLAKE in the chair.

DR. G. L. WALTON and DR. W. A. BROOKS presented a paper on

OBSERVATIONS ON BRAIN SURGERY, SUGGESTED BY A CASE OF MULTIPLE CEREBRAL HEMORRHAGE.¹

DR. WRIGHT: You have heard the pathological report on this case. In connection with this autopsy I think it would be interesting to show some of the lesions as they existed in this case. As the report states, there were two good-sized areas of hemorrhagic softening in the left hemisphere, and one beneath the

floor of the right ventricle which was much smaller in size. The condition was one essentially of multiple traumatic cerebral hemorrhage and softening, the softening, arising, of course, from the rupture of a vessel and the consequent necrosis and breaking down of brain substance associated with that condition. I have here two slides showing two of the most considerable lesions. These slides show the brain substance immediately around the two large areas of hemorrhagic softening. They are especially of interest as showing the usefulness of Dr. F. B. Mallory's new method of staining the neuroglia of the brain and they also bring out very clearly a slender zone of necrosis around the hemorrhagic areas.

DR. BILLARD: I have been extremely interested in this paper because it deals with a subject to which I have for some years given attention. A year or two ago I read a paper before this Society stating that increased intradural pressure followed injury, and since then I have become more and more convinced that such is the case in, at any rate, a considerable

¹ See page 301 of the Journal.

number of cases. Since that paper was printed I have had the opportunity of seeing a number of other cases in which, after trauma, the operation of trephining was performed and in almost every case we found the intradural pressure increased and in almost all cases the patient was very much relieved, at least temporarily, by the cutting of the dura and the relief of pressure.

In regard to paralysis as caused by edema of the brain, I should like to mention a case which I saw with Dr. Lovett in which the patient was found unconscious in his room with a left-sided hemiplegia. I diagnosed cerebral hemorrhage; the patient died within a few hours and the autopsy showed edema of the brain. The limbs on the other side of the body were not affected.

Several months ago a child was admitted to the service of Dr. Watson at the City Hospital who had received an injury to the head and in whom there was a hemiplegia, I believe also on the left side. The symptoms were typical of meningeal hemorrhage. The patient was operated on at my suggestion by Dr. Blake, with the result of absolutely no evidence of hemorrhage. The dura, however, was opened; the fluid underneath, which was considerable in quantity, was evacuated, and the patient, who had been in a very serious condition and seemed unlikely to live more than a few hours, gradually recovered, and within a few days was practically well. I think the first case illustrates the fact that in edema we may have localized paralysis.

The second case illustrates the fact that in certain cases with very serious symptoms, symptoms resembling those of hemorrhage with paralysis, the mere opening of the dura relieves the patient very greatly. In this case I do not think that there was any question but that it saved the patient from, at any rate, a very long unconsciousness and probably saved his life.

In regard to the special case before us, I firmly believe in operating on such cases. I do not believe in the present state of our knowledge we can always discriminate these cases from those of middle meningeal hemorrhage. I do not think convulsions always occur in middle meningeal hemorrhage and I think very often we have no means by which we can determine whether a patient has middle meningeal hemorrhage or a condition like that presented by the patient in this paper. I have seen several cases in which the lesion seems to have been essentially similar to that of the patient here, in which the symptoms could not be distinguished from hemorrhage. I think, even if hemorrhage is not found, much good can be done to the patient by opening the dura. I should, however, instead of stitching it up leave it open. It seems to me that is a very important point. I should also suggest in those cases that the trephine hole be large enough to relieve pressure. We have not found in making large holes and in not suturing the dura that there was any especial danger so long as the wound was kept aseptic.

In regard to trephining both sides when hemorrhage is not found on the side first trephined, it seems to me that in adults this may be often safe; in children it is a more or less dangerous procedure. I have seen children die, I feel sure, from the shock of trephining on both sides. Dr. Hutchinson's case is an interesting one; but I think at the present time we should

feel that any physician who allowed such a case to enter his hospital without a thorough examination of the ears had been somewhat neglectful.

DR. BEACH: I would like to know when the temperature first rose to 102°. Do I understand it was within a day or two after the injury?

DR. BROOKS: One A. M., the next morning.

DR. BEACH: My feeling is that where the temperature rises there must be some septic cause for it, but in cases where the change occurs so soon after injury there is hardly the opportunity for an infection to have taken place; my own experience is that where the temperature rises soon after the injury the prognosis is a most unfavorable one. If it rises early, even if it goes down again, it is very apt to rise again later and go on to a most unfavorable end. Mr. Hutchinson's case seems a fairly clear one of septic infection, erysipelas and pyemia. An interesting case that entered the hospital this year was that of a child seen by Dr. Brooks, who had a compound fracture of the parietal bone about midway between the frontal and occipital bone, a little to one side of the median line. The child did perfectly well a while and then developed a temperature and later convulsions. There was moderate hernia cerebri. Suspecting either edema or abscess as the cause I punctured the brain with a narrow knife and carried it nearly to the floor of the skull in the direction of the right lateral ventricle before a few drachms of thin semipurulent fluid escaped. On culture this fluid was sterile. The child was very weak, in a miserable condition after the operation and it seemed as if it were hardly possible for it to rally. The convulsions ceased and the next morning the temperature dropped between two and a half and three degrees. For a few days the child was markedly better and then had a recurrence of the same symptoms, relieved by entering a silver canula and retaining it in place. Convulsions afterwards recurred. To test the question of the possibility of infection through the ear in another case with fatal result, I had some cultures made where there was some slight discharge from a fissure through the roof of the tympanum. The streptococcus and staphylococcus were both found in the external meatus by Dr. J. H. Wright. The ear was afterwards very carefully made aseptic.

DR. A. T. CABOT said, that, in considering the question of edema and the effect that it could produce on the brain and in the causation of symptoms, he thought that any one remembering the condition of a leg which has suffered from trauma, sometimes almost bursting its skin and requiring extensive leeching or incision to relieve the tension, would realize that a similar condition of a part encased in the bony cavity of the head might produce very great interference with function of the brain. It seemed to him that Dr. Bullard's suggestion was of importance and that in operating upon such a case the drainage should be kept up in order to permanently relieve the intracranial pressure.

He thought it was very difficult to have a rule in regard to the question of trephining after such an injury as Dr. Brooks described. While a paralysis affecting both sides soon after an injury, even if slight in amount, leads to a strong presumption of the generalization of the injury and is usually symptomatic of several scattered injuries in the brain due to the concussion, still, when symptoms are much more marked on one side showing that at one part the in-

jury is probably greater than elsewhere, an operation would seem to be called for, and, even when no hemorrhage is found, the relief of pressure in such cases may be of distinct service.

DR. BEACH: I would like to add that Phelps, of New York, has made a very careful study of 124 cases of serious skull injuries. He found that cases where the temperature reached 105° were invariably fatal.

DR. PRINCE: I think the interest of this case largely centres in the diagnosis; and it seems to me the theory propounded by Dr. Bullard is an exceedingly probable one and correctly represents the facts in a certain proportion of cases. As the subject is so important, I may be permitted to cite a case which probably belongs to this category. I was asked very lately by Dr. Munro to see a small child that was brought to the City Hospital. The history was a perfectly typical one of meningeal hemorrhage. There was a period of consciousness followed by gradually lapsing unconsciousness and paralysis. When I saw the child there was absolute paralysis of the right side; still from certain signs I saw,—the child was not absolutely comatose, and might be roused,—I was inclined to wait and, I must confess with a feeling of responsibility, I advised against operation notwithstanding the symptoms were typical of meningeal hemorrhage. To my joy the next morning every sign of paralysis disappeared and the child was as bright as a button. Of course, one cannot prove that it was edema, but that seems the most plausible explanation. In the particular case reported to-night by the reader, it seems to me there is another condition of affairs that may have been present, a condition to which very little attention is paid in the text-books and which is very infrequently thought of at the bedside; that is the condition of acute hydrocephalus or serous meningitis described by Quincke.

This affection was brought to my attention the other day in a practical way and I am inclined to think it is a very important one. Quincke some time ago in a monograph called attention to acute hydrocephalus or serous meningitis as a cause of a condition similar to that presented here. It may occur in the acute form, or subacute, or chronic, and may occur after trauma. The general symptoms are those of severe brain trouble; that is, vomiting, headache; with or without fever as the case may be, but optic neuritis is apt to be present, and coma and delirium. In other words, general symptoms of cerebral disease. But there is one peculiarity in the symptomatology which is quite striking and the presence of which in the case just reported impressed me as the paper was being read before I heard the diagnosis, and that is the variability in the intensity of the symptoms; the patient being apparently better one day and worse the next, one day one symptom being most intense, another day, another; that seems to be a marked peculiarity of this condition. There is a chronic form in which the symptoms resemble those of tumor, and Quincke claims another form that resembles neurasthenia. The fact that it occurs seems to be pretty well recognized now, theoretically, though it is rarely considered at the bedside. Looking back I can see a few cases met with in the past in which the diagnosis was uncertain but which now I am inclined to regard as serous meningitis. As an example I will mention the following case admitted to the City Hospital in the service of Dr. Munro. A young woman knocked

down by her husband and kicked about the head. Her head was very much bruised when she came to the hospital and she was in a bad condition. Without attempting to give the details of the case, I will say that after the first few days the general symptoms of head injury (headache, vomiting, delirium), passed away and she followed a course of ups and downs, at one time showing few symptoms, at other times one or more being obtrusive. Finally, paralysis of the cerebral nerves appeared and I made the diagnosis of cerebral abscess with probably purulent meningitis following rupture of the abscess. I advised an exploratory operation. The operation was performed by Dr. Munro and no abscess was found. At the autopsy nothing but acute hydrocephalus was found. It seems to me in the case reported to-night there were certain symptoms suggestive of this condition. But, Dr. Wright tells me there was no marked amount of fluid found in the ventricles. It is possible the fluid may have been drained by the operation. If so, I must admit it is a point against this diagnosis for if the fluid was drained by the operation, it would seem as if the acute hydrocephalus ought to have been relieved. But this same point would tell against edema, and what is sauce for one diagnosis is sauce for the other; at any rate the question of serous meningitis must be taken into consideration in such cases.

DR. P. C. KNAPP: I would like to endorse what has just been said to us with reference to the advisability of lumbar puncture in those cases where there is doubt as to the diagnosis. Quincke in a recent paper supplementary to his monograph has reported an autopsy of one case where there was in addition to the internal hydrocephalus a very considerable effusion into the pia, an edematous condition of the pia, and in several other cases of which he gives the clinical report there was distinct relief obtained by lumbar puncture. I would endorse what Dr. Bullard has said with reference to the importance of these edematous conditions in traumatic cases. I am a little surprised at the statement which has been made with reference to the differential diagnosis, because certainly in a considerable number of the cases of meningeal hemorrhage that I have seen there have not been at any time any convulsions. Even in one of the last cases I have seen there was not the condition of steadily increasing coma; on the contrary, the patient was partially conscious and the condition seemed to vary from day to day. He was so far conscious that he would look about. There was no paralysis, and at his wife's request he would protrude his tongue, though neither Dr. Watson nor I could induce him to do so. In that case we found a considerable hemorrhage, so that I think we cannot be absolutely certain from either of those diagnostic criteria whether we have meningeal hemorrhage or edema. I could supplement Dr. Prince's case with another one in which I advised Dr. Munro to trephine. He did so and found nothing, and the autopsy the next day revealed a large hemorrhage on the wrong side. In that case we secured the medulla and Dr. Thomas found a complete decussation, and since that time I have been very strongly in favor of the double trephining in doubtful cases. The last case operated on, where there was fracture at the base and convulsions beginning now on one side and now on the other, although we found a hemorrhage on the side where we went in I advised opening on the other side and that was done although there was no

hemorrhage of any amount there. The man made a perfectly good recovery.

DR. BROOKS: Dr. Bullard's criticism, that the dura was not left open is well made; but as a matter of fact, there was plenty of room between the sutures to allow of the escape of serum.

I cannot see the advantage of using a large trephine when, as in this case, you do not know whether you must explore in the region of the anterior, or posterior, branch of the middle meningeal. It would seem to me that by using a large trephine you would remove bone which might just as well be allowed to remain.

DR. WALTON: I judge from certain of the remarks that we were understood to deem convulsions essential to meningeal hemorrhage. This is by no means the case. The sentence which possibly gave rise to this misapprehension was as follows: "It must be remembered that meningeal hemorrhage is sometimes followed by paralysis without convulsions."

DR. ROBERT W. LOVETT read a paper entitled

THE PREVENTION OF FLAT-FOOT AND OTHER SIMILAR AFFECTIONS OF THE FOOT,

with the demonstration of a method of examining the feet.²

DR. E. H. BRADFORD: This method of mirror inspection of the sole of the foot is not only original on the part of Dr. Lovett, but it is of much value, opening a way to further investigations. The examination which Dr. Lovett has made has been chiefly on the foot in a standing position, but it is also of importance to know the shape of the foot in walking as well, for it has been proved by clay impressions of the feet that the pressure alters as the weight is thrown forward or backward and that flexible feet are altered in shape accordingly. This is to be considered in selecting the proper lasts for shoes. By a large portion of the community the front of the foot is not used to any extent, individuals standing bearing their weight chiefly upon the heel; for this reason distorted shoes with pointed toes cause but little discomfort. If the individual walks actively, the shoe should be so designed that the toes are not crowded and free action be possible especially for the great toe.

DR. DEWEY: At the hospital we find that a large number of the nurses at first complain that their feet are tired, but at the end of the first fortnight, as a rule, they get the boot prescribed; and after that their troubles rapidly cease in the majority of cases. The nurses, as a rule, are satisfied with the regulation boots. I think perhaps that we have been a little hypercritical watching for bad results and trying to get some for Dr. Lovett. In this we have almost entirely failed. The results to us at the hospital have been wonderful. Not a day has been lost by the nurses on account of their feet, whereas formerly a good many days were lost and some of the nurses had to leave the school. We are very grateful to Dr. Lovett for what he has done.

DR. LOVETT: In closing, I want to say that the child's boot shown is open to exactly the criticism that has been made. It is a very imperfect affair. The gentlemen who have not been in the business have no idea how difficult it is to get a boot carried through on any new lines. It has to be fought all the way, but I hope ultimately to be able to get boots of the sort Dr. Bradford speaks of.

² See page 197, No. 9, of the Journal.

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MEDICAL TERMINOLOGY.

THE terminology of a rapidly progressing science must of necessity be in a continual state of instability. New terms are constantly being substituted for old ones, and the old ones are as persistently used as if no new ones had been called into existence. The result is an unfortunate state of affairs which seems as yet to be quite without a remedy. This is particularly true of medicine. Probably no other science contains such an array of words which inadequately or incorrectly represent the facts they were designed to describe. The respect engendered of age has apparently rendered many of them unassailable, and we find our recent text-books, the work of the most enlightened minds of our time, still burdened with terms, which have absolutely no claim to further respect.

The reason for the existence of these unfortunate terms is not far to seek. It must lie primarily in the fact that medicine has from the first been an inexact science, a reproach from which it has by no means yet freed itself, though at present making vigorous and praiseworthy efforts to atone for its former shortcomings. For two thousand years of its life medicine was largely speculative, and its devotees gave to the manifestations of disease and even to anatomical facts, names in accord with the vagueness of their methods of thought. A striking example of the speculative spirit in anatomical research is given by the curiously far-fetched and inappropriate names applied to many structures in the brain, for example, optic thalamus, gyrus fornicatus, nates and testes. Such terms are, however, harmless and do not stand in the way of progress. A much greater danger arose when observation came to be cultivated and the signs and symptoms of disease began to demand an attention often disproportionate to their worth. Then what we speak of as distinct diseases rapidly came into existence and fixed themselves deeply in the popular medical consciousness. The true nature of a disease process was

rarely understood, but for the purposes of practical medicine it was found convenient to group symptoms which were observed often to occur together, and usually with undue haste to dub such a collection with some name vaguely indicative of its character. In this way diseases have been born: many of them are destined to live, and some to die under the more exact criticism which we are now able to bring to bear upon them.

It was inevitable that names, given from clinical observation merely, should fail to express the essential feature of the underlying morbid process, and that an absolutely undue weight should frequently be attached to insignificant or unessential symptoms. The tendency has been to exalt symptoms and obscure processes, which must constitute the real disease. This clinical spirit has undoubtedly led to very great advances in our knowledge by directing attention to underlying causes, but it has also burdened medical literature with a vast number of so-called diseases, which it has been the laborious work of the laboratory to classify or else to discard. It is, however, a curiously difficult matter to rearrange or reclassify on a scientific basis the clinical observations which have extended over a long period of years. Locomotor ataxia and paralysis agitans will, no doubt, long be known under these inadequate names, even though we recognize that neither the ataxia nor the tremor are essentially important symptoms of the respective diseases. It is a matter for congratulation that many morbid conditions are known by the names of their discoverers rather than by a more or less unimportant symptom. As a preliminary step in the investigation of a disease it is a relief not to be prejudiced by an obtrusive symptom or sign. Bright's disease was better than albuminuria until we knew what the disease really was, and Landry's paralysis is infinitely more satisfactory than acute ascending spinal paralysis, and much less prejudicial to our future investigations, inasmuch as it does not always ascend, and certainly is not always spinal and probably does not exist at all as a distinct disease. Had Landry never lived it is doubtful whether his paralysis would ever have been described. However this may be, it is much more satisfactory in a case of such extreme vagueness to avoid a term which attempts to dogmatize upon what it is our professed object to investigate. We want to know what this peculiar paralysis is, and why it exists, and whether it has in its manifestations any thing which should dignify it as a distinct disease entity. Its inaccurate designation as acute and ascending and spinal, begs the entire question. Addison's disease is certainly a sufficient designation until we learn, as we seem about to do, what the essential cause of the symptoms is. The advent of pathological research has done much toward modifying clinical zeal and establishing on a more accurate foundation the boundaries and particularly the causes of disease.

With the growth of scientific investigation, however,

an array of new terms has come into use, and associated itself not always happily with the prevailing clinical nomenclature, usually to the advantage of neither. The result has been a curious and unsatisfactory mixture of words, partly pathological and partly clinical and popular, so that we are further than ever from a uniform terminology. Our knowledge has progressed to such a degree that a classification of certainly a large number of diseases either from a pathological or etiological point of view is possible, and yet we seem further than ever from such a consummation. Attempts at mutual agreement prove futile; conservatives continue to use the hopelessly bad terms that their fathers used before them, and radicals are coining new words of exact meaning in such abundance that it is quite impossible to follow them. Unless something be done and that quickly, it appears inevitable that the common ground upon which we now stand, will grow more and more uncertain under our feet, and that we shall have no firm place upon which to step. It is altogether to be hoped that the conservative element in the profession will renounce the use of obsolete terms, and still more to be hoped that enthusiasts for reform will moderate their zeal for a new terminology to those terms which are needed and essential. With the clearer conception which we are each day getting, of diseases as processes, manifested clinically by certain symptoms, it would seem not without the bounds of possibility that a nomenclature might ultimately be adopted which would hurt no one's prejudices and be decidedly beneficial to the cause of true progress. We regret to note that that time is not yet here.

TOO MUCH MAJOR OPERATING IN GYNECOLOGY.

IN these days when the medical profession is devoting so much attention to the major operations on the female pelvic organs, operations looking to the removal of the uterus, ovaries or tubes, or to their fixation in more or less abnormal positions in the body, it is not amiss, in the interests of conservatism at least, that we should pause a little and emphasize certain fundamental principles of gynecology: such as making a careful investigation in every case of the particular points in which the pelvic structures differ from the normal, and then endeavoring to restore them as far as possible to that normal condition.

The medical journals are full of the descriptions of new operations, a vast majority of which have for their object either the removal of organs or an improvement on Nature's handiwork. Operators wish to "build up a perineum," or to stitch the uterus to the abdominal wall or to the bladder. It does not seem to occur to the ingenious originators of these procedures that they are undertaking a large contract in trying to improve on Nature. Instead of taking a receptive and scientific attitude and trying to search out Nature's methods, they assume knowledge and declare that they can do better.

When a prominent operator advocates "slipping out" a uterus because it is subinvolved and the seat of endometritis, and another operator is in favor of amputating the cervix as a routine procedure instead of performing trachelorrhaphy, it may be that these practitioners are doing the best that can be done for their patients under the circumstances; at all events it is fair to assume that they think they are doing so. But a large body of the profession will always query, "Why should a woman lose her uterus or have her cervix cut off, with all that these mutilations imply, because the operator finds it easier to remove structures than he does to take the time and trouble necessary for the proper understanding of the more tedious and less brilliant methods of repair?"

When tyros in the art of diagnosis, emboldened by the lessened mortality of the present aseptic technique, rush into major operating the interests of the patient suffer. Many of the hospital operators and teachers help these tyros to a knowledge of the steps of certain operative procedures only to find these same men coming back to them after a longer or shorter period and saying, "Doctor, I know how to do such and such an operation, but I can't tell in what cases it is indicated and my results have been bad." How much more rational to begin at the beginning!

We believe that the diagnostic skill of the average practitioner in this department of medicine is constantly improving; but to be convinced that there is room for still further improvement the doubter has only to follow for a short time one of the out-patient clinics of a metropolitan hospital and hear there from the patients some of the diagnoses made and treatment advised by a large number of practitioners, all of whom probably are not always incorrectly reported. We are credibly informed that, even now in this enlightened age, a considerable number of patients presenting themselves at our hospital clinics for treatment for injuries of the pelvic organs due to child-bearing tell the old story that their doctors did not examine them after the puerperium. In other words, their medical attendants are pursuing the old policy of trusting to luck, perhaps fearing censure for injuries discovered, but more likely too busy to do their work thoroughly.

Early recognition of bad tears of the cervix and of the pelvic floor, inflammatory affections of the endometrium and tubes and ovaries, dislocations of the uterus and ovaries that do not right themselves in a reasonable time, if discovered and treated promptly, not only do away with the need of many operations but will prevent a large number of patients from becoming debilitated and neurasthenic—conditions of body and mind from which operations alone, be they ever so successful, will not lift them.

We should welcome a return of gynecology to its older and more natural channels. The profession at large, dazzled for the time by the brilliant feats of abdominal surgery, should not forget that gynecology is something besides abdominal surgery; and the general practitioner should be ready to follow the special-

ist, prepared to investigate and treat the diseases of the female pelvic organs according to well-founded principles of the art.

DR. DOTY'S REPORT ON PLAGUE ANTITOXIN.

ON March 26th, Dr. A. H. Doty, Health Officer of the Port of New York, made a report to President Wilson of the Board of Health, in which he states that early in February a temporary laboratory was established on Swinburne Island, under the direction of Dr. T. D. Fitzpatrick, for studying plague bacilli and, if possible, producing an antitoxin similar to that of Dr. Yersin, of the Paris Pasteur Institute, in his researches at Hong Kong.

The experiments were inaugurated February 17th, when animals were procured for the purpose. A horse was inoculated with a culture of the bacillus on February 26th, and the inoculations were repeated on March 4th and 9th. For the purposes of determining how early the serum of the animals might have acquired antitoxic properties, about one pint of blood was drawn from the horse on March 15th, and from this half a pint of serum was obtained. One cubic centimetre of this was injected into each of a number of white mice, and after thirteen hours the mice were inoculated with a culture of the plague bacillus. All of the animals lived; but several of the mice which had been inoculated with the plague bacillus at the same time died from the effects of the disease thus induced.

Tests were also made to ascertain the curative efficacy of the serum, but these did not prove as satisfactory as the prophylactic experiments. As a rule, however, the antitoxin had the effect of prolonging life to some extent, and in one instance the animal recovered. These tests were made by inoculating mice with the plague bacillus (which, if uninterfered with, destroyed life in about twenty-four hours), and afterwards at intervals of from three to twelve hours from the time of the injection, treating them with one cubic centimetre of the antitoxic serum.

Dr. Doty concludes that these experiments indicate that the serum of the horse treated in the manner described is surely both preventive and curative, and states that further investigations will be made in the same direction. The *Boston Herald* suggests that this particular serum should be regarded as an antidote, rather than an antitoxin.

MEDICAL NOTES.

A SECOND CONGRESS OF RAILWAY AND MARINE HYGIENE. — A Second International Congress of Sanitation and Hygiene of Railways and Navigation will be held at Brussels during September, 1897. The preceding Congress at Amsterdam was of scientific interest, and the next Congress has the support of the Belgium government. Those wishing to attend the Congress or obtain information regarding it should apply to Dr. J. de Lausheere, rue de l'Association 56, Brussels.

PROFESSOR LIEBREICH HONORED BY THE FRENCH. — Prof. Oscar Liebreich, director of the pharmacological laboratory of Berlin University, has received the officer's cross of the French Legion of Honor.

FINED FOR EXPECTORATION. — In Philadelphia a passenger has been arrested and fined five dollars for persistently spitting on the floor of a street-car, though requested by the conductor several times not to do so.

A BRAVE "NON-COMBATANT." — Charles James Fyfe, M.D., an English naval surgeon, was killed during the Benin expedition, being shot on the field while caring for a wounded officer of marines. Singular bravery and devotion is sometimes displayed by "non-combatants," and that in cold blood.

UNVEILING OF THE GROSS STATUE. — The American Surgical Association and the Alumni Association of the Jefferson Medical College of Philadelphia have issued invitations to the unveiling of the statue of the late Prof. Samuel D. Gross, M.D., near the Army Medical Museum, Washington, D. C., on Wednesday, May 5th, at five p. m.

PLAGUE IN INDIA. — Plague is reported spreading rapidly in Gujarat, an Indian province north of Bombay, and causing many deaths and there has been a considerable increase in the districts of Surat, Sukkur, Thana and Hyderabad. The death-rate in Bombay is decreasing slightly. The total number of cases up to March 11th was 9,032 and 7,546 deaths had resulted. In the whole presidency, to this date, there had been 14,856 cases of the plague reported, and 12,204 deaths.

LADY DOCTORS IN GREECE. — Two young Greek ladies, the sisters Angelica and Alexandra Panagiotatos, recently took their degrees as doctors of medicine in the University of Athens. The elder is aged twenty-two and the younger twenty. They are natives of Corfu, where they began their studies, continuing them later in the French School at Athens, and afterwards in the university of that classic city.

HAFFKINE'S PROPHYLACTIC PLAGUE SERUM. — Dr. Haffkine has recovered from his recent illness; and it is reported that up to March 17th he had inoculated 2,790 persons with his prophylactic serum against plague. It is said that none of those inoculated while free of plague have died of the disease and but few have been attacked, and that all attacked subsequent to inoculation except three have recovered. Dr. Yersin is reported in the daily papers to be very successful with his curative serum, failure occurring only in those who were moribund when inoculated.

SCURVY ON A NEW YORK SHIP. — The ship *T. F. Oakes* recently arrived at New York from Hong Kong, several weeks overdue, twelve of her crew very sick with scurvy, and five having died on the voyage. Only three or four men were fit for duty; and the captain's wife, who beside her husband was the only well person on board, had been taking her turn at the wheel. A supply of lime-juice or vinegar would probably have saved a great deal of suffering. The

shipping commissioner has begun an inquiry into the causes of a state of affairs which, though common enough fifty years ago, is without excuse to-day.

A PHYSICAL EXAMINATION REQUIRED BEFORE MARRIAGE. — A member of the Texas Legislature has prepared a bill, according to the *Journal of the American Medical Association*, that he thinks will greatly benefit his fellow-citizens. The bill, if passed, will revolutionize the marriage license system of the State. The intending groom must previously undergo a thorough physical examination at the hands of a competent medical practitioner in good standing, and be possessed of said physician's sworn certificate of physical soundness. The prospective bride must also have undergone a similar ordeal and a like certificate in her behalf must be submitted. Not only this, but both parties "to the contract" must file sworn statements attesting the fact that neither of them are subject in a hereditary way to any disease that might in like manner transmit tendencies thereto in their probable offspring. The county clerk must then satisfy himself that these "credentials" are perfect before granting the license to marry. Should he give it without having these evidences of "fitness" presented to him, he would be held criminally liable.

THE MECCAN PILGRIMAGE. — The Indian Government has ordered that no residents of Bombay Presidency or Sindb, and no person who has entered Bombay Presidency or Sindb, with the object of proceeding on a pilgrimage to the Hedjaz, shall be allowed to embark from any port in British India for the purpose of making a pilgrimage to Mecca. All pilgrims who have entered these presidencies are to be placed in a camp of observation until the medical officer in charge has decided that there is no further risk of plague breaking out among them, and then sent to their homes. Local governments are directed to segregate, for at least seven days, all persons who intend making the pilgrimage; and when the Commissioner of Police at Calcutta signifies that a ship is ready to sail, each batch of pilgrims is to be sent in a special train direct to Diamond Harbor, there to embark at once. Thus, although the pilgrimage is forbidden from the plague-stricken districts, it is not peremptorily prohibited from all parts of India, although the Government is doing all in its power to induce the Mussulman community to forego the pilgrimage altogether. The French Government has forbidden the pilgrimage from Algeria and Tunis, and the Sultan of Morocco has forbidden pilgrims to leave that country for Mecca.

NEW YORK.

THE BOARD OF HEALTH OF GREATER NEW YORK. — The charter of the Greater New York, as finally adopted by the Legislature on March 24th and 25th, provides that the Board of Health of the city shall consist of five members, namely, the Health Officer of the Port, the President of the Board of Police, and three Commissioners (one more than in the present

arrangement), to be appointed by the Mayor. Two of these three commissioners are to be medical men and the third a layman, and the last-named shall be the President of the Board. The term of office of the appointed commissioners is six years. The President is to receive an annual salary of \$7,500, and the other two, salaries of \$6,000. The Board of Health is to have the same general powers as the old Board, and officers will be established in all the five burroughs into which the consolidated city is divided. The Sanitary Superintendent is to be the executive officer of the Board, and will receive a salary of \$6,000. The salary of the Registrar of Records is fixed at \$4,000. There will be three Commissioners of Charities (who will direct the management of all the public hospitals): — one for the burroughs of Manhattan and the Bronx (Manhattan Island and the present district annexed from Westchester County on the north), at a salary of \$7,500; one for the burroughs of Brooklyn and Queens (embracing Brooklyn and all the territory on Long Island included in the limits of the consolidated city), and at a salary of \$7,500; and one for the burrough of Richmond (Staten Island), at a salary of \$2,500. The Commissioner for the burroughs of Manhattan and the Bronx is to be President of the Board of Public Charities.

A LARGE CLASS GRADUATED FROM BELLEVUE.— On March 22d a class of 133, the largest for some time past, was graduated from Bellevue Hospital Medical College, which several years ago gave up the practice of holding public commencement exercises. Twenty-five States were represented by the graduates, and twelve of the class were foreigners. The examinations of Henry Ritter, of Massachusetts, and C. E. Pierce, of New York, entitled them to positions on the house-staff of Bellevue Hospital. The veteran of the class was Dr. W. E. Moore, of South Dakota, who is said to be approaching sixty years of age.

DEATH OF DR. CLARK WRIGHT.— Dr. Clark Wright, a son of the late Dr. Clark Wright, and a member of the Surgical Staff of Roosevelt Hospital, died on March 17th. He was born in 1859 and was a graduate of Yale University and of the College of Physicians and Surgeons, New York.

COMMENCEMENT OF THE AMERICAN VETERINARY COLLEGE.— The twenty-second annual commencement of the American Veterinary College was held at Chickering Hall, on March 26th, when degrees were conferred by Dr. Faneuil D. Weiss, President of the Board of Trustees, upon a graduating class of twenty-three.

A HANDSOME CONTRIBUTION TO HOSPITALS.— The Committee of the Hospital Saturday and Sunday Association appointed for the purpose met at the Mayor's office on March 26th and distributed the handsome sum of \$50,000, the proceeds of the recent annual collection for hospitals. Among the institutions allotted more than one thousand dollars were the following: The Montefiore Home for Chronic In-

valids, which received \$5,000; Mount Sinai Hospital, \$5,000; German Hospital, \$3,125; St. Luke's Hospital, \$3,015; Hospital for Ruptured and Crippled, \$3,018; Roosevelt Hospital, \$2,948; St. Mary's Hospital for Children, \$2,368; Post-Graduate Hospital, \$1,842; Home for Incubables, \$1,417; Orthopedic Hospital, \$1,217; St. Mark's Hospital, \$1,163; Woman's Hospital, \$1,038.

PROPOSED LEGISLATION AGAINST THE ABUSE OF MEDICAL CHARITY.— An organization known as the New York Medical Society for Advancing the Practice of Medicine, composed of physicians residing in the southeastern district of the city has had introduced in the Legislature a bill designed for the suppression of the abuse of medical charity in dispensaries, which has met with the approval of a number of prominent members of the profession, and which contemplates the adoption of more sweeping measures than have ever before been attempted. Among its more prominent provisions are the following:

That no person who is not a poor person shall be treated in a dispensary, except in cases of emergency, and that no compensation whatever shall be received for treatment or medicine furnished by a dispensary. That all persons applying for treatment at a dispensary must produce a signed certificate from the owners of the premises where they reside, from the captain or other official in charge of the police precincts in which they reside, from the aldermen of the district, or from some charity organization, to the effect that they are unable to pay for treatment or medicines; such certificate to be of no effect after thirty days from the date of its issue. The signing of such a certificate by any one knowing that the applicant for free treatment is not a poor person renders the signer punishable for misdemeanor.

That a commission to be known as the Medical Board for the Supervision of Dispensaries within the City of New York, composed of representatives of a number of prominent medical societies and of the united charities of the city, shall have power to make and enforce such rules and regulations as may be necessary for carrying out the provisions of the act.

That the authorities of any dispensary violating any such rules or regulations may be prosecuted by the Board, or any officer thereof, and, upon conviction, be deemed guilty of a misdemeanor and punished by a fine of not less than \$50 or more than \$250, or by imprisonment for not less than one month or more than six months, or both such fine and imprisonment for the first offence and six months' imprisonment for each subsequent offence.

That the husband and wife shall be jointly and severally liable to pay for professional services of a physician rendered to them, or either of them, or any member of their family, and the joint or several property of the husband and wife shall be liable to levy and sale under an execution upon such judgment, except such property as may by law be exempt from levy and sale under an execution.

Miscellany.

THE COMPULSORY REPORTING OF TUBERCULOSIS.

THE committee of the New York Academy of Medicine appointed at the January meeting for the consideration of tuberculosis, of which Dr. E. G. Janeway was Chairman and Dr. T. Mitchell Prudden Secretary, presented to the Academy on March 18th the following statements, which were accepted and adopted:

(1) In the opinion of this committee the board of health might wisely delay the enforcement of compulsory notification, but should adopt more stringent measures for the care of sputum in factories, workshops, tenement-houses, ferryboats, places of public assemblage and public conveyances.

(2) In the opinion of this committee the establishment and maintenance by the city of a hospital or hospitals, to which indigent tuberculous patients may be admitted, is advisable.

(3) This committee recommends the appointment by the legislature of a commission for the establishment and management of sanatoria in healthy country districts in this State, for the care of the indigent tuberculous patients in the early stages of the disease.

(4) This committee would commend to the State board of health the importance of the careful regulation of the sanitary condition of hotels and sleeping-cars throughout the State.

At the Medical Society of the County of New York on March 22d, the following resolution was adopted:

Resolved, That in the judgment of this Society the recent edict of the health department in relation to the compulsory reporting of cases of tuberculosis is unnecessary, inexpedient and unwise.

SELF-PROTECTION BY THE MEDICAL PROFESSION IN THE DISTRICT OF COLUMBIA.

THE following recommendations were adopted by the Medical Association of the District of Columbia, on February 16, 1897:

(1) That every institution for medical charity shall require from every applicant for relief in a hospital or dispensary a written certificate to be obtained as hereinafter provided. Emergency cases are to be excepted from the operation of this rule.

(2) That such certificate be obtained from physicians to the poor, the Board of Associated Charities, and any registered physician.

(3) That sick and injured persons found upon the streets, in the stations, or elsewhere, who require immediate treatment shall be carried to the Emergency Hospital, or the nearest hospital having an emergency service, or to their homes, if so directed by the patient or his friends.

(4) That emergency patients shall not be detained longer in such institutions than the necessity of the case imperatively demands, but shall be discharged from the service and sent to their homes or to some public hospital, as the patient may elect.

(5) That members of this Association shall be entitled to the privilege of attending private patients occupying private rooms in any of the public hospitals of this city.

(6) That in future the members of the medical staff of hospitals, when attending medical or surgical cases in private pay-rooms, shall insist upon proper payment for their services except in the case of patients who are clearly unable to pay for the same.

(7) That whenever the medical staff or a majority thereof of a hospital or dispensary resigns, and when, after due hearing, this Association finds that the resignations were for just and sufficient cause, it shall be forbidden for any member of this Association to accept a position on the staff of said hospital or dispensary.

(8) That whenever one or more members of the medical

staff of a hospital or dispensary are dismissed, and when, after due investigation, this Association finds that such dismissal was without just and sufficient cause, it shall be forbidden for any member of this Association to fill the vacancy created thereby.

(9) That complaints made under Rules 7 and 8 shall be made in writing to the Standing Committee, which after due consideration shall report its findings to the Association.

CONGENITAL PROLAPUS UTERI.

CASES of congenital prolapse of the uterus are so rare that the report of two cases by Ballantyne and Thompson,¹ is of marked interest. Illustrations from frozen sections of the pelvis in one case add considerably to the interest of the paper. The condition is always found to be associated with lumbo-sacral spina bifida, and frequently with other anomalies. The chief points of interest in connection with the cases are given in the following summary which is appended to the article:

(1) A real downward displacement of the uterus present at birth or appearing during the first week of life is a well-established anomaly, but one of the greatest rarity, only eight instances having been recorded.

(2) It is to be distinguished from the so called congenital hypertrophic elongation of the cervix, but may be accompanied by a certain degree of cervical hypertrophy.

(3) It is practically constantly associated with lumbo-sacral spina bifida and rectal ectropion, and very often with clubbing of the feet; less common complications are hydrocephalus and hypertrichosis.

(4) All the patients thus affected died soon after birth; but it is reasonable to attribute the fatal issue to changes in the spina bifida rather than to the uterine prolapse.

(5) The prolapse may be complete or incomplete, and an edematous swelling of the prolapsed part commonly exists; but the anomaly does not give rise to a well-marked train of symptoms, for in some instances even the bladder and rectal functions have been normally performed.

(6) Probably the chief causal factors are the results of disturbance of the innervation of the parts in consequence of the spina bifida, which seems generally to have been a myelomeningocele; but other etiological circumstances doubtless exist, such as increased abdominal pressure, the abnormally large size of the pelvic canal, and enlargement of the uterine cervix or body, or both.

Correspondence.

THE SEMI-CENTENNIAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

PHILADELPHIA, March 24, 1897.

MR. EDITOR:—May I call the attention of those of your readers who are thinking of coming to Philadelphia to attend the semi-centennial meeting of the American Medical Association to be held June 1, 2, 3 and 4, 1897, that there will be in addition to the American Medical Association at the same time a large mercantile convention which will to a certain extent utilize a considerable number of the rooms in the various hotels.

For this reason it is advisable that physicians who intend to be present at the meeting should write at once to one of the following hotels, engaging such rooms as they desire at the rates named:

Hotel Walton, Broad and Locust Streets: \$1.50 and upwards per day, European plan; \$4 and upwards per day, American plan.

¹ American Journal of Obstetrics, February, 1897.

The Colonnade, 15th and Chestnut Streets: \$1 and upwards per day, European plan; \$3 and upwards per day, American plan. The Lafayette, Broad and Chestnut Streets: \$1 and upwards per day, European plan. Table d'Hôte: breakfast 25c. to \$1; luncheon 75c.; dinner \$1.25.

The Bingham House, 11th and Market Streets: \$2.50 and upwards per day, strictly on the American plan.

Hotel Tinton, Broad and Spruce Streets: \$2 and upwards per day, European plan; \$4 and upwards per day, American plan.

The Continental, 9th and Chestnut Streets: \$3 and upwards per day strictly on the American plan.

The Windsor, 11th and Filbert Streets: \$1 and upwards per day, European plan; \$2 per day, American plan.

The Stratford, Broad and Walnut Streets: \$1 and upwards per day, European plan only.

Girard House, 9th and Chestnut Streets: \$2.25 to \$3 per day, strictly on the American plan.

Hotel Hanover, 12th and Arch Streets: \$2.50 per day, strictly on the American plan.

Aldine Hotel, Chestnut Street above 19th: special rates to members of the American Medical Association, \$2.50 per day on American plan; \$1 to \$3 on the European plan.

The price quoted in each instance is for one person only. Rooms commanding only the lowest price are naturally limited in number. It is especially desirable that each member intending to be present at the meeting shall personally, or by letter, make his arrangement with the hotel at which he desires to stop.

It is worthy of note that the rate of \$1.50 per day at the Hotel Headquarters, the "Hotel Walton," is the rate for two people in one room.

All these hotels are within a few blocks of the meeting places and most of them are within two blocks.

As a sub-committee of the general Committee of Arrangements has arranged clinical courses in all branches of medicine at the various teaching institutions and large hospitals during the week prior and following the week of the Association meeting, it has been thought a considerable number of physicians would be glad to embrace the opportunity of "braving up" upon the various branches by attendance on these courses, for which no charge will be made by the gentlemen giving them; and as their stay in this city will therefore be more than a few days, it has occurred to the Committee that some of the visiting physicians may wish to take rooms at some good boarding-house. The Chairman of the Committee on Reception and Accommodation, Dr. G. E. de Schweinitz, 1401 Locust Street, will be glad to send the addresses of such boarding-houses to gentlemen desiring to stay here for a week or more.

The large number of gentlemen who have already signified their intention of attending the meeting, the very large number of able and interesting papers already placed upon the programme, indicate that this will be the most important meeting which the Association has ever had, and it is hoped that every physician who is a member of a regularly organized County Medical Society will make an effort to attend.

The meeting halls for the various Sections are situated so close to one another that different papers in different sections can be readily listened to during a single morning's session by those who do not wish to devote their time to one particular specialty.

Very truly yours,

H. A. HARE,

Chairman of the Committee of Arrangements.

METEOROLOGICAL RECORD

For the week ending March 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-		Relative			Direction		Velocity		Wet'thr.		Rainfall in inches.	
	meter.	eter.		humidity.			of wind.		of wind.		*			
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S. 14	30.07	28	34	21	56	90	73	S.E.	N.W.	15	10	O.	O.	.36
M. 15	30.24	32	37	27	47	47	47	W.	W.	17	15	C.	C.	
F. 16	30.0	20	27	14	51	41	46	N.W.	N.W.	20	12	C.	C.	
W. 17	30.41	26	38	13	44	37	40	N.W.	N.W.	18	9	C.	C.	
T. 18	30.06	31	41	27	58	61	60	N.E.	S.W.	3	10	F.	O.	
F. 19	29.80	42	48	37	88	100	94	S.W.	E.	5	7	C.	O.	
S. 20	29.71	36	38	34	96	98	97	E.	N.E.	16	12	R.	O.	.69

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat- ening; N., snow. * Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 20, 1887.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,892,332	808	306	10.56	20.04	1.32	124	4.80	
Chicago	1,619,266	—	—	—	—	—	—	—	
Philadelphia	1,164,000	543	163	13.14	18.36	1.26	1.80	4.50	
Brooklyn	1,100,000	422	114	10.53	20.37	—	—	1.02	
St. Louis	500,000	198	46	1.53	29.07	.51	—	—	
Boston	494,000	—	—	—	—	—	—	—	
Baltimore	499,315	182	51	6.89	11.13	.53	1.06	2.65	
Cincinnati	366,000	—	—	—	—	—	—	—	
Cleveland	314,531	112	—	8.90	14.24	.89	3.56	2.67	
Washington	275,500	—	—	—	—	—	—	—	
Pittsburg	238,617	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,764	30	8	3.33	29.99	—	—	3.33	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	35	11	2.86	14.30	—	—	—	
Fall River	88,000	37	17	10.10	19.70	8.10	2.70	2.70	
Lowell	84,350	34	14	5.88	17.64	—	2.94	2.94	
Cambridge	81,519	25	6	8.60	10.00	4.00	—	—	
Lynn	62,355	—	—	—	—	—	—	—	
New Bedford	55,254	—	—	—	—	—	—	—	
Springfield	51,554	22	4	—	12.45	—	—	—	
Lawrence	52,153	17	3	—	35.28	—	—	—	
Holyoke	40,148	—	—	—	—	—	—	—	
Salem	34,437	15	4	6.66	20.00	—	6.66	—	
Brookton	33,157	—	9	—	—	—	—	—	
Haverhill	30,185	12	9	16.66	—	—	—	8.33	
Malden	29,708	8	2	—	50.00	—	—	—	
Chelsea	31,255	—	—	—	—	—	—	—	
Fitchburg	26,394	10	3	—	10.00	—	—	—	
Newton	27,122	9	3	—	22.22	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Fauntun	27,093	7	2	—	14.28	—	—	—	
Waltham	20,817	10	2	—	10.00	—	—	—	
Quincy	20,712	7	3	14.28	28.56	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	12	5	8.33	25.00	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	7	3	14.28	14.28	14.28	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,712: under five years of age 867; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas and diarrheal diseases) 260, acute lung diseases 551, consumption 296, diphtheria and croup 107, scarlet fever 32, diarrheal diseases 31, whooping-cough 25, measles 23, typhoid fever 22, erysipelas 9, cerebro-spinal meningitis 7, malarial fever 4.

From scarlet fever Philadelphia 11, New York 10, Brooklyn 6, Cleveland, Providence, Cambridge, Somerville and Haverhill 1 each. From measles New York 9, Brooklyn 7, Philadelphia 5, Cleveland, Fall River, Quincy, Everett and Woburn 1 each. From whooping-cough Philadelphia 11, New York and Brooklyn 7 each. From erysipelas Philadelphia 4, Baltimore 3, New York 2.

In the thirty-three greater towns of England and Wales with

BROUGHT OUT BY A LEADING QUESTION. — The Vienna correspondent of the *Lancet* is authority for the following story: "Medical circles in Vienna have been much amused at an answer given by a student who was being examined in pathological anatomy and was asked to name the organs of the body in which cysts most commonly occur. He enumerated several, but omitted to mention the ovary, whereupon the examiner good-naturedly said: 'Try to think of an organ which you do not possess,' and the candidate who was of Jewish extraction, immediately replied, 'Oh, the prepuce!'"

an estimated population of 10,992,524, for the week ending March 13th, the death-rate was 18.6. Deaths reported 3,919; acute diseases of the respiratory organs (London) 344, whooping-cough 83, measles 79, diphtheria 72, diarrhea 39, scarlet fever 38, fever 22.

The death-rates ranged from 12.2 in Newcastle-on-Tyne to 25.3 in Bolton; Birmingham 18.5, Bradford 19.2, Bristol 24.5, Croydon 15.9, Halifax 18.0, Leeds 19.6, Leicester 18.2, Liverpool 23.3, London 18.4, Manchester 23.0, Nottingham 17.5, Portsmouth 16.6, Sheffield 16.9, Sunderland 15.0, West Ham 15.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 20, 1897, TO MARCH 26, 1897.

CAPTAIN CHARLES WILLCOX, assistant surgeon, is relieved from duty at West Point, N. Y., to take effect upon the expiration of his present leave of absence, and ordered to Fort Bliss, Texas, for duty at that post, relieving CAPTAIN OGDEN RAFFERTY, assistant surgeon.

CAPTAIN RAFFERTY, on being thus relieved, is ordered to Willets Point, N. Y., for duty at that post.

The extension of leave of absence on surgeon's certificate of disability granted CAPTAIN EUGENE L. SWIFT, assistant surgeon, is still further extended one month on surgeon's certificate of disability.

FIRST LIEUT. FRANCIS A. WINTER, assistant surgeon, upon completion of his examination for promotion, ordered to West Point, N. Y., to report to the superintendent U. S. Military Academy, for duty at that post.

CAPTAIN NATHAN S. JARVIS, assistant surgeon, is relieved from duty at Willets Point, N. Y., to take effect upon the expiration of his present leave of absence and ordered to Fort Clark, Tex., for duty.

MAJOR HENRY S. KILBOURNE, surgeon, will be relieved from duty at Fort Clark, Tex., upon the arrival at that post of CAPTAIN JARVIS, and ordered to Madison Barracks, N. Y., for duty.

FIRST-LIEUTS. ISAAC P. WARE, ROBERT S. WOODSON and GEORGE D. DEHON, assistant surgeons, are ordered to report in person to LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general, president of examining board, at such time as they may be required for examination for promotion.

A board of officers to consist of LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general; MAJOR WALTER REED, surgeon; CAPTAIN CHARLES M. GANDY, assistant surgeon, is appointed to meet at the Army Medical Museum Building, Washington, D. C., on Tuesday, May 4, 1897, at 10 o'clock A. M., for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MARCH 27, 1897.

D. N. CARPENTER, assistant surgeon, detached from U. S. Naval Laboratory and Department of Instruction, Brooklyn, N. Y., and ordered to the "Brooklyn," March 13th.

F. L. PLEADWELL, assistant surgeon, detached from U. S. Naval Laboratory and Department of Instruction, Brooklyn, N. Y., and ordered to temporary duty on the "Constellation," March 15th.

H. G. BEYER, surgeon, detached from the "Newark," March 17th, and ordered home to await orders.

A. W. DUNBAR, assistant surgeon, detached from the "Newark," March 17th, and ordered to the "Vermont."

M. H. SIMONS, surgeon, detached from Torpedo Station, Newport, R. I., April 15th, and ordered to the "Columbia."

E. Z. DEIK, surgeon, detached from the "Columbia," on being relieved, ordered home and granted three months' leave.

J. M. MOORE, passed assistant surgeon, ordered to the "Alert," upon the arrival of that vessel at Mare Island, Cal.

L. W. SPRATLING, passed assistant surgeon, detached from the "Alert," upon being relieved, ordered home and granted three months' leave.

G. D. COSTIGAN, assistant surgeon, detached from Naval Laboratory and Department of Instruction, and ordered to the "Vermont."

C. A. SIEGFRIED, surgeon, detached from the "Massachusetts" and ordered to the Torpedo Station.

S. H. DICKSON, surgeon, detached from the "Texas," and ordered to the "Massachusetts."

W. R. DU BOSE, surgeon, detached from the "Terror," April 6th, and ordered to the "Texas."

OLIVER DIEHL, surgeon, detached from the Philadelphia Naval Hospital, April 5th, and ordered to the "Terror," April 6th.

T. C. CRAIG, surgeon, placed on the retired list from March 12th.

R. M. KENNEDY, passed assistant surgeon, detached from Norfolk Naval Hospital, April 3d, and ordered to the Philadelphia Naval Hospital.

D. N. CARPENTER, assistant surgeon, detached from the "Franklin," and ordered to the "Raleigh."

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 5th, at 8 o'clock.

The subject of the evening will be: "The Significance of the Results of Radiographs in Bone Surgery." The leading paper will be presented by Dr. Wm. M. Couant, who will be followed by Drs. H. H. A. Beach, F. H. Williams, M. H. Richardson, E. A. Codman and J. E. Goldthwait.

Dr. M. H. Richardson will read a paper entitled, "A Case of Congenital Stricture of the Pylorus in a Boy of Seven; Pyloroplasty; Recovery and Restoration of Health."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, April 7, 1897, at 8 o'clock.

At 8 P. M. "Observations upon Recurrence of Stone in the Bladder," by Dr. A. T. Cabot. Synopsis of paper: The effect of ulcerated spots in the bladder in producing recurrence of stone. Conclusions as to appropriate treatment, based on some cases.

At 8.45 P. M. The presentation of pathological specimens by Dr. W. T. Councilman.

At 9.05 P. M. "The Prevention of Pneumonia after Anesthesia," by Dr. W. F. Whitney. Synopsis of paper: Pneumonia after ether is of the ordinary form and is due to the pneumococcus. This has been shown to be present in the mouths of many persons in health. Thorough disinfection of the month before anesthesia may destroy this source of infection. Dr. J. W. Elliot will open the discussion of this paper.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.—The Annual Conversational Meeting of the Society will be held in the Upper Hall of the College of Physicians, Northeast Corner Thirteenth and Locust Streets, on Thursday, April 22, 1897, at 8.15 P. M.

Dr. Ludvig Hektoen, Professor of Morbid Anatomy in Rush Medical College, will deliver an address, entitled "Segmentation and Fragmentation of the Myocardium."

After the meeting a reception will be tendered Dr. Hektoen at the University Club, 1316 Walnut Street.

A cordial invitation is extended to attend the meeting and the reception.

HARVARD MEDICAL ALUMNI ASSOCIATION LECTURES ON CLIMATOLOGY.

The third and fourth lectures on "Climatology and its Relations to Medicine," by Mr. Robert DeC. Ward, Instructor in Climatology in Harvard University, will be delivered at the Harvard Medical School on the successive Tuesdays, April 6th and April 13th, at 8.30 P. M.

Third Lecture, April 6th.—"The Distribution of Rainfall over the World; its Relation to the General Wind Circulation, and the Resulting Climatic Conditions; the Controls of Climate; the Climatic Zones."

Fourth Lecture, April 13th.—"The Physiological Effects of Temperature, Pressure and Humidity; Acclimatization; A Sample of Climatic Description; The Climate of New England." Illustrated by colored charts.

DIPHTHERIA-ANTITOXIN.—AMERICAN PEDIATRIC SOCIETY.

The Collective Investigation (report) will be kept open until April 10th, in order to secure a return of all cases beginning before April 1st.

The Committee desires to express its appreciation of the trouble and pains the members of the profession have been willing to take in this matter. The returns-blanks are more understandingly made out than in the first report.

RECENT DEATH.

GEO. B. TWITCHELL, M.D., of Keene, N. H., one of the leading practitioners of New Hampshire, died at Keene, March 30th, aged seventy-seven years. He served during the war as surgeon of the 13th New Hampshire Volunteers and was promoted surgeon-in-chief of the 17th corps, with the rank of major. He was for years president of the board of trustees of the New Hampshire Asylum for Insane, and was instrumental in the establishment of the Elliot Hospital in Keene. He was a Republican, and had held almost every office within the gift of citizens. He leaves two sons, Dr. George P. Twitchell, of Greenfield, and Dr. Edward T. Twitchell, of Ashmount, and two daughters.

Address.

ON THE DUTIES OF A MEDICAL EXAMINER.¹

BY HOSEA M. KNOWLTON,
Attorney-General of Massachusetts.

MR. PRESIDENT AND GENTLEMEN:—My experience is that success grows and results, much more from men than from machinery, in any department of human activity, whether in business or in the workings of laws. It is the men who are entrusted with the work, rather than the machinery that is devised, that make or mar results.

I am glad to say this, gentlemen; although I have been an associate member of your organization for many years, it is the first opportunity that I have had of putting in formal shape my testimony to the very commendable exertions of the members of this body, and of the medical examiners throughout the State, to enforce the provisions of this law in the interest of justice in the Commonwealth.

It may be that my experience has been larger than that of living men. I have had to do directly and indirectly with the trial of thirteen indictments for murder, and the investigations of many more cases, and I have uniformly found the medical examiners with whom I have been brought in contact, whether in my own section of the State or elsewhere, to have that understanding, that intelligent understanding, of the duties imposed upon them by the Medical Examiner Act, that was necessary for its success.

As you know, the medical examiner system succeeded a system which had fallen into disrepute, and which had become worse than obsolete. This act was an immense advance in the business of detecting and punishing crime; and yet this act would not have been a success had it not been for the character of the men who enforced it.

That leads me to observe, also, that I am addressing a body of men upon the duties of an office which, so far as I am able to understand by my experience, they already well know. I also observe that from time to time, beginning perhaps with Mr. Tyndale, the author of the act and its most earnest promoter, who addressed this body twenty years ago, and from time to time by other officers concerned in the prosecution of crime, the duties of medical examiners have been very fully gone into; and I hardly hope to add anything to the intelligent discussion already had. But I am told by your secretary, who is responsible I suppose partly for my being here, that from year to year new members are added to your body who very seldom read the musty records of the past, and that it may not be entirely useless to consider some of the difficult features of the law.

It has been said over and over again, and the remark has been put in capital letters in every case where your body has been addressed, that the main purpose of the law is the detection of crime. I assent to that statement, but conceive that the duties of the medical examiner are more accurately expressed if, instead of saying that "the purpose of the law is the detection of crime," we say that its real object is the ascertainment of the question of guilt or innocence. You can easily see the distinction, gentlemen. By far the greater number of deaths that occur, not from disease but from injury or even from violence, are not

tainted with crime. But it is more important, perhaps, it is at least as important, that the fact of innocence should be determined as the fact of crime. And if that is understood, some questions which I am told, Mr. President, are troubling this body, will thus be easily solved.

It is not a question, when a medical examiner is asked to have a view, whether it will probably result in finding crime. The question, the only question, should be, Is there any ground of suspicion of crime? And the medical examiner discharges his duty as effectually when he, by his investigations, dissipates that suspicion and establishes innocence.

A woman dies from some disease which leads the neighbors and friends of the family to suspect an abortion has been committed. The medical examiner makes his examination, his view, or even his autopsy, if necessary, and establishes that that suspicion is unfounded. That result is as important to the Commonwealth as it would have been had he found crime connected with it. I speak of this because it has been suggested to me by more than one member of this Association that the question of whether to take a view, or not, is sometimes considered with reference to its expense. I will speak of that a little more, later; but I now refer to that in connection with the proposition that I am endeavoring to make, that it is not a question probably of the detection of crime. It is as much the establishment of innocence where crime is suspected by anybody.

I judge from some things that have been said, and no less by some of the addresses that have been made to this body in years gone by, that the first stumbling-block in the way of the intelligent comprehension of the "Medical Examiner Law" is the expression, "death by violence." It is said that the term "violence" has been variously defined. And it may not be improper for me to try my hand at it. The word "violence" has a number of meanings, and perhaps in common conversation it may mean "force of any kind, innocent or guilty." But in the few moments that I was able to give to the preparation of this rather informal address (for I was told I could give that sort of address) I have examined the definitions of the word "violence," and find that in the "Century Dictionary" this definition, (in law that is, the definition that obtains in law), is "Any wrongful acts of one person whereby either he or his instrument of wrongdoing is brought in contact with the limbs or body of another person." Also "unlawful use of physical force." In the "Standard Dictionary" the same definition is given, "force unlawfully exercised." With that understanding, there is no difficulty in the jurisdiction, so to speak, the province of the medical examiner. He is to ascertain whether in any given instance death is the result of "force unlawfully exercised."

The analysis which I have attempted to make is probably not wholly logical or necessarily conclusive. It may not fulfil the etymological definitions of the terms used, but I divide them in this way: A death may be "natural" or "unnatural." As I say, that definition may be criticised according as you define the term "natural" or "unnatural." But those whom I am addressing have no difficulty in understanding what I mean. They are perhaps the most convenient words. If the death is "natural," there is no work for the medical examiner. He is only called upon to consider the "unnatural" death. "Unnatural" deaths may also

¹ An Address before the Massachusetts Medico-Legal Society, February 3, 1897.

be divided into two kinds: those which, for want of a better term, I have described as "accidental," and those which are the result of "violence." Here, again, part of the work or province of the medical examiner develops. In an "unnatural" death, if it results from accident, the medical examiner is relieved, if that is thought to be a fact. That leaves him only with deaths by "violence."

According to the definition now given, which may be divided into two classes, in our acceptance of the word, and as to which I am bound to say some confusion has arisen, even in the mind of the author of the act himself, "death by violence" may be when the "violence" is self-inflicted, or when it is inflicted by another. I do not understand that, if it is clearly established that the violence is self-inflicted, there is any occasion for the medical examiner to go further. Probably the confusion arises from the fact that, in practice, when it is once ascertained that the man contributed to the death, it is extremely difficult in most cases to determine in advance the evidence, beyond that of the medical examiner, whether the man or person who inflicted the violence was the victim of a homicide, or not.

But, in strict analysis, we reduce the duties of the medical examiner to "unnatural violent deaths," using the word "violence" as being usually limited to those in which the "wrongful acts of another, unlawful, forceful acts of another, contributed." Of course, that does not always mean murder, as I need scarcely say to you. It may mean manslaughter, as where, by reason of insufficient care exercised by one having the duty of caring for a person under his charge (as by a father to his child) or neglect or exposure, admitted or allowed or practised, death results. There is no blow struck, but the crime has been committed — the crime of manslaughter. Again, the supposed instance I cited a few moments ago (death resulting from abortion), which is not murder or manslaughter, but it is a crime which it is your business in ascertaining to detect and punish. The medical examiner, then, having jurisdiction, having in his province the investigation of all cases of death supposed to be by violence, is charged with the duty, with the responsible duty, of first establishing the fact either of innocence on the one hand or probable violence on the other hand, and the getting and preserving what is by far the most important evidence, that is, a death by violence.

You will observe that I, on the one hand, make your investigations final when the innocence is established, and on the other hand, only a probable conclusion when crime is ascertained. Of course, the machinery of the law steps in after your result, and determines the question of "guilt" or "innocence" in the usual channels. The medical examiner presents his investigations, what is before him, to the extent of reporting that in his opinion there has been crime, and then turns the matter over to another.

Now, what is the medical examiner's business? The law limits him by Section 10, of Chapter 26, of the Public Statutes: "He shall make examination upon the view only of such persons as are supposed to have come to their death by violence." That is to be considered in connection with the next section, which provides that "When he has notice that there has been found, or is lying, within his county, the dead body of a person who is supposed to have come to his death by violence."

Who is to make the supposition? I answer, anybody, anybody. It is not confined to an attending physician; it is not confined to the officers of the law. It is broad enough to include any good citizen who has knowledge enough under the circumstances to entertain a reasonable suspicion. Bear in mind that the object of the whole proceeding which is initiated by you is, if your results are clear as to innocence or guilt — the whole object is ascertainment of the fact; and the fact of innocence is of as much consequence as the ascertainment of guilt.

It has oft-times happened in the twenty-nine years that I have been concerned with the prosecution of criminals, that I have had occasion to order dead bodies taken up on suspicion, or that suspicion might be removed. There is a case reported by that very accurate and excellent officer, now deceased, William H. Taylor, of New Bedford, whom you may remember, where he caused the body of a woman to be exhumed after having been buried forty days. He had the stomach taken out, and the proper processes set in motion to ascertain whether an abortion had been committed. There had been spread abroad a suspicion that the woman had been poisoned. This could not be traced to definite sources; but the suspicions gained credence, as such rumors do, till he performed his duty of holding an autopsy, and he ascertained that the suspicions were ungrounded.

Come back, then, to the elucidation of the expression, "supposed to have come to their death by violence," and answer the question, "Supposed by whom?" I repeat the answer I made before. Every man who has a reasonable ground of supposing that the death is the result of violence has the right, and it is his duty, to communicate that suspicion to the medical examiner, and if he finds upon inquiry that it is honestly obtained, there should be an investigation to determine the truth. I conceive that it is the duty of the medical examiner not to consider whether he shall impose a cost of four dollars and travelling expenses upon the county, but to resolve the doubt; and if he has resolved the doubt in favor of innocence, he has earned the money, and the Commonwealth or county can well spend that sum to have that suspicion allayed.

I am told that there is some hesitation on the part of some of your body as to how far they should proceed upon rumors; how far they should yield to the solicitation of those whose imaginations are inflamed by baseless suppositions. Bear in mind, gentlemen, that like all other remedial laws put into the hands of officers employed by the State to make the law, a great deal is necessarily entrusted to the sound discretion of those charged with its execution. This is why men of learning and experience are selected for that purpose. No one can lay down rules; the medical examiner must be uninfluenced by considerations of the county treasury, or by the objections of county officers against the expense, but by considerations which are founded upon his own good sense and experience. Bear in mind that the resolution of any doubt is far cheaper in the long run for the county and the Commonwealth than the expense of the view.

Then, assuming that he has been told — it need not be his own suspicion necessarily — that there are well-grounded suspicions on the part of any person that the death was by violence, the statute proceeds to lay down his duty. If it is within his district (and of

course I cannot say that a medical examiner will go out of his district, but he will not refuse when time requires immediate action), two things are before him, which are successive in their nature, either one of which, or both of which, may lead him to the next step—that is, to ask for authority to hold an autopsy. The first is the “view”; and I may be permitted later to give some special suggestions about the view. Second, a “personal inquiry,” which is not evidence, of course, but is of great importance in leading the medical examiner himself to a sound conclusion. And then, third, when, in his judgment it is necessary for complete satisfaction of the question whether there is guilt or innocence, the holding of an autopsy on the authority of the town officers or the district attorney. All these means are before him. Charged with the duty of ascertaining definitely the innocence, or, on the other hand, definitely getting a belief in violence (meaning by that expression “unlawful act of another”), he first views, then makes his personal inquiry, and then, if not satisfied (much more if he is satisfied of the fact of violence), the autopsy, to complete the investigation and have the evidence before him.

When he has made the report, either upon the view or personal inquiry alone, or upon the view and the personal inquiry and autopsy, that there either is no crime, or, on the other hand, that there is reason to believe there was “death by violence,” his duty is discharged, his part of the duty is concluded.

I said just now, and perhaps I did not make myself well understood, that if upon the view and personal inquiry, the medical examiner is satisfied there was death by violence, it is much more his duty to hold an autopsy. The reason I say that is because then, upon that contingency, comes in another proposition, that is the ascertaining of all possible evidence upon the subject. That leads to another branch of the duty of the medical examiner: the first is to answer the question of innocence or probable guilt; secondly, in case of the probability of guilt to obtain every possible fact that in any way bears upon the probable guilt. Of course the autopsy is the first and most obvious. Upon these questions it is impossible to assist one who is deficient by nature, and needless to teach one who is bright by the same divine gift. If a man is stupid, he cannot get the evidence. If he is bright, I cannot help him any. There are some gifted with the power of observation. I knew a man once who was specially employed in the prosecution of persons charged with “an unlawful selling of intoxicating liquor.” He was called as a witness. I saw him a good many times upon the stand as a witness; and I ascertained that what made him a good witness was not faculty of language, but it was the ability of going into the liquor saloon or any other place, where he was charged with the observation of men, and afterwards telling everything there. It is the power of observation, a gift, an instinct. I don’t know what can be done for one who has not that power. Frequently some officers will go into a place and be unable to tell what they saw; others tell everything. One is a good witness, and the other is not. Punishment of crime depends upon getting every possible fact that has to do with it; and medical examiners should understand that they have the first and best opportunity to get the facts bearing upon that question in a case of homicide.

I may be permitted again to refer by way of illus-

tration—and I would not do it if he were now living, but he was my friend, and I am present now and he is gone—to refer to that case I have already alluded to. It was the Besse case, in Marion. It was where a man was found dead, shot through the head. An ordinary man would say that’s about all there was to it. That, you would say, was the whole of it—shot through the head, where several buckshot had gone through and come out on the other side, and that was all there was of it. But read his report—what he saw when he got the peddler’s cart in his possession. Every detail. It is astonishing how everything in relation to that wagon, the wheels, the mud of the wagon, the condition of the road where it travelled—all these details turned out to be of the utmost importance. The “view” is well done when it “views” everything.

The point I am trying to make is—and this is very likely a truism to most of you—that no man, not even the prosecuting officer, can tell in advance what is going to be important and what is not. And absolutely the only way to know is to appreciate and report and record everything—everything. For no man knows when any given fact may be important.

The same thing is true of the personal inquiry, although that is of no value as subsequent evidence in the trial of the case, for it is only for the satisfaction of the medical examiner himself. It cannot be used.

But when it comes to the autopsy—I venture upon ground which I travel upon with a great deal of timidity, for I am well aware that most of the gentlemen to whom I am talking know better about that phase of it than I do, but I will venture this at least, it is not only the object of an autopsy to ascertain the cause of death, but also to exclude every other hypothesis of death. In the case I quoted, of the man shot—shot through the head by buckshot, which went in at one side and came out at the other—it looks as though that were enough. But no man can tell beforehand how important it may be to show that he didn’t die of poison, or consumption, or derangement of the liver, or from some other disease. An autopsy is only satisfactory when it examines every vital organ, and is able to report negatively on all points but the one in question.

After you have got through with your report, it is, of course, then the duty of the medical examiner—I think it is not in the statute, but it is the obvious duty of the medical examiner—to assist the prosecution by furnishing to him, or to the grand jury, or the jury, the facts he has ascertained. That duty divides itself into two parts: one is the testifying to the facts. Every medical examiner, I need not say, will from the beginning, from the very beginning, put in writing everything he sees and finds, and have it where he can get it, for no man can remember these details.

And I repeat what I have said before, that the ascertainment of the facts, without any previous theory, without feeling, simply the facts that bear upon any given way of the homicide, that bear upon innocence, is most important. When every fact is taken, seen, recorded, and is testified to for delivery, that part of the duty is done.

I touch with more reluctance upon the other part of the duty of the medical examiner, for it is this perhaps which has been a subject of more reproach to the profession than any other department of the work, and that is giving sworn testimony, or evidence, com-

monly called "expert testimony." Perhaps I cannot better present my views than to say that I know a medical man whom I have often had occasion to employ, whose name, of course, I would not now mention, but who has achieved that reputation for absolute truth, that I have known about cases where he is called as a witness and not any one is called on the other side. Both sides have had such entire confidence in the absolute accuracy and honesty of judgment that I have not found a case where anybody has been called against him. Why? Not for his superior knowledge, but because the force of conviction upon all whom he comes in contact with is that he has not worked out a theory, but has only worked for the honest truth. The defect of expert testimony, I think, is less with medical examiners to-day than with those other departments of skill and learning; with those who testify to the value of real estate and matters of that kind; the defect of expert testimony is the almost inevitable and often unconscious tendency of experts to help the side that calls them. I say it is inevitable and unconscious. Both of these adjectives I use with design, for they do very much to relieve him of the imputation of blame which might otherwise be brought against the expert. The whole duty of the officer of the Commonwealth, charged with the detection and punishment of crime, is to arrive at the truth, and when that standard is set up — "the truth, the whole truth, and nothing but the truth" as to your work — the results are the best attainable.

I have gone over in a very informal way those things that occur to me with reference to the duties of the medical examiners. I did intend to say one thing, and it is perhaps the only matter of detail I should refer to. I see it has been better said in some of the addresses of previous speakers in years gone by, and that is the importance of having the evidence where there is not any difficulty in getting at it. One of the most zealous, and in many respects ablest, of medical examiners that I have had to do with, was on one occasion so unwise — he will never be again — as to entrust the stomach of the person found dead to an express messenger to be carried to the chemist, and when it became necessary to prove that the stomach subject to analysis was precisely the same stomach taken from the dead body, the testimony of a dozen people who had handled the box was absolutely necessary. It was done without thought of the result; and it has not in my opinion marred the excellent record otherwise of that examiner. It is necessary that the evidence should be where it is certainly sure all the time. You understand that when you come to try a murder case, every essential fact must be proved beyond reasonable doubt. That is why I said that it is necessary to exclude every other hypothesis of a death, although the cause of death may be perfectly apparent on inspection. A counsel will suggest this or that hypothesis, and it is necessary to be prepared to show that the facts you have ascertained by the examination and autopsy are consistent with the conclusion you have here, and all are inconsistent with any other conclusion, and that there are no other facts consistent with any other theory.

ANTITOXIN IN LOUISIANA. — The Louisiana State Board of Health has announced that it will supply anti-diphtheritic serum to poor patients free of cost.

Original Articles.

ON THE IODINE TEST FOR SEMEN.¹

BY WYATT JOHNSTON, M.D., MONTREAL, CANADA,

Physician to the Coroner's Court, Montreal; Lecturer on Preventive Medicine and Medico-Legal Pathology, McGill University; Associate Member of the Massachusetts Medico-Legal Society.

If one were asked to instance a couple of medico-legal tests generally conceded to be sufficiently reliable to be accepted without hesitation as a positive proof of the condition they were presumed to indicate, one would not be unlikely to select as examples the hemin test in the case of blood stains and the recognition of spermatozoa in stains due to semen as fulfilling these requirements, when properly performed by competent persons.

While this is no doubt true, it has long been recognized that the technique at our disposal for the examination of spots supposed to consist of semen leaves very much to be desired.

It is by no means certain that all the stains sworn to from time to time as being seminal have really been such, so much does the testimony concerning these objects depend on the degree to which caution and experience have tempered the personal skill and acuteness of the expert. The identification of spermatozoa with absolute certainty, while easy enough in a fresh stain, becomes increasingly difficult with the lapse of time; and the incidental handling, washing or wearing of the articles of clothing, which commonly require this examination, makes it more and more problematical whether the spermatozoa can be demonstrated entire and intact.

There are numerous extraneous objects which are so like the detached heads and tails of spermatozoa as to mislead even those who are thoroughly experienced in the work. The generally accepted rule is that no body which simply resembles the head or tail of a spermatozoon should be considered as serious proof, and the search must be continued until perfectly formed and entire spermatozoa are recognized. The uncertainty produced by finding substances resembling these heads and tails in the specimens examined, may, however, lead the expert to prolong needlessly the examination of stains which are not seminal at all. Delays from this cause may have serious results in judicial procedure, simply by retarding or preventing the public exoneration of innocent persons wrongly suspected. We have also, on the other hand, the possible miscarriage of justice owing to the experts or juries attaching importance to incomplete proof, where the other circumstances of the case are such as to arouse strong suspicions, and must not lose sight of the consequences of abandoning a search for spermatozoa because they could not be promptly found.

Thus, in addition to a possibility which cannot be altogether ignored that the bodies affirmed to be spermatozoa were not so in reality, we have the serious drawback that the expert can only feel perfectly certain that the stain is non-seminal after making protracted and laborious observations; these if omitted, may leave a crime unpunished in the case of genuine stain not received in good condition.

The difficulties mentioned do not imply by any means that the spermatozoa test is not a good one, but simply that it is not adequate for the task it has

¹ Read before the Massachusetts Medico-Legal Society, October 3, 1896.

had to fulfil of being the sole and only recognized test for semen. What is evidently wanted is some simple, prompt, preliminary test, by which one could decide in a few minutes whether a given stain is likely to repay a search microscopically for spermatozoa, or not. At the same time such a test would evidently be still more useful if it was sufficiently accurate and distinctive to afford good corroborative evidence of the presence of semen, and so to guard against the possibility of the expert being led to regard as spermatozoa some entirely extraneous substances.

A test which appears in great part to fill those conditions has recently been announced by A. Florence, of Lyons, whose monograph entitled "*Du Sperme et des Taches de Sperme en Médecine Legale*,"² contains much besides that is of interest.³

Florence recommends the use of a reagent not infrequently employed for testing alkaloids, known as the ter-iodide or tri-iodide, of potassium. This reagent is a solution of iodine and potassium iodide, in proportions which correspond to the formula KI_3 , but which is not a definite chemical combination. The formula recommended is as follows:

Iodide of potassium C. P.	1.65 grammes
Iodine	2.54 grammes
Distilled water	30 c. c.

Good results can also be obtained by one-half the amount of iodine (1.27 grammes equivalent to KI_3), but the iodine must be in excess. The well-known Gram's solution is not suitable for the reaction. The solution keeps perfectly well in glass-stoppered bottles. It should be used cold, as warmth interferes with the reaction.

When a drop of the liquid obtained by moistening a seminal stain is placed alongside a drop of the above solution on a glass slide or watch-glass, so that the edges of the drops come in contact, there appear almost immediately large numbers of peculiar, brownish-red, pointed crystals. These are rhomboidal, and resemble so closely in form, size and color the hemin crystals that they could readily be mistaken for them, though a careful examination shows points of difference. This comparison to hemin crystals will convey a better idea of their appearance than could be given by the most elaborate descriptions, and will enable them to be distinguished from the crystals which are met with in seminal fluids. They also form small turnstile groups or crosses, in the manner which characterizes the hemin crystals.

According to Florence (and my own observations confirm his statement), the crystals are sparingly soluble in cold water and very soluble in warm water, reappearing again on cooling. On exposure to the air, they gradually disappear, but reappear on adding a fresh quantity of the reagent. They are readily soluble in ether, alcohol, acids, fixed alkalies and iodide of potassium; they resist solution in very weak ammonia solutions. For their formation to be typical and abundant considerable dilution is necessary, and I have found the degree of this solution a most important detail in making the test.

Dried stains usually give the reaction in a manner fully as prompt and typical as fresh semen, and I have been using as a demonstration specimen for class use a stain on cotton over twelve months old, obtained from a homicide case. Recently, the crystals have

been more difficult to obtain in abundance, the reason being apparently the increased difficulty of obtaining a solution of the semen rather than an impairment of the reaction.

The exact nature of the crystals has not been shown, as far as I am aware; I have regarded them as some special crystalline form of iodine.

The nature of the substance which occasions the reaction has not yet been thoroughly established. Florence claims to have isolated from seminal stains a substance which he terms *viriespermine*, and which he regards as a distinctive body producing this phenomenon. He states that it does not correspond in reactions with the substance isolated and called *spermine* by Poehl. It is said to be very soluble and to resist completely the effects of ammoniacal decomposition.

By using a larger quantity of material, the reaction can be obtained in the test-tube, an abundant red or chocolate-brown deposit of crystals being thrown down. In this way the demonstration of the seminal character of a stain might even be made without the use of a microscope.

A single fibre teased out of a thread in a piece of cotton stained by semen is sufficient to give a profuse crop of crystals under the microscope.

As to the degree to which this reaction is characteristic of semen; Florence claims that it will not react with any of the other secretions of the body, such as blood, urine, sweat, saliva, tears, bile or milk, nor with pus or nasal or vaginal mucus. The secretion of the Cowper's glands does not give it. I have made a number of tests with the various substances mentioned above, and have always obtained negative results, or at all events have never obtained a characteristic reaction.

The sperm of animals is stated by Florence not to give the reaction, as far as his observations went, though these were not extensive. Personally, I have not tested this point with sufficient thoroughness to give an opinion; but as far as my observations go a pseudo-reaction of doubtful nature can be obtained with at least some forms of animal semen. This point is still, as far as I know, unsettled.

In respect to Florence's claim to priority, I think it can hardly be disputed. I can find no recent work on legal medicine in which any chemical test is given for semen. Wood⁴ says "There are no chemical tests by which seminal stains can be recognized." Dixon Mann (1893), Strassman (1895), Vibert (1896, 4th Edition), Hoffman, Taylor, Limau and our other standard authors do not refer to it. Ronssin indeed recommended for examining seminal stains the use of solution of iodine and iodide of potassium, but only for the purpose of staining the spermatozoa, and the fluid which he recommended (iodine 1, iodide of potassium 4, water 100) does not give the Florence reaction. Apart from Florence's work there is practically no literature on the subject except the older work of Orfila as to the odors obtained upon heating the stains or treating them with nitric acid.

Florence states that he started with the firm conviction that so unusual a fluid as semen, which had such well-marked physical peculiarities, must contain some characteristic chemical substance. Acting with this hypothesis in view he proceeded *seriatim* to test seminal stains with all the ordinary reagents used in obtaining chemical reactions, especially those found of

² Archives d'Anthropologie Criminelle, January, February and March, 1896.

³ It has also been published separately by Storek, Lyons.

⁴ Vol. II of Witthaus and Becker's Handbook, 1894, p. 79.

value for recognizing alkaloids and those generally employed in physiological chemistry. By trying these one after the other he discovered several which gave him positive results, and among these he selected the ter-iodide of potassium as the one best adapted for medico-legal requirements.

During the past three months I have been making some observations on cadavers (22 cases) upon the occurrence of this reaction in connection with the secretions from the prostate, seminal vesicles, testicle substance and the post-mortem ejaculations from the meatus, with a view of determining whether the prostatic ingredients of the semen or the semen proper was chiefly concerned in giving the reaction. The material was obtained for the most part by allowing it to dry on cotton-wool swabs, so as to obtain a condition comparable with those under which seminal stains ordinarily come under medico-legal examination.

Pressure of other work has prevented me making these examinations with sufficient thoroughness to make their publication in detail seem advisable until I have gone over the material again more carefully, but the general results are as follows: Drying does not appear to interfere with the reaction materially within the time limits I have mentioned; and, in fact, I have often obtained the reaction more satisfactorily from moistening the dried secretion than from the original fluid. Decomposition, such as is met with in drowned bodies and bodies long exposed to the air, appeared to interfere with it to some extent, contrary to what Florence's observations would lead us to expect. The semen from the meatus or from seminal stains gave a better reaction than that substance obtained from the regions where the prostatic and testicular components of the semen had not yet mingled. Semen expressed from the prostatic duct into the urethra gave prompt and characteristic results, while these were much harder to obtain from the testes or the contents of the vesicles. So much was this the case that at first I thought the reaction might be due to the prostatic element of the secretion and not to the strictly seminal part. In some cases, however, typical results were obtained from the contents of the seminal vesicles and from the substance of the testicles. In two cases the reaction was imperfect or almost absent, certainly not sufficiently typical to justify medico-legal deductions, one being a case of cancer of the seminal vesicles and prostate, and the other double chronic vesiculitis with corpora amylacea very abundant in the prostate. In both of these spermatozoa were present in the semen.

Hypertrophy of the prostate did not appear to affect the reaction. In one case the reaction appeared to be present before the period of puberty (seven and one-half years), though here it did not appear to be perfectly typical and satisfactory. I could not find it in the secretions of infants and very young children.

These few observations are not so much recorded here with a view of passing judgment upon the percentage reliability of the test as to indicate the direction in which observations might be made, as the total number of observations I have been able to make so far is not sufficient to justify general conclusions.⁵

With regard to the practical merits of the test,

⁵ Two instances of advanced and well-marked disease of the seminal receptacles is obviously a very high proportion for only 22 cases. In both these two instances of organic disease the fact of iodine reaction being interfered with while the spermatozoa were still present indicates the greater certainty of the spermatozoon test.

I think that those who use it for testing seminal stains will agree as to its decided value as a preliminary test, and accord it a position analogous to the guaiacum test for the blood, by which we can promptly find out whether there is a probability of positive results being obtained upon further examination. Personally, if it was obtained in a typical manner, I should regard it as very strong corroborative evidence in a case where spermatozoa were claimed to be present.

With regard to its independent value as a test, Florence formulates his conclusions as follows:

(1) From the occurrence of the reaction alone, without discovering even fragments of spermatozoa, he would conclude that it was probably a seminal stain.

(2) From the coincidence of well-formed and typical but detached heads of the spermatozoa, along with the reaction, he would affirm positively the presence of semen.

(3) With *débris* of spermatozoa or even with perfectly-formed heads, but without the reaction, he would not feel certain that he was dealing with a stain produced by human semen.

It will be noticed that Florence attaches to the detached heads of spermatozoa more significance than is accorded to them by our standard authorities. It must be mentioned that Florence has added materially to the data which may be used in identifying the heads of human spermatozoa, as the result of his careful study by means of oil immersion lenses and staining methods. By these more refined methods, highly characteristic details were brought out which would escape notice if ordinary dry lenses of moderate magnification were the only ones employed. The illustrations of spermatozoa given in his monograph are far superior to the illustrations which adorn the average medico-legal text-book, which are in many cases little more than caricatures. It must be remembered that the drying and subsequent moistening of the spermatozoa have a tendency to deform them somewhat, so that the appearance obtained may not always be perfectly uniform. This tendency to deviation would, however, be more likely to cause human semen to be confounded with that of animals, than the reverse. Personally, my experience does not entitle me to express an opinion as to the extent to which detached heads and tails of spermatozoa should be allowed to constitute evidence of semen, but I think it will be a long time before anything less than the entire spermatozoon will be accepted as legal tender by either judges or juries.

I think it can be said with confidence that the iodine reaction of semen, as described by Florence, is a decided step in advance, and that in it we have a new and very promising preliminary and confirmatory test for normal semen, and one which gives relatively good results in the case of stains which from a prolonged drying, react with difficulty to the microscopic test.

The sources of fallacy which attend the iodine test are, however, as yet practically unknown.

To determine what inference may be drawn from the absence of this reaction in a suspected stain, we need much fuller information and experiments on the effects of external conditions, etc., upon substances known to be stained by semen; we also need information as to the extent to which pathological conditions may exert a modifying influence, how the age limit affects the reaction, and on many other points.

Before we can assign accurately the significance of a positive result, we require much further testing and corroboration regarding the behavior of the reagent with substances other than semen, and also with the semen of animals.

After making all due allowance for this we must rejoice at the success of M. Florence in discovering a crystalline reaction for semen. As a rule, a good crystalline is better than a color reaction and we may expect that further researches in this direction will lead to the discovery of new and valuable micro-chemical tests.

A REPORT OF THREE DEATHS FROM HEAD INJURY.¹

BY FREDERICK H. BAKER, WORCESTER, MASS.,
Medical Examiner.

THESE three cases are reported to the Society, not on account of their rarity but rather for the reason that each has certain interesting and practical peculiarities, and still more for the reason that they collectively illustrate anew the well-known fact, that fatal violence may be applied wilfully or otherwise to the head leaving externally little or no evidence of the intracranial damage which it has accomplished.

Medical examiners are not infrequently called to act upon cases of this character where the objective evidence is very slight, and where, for obvious reasons, a truthful history is not given, and it is only by most rigid examinations and often by autopsy alone that we escape falling into grievous error.

CASE I. I was summoned by the Police Department about 1 A. M., November 13, 1895, to investigate the cause of death of a young man, H. E. D., who had died suddenly upon the floor of a dance-hall a short time before my notification. Upon my arrival I found a number of young men present around the body, all of whom could tell how he was picked up apparently in a faint, and carried to the window for air; but as to the cause of his being on the floor they claimed to be entirely ignorant. They freely advanced several theories as to the cause of death, such as "heart disease," "a fit," and the "bursting of a blood-vessel in the head"; but all denied that there had been any quarrel.

Upon examining the body two things only were noticeable: marked pallor, and a slight swelling beneath the left eye, which his friends declared he received when he fell upon the floor; but a careful examination did not show any contusion or injury of the scalp.

Shortly afterwards it became known to the police that there had been trouble between the young man who lost his life and another young man named J. O'S., the quarrel starting from their pushing each other in their eagerness to reach the coat-room. They had been strangers up to this time; but after a few hot words they stepped out into the dance-hall, sparred a moment, when O'S. struck D. below the left eye, and when the latter bent over to seize his opponent by the legs he was dealt another blow just above the left ear. He sank to the floor, dying in a few moments without regaining consciousness. Neither had been drinking.

The body was ordered to be removed to the City

Hospital morgue, where I performed an autopsy about twelve hours after death.

Autopsy.—The body was that of an exceedingly well-built young man, aged eighteen, height five feet and nine inches, weighing about 160 pounds. Rigor mortis was present throughout the body. Pupils dilated eight millimetres, and equal. The discoloration about the eye was much more marked than at the time of the first examination. Upon taking off the scalp, which was perfectly normal, there was found a contusion of the left temporal muscle, there being a rupture of its fibres with an infiltration of semi-clotted blood over an area about the size of a cent, one inch directly above the external auditory meatus, apparently made by the knuckle of his antagonist. The skull was of normal thickness. There was no extradural hemorrhage, and the dura itself was normal; and on being removed two or three ounces of very reddish fluid (blood and cerebro-spinal fluid) escaped, and a thin clot of blood was seen spreading over the lateral surfaces of both hemispheres, dipping between the convolutions, especially over the motor areas, and extending downward toward the base, where a large fresh clot lay over the Pons Varolii. There were also numerous small areas of extravasated blood in the pia mater and subarachnoid tissue, away from the areas covered by the thin clot. It was not possible to find the vessels which had been ruptured, nor macroscopically was there any laceration of the brain tissue. There was no rupture of the venous sinuses or fracture of the skull, nor did the blood-vessels show any signs of disease. The brain substance and the ventricles were normal. The other organs of the body were normal.

Following my routine custom in all autopsies, cultures were taken from all the internal organs; but, as was to be expected in this case, with negative results.

The interesting facts in this case are (1) the suddenness of death, (2) that a strong, athletic young man should be killed by one or two blows given by a man of less than average strength and having no knowledge whatever of boxing, (3) that the blow which was probably the fatal one (the one over the ear), left no mark externally. C. O'S. was arrested and indicted for manslaughter by the grand jury. As it had been ascertained that the deceased was the aggressor, and that there were many extenuating facts in favor of the defendant, he was allowed his freedom on probation.

CASE II. This man, A. J., died as the result of a faction fight in the street between Swedes and Finns on the outskirts of Worcester on the evening of December 2, 1895. Parties of both nationalities were in a saloon drinking when the quarrel started. Reinforcements were wanted, and the victim was summoned from his house near by; and he had not been at the scene of the row, which was transferred to the street, more than two minutes when he was struck in the head by a stone thrown by some one in the crowd. Later, at an inquest, evidence was given that showers of stones were thrown in the darkness by both sides; and it is doubtful if the man who threw the fatal stone was aware where it struck. The injured man walked back to his house and complained of severe pain in his head.

However, he went to his work the following day; but the pain growing more severe, he was obliged to quit work. The pain grew worse. A physician was

¹ Read before the Massachusetts Medico-Legal Society, October 3, 1896.

called, who examined his head carefully, but did not find a mark of any kind upon the scalp, or any objective signs of fracture. Four days later he became so wildly delirious that he required restraint, and was sent to the hospital, where he died the following day with all the symptoms of meningitis.

Autopsy. twelve hours after death. — A Finn, height five feet and nine inches, weight about 180 pounds. Rigor mortis very marked throughout the body. Another careful search failed to show any external mark of violence about the head. Upon removal of the scalp I found a condition almost identical with that of Case I, namely, a normal scalp with a contusion of the right temporal muscle over an area of the size of a fifty-cent piece. Directly beneath this was found a linear fracture through the entire thickness of the skull, without any depression, starting two and one-half inches directly above the external auditory meatus, running downward through the middle fossa, and ending in the petrous portion of the temporal bone in the external auditory canal, in which was found a small clot of blood. The dura was not ruptured, and appeared nearly normal. The brain revealed a most intense general purulent leptomeningitis, so marked over the area of brain around the seat of fracture as to conceal completely the gyri, which were everywhere flattened. The meningitis was particularly marked also at the base of the brain. The ventricles were slightly distended with a purulent fluid which was not bloody. The brain substance was very slightly lacerated, only at the point near the middle of the fracture. The corresponding part of the brain on the opposite side did not, macroscopically, show any evidence of laceration or contusion, nor did thin sections of the brain disclose any minute hemorrhages or other alterations. The only variation of the internal organs from the normal was what might be found in any case which had had a high temperature for a number of days. I made at the time of the autopsy cover-slip preparations from the purulent exudate to determine the nature of the infection, and found only one organism present, namely, the micrococcus lanceolatus. Cultures were taken from the various internal organs; but they remained sterile, showing that the infection was not a general one.

This case has certain peculiarities: (1) That a stone thrown with sufficient violence to fracture the skull through the base and lacerate the brain substance should leave no external mark of violence; (2) That a man should be able to work with so severe an injury.

Numerous arrests followed his death; but from the nature of the fight and the number involved, and the fact of the darkness at the time, there was not found evidence enough to hold any one for homicide.

CASE III. This case is reported with the permission of the district attorney. On Sunday morning, September 13th, I was called to the Worcester City Hospital, in my capacity as pathologist to that institution, to perform an autopsy upon a woman, A. H., who had died there the previous evening. Briefly the history given was that she had been drinking heavily the past few weeks, and, being ill, a physician had been called four days before her entrance, who sent her to the hospital as a case suffering from alcoholism. She was able to ride to the hospital sitting up in a hack, but appeared stupid. She had no paralysis whatever, and shortly after entrance she articulated perfectly in

answer to inquiries. She got out of bed and stood up for a moment the day before she died. A few hours before death she became unconscious; her pulse became very weak, and Cheyne-Stokes respiration developed, this condition remaining to the end. The scalp wound was dressed antiseptically while in the hospital; but its apparently insignificant character and the fact that she had no paralysis led to the belief that the cerebral symptoms were due to alcoholism.

Autopsy, twelve hours after death. — A well-developed woman, aged thirty-eight years. Rigor mortis present. The only mark of violence about the body was a small lacerated scalp-wound about one half-inch in diameter and one and one-quarter inches above the external auditory meatus: the whole wound was slightly suppurating. Upon taking off the scalp it was found that the left temporal muscle beneath the scalp-wound was perforated, and it was also found that directly beneath this was a clean-cut circular hole in the temporal bone nine millimetres in diameter. There were lacerations in the dura mater at this point, one hole being about as large as the perforation in the bone, the other a small one near it produced by a spicule of bone. The skull was slightly thinner than normal, but not remarkably so. The inner table of the temporal bone was shattered and imbedded in the brain. At first sight, it suggested strongly a bullet-wound. There was a slight amount of clotted blood outside and beneath the dura at the point of injury, but not so much as would be expected. The brain was punctured opposite the tear in the dura, and there was marked flattening of the convolutions over the whole left side. Just how far the brain was pierced could not be determined, as a cavity was found in the subcortical brain substance, beneath the point of perforation, about the size and shape of a lemon, extending into the frontal lobe. It was filled with clotted blood and yellow, softened brain-tissue. The meninges were markedly engorged with blood, but there was no evidence of suppuration. The other organs of the body were of normal appearance. Cultures from the organs were negative.

Upon finding these conditions at the autopsy I immediately communicated with the chief of police, who detailed detectives to investigate the case. This resulted in the arrest of the husband and a brother of the deceased. The brother confessed that one week before her death he had, during a wordy quarrel, struck his sister by making a lunge at her with an umbrella. The umbrella was obtained, and found to have a metal tip which exactly fitted the hole in the skull. The brother apparently did not realize the extent of the injury at the time, nor did the injured woman, who ran down stairs, and was not confined to her bed until the following day.

This case is one where the absence of characteristic clinical symptoms of intracranial injury and the placing of too great reliance on the history given led naturally to diagnosing the case as alcoholism. It was only from the fact that the husband gave permission to have an autopsy that led to the discovery of the real cause of death and the arrest of the assailant. He was subsequently sentenced to the House of Correction for the term of one year.

JAPAN is said to contain a greater number of thermal springs than any other country on the globe.

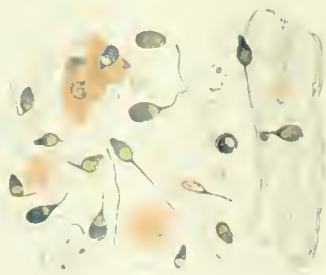


FIG. 2.
Double-stained Spermatozoa, from a spot on cloth
eight months old.

THE IDENTIFICATION OF SEMINAL STAINS.¹

BY W. F. WHITNEY, M.D., BOSTON.

At the last meeting of the Society a paper was presented by Dr. Wyatt Johnston describing a micro-chemical test for seminal stains proposed by Florence, of Lyons. It is briefly as follows: A suspected spot is soaked in distilled water for a few minutes, and to the fluid obtained is added a drop of a saturated solution of iodine in iodide of potash (iodine, 1.65; iodide of potash, 2.54; water, 30). An immediate precipitation of dark-brown rhombic crystals of iodine takes place. Their general shape and appearance very closely resemble those of the so-called hemin crystals, which are obtained from blood stains by Teichman's test. (Fig. 1.)



FIG. 1.

Crystals obtained by Florence's reagent, from a spot on cloth eight months old.

The reagent and material were placed in my hands for confirmation of the statements made in regard to them. I have gone carefully over the ground, and find the facts to be, in every particular, as stated.

The reaction took place readily both with the material furnished by Dr. Johnston, and that which was prepared under my own direction. The only difficulty encountered was that it was found impossible to dissolve all of the iodine according to the given formula. But after taking up as much as possible the filtrate was found to act perfectly.

Crystals were readily obtained from stains, which had been dried for a few days, several months, and two and a half years.

Stains from any other of the ordinary fluids, etc., of the body (urine, saliva, milk, fecal material), failed to give the reaction, as well as from leucorrheal and gonorrheal discharges.

Trials were also made from the contents of human testicles, epididymis, and seminal vesicles without any result; except in one recently excised testicle a few small crystals were thrown down by the fluid squeezed from the epididymis. The fluid from a spermatocele containing large numbers of spermatozoa was also negative. The fluid expressed from the prostate was without action, both when used alone or mixed with

the secretion from the seminal vesicles. Of course, with the exception of the testicles, the material came from the autopsy table, and post-mortem changes cannot be ruled out. But the evidence from all of the available material shows that as far as man is concerned the peculiar substance which gives the reaction is formed in the mixed seminal secretion during life.

From the epididymis of a rabbit, however, an abundant precipitation of small crystals was obtained; while from that of a dog there was no result.

A preparation was made from a spleen from a case of leucemia, in which were numerous Charcot-Leyden crystals, which are regarded as identical in composition with those formed in slowly evaporated semen. The result of the test was negative.

I can throw but little additional light upon the nature of this peculiar substance; and its isolation must be left to the chemists.

But it is certain that the test will be of great value in preliminary examinations for medico-legal purposes, and one that should never be omitted in the examination of suspected spots.

As the reagent gives a precipitate with many of the alkaloids (morphine, strychnia, etc.) and their salts, its chief value is a negative one, just as is the guaiacum test for blood stains. So that if a positive result is obtained the further step of demonstrating the presence of spermatozoa must be taken before it can be submitted as evidence in court. For this end, I have made a series of studies to improve the technique and so facilitate such examinations. And the following is the best method which I have found, thus far:

A small bit is cut from the cloth on which is the suspected spot, or if it is on a hard surface a little is scraped from it. This is placed on a cover-glass, wet with a drop of distilled water, in which it is carefully teased apart with fine needles and the larger fibres removed. The drop of fluid is carefully evaporated over a flame and fixed to the surface by rapidly passing it through it three times. Upon the film thus formed, are poured a few drops of an aqueous solution of eosine, which is allowed to act for a few seconds and then washed off with distilled water. An equal amount of a strong aqueous solution of methyl green is then poured on and gently heated over the flame until it steams. It is again washed, dried and mounted on a drop of Canada balsam dissolved in xylol. The preparation thus obtained is permanent, can be examined with the highest powers of the microscope, and exhibited in court, if necessary.

When entire, well-preserved spermatozoa are found there is no difficulty in their identification. But when the stains have been dried for some time, it is usually difficult to obtain such ones, for the heads are then very easily broken off from the tails. And in an unstained preparation, the former can easily be mistaken for spores, or *vice versa*, and the tails are almost invisible from their smallness and transparency. With the method above given, certain differential characters of the head can be made out which leaves no doubt as to their identity. Its composition is stated in the books to be of the same character as the nucleus of a cell (chromatin) and stains with the same reagents. But an examination of Fig. 2, will show that the whole head does not stain alike. At the base is a hemispherical portion which stains of deep green, while the anterior part and the tail takes the red color of the eosine. This serves at once to identify it, as

¹ Read before the Massachusetts Medico-Legal Society, February 3, 1897.

there is no other oval spore or cell which has an eccentric hemispherical nucleus.

And, furthermore, this not only shows that they are spermatozoa, but also that they are from man. For in no other animal is there a deep staining. For in all the others, the head stains of a very diffuse light green, with only a very narrow zone of a pale red color about it. Then, too, the shape of the head is different, being more pointed in man (wedge- or lance-shaped), while it is rounder (shovel-shaped) in the lower animals. Those of the dog are most like the human, both in shape and details of staining; but a little experience will show differences quite plainly.

With this method, stains varying from a few days to two and a half years old were examined, and in all the differentiation of staining was preserved, and the identification could be easily made.

From the above it is evident that with Florence's test and the double staining of the spermatozoa, there should be no doubt in the mind of the medical examiner of the presence or absence of semen in a suspected spot.

ON THE DUTIES OF A MEDICAL EXAMINER AS A WITNESS.¹

BY SHERMAN HOAR,
United States District Attorney.

MR. PRESIDENT AND GENTLEMEN: When I was at Cambridge, an instructor once gave out to six members of my class the same subject upon which to write a theme, giving us opportunity to read over each other's compositions, and telling us to then make our own compositions original, if possible. Then the Instructor took our papers, and read them out aloud to the class; mine happened to be the last one. When he came to mine, he asked me to read it, and I began. As I read he said, "That is true; but Smith has already said that." And then he took up the next proposition, and said, "That is true, but Sewall has said that." And so on, one page after another, with all my propositions, until he came to my name; then he said that was the original thing in my composition. I think when I get through, the name will be the only original part of my propositions. For, like the Attorney-General, I have not been able to prepare myself for such an occasion as this.

I entirely agree with the Attorney-General that the first duty of anybody connected with the prosecution of crime is judicial; that no person can properly, either as prosecuting officer or medical examiner, or as a witness, serve on a case except as a judicial officer in the first instance; and I think that is too often lost sight of both by prosecuting attorneys and by medical examiners. I think it is very essential for everybody first to ascertain the facts and to find out exactly what is true, and then to be able to express that truth in such a way as to convince twelve men of at least ordinary intelligence.

I have had little experience with medical examiners. I have tried but one murder case in all my life, and that is all I want to. In that murder case I had a medical examiner from this district who gave evidence, and a medical examiner from Halifax who gave evidence, and the difference between the two men illustrates exactly what I want to say. One of them had

made his investigation as a judicial officer; the other had made his seemingly for his own aggrandizement. He had his own dignity to maintain; he had his own opinion to maintain. He had an absolute inability to make himself understood by any human being who listened to him.

Now you have not only to ascertain your facts judicially, to keep your mind open, to do what the Attorney-General said so well, "ascertain all the facts"; but I would like to add that not only should the medical examiner ascertain all the facts which the autopsy shows, but should be able to make twelve men selected almost at random understand what he means when he states those facts. I have heard medical experts give testimony a great many times; sometimes I have understood them, and sometimes I have not. I have heard two medical experts give testimony in the same case, one of whom I understood and the other I did not understand. And I say that a knowledge of the English language is essential, as essential as a knowledge of medical terms. You must remember that Dr. Holmes once said of a lawyer that he had to half-know more things quicker than anybody else in the community; and you have got to get your lawyer, your prosecuting attorney, to half-know what you know, and be able to draw it out of you on the instant on the witness-stand; and you have got to get him into a condition of mind, by the use of ordinary, plain, Anglo-Saxon words, to understand your exact view of the case. You have got to get him into a condition where he can draw out from you what you want to present to the jury, to the twelve men, often of very limited understanding. And if I could add anything to what the Attorney-General has said, it would be to urge the right and simple use of the English language in putting in your evidence.

When you come to testify, you are so apt to qualify your judgment that you don't give your opinion, but your qualifications first. And if I should make a suggestion to you, it would be to give your judgment first, your reasons for it next, and any limitations upon your judgment last. I think the jury would understand you better if you did that.

I should like to have medical examiners remember that they are judicial officers; that they are part of the machinery of the Commonwealth to detect crime. I don't believe that, as such judicial officers, they have a right to take sides in any case whatsoever; neither do I believe that, as such judicial officers, they have any right to take the side against the Commonwealth in any case which may be presented in the Commonwealth. I believe that they ought to always keep their minds open; to learn all the facts accurately—medical and otherwise; that they ought to keep themselves in a judicial condition of mind until the case is through; that they ought to give their opinion first, their reasons next, and qualifications of that opinion last; that they ought to try to reduce everything they say to the ordinary language of human beings who are on the jury before them.

LEAD-POISONING FROM SNUFF. — A case of poisoning from snuff adulterated with lead has been discovered in New York, and the tobacconist who sold it has been arrested for obtaining the price of the snuff upon false pretences. As snuff was not a food, he could not be held for selling adulterated food.

¹ An Address before the Massachusetts Medico-Legal Society, February 3, 1897.

Clinical Department.

UREMIA FROM ANURIA.¹

BY GEORGE HILLS FRANCIS, M.D., BROOKLINE, MASS.

THE patient was a married man of forty-seven years, about 5 feet 11 inches in height, and weighed 170 to 175 pounds. He was of particularly good health, in appearance. His family history was good, his ancestors having all died from legitimate causes. There is nothing in his early history to lead one to suspect any trouble caused by bad habits, neglect or abuse. He was born in Scotland. Some years since he married and moved to the East, living for some time in India. Hence he moved to China, and at the time of his death he was in the Customs Service and held high rank under the Emperor.

Two years or more before the present sickness, the patient had disease of his bones. He was operated on several times, for the removal of sequestra and necrosed portions which had not loosened. At the time of his death, there was a rubber drainage-tube passing through his left thigh and draining a diseased portion of the femur.

Six months or more before I first saw him, he noticed that his urine began to look thick, white and stringy, and he passed a few small calculi. He did not notice any other particular change in the water, nor did he feel any symptoms which led him to fear a grave disease. He had no pain, fever or emaciation. His appetite was good. He slept well, and did not feel that the functions of any of his organs were disarranged, although he did not feel able to do his usual amount of work. He received a furlough to travel for his health. On reaching Edinburgh he was thoroughly examined by several of the most eminent physicians connected with the University of that city, who agreed in their diagnosis that there was no sign of any disease of the kidneys, but that the urine contained considerable pus which came from the bladder.

From Edinburgh he came to New York, and there consulted Dr. Sayre, who treated him with irrigations of the bladder, making repeated examinations of the water, and assuring him that there was no kidney disease.

Following Dr. Sayre's advice he made a three weeks' trip to the vicinity of Albany. While there he felt as well as ever in his life. On Saturday, September 29th, previous to his departure for Newton, Mass., he shot two deer. He reached Newton on Monday morning October 1st, and from five o'clock on that afternoon up to the time of his death was under the almost continual observation of my father and myself.

October 1st. When first seen the patient was not feeling sick in any way, except for a slight pain in the left groin, but he had not micturated since midnight.

October 2d. There was no change in the condition. His appetite was good. A catheter was passed into the bladder without encountering any resistance. No water was obtained.

October 3d. The patient appeared perfectly comfortable except for an increase of the pain in the groin.

October 4th. Appetite almost gone. No other marked change.

October 5th. No headache, no impairment of any faculties. A report of the urinary examination before sickness was received from Dr. Sayre, which did not refer the disease above the bladder.

October 6th. The stomach begins to reject food, although some is retained. Slight attacks of hiccoughs occurred from time to time. Dr. John Homans examined the patient very thoroughly and advised against surgical interference.

October 7th. Pulse begins slowly to rise, being about 75 in the A. M., 85 in P. M. Stomach rejects all food; slight headache; hiccoughs worse, although not incessant; faculties not impaired.

October 8th. Hiccoughs almost constant. Pulse 100. There began to be muscular twitchings, especially of the hands and feet. The patient is conscious. He can take no food.

October 9th. Pulse 120. Almost constant twitching of muscles over the entire body. Slightly comatose, although easily aroused.

October 10th. Symptoms all aggravated. Movements incessant, but no marked convulsion. Semicomatose all day till three P. M., when death occurred.

At no time during his sickness was there the least moisture of the skin.

The treatment of this case was largely for the relief of symptoms. Hot-air baths and pylocarpine were used without the slightest result. In the early stages diuretics were given, but later abandoned. Morphine was given hypodermically for the relief of vomiting. Baths were given frequently, and were most acceptable to the patient.

The autopsy was performed by Dr. H. M. Cutts eighteen hours after death.

Rigor mortis, very marked. Body well nourished, although the limbs were not large. Skin discolored in scattered patches by a purpura. On opening the abdomen a layer of fat about one and one-half inches thick, was cut through. There was also a large amount of fat in the omentum and other portions of the abdomen. The peritoneum and also the intestines were thick, pale and of a pearly color. On the right side, the colon and small intestine were adherent to the abdominal wall by quite firm bands. Fluid in the cavity of abdomen was slight in quantity. There were no marked lesions in the stomach, intestine, liver, spleen or pancreas. The kidneys were surrounded by an abnormal amount of fat. They were removed from the surrounding parts with great difficulty, there being signs of severe acute inflammation especially around their upper halves. The bladder appeared to be empty. The head and thorax were not opened.

The left kidney was six and one-half inches long, four and one-half inches wide, and weighed in the neighborhood of one pound. It was lobulated, and at the prominent points fluctuated. The capsule was adherent. The surface, although reddened in places, was not far from normal.

The cavity of the pelvis contained about three-quarters of an ounce of pus, and also a triangular-shaped calculus about seven-eighths of an inch long. In the substance of the organ were five cavities, each about the size of a peach-stone, filled with pus. The pyramids were largely obliterated and the cortical portion was firm and hard. The left ureter was about normal in size.

The right kidney, on external examination, appeared very similar to the left one. This organ was

¹ Read before the Brookline Medical Club, January 12, 1897.

not opened, but was sent to Dr. R. F. Fitz, who reported the following:

"The kidneys received were extensively diseased. There was a chronic diffuse nephritis and a fresh pyelonephritis. The bladder contained apparently nothing but pus, suggesting that death was the result of uremia and suppression of secretions."

The right ureter was dammed by a calculus, the size of a large pea. Above this the calibre was three times the normal size. The bladder contained about 10 ounces of pus, which was probably forced into it while the urinary tract was being removed from the body. The walls were considerably thickened and the inner surface was somewhat congested, but the general condition was very good. No urine was found anywhere.

In discussing cases of anuria I take the liberty to quote quite freely from a paper written by Dr. John W. Farlow, which was published in the *Boston Medical and Surgical Journal* of April 4, 1889.

Cases of anuria can in a general way be divided into two classes: first, those caused by disease of the organs; second, those caused by obstruction. The first class usually die very soon after the flow of urine stops, from shock or exhaustion due to the disease. The second class is generally due to some mechanical cause, and in these the true effects of failure to secrete urine and to eliminate urea in that way are manifested. The duration of life after the entire suppression of urine is from nine to eleven days, although in some cases it is much longer. About fifty per cent. of the cases are caused by calculi. Other causes are growths of various kinds and adhesive bands caused by inflammations. A few cases are reported in which there is not an obstruction. These are due to mercurial poisoning, cystic degeneration of kidney, abscess of kidney, cholera, scarlet fever, diphtheria and hysteria. When any water is passed, it is generally pale and contains no albumin or casts. It is found that passing a very small amount prolongs life but a very short time. The urea which should be passed in the water is eliminated to some extent by the vomiting which is a very constant symptom. The skin also helps to a greater or less extent."

Charcot held the theory that the retarding of uremic symptoms is due to the slowing or enfeeblement of denutrition, "that it is like a fire covered with ashes. The processes of combustion have stopped."

Twenty-four per cent. of Dr. Farlow's cases recovered.

Medical Progress.

REPORT ON PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 13, p. 310.)

THE USE OF FORMIC ALDEHYDE GAS FOR THE DISINFECTATION OF LARGE APARTMENTS.²

RECENTLY attempts have been made to attain a more rapid and abundant evolution of the formic aldehyde than was possible by the use of formalin. This has been accomplished by the imperfect combustion of methyl-alcohol in especially constructed

lamps. The author refers to the experiments of Diendonné with a lamp made by Tollens, and later with one manufactured by Krell; and he explains that, having been entrusted by the Prussian War Minister to carry out a series of investigations into the use of this gas, he communicated with Diendonné and obtained a series of lamps in October, 1895, and in February of the present year. An explanation is given of the construction of these lamps, which had each a capacity of 200 cubic centimetres, and an account follows of their use under various conditions set forth by the author.

The three hospital rooms in which the tests were made contained respectively 9,286, 3,248 and 2,118 cubic feet; the first served for seven beds, the second for three, and the third could, if the necessity arose, be used for two beds. The furniture and all the contents remained undisturbed during the trials, and were in no case injured in any way by the formic aldehyde gas. The test objects (infectious matter) were placed about the rooms, on the tables and on the floor, in open glass vessels, and they consisted for the most part of such matters as would commonly occur in rooms which required to be disinfected, such as tuberculous sputa, both fresh and dried, and also pure cultures of typhoid, cholera, diphtheria and other bacilli, some being in the form of fresh agar-cultivations and some dried upon silk threads. To avoid a loss of the gas in consequence of the imperfect fitting of the doors and windows, certain of the chief crevices were pasted up. The vapors were allowed as a rule to stand in the rooms for twenty to twenty-one hours, though in a few instances the experiment only lasted for fifteen hours. The number of lamps used, the weight of methyl-alcohol utilized, and the effects upon the various test objects are set forth in tables. The trial of the room containing 9,286 cubic feet, for which eighteen lamps were employed, was a failure; and no results are in this case published. A maximum of eight lamps was used in the room containing 3,248 cubic feet, and 5.4 grains of methyl-alcohol per cubic foot of space were consumed; but much larger quantities were employed in some of the smaller wards in which tests were made.

Certain difficulties which arose in carrying out the process induced the author to suggest the construction of more powerful lamps in which larger volumes could be volatilized, or, as is pointed out, it would be much more convenient if the gas could be liquefied in the same way as carbonic acid and sulphurous-acid gases, and could then be conveyed into the rooms to be disinfected; but this at present does not appear possible.

As the result of his tests, the author states that he does not think this gas can be employed with useful results in the disinfection of large spaces; and in this view he is confirmed by the recently published experiments of G. Roux and A. Trillat, who were unable by the use of a Bardet-Trillat apparatus, consuming 8.8 pints of methyl-alcohol, to disinfect with success a room containing 2,754 cubic feet.

Another valuable contribution to this subject is the recent paper of Dr. Kinyoun.³ As the result of his experiments in the hygienic laboratory at Washington, Dr. Kinyoun says it is demonstrated "that the

² Prof. Dr. E. Pfuhl: *Zeitschrift für Hygiene*, 1896, vol. xxii, p. 33.

³ Formaldehyde as a Disinfecting Agent, and its Practical Application. Public Health Reports, Marine-Hospital Service, Washington, D. C., January 29, 1897.

gas is a valuable disinfectant for surfaces, and for the lighter articles, such as curtain-hangings, clothing, carpets and bed-coverings. The gas was germicidal in all save where the test cultures were tightly wrapped in many layers of the fabrics. Interiors of books were difficult to disinfect.

It is doubtful whether the interior of articles such as upholstered furniture, mattresses and pillows can always be disinfected unless a much larger percentage of gas is applied than was used in these experiments.

The main obstacle in the way of applying formaldehyde gas, or any other gaseous disinfectant for that matter, is in not being able to close the apartment sufficiently tight to prevent the escape of the larger part of the gas. In our experiments extra precaution was taken to close all avenues, and yet, notwithstanding this, there was but little gas present, in comparison, after thirty-six hours had elapsed. The only way this can be guarded against is by using an excess of the gas. Just in what proportion the excess should be, will entirely depend on the local conditions.

It occurs that the length of exposure is secondary to the amount of gas used. A large per-volume strength will accomplish the object better and in a shorter time than by the using a small amount of gas and prolonging the exposure. For room disinfection, under favorable conditions, fully twelve hours' exposure should be given. After twenty-four hours it is believed little or nothing will be accomplished.

THE EFFECT OF THE GASEOUS AÉRATION OF WATER ON BACTERIA.

The extensive use of carbonated waters has given rise to an examination of such waters with reference to the effects of carbonation upon the bacterial life of the waters thus treated.

Dr. Frankland⁴ states that widely different waters are employed in the manufacture of aerated waters, the bacterial contents of which differ widely, both qualitatively and quantitatively. Some bacteria rapidly disappear in such waters, and others are but little affected. In one instance a sample of carbonated water was found to contain, one hour after its manufacture, 8,350 microbes per cubic centimetre. These figures rose in 210 days to 212,400 per cubic centimetre; and at the end of 428 days had fallen to 46 per cubic centimetre. As regards the behavior of pathogenic bacteria in carbonated waters the results are more decidedly unanimous; and the general impression that a barrier of no mean obstructive power is placed between the consumer and infectious disease by the substitution of aerated for ordinary drinking water, at any rate in times of epidemics, is to a certain extent justified by investigation.

Although storage, even for such considerable periods of time as over two years, cannot — at any rate in some cases — secure the entire elimination of ordinary water microbes, yet storage of considerably shorter duration is of undoubted service in the destruction of disease germs.

THE DANGER OF SEWER-GAS, AND THE EXCLUSION OF THE SAME FROM DWELLINGS.⁵

The authorities who had been prominent in the past in laying down the doctrine of the promulgation

of diseases through the agency of sewer-gas were discussed, and the writings of Parkes, Meredith, Notter, and others were cited. It was chiefly in England that the injurious action of sewer-gases escaping into houses was insisted upon, and typhoid fever was one of the principal diseases attributed to these causes. The reports of Simon on the Sberborne epidemic in 1872, and of Buchanan on the outbreak of typhoid fever at Caius College in 1873, are quoted as representative of the opinion of English experts. In contradistinction to these views, the majority of writers on hygiene in Germany maintain that sewer-gases are incapable of disseminating typhoid fever or other infectious diseases; and, in support of these conclusions, allusion is made to the investigations of Flüge, Gärtner, Pransnitz, Rubner, and Soyka.

As early as 1881 the last-named authority demonstrated by statistics at the Vienna meeting of the society, that cities provided with sewers were not in any way more liable to the attacks of diseases of this type than those wholly undrained; indeed, he proved the converse of this theory, and showed that in a series of towns which had recently been sewered on the modern system the mortality from typhoid fever had diminished, and that, in those parts of the towns where the sewerage was defective, the cases of typhoid fever were more frequent and more severe than in those quarters which were well drained. Many other authorities were cited, and figures are given to show the condition of drained and undrained towns, among which the facts relating to Dantzic and Munich before and after the introduction of drainage are recorded, also the investigations of Baron into thirty-seven undrained towns and forty-six towns provided with a system of sewers. Everything pointed to the opinion that the provision of proper drainage is the best method of reducing the death-rate from typhoid fever;⁶ whereas, if the sewer-gas theory were correct, the construction of a modern sewerage system ought to entail increased mortality from this disease.

Passing on to the discoveries of Pasteur and Koch and their numerous pupils, the author shows that a correct knowledge has now been gained of actual disease-germs, and of the best means of withstanding them. It may be pronounced with absolute certainty that any given disease can only occur when the known organism recognized as the active agent of the same has acquired vitality. In the absence of the typhoid-bacillus there can be no typhoid fever; and where there is no cholera-vibrio, there can be no cholera. The gases caused by putrefaction, however poisonous they may be, cannot produce diseases of the above kind. The author points out that certain of these pathogenic germs which may enter the sewers mixed with fecal matters and soiled water do not find in them very favorable conditions for their existence, and that for the most part these organisms lose their virulence in sewage water. In order that the sewer-gas theory may be realized, it must, however, be assumed that certain of these infectious germs are capable of floating in the air and of thus entering dwellings. Nägeli has, however, shown that this is not possible, and he has proved that these germs can neither ascend into the air nor be given off from moist surfaces, and in the air of sewers, moreover, bacteria have been ascertained to be invariably present in small numbers;

⁴ Public Health, London, February, 1897, p. 167.

⁵ Dr. M. Kirchner: Deutsche Vierteljahrsschrift für öff. Gesundheitspflege, 1896, xxviii, p. 152.

⁶ This statement needs qualification. It would hardly seem possible that the writer intended to exclude the influence of pure and unpolluted water-supplies as an important factor.— *Editor.*

indeed, frequently such air is absolutely free from these organisms. Uffelmann has been at some pains to ascertain the species of bacilli found in sewer-gas, and a list of these is given. It is stated that it follows from these arguments that there is no proof of there being any connection between sewer-gas and the spread of epidemic diseases.

On the question of the extent to which, apart from their liability to spread diseases, sewer-gases may prove injurious to health, the author asserts that this depends mainly on the degree of concentration in which certain undoubtedly poisonous gases exist which are found in sewers and other places where putrefying matters are collected and stored. The thorough and effective ventilation of sewers and soil-pipes is the best mode of combating this evil.

A distinction is drawn between sewer-air and sewer-gas, and it is pointed out that the latter can only form in sewers which contain dead-ends and in other places where effective ventilation is wanting. In well-constructed sewers, the contents pass away freely and rapidly without undergoing putrefaction, and the air in such sewers is in no way unhealthy. The house-drains and soil-pipes are much more likely to engender evil-smelling and injurious gases than are the sewers.

A further experimental paper on this subject appears in the "Transactions of the American Society of Physicians and Surgeons," 1894, Vol. III, p. 28, under the title of "Chemical, Physical and Bacteriological Studies, upon Air over Decomposing Surfaces, with Special Reference to their Application to the Air of Sewers," by Prof. A. C. Abbott, of the University of Pennsylvania. His conclusions appear to coincide with those of Dr. Kirchner.

SHELL-FISH AND DISEASE.⁷

It seems to me that a few points should be clearly stated, and some conclusions drawn, as to the future regulation of our shell-fish trade. In the first place, out of the various forms of human poisoning which can be caused by food, shell-fish, under unhealthy conditions, may give rise to two which are very distinct from one another. They are (1) bacterial infection, due to the presence of actual living disease germs, derived presumably from sewage; (2) intoxication with organic poisons developed in the body of the oyster or mussel.

"Professor Boyce and I have been working at this subject — oysters and disease — for the last two years, and a year ago we recommended (in my report for 1895 on the Lancashire Sea Fisheries Laboratory) two sanitary measures, namely, first the inspection of all grounds upon which shell-fish are grown or bedded, so as to ensure their practical freedom from sewage; and, secondly, the use, when necessary, of what the French call *degorgoirs* — tanks of clean water, in which the oysters should be placed for a short time before they are sent to the consumer. I am inclined now to suggest that a combination of these two methods would be a practical and satisfactory solution of the present difficulty. The *degorgoirs* may be regarded as a precautionary measure of the nature of quarantine, to which oysters from foreign or unknown beds, or such as are suspected from any reason, should be subjected.

"Our experiments at University College have shown,

as Professor Boyce announced to the Physiological Section at the recent British Association meeting, that it is easy to get rid of bacterial infection by placing the shell-fish in a stream of running water. When oysters were infected with typhoid, and were then placed in a series of vessels through which a stream of sea-water was kept running, it was found that there was a great diminution or total disappearance of the typhoid bacillus in from one to seven days. The water need not be sea-water, as oysters frequently live in estuaries which are brackish, or at times almost wholly fresh; and I may add, for the comfort of troubled housekeepers, that a clean vessel in the pantry sink under the running tap is a very fair substitute for our more elaborate experimental apparatus, and that even one day makes a great deal of difference in the washing out of the germs. I need scarcely say that the oysters must be alive. It is no use subjecting oysters that have been opened to this prolonged soaking. The essence of the *degorgement* treatment is that the living animal purifies itself.

"Authoritative inspection and licensing of the shell-fish grounds would, no doubt, result in many beds being at once certified as quite healthy, and oysters from these might then be sold without restrictions, and consumed with peace of mind; a few localities, which are discussed in the Local Government Board Report, would be at once condemned as unsuitable to have any connection whatever with human food; while there would remain a number of spots in estuaries or near large towns where the conditions are not absolutely bad, and are not wholly good, and oysters from such places should be subjected to the *degorgement* treatment before being sold. One other simple piece of advice: The oyster ought to be obtained as fresh as possible from the sea, or from moving water. It is not good for any animal — the oyster is like its consumer in this as in many other respects — to be shut up in a barrel or a sack for days or weeks; and if you put the oyster under unhealthy conditions, you will probably eat unhealthy oysters.

"A careful consideration, then, of our own experiments, and of the evidence given in the recent Local Government Board Report and derived from other sources, leads us to the conclusion that what is indicated at the present time is that (1) some fisheries or sanitary authority should offer to inspect the grounds, and certify as to their condition; (2) the oyster growers and merchants should unite in an effort to remove all grounds for suspicion by allowing biological as well as economical considerations to weigh with them in their choice of localities for 'laying'; and (3) the public should not give way to unnecessary alarm. We cannot escape disease germs, and we probably, all of us, encounter them frequently without suffering any consequences. Shell-fish only share with milk, bread, cold meat, the water we drink, and the air we breathe, the responsibility of occasionally being liable to convey disease to the human body, and that is no sufficient reason for avoiding what is otherwise healthy food. Common-sense on the part of the public, reform where necessary by the oyster trade, and regulation by some impartial authority, ought to enable us to feed on healthy oysters with an easy mind."

REGISTRATION OF APOTHECARIES.

The Imperial German Board of Health has issued a report upon the Registration of Apothecaries in Ger-

⁷ Prof. W. A. Herdman: Sanitary Record, London, January 29, 1897; Liverpool Post.

many,⁸ which shows that the relative number is much less than it is in this country.

The number (comparing those of 1887 with those of 1895) of apothecary shops in large, medium and small municipalities had experienced the following changes:

There was one drug-store to the following number of inhabitants:

	1895.	1887.
In large municipalities	11,149	11,322
In medium-sized municipalities	6,855	6,306
In small-sized municipalities	10,037	9,757

The report is accompanied with very full statistical tables, presenting the distributions of drug-shops, as well as of druggists and their assistants, together with two excellent maps showing the same distribution as estimated upon the census of July 1, 1895.

Reports of Societies.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.

JULIAN A. MEAD, M.D., SECRETARY.

THE Society met at No. 19 Boylston Place, February 3, 1897, the President, Dr. S. W. ABBOTT, in the chair.

HON. H. M. KNOWLTON, Attorney-General of Massachusetts, addressed the Society on

THE DUTIES OF A MEDICAL EXAMINER.¹

DR. E. P. HURD, of Newburyport: I would like to have had the speaker more explicit on the question of suicides. If I understood the gentleman, when a medical examiner is called to a case where he finds a body, if it is a case of suicide, he has nothing to do with the case at all. Perhaps I misunderstood him. In a discussion before another association, the gentleman who read the paper at that time took the ground that this class of cases did belong to the medical examiners to determine the fact of suicide. The other case is the case of drowning, where the case is palpable: as where a child goes in swimming, or rowing in a boat, and there are half-a-dozen persons who saw the drowning accident. The body is brought ashore, and the medical examiner sent for. I would like to know, because I live on the border of a river near the shore, where we have more cases of death by drowning than through so-called "violent" deaths; I would like to know specifically—supposing I am summoned to go three miles to a drowning case, and there are plenty of witnesses who saw the party go in bathing, and perhaps brought the body ashore—what my duty is. Is it to obey the summons and get a report on the case, or satisfy myself that there are no doubts that it is a case of accidental drowning? Is it my duty to report it or leave it unreported?

MR. KNOWLTON: Of course, the death by drowning illustrates the general proposition. A death by drowning is an "unnatural" death, and so far comes within the province of the medical examiner. Then I adhere to what I said, that if the fact of suicide is clearly established, there is no crime to punish and no

occasion for further proceedings. I should say without doubt that whenever a case of drowning is reported to you, it is your duty to view the body, because nobody can tell so well as the medical examiner. He is the instrument of the Commonwealth to ascertain—the Commonwealth has appointed him to ascertain—whether it is death by drowning, or not. When he has ascertained by personal inquiry and by view, to his own satisfaction, he has no occasion to go further unless there are circumstances requiring him to go further.

In regard to the other question: I can only say as I said before that it is the medical examiner's business to go to the length of ascertaining whether "the unlawful act of another" contributed to the death. At any time when he becomes satisfied that the act of another did not contribute to the death, then his duty is discharged; because suicide is not punishable in this Commonwealth as a crime, the ingenious argument two years ago, to which I listened, to the contrary notwithstanding. The confusion in this rose out of the fact that the case of suicide presents a case where there is an obviously human force—human physical force—used, and the ascertainment of the fact becomes therefore more difficult whether it is the force of the man himself or some one else. After the view has settled it that it is the force of the man himself, and a suicide, then there is no crime. Of course, that addresses itself to the judgment of the medical examiner. He is to bear in mind that when he has traced out the end of the man—whether it is a man found dead in bed with a pistol-shot, and the pistol in his hand; or a case of asphyxiation, with the gas turned on; or any case of suicide—if the results of his view do not point clearly to suicide, of course, it is possible to go further.

DR. SAWYER: I should like to ask the attorney-general if his remarks are applicable to cases of burning. I did not understand him to answer directly another part of the question asked in the previous question, whether the medical examiner would in his opinion be justified in making a charge for such an examination?

MR. KNOWLTON: I did mean to say that every "view" should be charged; that the Commonwealth don't expect anybody to work for nothing, and the amount is earned by the investigation. The body has been killed by the hand of man or by the elements, and his charge is for ascertaining which one of these. "Burning" is an unnatural death; it may be death by violence or by accident, and he came to the "view" for the purpose of determining that question.

The Society was addressed by HON. SHERMAN HOAR, United States Attorney for the District of Massachusetts, on

THE MEDICAL EXAMINER AS A WITNESS.²

DR. BRONSON: This gentleman says that he don't think that the medical examiner should take issue against the State. What does he mean by that?

MR. HOAR: I mean exactly this, that I think the medical examiner is a part of the machinery of the State; and while he should keep his mind entirely open and tell the exact truth, while he should give his opinion exactly, he should never be found as an "expert" on the other side where the State is involved. I think it damages his professional standing as a witness whenever he comes forward later as a

¹ See page 321 of the Journal.

⁸ Die Verbreitung der pharmazeutischen Anstalten und des pharmazeutischen Personals im Deutschen Reich nach den amtlichen Erhebungen von Juli 1, 1895. Berichterstatter Sanitätsrath, Dr. Würzburg, Berlin.

² See page 330 of the Journal.

witness for the Commonwealth. I think the willingness often shown in cases to testify against the Commonwealth as an "expert" against those chosen by the Commonwealth to be medical examiners, and in opposition to the view taken by them, has a tendency to degrade in the public mind the position of the medical examiner.

DR. BRONSON: I agree with my friend, the district attorney, on this subject; but there is one question involved here on which I desire to ask his advice as an ex-medical examiner. He, of course, has recently conducted a cause in the interest of the United States against a man who was alleged to have committed murder upon the high seas. Two experts were brought into that case (medical experts). One, examined by the defence, was present during that trial and was examined as to the mental status, so far as he could give it, of a certain witness in the case; and upon being brought upon the stand, he alleged that in his opinion that man was insane. The antecedent history emphasized that opinion, as I understand it. And he went into the record as a believer in the unsoundness of that man's mind. When the question was submitted to analysis, men who believed in the standing and character of that expert believed, I think, as a rule, that that witness was unsound mentally. Later, the district attorney called an expert who has charge of one of our insane asylums, and he took an adverse position. He declared his belief that that man was not insane, not unsound mentally, and that he had not been unsound at Rotterdam years before.

Now, in the case of that kind of questioning, I desire to ask the district attorney as to how he is going to harmonize views—those two statements—by any process other than that of reason? If Dr. X had been sent there by the United States, would he, in the opinion of the district attorney, have entertained views adverse to those he expressed when examined there by the defence? If so, this, of course, is a warping of that man's judgment based upon the method by which he was brought there as a medical expert.

MR. HOAR: I must decline to criticise any of the witnesses that have been in the case I have personally conducted. But I will say to my friend that I should like nothing better than to have it in the power of any court to appoint medical experts to give a definite decision, unbiased by the fact that they were called as witnesses on either side. I believe that that is essential, for the reason that the doctor states here. Men unconsciously take sides. They can't help it; I do it myself. Men do it honestly. If it were best for the court (it could not be done, in my judgment, without giving either side the entire right to call medical witnesses) in a case where opinion is given on either side, to examine men of character and unbiased, selected by the court and not by the counsel, to get their judgment, it would materially help twelve men, laymen, to decide the question at issue. And I should like to see that done.

I cannot discuss the particular matter stated here. And there is nothing, as long as our jury system exists—and I am a thorough believer in it, because I believe in my experience with judges and lawyers and doctors that the ordinary Yankee gumption of twelve men is apt to be right as much as that of

twelve educated men—but to rely upon the natural sagacity to detect flaws in even medical testimony, and to "size up" men even if they are doctors.

DR. SAWYER: There is quite a tendency, I believe, to call upon medical examiners as experts in the courts in cases where medical expert evidence or opinion is necessary. I would like to ask the attorney-general if he would consider it at all detrimental for the medical examiner to appear in such a case as that, where he does not appear contrary to the interests of the Commonwealth?

MR. KNOWLTON: In civil cases I see no objection at all.

DR. SAWYER: Pardon me. But there was one matter about which the attorney-general made the statement that a medical examiner should hesitate some little time before coming into the district of another medical examiner, but that where cases demanded immediate action he should respond at once. Now I have been a little embarrassed. I have been summoned two or three times into surrounding districts when the medical examiner was not at home at that time—summoned by the legal officers or selectmen; in one instance, by the chief of police of the city of Fitchburg. Just how far ought a medical examiner to intrude upon the jurisdiction of another medical examiner?

MR. KNOWLTON: The law distinctly provides that, although medical examiners are appointed by districts, that provision should not be construed as preventing them from acting in any other part of the county. I think it does not extend to another county. So there is nothing in the law that will prevent a man who has one district in a county going into another district of the county. Two things are to be considered in answering such a question. The first is, that it often happens that the whole consequences may depend upon immediate action. For example (I meant to have spoken of this in my address), it happens in my experience to an unusual degree that the question of how long the body had been dead is liable to be of vital importance; and that, of course, can only be determined with any accuracy by an immediate "view." I think the experience in several recent cases has impressed upon the several medical examiners the great importance of getting the temperature of the body more accurately than can be ascertained by the somewhat fallacious nerves of the hands—some accurate measurement of the temperature. Secondly, his own immediate success will lead him to see where for any reason his services are more in demand than those of the medical examiner of the district; and if the alleged temporary absence of any other examiner is a pretence to get the more favorite examiner he will find himself judge. There is no law but the unwritten law of courtesy; the unwritten right of each man to have whatever belongs to his district is only to be overridden when for any reason whatever there is reason for special haste. This is not a good answer, but it is all I can give.

DR. MEAD: Is there any regulation as to when a medical examiner should make an autopsy?

MR. KNOWLTON: Fortunately, the law is pretty plain about that. It imposes it on the discretion of the medical examiner, "if after having viewed the body and made the special inquiry, he deems a further examination necessary." If he shall proceed to make an autopsy upon the authority of the district attorney,

it then comes to the final discretion of the judgment of the man who is commissioned by the governor to use his discretion. I say, answering the proposed question by examples more than by principles, Where he becomes reasonably satisfied, without an autopsy, that there is no violence, he should not have an autopsy. Where he is left in doubt, and he thinks an autopsy will help him, he should have it. Where the cause of death is apparently "the unlawful act of another," then he should have an autopsy, not for the purpose of satisfying himself as to whether there was crime or not, but for the importance of the evidence that may be developed by the autopsy.

DR. MEAD: There is a subsequent law which says that the fee shall be paid only when the district attorney shall certify that the autopsy was necessary. It takes it out of the hands of the medical examiner.

MR. KNOWLTON: I remember that law; and it was passed undoubtedly in consequence of the fact that one or two medical examiners (one that I knew something about—not living) I am sorry to say were in the habit of looking at pecuniary results rather than the cause of justice.

I do not know how far the experience of medical examiners can correct the statement; but in my experience, with perhaps one single exception, I have considered the judgment of the medical examiners to be better than my own. And I have never refused the certificate when the examiner has thought he ought to make the examination. The most that can be said is, that if the district attorney does not agree, the examiner has no fees. But there again I would suggest that when the question comes up as to whether a view is necessary, or an autopsy, he should proceed regardless of whether he is making the county an expense or not, and regardless of the fact whether he is going to get anything out of it.

DR. DRAPER: I move the cordial thanks of the Society be given to Mr. Knowlton and Mr. Hoar for their lucid, useful and helpful interpretation of various doubtful points which have troubled us.

The motion was adopted with applause.

The next subject brought before the Society was a paper by DR. W. F. WHITNEY, entitled

THE IDENTIFICATION OF SEMINAL STAINS.³

In reference to the subject of

MEDICAL EXPERT TESTIMONY

it was voted that the Executive Committee of the Society be instructed to co-operate with committees appointed by other bodies, legal and medical, in attempts to secure legislation to reform the present methods of employing medical experts in the courts of this Commonwealth.

A COSMETIC LAPAROTOMY. — Küstner, of Breslau,¹ has proposed a transverse skin incision in the fold of skin which often occurs at about the upper limit of the pubic hair in women. This superficial incision being well retracted, the ordinary median incision is made in the *luna alba*. The linear skin cicatrix is rendered almost invisible by the pubic hair and the natural crease in the skin.

¹ Monatschrift für Geburtshilfe und Gynäkologie; Centralblatt für Gynäkologie, March 13th.

³ See page 329 of the Journal.

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CEREBRO-SPINAL MENINGITIS A DISEASE DANGEROUS TO THE PUBLIC HEALTH.

ALONG with the growth and increasing density of population the tendency of progress in preventive medicine is in the direction of giving greater and more definite powers to boards of health, for the investigation and the prevention of the spread of infectious diseases. Many years ago (1827) laws were enacted in Massachusetts making it the duty of householders, and of physicians to report to the selectmen or boards of health of towns, the existence of small-pox, or of *any other disease dangerous to the public health*; and in 1883, the boards of health were required to transmit the same information to the State Board of Health, so far as small-pox was concerned. In 1893 the law was made more explicit, and local boards were required to transmit immediate information to the State Board as to the existence of *all diseases dangerous to the public health*. This term, "*other diseases dangerous*," etc., was not defined by statute, but left in an indefinite manner.

A somewhat similar act was recently passed in England. A dozen or more diseases were specified in the English act as notifiable, but power was given to sanitary authorities to order that the act shall apply to *any other diseases* besides those which are specified.

The following statutes are now in force in Massachusetts:

[PUBLIC STATUTES, CHAP. 80, SECT. 78, ACTS OF 1884, CHAP. 98, AND ACTS OF 1891, CHAP. 188.]

(1) When a householder knows that a person within his family is sick of small-pox, diphtheria, scarlet fever or any other disease dangerous to the public health, he shall immediately give notice thereof to the selectmen or board of health of the town in which he dwells, and upon the death, recovery or removal of such person, the rooms occupied and the articles used by him shall be disinfected by such householder in a manner approved by the board of health. Any person neglecting or refusing to comply with either of the above provisions shall forfeit a sum not exceeding one hundred dollars.

(2) When a physician knows that a person whom he is called to visit is infected with small-pox, diphtheria, scarlet fever or any other disease dangerous to public health, he shall imme-

diately give notice thereof in writing, over his own signature, to the selectmen or board of health of the town; and if he refuses or neglects to give such notice he shall forfeit for each offence not less than fifty nor more than two hundred dollars.

[CHAPTER 302 OF THE ACTS OF 1893]

(1) When the board of health of any city or town has had notice of the occurrence of a case of small-pox or any other disease dangerous to the public health in such city or town, such board of health shall, within twenty-four hours after the receipt of such notice, notify the State board of health of the same.

In order to facilitate the operation of these acts, the State Board has prepared and furnishes to local boards an ample supply of blank postal-cards, by means of which the local authorities can supply the information required in the act. A circular was issued in 1893, in which the State Board expressed its opinion that the following diseases should be regarded as dangerous to the public health, within the meaning of the act: small-pox, scarlet-fever, measles, typhoid fever, diphtheria, membranous croup, cholera, yellow fever, typhus fever, *cerebro-spinal meningitis*, hydrophobia, malignant pustule, leprosy and trichinosis.

The first six of these diseases, except small-pox, are of much more frequent occurrence than the remainder, consequently, these six are placed at the top of the postals, and a blank space is left for recording the number of cases of each disease. At the bottom of each card, however, attention is called to certain other diseases, *cerebro-spinal meningitis* being named among them.

It appears that during the past month this disease has been prevalent to an unusual degree; and yet scarcely any notice has been taken of the fact in the usual notices forwarded to the State Board of Health by local boards. This is undoubtedly due to the neglect of physicians to notify the local boards of its existence. It is quite desirable that all such diseases as may occur at intervals in epidemic form may be made the subject of notification, in order that the State Board may receive the fullest information upon the subject.

It is only a few years since a serious epidemic of trichinosis occurred in one of the small towns west of the Connecticut river, in which about fifty persons were taken ill and five died. The State Board received no notice whatever of its occurrence from the local authorities, and only learned of the same through accidental and non-official sources.

Cerebro-spinal meningitis is much more prevalent in the United States than in Europe. The number of deaths from this cause, as stated by Dr. Billings in the census of 1880, was 2,898 in the United States in that year, and allowing for deficiencies the actual number was probably about 4,000. Of the number recorded, 35 per cent. were under two years of age, and over 80 per cent. were under five years of age.

In Massachusetts the total number of deaths from the same cause in the five years 1891-1895 was 574; of which number 231, or 40 per cent., were under two years of age.

In England at no time in the past twenty years did the number of registered deaths from this cause exceed

58 in any single year in a population averaging 25 millions.

Within the past few weeks *cerebro-spinal meningitis* has occupied the attention of the profession in Boston and its neighborhood, from the occurrence of cases both in hospital and in private practice; and a rapidly fatal termination of the attack in two prominent citizens has emphasized this attention.

In several instances lumbar puncture has yielded a *diplococcus* differing from the *pneumococcus*.

The suddenness of the onset, the rapidity of the course, the resistance to any form of treatment in the majority of cases, together with the large percentage of mortality, and the impossibility in most cases of tracing the source of infection, render this disease one dreadful alike to the patient and to the physician.

"PLASTER CASTS" AND "WALKING CASTS."

"AND was your leg broken when you fell?" "No docther, it wasn't broken, but the docther at the hospital said it was badly fractured, and he kept it in a plaster cast for two months before he let me bear me weight on it." Such is the class of people by whom the surgeon hears the term "plaster cast" employed most frequently in the sense of plaster bandage or dressing, and the "caste" of such people might on the average be said to be as low as their treatment of the English language. The name seems to have come to be used in this sense by the frequency with which casts, or reproductions of the form of objects by liquid material run into a mould and allowed to solidify, are made of plaster. Anything made of plaster, even a stiff bandage, which might if removed be used as a mould to make a cast in, becomes a "cast."

Of late, however, we have observed with regret, combined with pity, perhaps undeserved, that the use of the term cast as applied to bandages stiffened with plaster-of-Paris is not confined to the class of people who so frequently inform out-patient surgeons that the leg was not broken, only fractured, but that medical students are talking in groups about the relative merits of splints and plaster "casts" in the treatment of fractures, and even instructors in our large medical schools are talking about the treatment of fractures by plaster casts. The ambulatory treatment of fractures of the lower extremity has walked into prominence leading by the hand the "walking cast," which let it be understood, is not a cast endowed with legs and powers of locomotion, as its name would imply, but a bandage stiffened by plaster-of-Paris and so applied that a patient may walk on it without injury to the fractured member which it encases. Contributors to some of our well-known medical journals, whose editors would be shocked at any misuse of the English language in those columns, are allowed to write about "walking casts," and "plaster casts," giving the term "cast" a meaning contrary to good sense and good English. Let these unwarranted expressions be cast out of medical terminology!

MEDICAL INSPECTION OF SCHOOLS IN NEW YORK.

THE results accomplished in the first four days of its work by the recently established Division of the Medical School Inspection of the Health Department show the great need that existed for such inspection, and sufficiently demonstrates the fact that the appropriation made by the city for this object is money well expended. During that time more than four hundred children have been found suffering from contagious diseases and excluded from the schools.

As was to have been expected, the great proportion of cases discovered were of diseases of the eyes and skin, but a considerable number of instances of acute infectious disorders have also been detected. Among these were ten cases of supposed diphtheria, two of measles, one of scarlet fever, and six of mumps.

In the cases of supposed diphtheria the children were all promptly isolated, to await the result of cultures, and at the time the report was made six of the ten children had been shown to be suffering from attacks of true diphtheria. In none of these cases, it is stated, had either the parents or teachers suspected the presence of that disease.

The plan of school inspection now inaugurated includes a course of lectures to be given to teachers for the purpose of aiding them in a general way to themselves detect the various contagious diseases liable to be met with among school children. This medical inspection of schools, which was started here in Boston, is commending itself so strongly by experience that it will probably become general wherever considerable numbers of children are gathered together in schools.

 MEDICAL NOTES.

DEATH OF AN OLD PRACTITIONER. — M. Boisson, the oldest medical practitioner in France, died last week at Havre, at the age of one hundred and two. At the time of his death he was still in active practice.

PROFESSOR HANKIN ATTACKED BY PLAGUE. — Professor Hankin, who has done so much work in connection with plague in India, was recently attacked by the disease at Agra. He was inoculated with Haffkine's serum, and his recovery is regarded as certain.

CHLOROFORM FATALITIES. — The increasing frequency of deaths under the influence of chloroform is attracting attention. The mortality for the months of January and February of this year amounted to twelve deaths as against seven for the corresponding weeks of last year. — *Medical Press and Circular*.

CREOLIN AFTER ABDOMINAL OPERATIONS. — J. Malseed Bell¹ has found that by the vaporization of ten or fifteen drops of creolin over a spirit flame, and the inhalation of the vapor, the irritative cough which sometimes results from etherization and is so troublesome in abdominal cases from the strain which it produces on the wound, may be allayed until the

convalescence is so far established that other means may be employed. This is certainly a simple, and apparently rational method for treating a troublesome condition, and as such deserves trial.

THE MECCA PILGRIMAGE SUSPENDED. — The Governor-General of India has ordered the suspension of the pilgrimage to the Hedjaz for the current season, the government of India having come to the conclusion that in consequence of the strong opinions of all the European governments, including Turkey, regarding the danger of the plague being communicated to Europe, it is impossible to meet their demands by any measure short of suspension of the pilgrimage for the time being.

CRUELTY TO HORSES IN ANTWERP. — It is reported that the English and American residents of Antwerp are endeavoring to have an abattoir for horses built near the docks, so that they may no longer be obliged to witness the mournful procession of decrepit and worn-out horses on their way to the present abattoir. The *Lancet* protests against these poor creatures being obliged to make a long and exhausting journey in addition to the sufferings of their sea voyage from England to the land of the hippobaghi. "If any one is permitted to sell horseflesh for foreigners to eat," says our contemporary, "it should be killed on this side."

THE SCIENTIFIC ASPECTS OF THE RECENT GLOVE FIGHT. — That distinguished exponent of the manly art of self-defence, Mr. Robert Fitzsimmons, would hardly feel complimented were he to read the remarks of the *Medical Press and Circular* upon the character of the blow by which he recently won the heavy-weight championship. "The deciding buffet," says our contemporary, "was evidently one administered over the celiac plexus, called a blow on the heart, really on the stomach. The referee described it as 'an underarm punch,' just below, and slightly to the right of the heart, which is, being interpreted, the pit of the stomach. By the laws of the ring, the blow is a fair one. By the rules of common humanity, however, it is a cowardly outrage little short of a deliberate attempt at assassination. The fatal nature of a severe blow to the network of visceral nerves, known as the celiac plexus, makes such 'punches' as those which finished Corbett among the most deadly that can be inflicted with the fist. By the way, what have the anti-vivisectionists to say to this brutality inflicted by man upon man?"

THE HEALTH OF THE FRENCH ARMY. — According to a report by the French Minister of War, recently published in the *Journal Officiel*, new methods of sanitation have resulted in a steady improvement in the hygiene of the French troops. Owing to the use of spring water or the Pasteur-Chamberland filter, typhoid fever has disappeared from some garrisons which it formerly decimated. It is proposed to introduce steam sterilizers into the barracks, and furnish facilities for boiling all the water used by the garrisons. The army is less subject to small-pox, and re-vaccina-

¹ Medical Record, April 3, 1897.

tion has preserved the troops in Algeria, Madagascar and Tonquin, where it is prevalent among the native populations.

HOSPITAL TREATMENT FOR PHYSICIANS.—The Trustees of the Philadelphia Polyclinic have recently adopted the following resolution:

Resolved, That the Trustees of the Philadelphia Polyclinic and College for Graduates in Medicine, wishing to show their appreciation of the public services of physicians upon whose skill and faithfulness all successful hospital work depends, order that one of the private rooms in the Polyclinic Hospital be called the Room of the Mutual Aid Association of the Philadelphia County Medical Society, and direct the Superintendent to admit to said room without charge any member of the Mutual Aid Association of the Philadelphia County Medical Society who may be sick and require medical treatment; provided, that the officers of said Association first certify that the applicant's circumstances require such concession in regard to hospital charges; and that the rules of the hospital in other respects in regard to the admission and duration of stay of patients be observed, and that nothing in these resolutions shall be construed to prevent the use of the said room for other patients at regular rates when it is not occupied by a member of the Association named.

THE POSSIBILITIES OF EUPHEMY.—An English nurse recently brought a suit for breach of promise of marriage against a surgeon, and got judgment in the sum of £300. The surgeon claimed that she had misrepresented her social position, stating that her father was well-to-do, and connected with the Church of England, that her brother was an engineer, and that she had gone into nursing merely to avoid a life of inglorious ease. At the trial it was brought out that her father was "connected with the Church," in the capacity of berger, that her brother was an artisan, and that she had taken up nursing as a means of livelihood. "The surgeon did well," says an English contemporary, "to escape a misalliance at a cost of a paltry £300. The tears that Cupid must have shed, at the edifying spectacle, of the motives governing the participants in this 'love affair' as brought out in court, must they count for nothing?"

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, March 31, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 75, scarlet fever 58, measles 150, typhoid fever 5. For the week ending April 7, the following cases were reported: diphtheria 91, scarlet fever 66, measles 113, typhoid fever 6.

ANNUAL REPORT OF THE BOSTON LYING-IN HOSPITAL.—From the annual report of the Boston Lying-in Hospital it appears that 678 patients were treated in its wards during 1896, and 680 children born. There were 11 deaths during confinement.

The Out-patient Department of the hospital treated 1,564 cases at their own homes, with no deaths.

Since 1873, when the McLean Street Hospital was opened, 8,428 patients have been treated in the wards; and since 1881, when the Out-patient Department was established, 9,463 out-patients have been attended

under the supervision of the hospital staff. Of the total number of patients treated since 1873 in the hospital, 145 have died; but of the 5,767 cases admitted since the introduction of the antiseptic methods of treatment, there have been only 53 deaths. Of the patients who have died, many have been brought to the hospital when almost beyond hope of recovery, in order to give them any possible chance which might be afforded by the care and treatment provided at the hospital.

Of the patients treated in 1896, 439 were married women, and 239 unmarried. The unmarried women received were not women of bad character, but those whose admission was urged on the ground of a needed service under unfortunate circumstances, or for serving the cause of public morality.

Since the nurses' training-school was established in 1888, 200 nurses have been graduated from the institution, and 126 house-officers have completed their terms of service and received the corporation's diploma.

Of the eleven patients who died in the hospital during 1896, four were brought there when seriously sick, and died soon after entrance. Of the three fatal cases of septicemia two had been confined outside, and were brought to the hospital in the hope that their lives might possibly be saved.

During the year three Cæsarean sections were performed at the hospital. All three mothers and two children were discharged well. The third, the ill-developed child of a cretin dwarf, died soon after the operation.

The hospital is dependent to the amount of \$10,000 annually upon donations in order to supplement its income from invested funds so as to avoid encroachment upon its capital. Money donations from friends of the hospital and grateful out-patients have brought it through 1896 with a small balance to its credit. It is hoped that the hospital may be no less fortunate in this than in previous years.

NEW YORK.

FIRE AT THE MANHATTAN STATE HOSPITAL.—A very serious fire occurred on the evening of March 30th in the Manhattan State Hospital on Ward's Island, which had 2,075 inmates at the time; but, owing to the admirable management of those in charge of the institution, a panic was averted and there was not a single casualty among the patients. The damage by the fire is estimated at nearly \$100,000, and plans for rebuilding have already been prepared. While the building is going on about five hundred of the patients will be cared for in other institutions, among them the Long Island State Hospital and the hospital at Central Islip.

OPPRESSIVE REQUIREMENTS OF THE GREATER NEW YORK CHARTER.—On April 2d Drs. A. Jacobi and T. E. Satterthwaite, representing the Academy of Medicine, waited upon Mayor Strong to protest against certain provisions of the charter of the Greater New York, one of which requires physicians

to report to the Board of Health all cases of pestilential disease occurring in their practice within three hours after a diagnosis has been made, and also to report any violation of this rule on the part of other practitioners that may come to their knowledge. It will doubtless be remembered that each of the mayors of the three cities of New York, Brooklyn and Long Island City, as well as the Governor of the State, has the right of veto in the matter of the charter, but the Legislature is empowered to adopt the charter in the face of such veto if the requisite majority can be obtained to vote for it.

IMPROVED TENEMENT-HOUSES.—A gratifying step in the work of the construction of improved tenement-houses has been taken by the City and Suburban Homes Company, which has just purchased from the managers of the Colored Home and Hospital (who will remove their institution to a suburban locality), the entire block on First Avenue, between 64th and 65th Streets, extending to the East River, on which it proposes to erect a group of model tenements. This company offers to those investing in it a return of five per cent. per annum on their money, and at the same time the satisfaction of providing comfortable and sanitary homes for the poor.

INCREASE IN THE MORTALITY OF THE STATE.—The monthly bulletin of the State Board of Health shows that during February there were 9,826 deaths in the State. This is an increase over the preceding month from a daily average of 310 to one of 350, and represents an annual death-rate per thousand of the estimated population of 19, against 17.25 in January. Among zymotic diseases there was a small increase in the deaths from cerebro-spinal meningitis, scarlet fever, measles and whooping-cough, while there was a decrease of 100 in the mortality from diphtheria. In the deaths from acute respiratory diseases there was a relative increase of 500 over the preceding month, and in those from pulmonary tuberculosis an increase of 125. About 300 deaths were attributed to influenza.

LOW MORTALITY IN NEW YORK CITY.—During the week ending April 3d there were reported in the city of New York 798 deaths, the smallest number for quite a number of weeks. The bright, dry weather which prevailed seems to have had an especially favorable effect on the mortality from pneumonia, the number of deaths from which decreased to 122, from 159 in the previous week. The week ending March 27th was notable from the fact that not a single death from typhoid fever was reported in it. During the week preceding there were two deaths from this disease, and in the week following, four deaths. During the past three weeks the number of deaths reported from influenza has been respectively 15, 17 and 7.

SMALL-POX IN NEW YORK CITY.—This week was also notable by reason of the circumstance that two deaths from small-pox were reported in it, the first that have occurred in the city for many months.

During the week ending April 3d there were no deaths from small-pox, but several cases of the disease were reported. Among them were two women at the New York Hospital, who had been admitted for other troubles, and a female helper at the Reception Hospital at the foot of East 16th Street.

DEATH OF DR. BRONSON.—Dr. John O. Bronson, a retired physician of eminence, died at his home at Rhinebeck, N. Y., on March 28th, at the age of seventy. He was educated at the Wesleyan University and the Sheffield Scientific School at Yale, and was a graduate of the old New York Medical College. For several years before the Civil War he was Professor of Anatomy at the latter school, and during the war he entered the medical service of the army. Later he served as chief medical officer of the Department of the Pacific, and afterwards occupied the same position in the Department of the South; the rank of Lieutenant-Colonel being given him for "faithful services."

Miscellany.

THE PROPOSED DUTY ON NATURAL MINERAL WATERS.

UNDER the existing tariff the duty on imported natural mineral waters is limited to one and one-quarter cents on the bottles in which these waters come, that is thirteen and one-half cents a dozen. Under the McKinley law the duty was eighteen cents a dozen. Previously and since 1872 we believe the existing rates obtained. Under the Dingley schedule, now before the United States Senate, we understand the duty on mineral waters in commercial quarts amounts to 66 $\frac{2}{3}$ per cent. *ad valorem*, and the supplementary duties on bottles larger than quarts carries the rates to 148 per cent. On the other hand, natural salts from mineral springs are transferred to the free list!

It is evident that such a duty is not for revenue, it is rather in the nature of a prohibitive tax.

It may be right and proper that foreign mineral waters should pay tribute if our government is to be supported by a tariff; but it is neither in the interest of revenue nor of the public and the medical profession that they should be prohibited. The duty proposed is more likely the result of an error in calculation than of intention, and we commend the petition which is in circulation for a revision of this rate by the Senate.

In 1890 a similar petition, very largely signed by physicians, was presented to Congress, and was favorably considered.

SPECIAL EXERCISES AT THE JUBILEE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

DR. JOHN B. ROBERTS, Chairman of the Committee on Anniversary Exercises at the Jubilee Meeting of the American Medical Association, announces that the Committee of Arrangements has set aside an hour on the second day of the meeting for exercises to commemorate the founding of the Association in Philadelphia in

1847. The founders of the Association believed that it would raise the standard of medical education and combine the medical profession of the United States in one body. Dr. Davis, who is recognized by all as the moving spirit in the enterprise, will read a short paper, giving an account of the origin of the Association and how the objects for which it was founded have been attained. The Committee has taken steps to secure the attendance at the meeting of the Presidents of the State Medical Societies and the Presidents of the State Boards of Medical Examiners, as an illustration of the success attained through the instrumentality of the Association.

In addition to the address of Dr. Davis, there will be two or three other short addresses to add to the interest of the occasion. It is desired that the Presidents of all State Boards of Examiners and of all State Medical Societies meet Dr. Davis a few minutes before his address in order that they may escort him to the stage. In the event of the President of any one of these organizations not being able to attend the meeting, he is requested to send as an alternate, one of the ex-Presidents in order that every State Society and every Examining Board may be represented upon this notable occasion.

Of the original members of the Association there are still living, Dr. N. S. Davis, of Chicago, Dr. Alfred Stillé, of Philadelphia, Dr. John B. Johnson, of St. Louis, and Dr. David F. Atwater, of Springfield, Mass. The Committee hopes that these gentlemen will all be present to take part in the meeting.

THE TWELFTH INTERNATIONAL MEDICAL CONGRESS.

DRS. N. SENN, Casey A. Wood, Harold N. Moyer, Eugene S. Talbot, D. R. Brower, J. B. Murphy, D. A. K. Steele and B. T. Whitmore, believing that the comfort of those American physicians who, with their relatives and friends, intend visiting Moscow during the meeting, next August, of the Twelfth International Medical Congress, will be greatly enhanced, and the journey itself rendered more interesting and pleasant as well as more economical, by proceeding as one party instead of travelling singly or in small groups, have secured considerable reductions in the ordinary steamship, railway and hotel rates, and have succeeded in arranging three itineraries with the well-known tourists' agents, Messrs. Cook & Sons.

An educated conductor will accompany each section of the party, and the journey may be broken at almost any point, to meet emergencies. Those wishing to travel in this way should communicate with Messrs. Cook & Sons.

Obituary.

GEORGE B. TWITCHELL, M.D.

DR. GEORGE BROOKS TWITCHELL was born in Petersburg, Va., September 20, 1820. He was the son of Timothy and Susan (Watson) Twitchell. At ten years of age he was sent to Keene, N. H., to be educated under the supervision of his uncle, the famous Dr. Amos Twitchell, who was one of the most celebrated of American surgeons during the first half of the present century.

It may be remarked in passing, that probably comparatively few of this generation of medical men are aware of the fact that Amos Twitchell was the first man in this country to successfully tie the common carotid artery. This was done for secondary hemorrhage, the result of a gunshot wound, in October, 1807, nearly a year before Sir Astley Cooper's celebrated operation, and with only the assistance of an "old woman to wax his thread." During the while the doctor was controlling the hemorrhage by pressure with one hand, and dissecting out the vessel with the other. The patient recovered.

The subject of this sketch studied medicine with his uncle, attended lectures at the Harvard Medical School, and graduated from the University of Pennsylvania in April, 1843. He at once settled in Keene, where he soon took a leading position both as surgeon and physician and kept it during his long and active career. For a great many years he did most of the surgery in southwestern New Hampshire besides attending to a large consulting and family practice.

Possessed of a strong mind, clear and quick perception, firmness and decision of character, the courage of his convictions, the strictest honesty and integrity, a hater of shams and quacks—he inevitably became a leader of men, both in and out of his profession. He was not a blind follower of tradition, but did his own thinking. He was full of resources, as is shown by the fact, that upon one occasion, being called on to treat a case of post-partum hemorrhage, he did transfusion of blood with a Davidson's syringe, and saved his patient. He also did something in the way of reducing dislocation of the hip by manipulation before Bigelow's method was given to the profession. Having an excellent constitution, he was capable of an endless amount of work. Like the late Dr. Thorndike he was thoroughly imbued with an interest in his profession, took no vacations, kept abreast of the times, shrank from no operation or difficulties, and was a fitting example of the all-round, competent, progressive, reliable physician.

Dr. Twitchell went to the war in 1862 as surgeon of the 13th Regiment New Hampshire Volunteers, and was "soon promoted upon the field to brigade surgeon, and in March 1863 was commissioned by President Lincoln a surgeon of the United States Volunteers with the rank of major." While serving under General Grant at Vicksburg he contracted malaria, and was thus rendered unfit for active duty, and compelled to resign at the end of about a year's service.

For many years Dr. Twitchell was President of the Board of Trustees of the New Hampshire Insane Asylum, and a pavilion lately erected at that institution is named after him. He was also largely instrumental in the founding of the Elliot City Hospital in Keene, of which he has always been surgeon or consulting surgeon.

Dartmouth College conferred upon him the honorary degree of Master of Arts. He belonged to many organizations and societies, and was interested in everything pertaining to the well-being of the profession, and of the people. Although greatly interested in temperance matters, yet he was not a prohibitionist. He was actively identified with the introduction of aqueduct water, and the establishment of a sewerage system in his city, and was foremost in founding the public library, and supporting the schools and various charitable and public works of the town and State.

As showing the esteem in which Dr. Twitchell was held by his friends and neighbors mention may be made of the presentation to him on Thanksgiving Day, 1895, of a gold-lined (and gold-filled) silver loving-cup and salver of beautiful design, "the gift of nearly three hundred donors, including brother physicians, and citizens in every walk of life." The affair was so carefully managed that Dr. Twitchell knew nothing about it until he was quietly invited into his own drawing-room by a couple of his friends, and asked to open the box containing the gift.

In 1849 Dr. Twitchell married Susan Elizabeth, daughter of Gideon Thayer, the founder of Chauncy Hall School, by whom he had six children, four of whom survive him.

The two sons are members of the Massachusetts Medical Society.

On Monday, March 22, 1897, while attending to his patients Dr. Twitchell was seized with hiccoughs. They persisted more or less constantly for a week, except when he was under the influence of morphia, when coma, probably apoplectic, set in, and ended fatally in twenty-four hours.

His life was ideal in many respects, not the least of which was the fact, that he was enabled to labor in the profession he loved for fifty-four years, and to continue his work up to within forty-eight hours of the end.

GEORGE W. GAY, M.D.

Correspondence.

SYPHILIS IN RUSSIA.

BOSTON, March 31, 1897.

MR. EDITOR:—At the convention of Russian syphilologists, recently held at St. Petersburg, some interesting facts came to the surface, that may well engage the attention of both the specialist and the social reformer. It appears, that the scourge of syphilis is prevalent to a far wider extent than is even known to a great many of the physicians whose practice is entirely devoted to this special field. (Is not the same true of its extent here and elsewhere?) And while its rapid diffusion in the large manufacturing cities is generally by purely sexual contact, the inhabitants of the small cities and villages are mostly victims of syphilis insontium; this latter circumstance is entirely due to their almost primitive mode of living, total ignorance, and "pathetic" naïveté. As a result of these conditions, the number of those afflicted with the initial lesion, or first stage of the disorder, is far greater among children and the adults of the latter (small villages), than in the crowded centres of population. Places of yearly markets, religious pilgrimages and seaports, with their continually changing crowds of strangers, are the most prolific disseminators of the disease.

There seems to be little foundation for truth in the reputed assertion, that syphilis is less prevalent among the well-to-do, as compared with the poor and indigent; the reason of this lies in the fact, that alcoholism, which intensifies the sexual tendencies, and at the same time diminishes or entirely destroys the faculty for discriminating in the choice of gratification of these tendencies, is a curse that weighs heavy on all classes of Russian society.

Both legalized and secret prostitution are fertile causes in the spread of syphilis, especially among young adults of large cities, who appear to consider it a rather trifling and easily curable ailment; this ignorance naturally stands in the way of intelligent prophylaxis and tends to create almost criminal carelessness.

Another cause is found in the lack of free dispensaries for the treatment of the disease. (*O terra beata! lack [sic!] of dispensaries!*) In fact, the majority of cities—not to speak of villages—suffer from this lamentable condition, and the congress, among its other measures, recommends first of all the organization of a regular medical service, of a specialized character, to hold in check the ravages of the disease by establishing either special hospitals or separate departments in certain hospitals. It is particularly urged to supply medical aid to those in the stage of communicating the disease to others. It becomes necessary to make it obligatory upon working people of large manufacturing establishments, servants in hotels, bath-houses, bakeries, etc., to subject themselves to periodical medical examinations; and those found to be affected, are to be compelled, *pro bono publico*, to undergo a course of treatment.

The congress takes particular care to emphasize the importance of protecting the children from infection; the school must be guarded against becoming a hot bed of

the disease, and regular visits must be made for purposes of examination; any child that may communicate the disease must be rigidly kept away till its presence is no longer menacing. Regulations regarding vaccination must be subjected to a thorough revision, as many a case of "innocent" syphilis owes its existence to carelessness in performing this trifling operation.

I can hardly stop here to enumerate all the measures (a great many of them of a purely local character) proposed by the congress, in its determined battle against this terrible disease; but will conclude with its recommendation, that, to overcome the stupidity and ignorance of the village population, the medical profession come in closer contact with the latter, and by the aid of popular lectures, organization of reading-rooms and libraries, enlighten them on the true malignancy of syphilis. This, however, is the least practicable of all the propositions, as any step in the direction of lecturing to common people is looked upon with ill-disguised suspicion by the authorities, as liable to foster "revolutionary" ideas and insubordination; than which no more atrocious crime can possibly be committed by an Orthodox Russian subject; and so many obstacles are usually put in the way of the lecturer, that the warmest advocate will in the course of time become indifferent.

Very truly yours,

A. ROVINSKY, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 27, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,892,332	839	299	12.00	21.84	.60	1.20	5.04	
Chicago . .	1,619,226	452	154	12.98	21.12	5.50	2.29	2.42	
Philadelphia . .	1,164,000	—	—	—	—	—	—	—	
Brooklyn . .	1,100,000	375	133	14.31	15.66	1.62	1.35	7.02	
St. Louis . .	560,000	213	58	1.88	23.50	.47	.94	—	
Boston . .	494,205	213	69	14.35	22.55	1.23	1.23	7.78	
Baltimore . .	496,315	191	52	5.20	10.92	1.04	1.56	2.60	
Cincinnati . .	336,000	97	—	4.12	14.42	—	2.06	2.06	
Cleveland . .	314,537	160	—	4.00	9.00	1.00	3.00	—	
Washington . .	275,500	90	24	6.66	14.43	—	1.11	2.22	
Pittsburg . .	238,617	—	—	—	—	—	—	—	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	87,754	29	9	3.45	10.35	—	—	—	
Charleston . .	65,165	—	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Worcester . .	98,687	27	13	18.50	14.80	—	—	7.40	
Fall River . .	88,020	—	—	—	—	—	—	—	
Lowell . .	84,359	52	21	—	17.28	—	—	—	
Cambridge . .	81,519	26	6	—	15.40	—	—	—	
Lynn . .	62,355	23	6	8.70	21.75	—	—	4.35	
New Bedford . .	55,254	—	—	—	—	—	—	—	
Springfield . .	51,584	27	7	—	33.33	—	—	—	
Lawrence . .	52,153	23	5	17.40	17.40	8.70	4.35	4.35	
Holyoke . .	40,149	—	—	—	—	—	—	—	
Salem . .	34,437	14	5	—	14.28	—	—	—	
Brookton . .	33,157	15	8	13.33	—	6.66	—	6.66	
Haverhill . .	30,185	15	7	—	33.33	—	—	—	
Malden . .	29,709	11	4	—	18.18	—	—	—	
Chelsea . .	31,295	—	—	—	—	—	—	—	
Fitchburg . .	26,394	8	2	—	—	—	—	—	
Newton . .	27,322	8	4	12.50	12.50	—	—	12.50	
Gloucester . .	27,663	—	—	—	—	—	—	—	
Taunton . .	27,093	10	3	10.00	—	—	—	—	
Waltham . .	20,877	8	2	—	12.50	—	—	—	
Quincy . .	20,712	6	1	33.33	16.66	16.66	—	—	
Pittsfield . .	20,447	—	—	—	—	—	—	—	
Everett . .	18,578	8	2	37.50	25.00	—	—	12.50	
Northampton . .	16,738	—	—	—	—	—	—	—	
Newburyport . .	14,554	1	0	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,959; under five years of age 905; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas and diarrheal diseases) 285, acute lung diseases 562, consumption 321, diphtheria and croup 114, diarrheal diseases 49, typhoid fever 37, scarlet fever 19, whooping-cough 19, cerebro-spinal meningitis 18, measles 16, erysipelas 11, small-pox (New York) 2.

From scarlet fever New York 7, Boston 5, Chicago 3, Worcester 2, Brooklyn and Somerville 1 each. From whooping-cough New York 10, Washington 3, Chicago and Brooklyn 2 each, Nashville and Taunton 1 each. From cerebro-spinal meningitis New York 7, Boston 4, Somerville 2, St. Louis, Worcester,


Lynn, Quincy and Everett 1 each. From measles New York 11, Chicago 3, Brooklyn 2. From erysipelas New York 6, Chicago 3, Boston 2.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending March 20th, the death-rate was 18.7. Deaths reported 3,936; acute diseases of the respiratory organs (London) 317, whooping-cough 113, measles 87, diphtheria 61, diarrhea 32, scarlet fever 28, fever 23.

The death-rates ranged from 9.6 in Derby to 26.9 in Salford; Birmingham 19.6, Bradford 19.6, Croydon 12.0, Gateshead 17.0, Hull 17.8, Leeds 20.2, Leicester 17.9, Liverpool 21.7, London 17.9, Manchester 23.4, Newcastle-on-Tyne 22.8, Nottingham 20.4, Portsmouth 17.1, Sheffield 19.0.

METEOROLOGICAL RECORD

For the week ending March 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-		Relative		Direction		Velocity		We'th'r.		Rainfall in inches.		
	meter	eter.		humidity.		of wind.		of wind.		°				
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S. .21	29.86	43	52	34	98	98	98	N.W.	W.	5	8	O.	C.	.05
M. .22	29.96	46	54	37	69	61	65	W.	S.W.	6	7	O.	O.	.01
T. .23	29.80	42	48	36	74	82	78	N.	S.E.	6	9	F.	O.	
W. .24	29.30	37	39	35	100	98	99	E.	W.	26	14	R.	C.	1.14
T. .25	29.25	38	43	34	73	90	82	W.	N.W.	15	23	C.	C.	
F. .26	29.57	38	44	32	69	62	66	N.W.	N.W.	11	9	F.	F.	
S. .27	29.81	39	44	34	54	50	52	N.W.	N.W.	9	9	C.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 27, 1897, TO APRIL 2, 1897.

MAJOR LOUIS M. MAUS, surgeon, will be relieved from duty at Fort Sam Houston, Tex., upon the arrival at that post of MAJOR AUGUSTUS A. DELOFFRE, surgeon, and ordered to repair to Washington, D. C., and report in person to the surgeon-general of the Army, for temporary duty.

CAPTAIN JULIAN M. CABELL, assistant surgeon, having been found by an Army Retiring Board, incapacitated for active service on account of disability incident to the service, is by direction of the president, retired from active service this date March 29, 1897. He will proceed to his home.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 3, 1897.

C. U. GRAVATT, surgeon, ordered to examination for promotion, Washington, D. C., April 5th.

J. C. PRIOR, assistant surgeon, ordered to the Naval Laboratory, New York, and Department of Instruction, April 5th.

F. C. COOKE, assistant surgeon, ordered to examination for promotion, New York, April 5th.

G. D. COSTIGAN, assistant surgeon, detached from the "Vermont," April 6th, and ordered to the "Laucaster," per steamer of April 7th.

D. H. MORGAN, assistant surgeon, detached from the Naval Laboratory, New York, April 6th, and ordered to the Naval Academy, April 8th.

RECENT DEATH.

ERNEST BRAND, M.D., the modern advocate of the cold-bath treatment of typhoid fever, died at Stettin, Germany, on March 8th.

BOOKS AND PAMPHLETS RECEIVED.

Ueber den therapeutischen Werth des Tannalbins bei Darm- und Nierenkrankungen. Von Prof. Dr. G. Scognamiglio in Neapel. 1897.

A Further Contribution to the Study of the Family Form of Spastic Paraplegia. By Leo Newmark, M.D., of San Francisco. Reprint. 1897.

Diagnosis of Dilatation of the Stomach. By William Pepper, M.D., Philadelphia, and Alfred Steugel, M.D., Philadelphia. Reprint. 1897.

Ein Fall vonluetischem Primäraffect der Conjunctiva. Von Dr. Richard Hirschmann, Abtheilungs-Assistent. Wien und Leipzig: Wilhelm Braumüller. 1896.

Twenty-second Report of the Trustees of the Salem Hospital, Reports of the Superintendent, and of the Superintendent of the Training School for Nurses, etc., for the year January 1, 1896, to December 31, 1896.

New Method of Performing Intestinal Anastomosis with Special Reference to its Adaptability to Lingual Colostomy and Subsequent Restoration of the Fecal Current. By J. A. Bodine, M.D., of New York. Reprint. 1897.

On the Difference between Serum and Blood Solutions, the Condition of the Test Culture and the Significance of Bacterium Coli Infection in Relation to Typhoid Diagnosis. By Wyatt Johnston, M.D., and D. D. McTaggart, M.D., Montreal. Reprint. 1897.

A New Method of Closing a Laryngeal Fistula. A Case of Ileocolostomy by the Murphy Method; Excision of the Cecum; Total Exclusion of a Portion of the Ileum (Entero-Apoplexis). Two Cases of Fracture of the Skull. By Clayton Parkhill, M.D., Denver, Col. Reprints. 1895-1897.

A Manual of the Practice of Medicine prepared Especially for Students. By A. A. Stevens, A.M., M.D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania; Demonstrator of Pathology in the Woman's Medical College of Pennsylvania. Fourth edition, revised and enlarged. Illustrated. Philadelphia: W. B. Saunders. 1896.

Deutsche's Letters; a Practical Method for Easy and Thorough Self-instruction in the German Language, Prepared with Special Regard to the Close Affinity Existing between the English and German Languages. By Solomon Deutsche, A.M., Ph.D., Author of Medical German, A Practical Hebrew Grammar, etc. New York: Brentano's. 1896.

Genito-Urinary Surgery and Venereal Diseases. By J. Wm. White, M.D., Professor of Clinical Surgery, University of Pennsylvania, and Edward Martin, M.D., Clinical Professor of Genito-Urinary Diseases, University of Pennsylvania. Illustrated with 243 engravings and seven colored plates. Philadelphia: J. B. Lippincott & Co. 1897.

Injuries and Diseases of the Ear, being Reprints of Papers on Otolaryngology. By McLeod Yeadsley, F.R.C.S., Fellow of the British Laryngological, Rhinological and Otolaryngological Association; Surgeon in charge of the Department for Diseases of the Throat, Nose and Ear at the Farrington Dispensary, etc. London: The Reuben Publishing Co. (Limited). 1897.

An Ophthalmoscopic Study of a Case of Hemorrhagic Neuro-Retinitis. Brief Report of a Case of Traumatic Pterygium with a Comparative Study of the Refractive Condition of the Eye Before and After Operation. The Therapeutic Value of Hydrobromate of Scopolamine in Plastic Iritis. By Charles A. Oliver, A.M., M.D., Philadelphia, Pa. Reprints. 1896.

Lectures on Appendicitis and Notes on Other Subjects. By Robert T. Morris, A.M., M.D., Fellow of the New York Academy of Medicine, American Association of Obstetricians and Gynecologists, American Medical Association; Member of the New York State and County Medical Societies, etc. Second edition, revised and enlarged. With illustrations by Henry McDonald, M.D. New York: G. P. Putnam's Sons. 1897.

The Diseases of the Stomach. By Dr. C. A. Ewald, Extraordinary Professor of Medicine at the University of Berlin, Director of the Augusta Hospital, etc. Translated and edited with numerous additions, from the third German edition by Morris Manges, A.M., M.D., Assistant Visiting Physician to the Mount Sinai Hospital, Lecturer on General Medicine at the New York Polyclinic, etc. Second revised edition. New York: D. Appleton & Co. 1897.

Artificial Anesthesia; A Manual of Anesthetic Agents and their Employment in the Treatment of Disease. By Laurence Turnbull, M.D., Ph.G., Aural Surgeon to the Jefferson Medical College Hospital, Philadelphia; Late Honorary President to the Otolaryngological Subsection of the British Medical Association, and of the Section of Laryngology and Otolaryngology of the American Medical Association. Fourth edition, revised and enlarged. With illustrations. Philadelphia: P. Blakiston, Son & Co. 1896.

Hypnotism and its Application to Practical Medicine. By Otto Georg Wetterstrand, M.D., Member of the Society of Swedish Physicians at Stockholm; Corresponding Member of the Society for Psychical Research, London; Corresponding Member of the German Society for Psychical Research, Munich; Authorized translation (from the German edition) by Henrik G. Petersen, M.D., Member of the Société d'Hypnologie et de Psychologie, Paris, etc. Together with Medical Letters on Hypnotic Suggestions, etc., by Henrik G. Petersen. New York: G. P. Putnam's Sons. 1897.

Original Articles.

THE EXPERIMENTAL PRODUCTION OF FAT NECROSIS: FAT NECROSIS ABOUT THE PANCREAS OF THE HOG.

BY HERBERT U. WILLIAMS, M.D., BUFFALO, N. Y.,
From the Pathological Laboratory of the University of Buffalo.

THE relationship of fat necrosis to affections of the pancreas, and especially to pancreatitis, has been demonstrated by Fitz,¹ but the significance of this connection is not clear. The essential change in fat necrosis is a decomposition of the neutral fat molecule into its component fatty acid and glycerine. Frequently, if not always, the fatty acid unites with calcium to form a new compound, which is a soap. It is remarkable that the fat-splitting ferment of the pancreas accomplishes this very decomposition of neutral fats. Certain experiments reported within the last few years seem² likely to put us in the way of demonstrating the exact nature of the connection between fat necrosis and affections of the pancreas.

Hlava,² excited a hemorrhagic pancreatitis with fat necrosis in a cat by injecting the diphtheria bacillus into the pancreas after laparotomy.

Langerhaus,³ suggested that the decomposition of neutral fats which occurs in this process might be accomplished by the fat-splitting ferment of the pancreas. He announced that he had succeeded in producing fat necrosis in a rabbit. This was the only positive result among twelve animals (rabbits and dogs) experimented upon. He made use of a suspension of rabbit's pancreas in distilled water, which was injected into the adipose tissues. His positive experiment is open to the objection that bacterial contamination was not excluded with certainty.

Hildebrand,⁴ and his student, Dettmar, placed a ligature about the gastro-splenic portion of the pancreas, to prevent the discharge of its secretion through the duct, in two cats, and in six others they performed the same operation and also ligated the veins leaving the organ. In all cases fat necrosis was found about the pancreas. They were also successful in producing it three times by introducing portions of the pancreas of one cat into the abdominal cavity of another. In one instance they obtained it after removing a piece from the organ and leaving the distal portion without ligature. Hildebrand, furthermore, injected pure trypsin into the abdominal cavity, and found that hemorrhages into the peritoneum resulted. He suggested that the hemorrhages, so frequent in pancreatic affections, might be due to the action of trypsin, while the fat-splitting ferment was responsible for fat necrosis.

Dr. Whitney, of the Harvard Medical School, allows me to state that he ligated the pancreas in a number of dogs and produced fat necrosis in one of them. No account of his work has been published.

Rosenbach, and his pupil Jung,⁵ with a similar object in view, introduced trypsin and at other times por-

tions of pancreas, into the abdominal cavities of rabbits. Out of four trials with pieces of pancreas they obtained fat necrosis once, using dog's pancreas.

As the work of Hildebrand has seemed to have been the most productive of results, the writer has attempted to verify his conclusions. The animals selected were two dogs, one rabbit, and seventeen cats. They were anesthetized with ether. The operations consisted in the placing of a ligature about the gastro-splenic portion of the pancreas near the duodenum, or the duodenal portion of the pancreas, or both. In most cases as many as possible of the veins leaving the pancreas were also tied. In the majority of cases a solution of continuity in the pancreas was effected. In one instance the gastro-splenic portion of the pancreas was cut through on the distal side of the ligature. An aseptic technique was followed, and the results were good with the exceptions noted below. The peritoneum and skin were closed separately with silk sutures. The wounds in the abdominal walls frequently furnished slight purulent discharges. Owing to the freedom allowed to the animals it was found impossible to secure primary union in every instance. Animals that died during the first twenty-four hours after operation are not included in this report.

The operations and their results in detail were as follows:

Dog. Weight 7 lbs., 1½ oz. A silk ligature was tied about the gastro-splenic portion of the pancreas. The animal, while apparently in perfect health, was killed at the end of one week; weight 8 lbs., 6½ oz. There was no peritonitis and no fat necrosis.

Dog. Large, fairly nourished. The gastro-splenic portion of the pancreas was ligated. The dog was killed after ten days, somewhat emaciated. There were adhesions and suppuration about the ligature, but no general peritonitis. There was no fat necrosis.

Rabbit. Moderately fat. The gastro-splenic portion of the pancreas was ligated. The animal remained in good condition, and was killed after three weeks. There was no peritonitis. There were traces of fat necrosis close to the ligature.

From the seventeen cats there were ten negative results. In two there were minute areas probably of fat necrosis. In five there was well-developed fat necrosis. One of the five exhibited disseminated fat necrosis. In detail, the operations and results were as follows:

Cat 11. Weight 6 lbs., 14 oz. The gastro-splenic portion of the pancreas was ligated. The animal was killed at the end of one week; weight 6 lbs., 5 oz. There was no fat necrosis nor peritonitis.

Cat 8. Weight 4 lbs., 1 oz., but fat. The gastro-splenic portion of the pancreas was ligated. The animal, while apparently healthy, was killed after one week; weight 4 lbs., 2½ oz. There was no peritonitis. Small nodules of fat necrosis were discovered at the interlobular pancreatic fat and in the omental fat. There was one nodule in the perirenal fat (Fig. 1), and one in the mesorectum. No bacteria could be demonstrated by staining methods in or near these areas.

Cat 6. Weight 7 lbs., 10 oz., well nourished. The gastro-splenic portion of the pancreas was ligated. The cat was killed after two weeks; weight 6 lbs., 13 oz. There was no fat necrosis nor peritonitis.

Cat 7. Weight 7 lbs., 4 oz., fat. The gastro-splenic portion of the pancreas was ligated. The cat was killed after three weeks; weight 5 lbs., 13½ oz. A few minute spots, probably of fat necrosis, were found in the omental fat. Staining methods showed no bacteria in or about them. There was no peritonitis. This was one of the two cases classed as doubtful.

¹ Fitz: Proceedings New York Pathological Society, 1890. Boston Medical and Surgical Journal, 1889. Medical Record, 1889. Medical News, Philadelphia, 1889. Transactions Association American Physicians, 1890.

² Hlava: Sbornik Lékařský (Archives bohèmes de médecine) vol. iv, 1890 (synopsis in French).

³ Langerhaus, R.: Experimenteller Beitrag zur Fettgewebsnekrose. Festschrift, R. Virchow, Berlin, 1891.

⁴ Hildebrand: Centralblatt für Chirurg., 1895, vol. xxii, p. 297; also report Cong. Deutsche Gesellsch. für Chirurg., same journal. Dettmar: Inaug. Diss., Göttingen, 1895.

⁵ Jung: Inaug. Diss., Göttingen, 1895. Ref. in Centralblatt für Chirurg., 1895, vol. xxii, p. 310.

Cat 4. Weight 4 lbs., 8½ oz., poorly nourished. The gastro-splenic portion of the pancreas was ligated. The cat remaining healthy was killed after four weeks; weight 4 lbs., 2½ oz. There was no fat necrosis nor peritonitis.

Cat 3. Weight 6 lbs., 3 oz., fat. The duodenal portion of the pancreas was ligated. The cat was killed after one week, then seeming to be in good condition. There was no peritonitis. Traces of fat necrosis appeared close to the ligature. This was the second of the two cases classed as doubtful.

Cat 13. Weight 5 lbs., 15½ oz. Both the gastro-splenic and the duodenal portions of the pancreas were ligated, and as many as possible of the veins leaving the gastro-splenic portion were tied, and the continuity of the tissue of the pancreas was broken by a sharp hook passed into it beneath the peritoneum. The animal died after four days, being much emaciated. The autopsy was unavoidably delayed till about thirty-six hours after death. There was no peritonitis. There were several thin, flat areas of fat necrosis on the surface of the omentum. The mucous membrane of the pyloric end of the stomach showed a number of small round excavations having all the characteristics of peptic ulcers. All the peritoneal surfaces were abundantly covered with large bacilli, stained by Gram's method. No relation in their distribution to the spots of fat necrosis could be made out. Similar bacilli were present in large numbers on the mucous membrane of the stomach and duodenum, extending into the subperitoneal tissues and about the pancreas. In view of the long time that elapsed before the autopsy was made they were not regarded as of importance.

Cat 18. Both the gastro-splenic and the duodenal portion of the pancreas were surrounded with ligatures, as well as the veins leaving the former. The cat died after forty-eight hours. There was no fat necrosis nor peritonitis.

Cat 19. The operation and result were similar to those in Cat 18.

Cat 21. Weight 4 lbs., ½ oz. The gastro-splenic portion of the pancreas was ligated and as many as possible of the veins issuing from it, and the substance of the organ was broken with a hook. The animal died after four days; weight 3 lbs., 11½ oz. The autopsy was made in less than twenty-four hours. The peritoneal surfaces were covered with a fibrinous exudate. Beneath the peritoneal exudate a few thin, flat, white areas were seen, which proved to be necrotic adipose tissue. The exudate contained great numbers of diplococci and fewer large bacilli, both staining by Gram's method. The diplococci alone were recovered in cultures. They grew feebly, not liquefying gelatine, and very quickly died out. In sections, no grouping of the micro-organisms with reference to the spots of fat necrosis could be demonstrated.

Cat 22. Weight 4 lbs., 13½ oz., not fat. The gastro-splenic portion of the pancreas and the veins leaving it were ligated, and its substance was injured as in the other cases. The wound in the abdominal wall suppurated. The cat was killed on the fifth day after the operation; weight 4 lbs. At the autopsy, which was made immediately, the writer was astonished to find in the abdominal cavity a condition of disseminated fat necrosis comparable to that occurring in man. In the vicinity of the pancreas, the retroperitoneal and omental fat was swollen, white and opaque, over an extent reaching twelve millimetres or more from the pancreas, and radiating from it in irregularly shaped masses. Smaller areas of similar character were scattered in great numbers through the omental fat and that of the mesentery along its entire length, even to the mesorectum. They occurred also in the perirenal fat. There was no peritoneal exudate. The animal was nevertheless the subject of an infection, proceeding no doubt, from the wound in the abdominal wall. The pus in this wound contained a variety of organisms, among them diplococci and large bacilli. Although examination of cover-slips was negative, cultures from the spots of fat necrosis and from the liver yielded diplococci or short streptococci, growing at room temperature, not liquefying gelatine, forming minute

white circular colonies on agar, and staining by Gram's method. Cultures from the pancreas and the blood of the right heart were negative. The distribution of the necrotic spots, especially of those in the mesentery, made them appear suspiciously like minute abscesses, but the microscope revealed their true character. In a section of the mesentery, diplococci were found in and about one of the areas of fat necrosis, and also, in smaller numbers, at points in the mesentery remote from it. Otherwise, the examinations of sections of the necrotic areas for bacteria were negative.

Cats 27, 29, 31, 32 and 36 were good-sized and healthy. In each case the splenic portion of the pancreas was constricted by a ligature near the duodenum, as many as possible of the veins leaving it were tied, and the tissue of the pancreas was disturbed as in the other cases. The animals all made good recoveries. Their abdomens were opened at periods varying from eight to seventeen days. There was no peritonitis, and no fat necrosis in any case.

Cat 34. Large and rather fat. The splenic portion of the pancreas was ligated near the duodenum, and the pancreas was then cut completely through on the distal side of the ligature, with the intention of allowing its secretion to flow into the peritoneal cavity. The animal died at the end of a week. The autopsy was made eighteen hours after death. The peritoneal sutures were found to have given way. The abdominal cavity contained a quantity of pinkish-white turbid fluid. The peritoneal surfaces were congested and covered with a thick layer of fibrin. The fat tissue of the omentum appeared swollen and edematous. Irregular white patches of necrotic fat tissue were seen in the omentum and in the vicinity of the splenic portion of the pancreas, especially near the cut extremity. Smears made from the peritoneal exudate showed it to contain many large bacilli, and minute cocci. Cultures made from the peritoneum, the viscera, and the blood gave only minute white colonies of diplococci, staining by Gram's method, lancet-shaped, and like the diplococcus of pneumonia in form. Sections of the necrotic fat tissue and of the pancreas exhibited great numbers of large bacilli and diplococci, by the Gram-Weigert method, mostly on the surfaces, and not showing any special relation to the areas of fat necrosis. Sections of the pancreas demonstrated necrosis of the fat cells about it and in the interlobular septa in a striking manner.

In all of the animals studied, the diagnoses were based on the microscopic examination of the tissues, which is indispensable. Many pictures of great beauty illustrating the condition were obtained. The tissues hardened in alcohol were found to be very well adapted for histological purposes. A five-per-cent. solution of formalin in normal salt solution preserved the macroscopic appearances more satisfactorily, but the writer has given up using it when the minute structure is to be studied. One-per-cent osmic-acid solution makes an excellent hardening agent, as the necrotic areas are not stained black by osmic acid. The areas of fat necrosis were sometimes rounded and nodular, about one to two millimetres in diameter; sometimes they were broad and thin. They occurred exclusively in the fat adjacent to the peritoneum, usually in immediate contact with it. A disposition of the necrotic process to affect the vicinity of the ligatures about the pancreas or the veins was noted, but it was not constant or very marked. In recently killed animals the recognition of the areas was easy, owing to their opacity, contrasting with the relatively transparent normal fat. When a peritoneal exudate was present, it was often difficult to recognize them beneath the layer of fibrin.

In frozen sections the areas were opaque, contrasting with the neighboring fat (Fig. 2). A brown tinge was often visible. Such complete disorganization-of

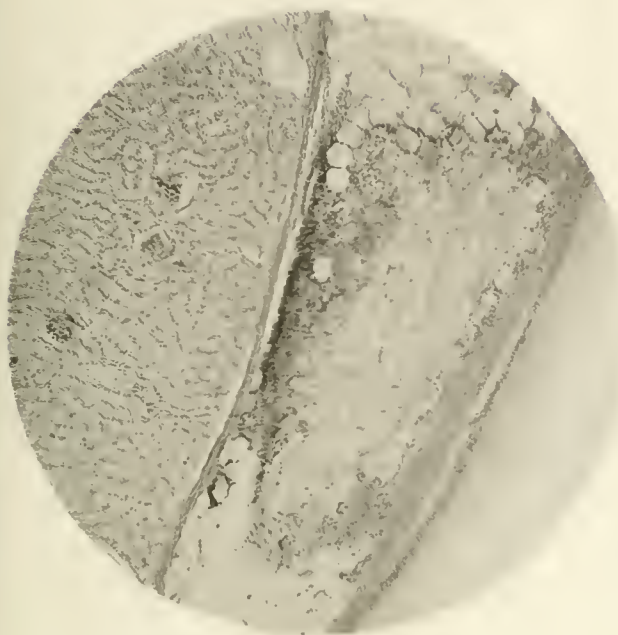


Fig. 1

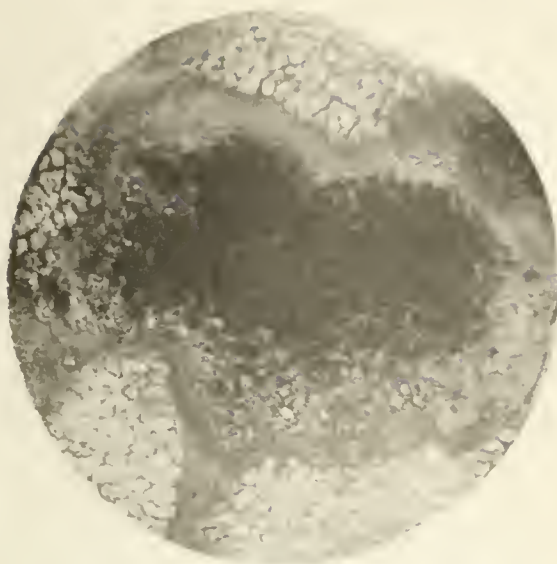


Fig. 2.

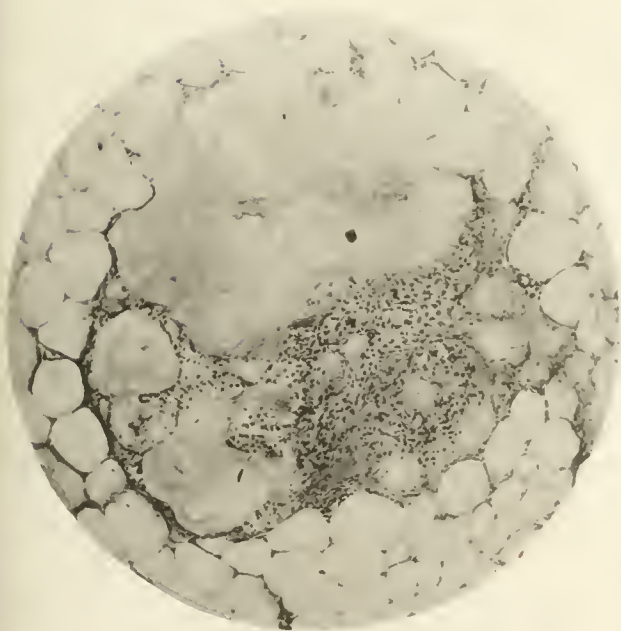


Fig. 3.

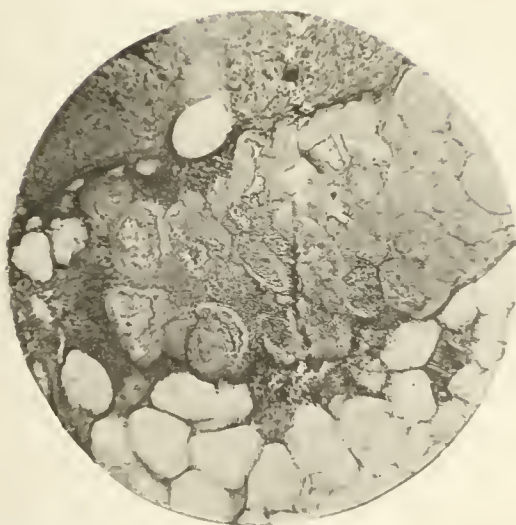


Fig. 4.

the adipose tissue as occurs in the human subject was in no instance observed. The areas consisted of rounded bodies similar in outline to the fat cells. In most cases the contents of these bodies were minute needle-shaped crystals. Frequently the crystals were arranged in a radial manner at the circumference of the circle. The central portion was then empty or contained oil droplets. Such bodies in transverse section appeared as rings (Fig. 4). Calcium salts were demonstrated in some nodules in abundance. The contents of the necrotic cells in balsam preparations usually appeared homogeneous, although their crystalline nature was sometimes discernible. They reacted variously with stains, in some instances showing an affinity for eosin, in others staining deep blue with hematoxylin. The more intense hematoxylin stain noted in some nodules the writer supposes to have been due to an abundance of calcium salts. The nuclei of the necrotic cells could not be identified. The amount of cell infiltration about the nodules of fat necrosis was quite variable. In some examples it was very slight, more often it formed a distinct band about the circumference where it was mingled with granules most of which stained deeply with nuclear dyes. Frequently it passed widely into the surrounding tissues. The cells were in large part polynuclear leucocytes. In part they were larger, mononuclear elements rounded or spindle-shaped in form, with round or oval nuclei. They generally were of moderate size, though quite variable in this respect. Fragmentation of nuclei was a prominent feature in this zone, the fragmentation being most extensive in the part immediately adjacent to the necrotic fat.

In and around the areas of fat necrosis numerous granules and rounded masses occurred, staining with carmine, hematoxylin, and by the Gram-Weigert method. Some of these were evidently fragmented nuclei; others were hyaline in character; others, which stained very deeply with hematoxylin, were supposed to contain calcium. These granules were often so numerous as to obscure the nuclei at the margin of the area. They rendered the search for bacteria in sections difficult and unsatisfactory.

The changes taking place in the pancreas were studied only with reference to the question in hand, and the account of them must be brief. The ligatures about the pancreas were found enclosed in a zone of leucocytes or good-sized mononuclear cells, or both, and often also of fibrous tissue. The cell infiltration frequently passed into the interlobular connective tissue of the pancreas and over its surface. In the animals that were allowed to live longest there were marked atrophy and induration of the ligated extremity of the organ, which the microscopic examination showed to be due to an atrophy of the acini and an abundant formation of fibrous tissue between the lobules, and even between the acini. Desquamation of the epithelial lining of the ducts was of frequent but not invariable occurrence. There was less dilatation of the ducts on the distal side of the ligature than one might have expected to encounter. The writer is unable to say with confidence that there was more interstitial pancreatitis or any other characteristic morbid condition of the pancreas in the animals that showed fat necrosis than in those that did not.

In nearly all cases sections of the liver, spleen and kidneys were examined, but no alteration was discovered that appeared to have any relation to the question

in hand. No tendency to hemorrhages of a marked or constant type was noted in any of the tissues. The urine was examined for sugar in the majority of cases, and none was found.

Although the writer has been less successful than Hildebrand, his work renders it evident that ligation of the pancreas in the cat may lead to fat necrosis. As far as he is aware, Cat 22 of his series exhibited the most extensive fat necrosis that has been recorded as having been produced by artificial means. The simultaneous existence of a diplococcus infection, in this animal and in Cats 21 and 34, is noteworthy. It is significant that the areas of fat necrosis were observed only in close connection with the peritoneal cavity, and especially in the neighborhood of the pancreas, which would make contact of the pancreatic juice with these areas intelligible. The circumscribed character which they usually exhibited and their occurrence at points remote from the pancreas are difficult to account for. It seems unjustifiable at present to say more than that extensive injury to the pancreas can cause fat necrosis.

The writer has been conducting experiments with a view to testing the direct action of the excised pancreas upon fat tissue. He believes that he has succeeded in producing fat necrosis in this manner. The conditions under which the change is effected are not yet clear, and any account of this work at present would be premature. A single one from this series may be related here, however, not to illustrate the direct action of the ferment artificially introduced, but to show the effects of a pancreatitis excited by accident.

Cat 15. Large and healthy. The abdomen was opened, a piece of pancreas 20 m. m. in length just removed from another cat was fastened to the omentum with a silk ligature, and the abdomen was closed. The animal died after six days. The autopsy was made twenty-four hours after death. A fibrinous exudate covered all the peritoneal surfaces. The effect of the piece of pancreas introduced upon the adjacent omentum was not clear. A small area of fat necrosis was discovered on the surface of the left kidney, and others were seen in the omentum. Section of the animal's own pancreas showed an acute pancreatitis, apparently originating by extension inwards from the infected peritoneum, which the exposed condition of the pancreas in the cat makes possible. Fat necrosis was seen in a large part of the fat tissue in immediate contact with the inflamed pancreas, and the connection between the two was demonstrated in a convincing manner. Cover-glass preparations, sections and cultures showed a large bacillus and a small diplo- or strepto-coccus, both staining by Gram's method, in the peritoneal exudate, and in the pancreas.

In this case, the conditions seem to be practically the same as those obtained by Hlava when pancreatitis and fat necrosis followed from the injection of the diphtheria bacillus into the pancreas. The possibility of their occurring ought to be borne in mind when pieces of pancreas or pancreatic extracts are introduced into the peritoneal cavity in experimental studies.

In connection with this work the writer has examined the pancreas and peritoneal adipose tissues of about forty cats. Quite early one was encountered exhibiting spontaneously minute white spots in the omental fat, not near the pancreas however, which on section resembled closely very small areas of fat necrosis. Recently a similar condition has been found in a second cat (Cat 37).

The animal was very fat. The abdomen was opened with a view to operating on the pancreas, when the adipose tissue of the omentum was observed to contain about ten irregular, opaque, white areas, approximately one-fourth of a millimetre in diameter. They were not observed in the vicinity of the pancreas. Two of these areas and a small bit of the pancreas were removed for examination, and the abdomen was closed again. Sections of the pancreas exhibited nothing remarkable. One of the suspicious areas in the omental fat, under the microscope proved to be opaque; after slight pressure it broke into irregular, translucent masses with a brown tinge, and made of fine, radiating crystals. Upon the warm stage, after the addition of glacial acetic acid, the brown masses dissolved; at the same time there was a noticeable evolution of oil droplets, apparently from the brown masses. The small size of the suspected areas made removal beforehand of the free fat with boiling alcohol and ether impossible. Subsequent neutralization and addition of oxalic-acid solution, produced an abundant precipitate of calcium oxalate crystals. Thin sections stained in hematoxylin showed the area partly surrounded by good-sized mononuclear cells, which, along with a small amount of fibrous tissue, partly penetrated its interior.

The condition seemed to be one of fat necrosis arising spontaneously in the cat and probably not recent (Fig. 3). If it depended upon any morbid state of the pancreas, that had apparently subsided. The animal made a good recovery. It is now, after ten weeks, still healthy. The intention is to observe the progress of events after the lapse of a longer period.

FAT NECROSIS IN THE PANCREAS OF THE HOG.

Balser,⁶ who was the first to describe fat necrosis in the human subject accurately, was also the first to study its appearance in the hog in detail. He found it in the fat tissue in or about the pancreas in nearly all Hungarian swine, frequently in Algerian, and in a few German swine. He found in the necrotic nodules bodies resembling the fungus of actinomycosis. In order to determine whether or not fat necrosis occurred in American hogs the writer examined the pancreas of one hundred hogs. It was impossible to learn anything more concerning the animals than that they were raised either in Ohio, Indiana, Illinois or Michigan, and were apparently sound and healthy. The pancreas of the hog is surrounded by a quantity of adipose tissue, which is also abundant between the lobules. The fat cells are very large. Little white flecks consisting of single fat cells or groups of fat cells are often seen in the pink parenchyma. Not rarely one meets with dark red spots in the parenchyma, several millimetres in diameter, apparently the result of hemorrhage. The organ, taken as fresh as possible, was cut in slices one to three millimetres thick, and each slice carefully examined. In two cases fat necrosis was found.

In one of these the number of areas of fat necrosis was not large and they were confined to a limited region. In the other they were numerous and were scattered throughout the organ. They were not conspicuous, being distinguished by their more yellow color, which contrasted with the white, normal fat. They appeared much like minute abscesses, but were somewhat harder than the normal fat. In shape they were irregular. Their various dimensions were one to two millimetres only. They nearly always impinged on one side against a portion of the parenchyma. Frozen sections showed them to be made of fat cells, rendered opaque by the presence of numerous needle-shaped crystals, frequently arranged in the form of a ring about

the circumference of the cell. They contained an abundance of calcium. Sections stained in hematoxylin and eosin gave about the appearances already described for the cat (Fig. 4). The contents of the areas exhibited usually a strong blue stain. The borders were surrounded by a band of connective tissue with numerous connective-tissue cells, and a small number of polynuclear leucocytes. Leucocytes also occurred in small numbers among the cells of the necrotic areas. Often they were in rounded clumps, corresponding to the outlines of a fat cell, and suggesting that they might have migrated into the interior of a necrotic cell. The ray fungus described by Balser after using the Ehrlich-Biondi stain was not found; nor were the hemorrhages about the necrotic areas. Examination of sections for bacteria was negative. Cultures were not made. The parenchyma of the pancreas was not remarkable. None of the other organs were examined.

SUMMARY.

Among two dogs, one rabbit and seventeen cats operated on in the manner described there were twelve negative, and three partly successful results. In five cases fat necrosis of a marked type followed. In three of the latter a diplococcus infection was associated.

A peritoneal infection in a cat was observed to lead to pancreatitis; which in turn produced fat necrosis.

Nodules, somewhat similar to those obtained artificially, which were seen twice appearing spontaneously in the omentum of the cat, were possibly old fat necroses.

Fat necrosis in and around the pancreas of the hog was found in two out of one hundred specimens examined.

EXPLANATION OF PLATES.

FIG. 1. Cat 8. Borax carmine. Fat necrosis in the peritoneal fat, showing the outlines of the affected cells faintly, and cell-infiltration about the necrotic area (low power).

FIG. 2. Cat 22. Frozen section. Fat necrosis in the omentum, showing the opacity of the area, and the outlines of the altered cells in it (low power).

FIG. 3. Cat 37. Hematoxylin and eosin. Supposed area of fat necrosis in the omentum (x 80).

FIG. 4. Hog. Hematoxylin and eosin. Small area of fat necrosis close to the pancreas (x 80).

[The writer is indebted to Dr. F. C. Busch, Assistant in the Pathological Laboratory of the University of Buffalo, for these photomicrographs.]

THE VALUE OF AUSCULTATORY PERCUSSION IN DIAGNOSIS.¹

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AUSCULTATORY percussion, or stethoscopic percussion, is by no means a recent addition to the methods of physical examination. It has been used by certain clinicians for many years, and I have myself employed it very largely during the last five years. For some time I have felt that its reliability and usefulness would warrant a more general application of the method, and have been led to summarize the conditions in which I have found it valuable.

I have been unable to learn by whom auscultatory percussion was first suggested and practised, and have little desire to make a search of the literature to determine this point. Da Costa, in his book on "Diagnosis," calls attention to the fact that it was employed by Cammann and Alonzo Clark, and the latter was accustomed to demonstrate it before his class. De Mussy described a method of *auscultation plessimétrique* in 1876.

¹ Read before the College of Physicians, Philadelphia, January 6, 1897.

⁶ Balser: Verhandl. d. XI Cong. f. innere. Med., Wiesbaden, 1892, p. 450.

The methods themselves have varied somewhat as practised by different clinicians. De Mussy's method is as follows: The physician stands at the side of the patient and percusses over the upper dorsal vertebrae, the sternum, or clavicles, while the stethoscope is moved from place to place on the opposite side of the chest. Dr. Andrew H. Smith suggested the following method: The chest-piece of a binaural stethoscope is placed in the patient's mouth, and the lips compressed about it while the nostrils are compressed at the same time. The physician or an assistant then percusses the chest in various positions. Either of these methods may be employed to distinguish areas of pulmonary consolidation and the like; but their sphere of applicability is restricted even in thoracic diagnosis, and neither method is available for abdominal exploration.

My own experience has been with the simpler and more generally useful method of direct stethoscopic percussion of a certain organ. In the practical application of this method the chest-piece of a binaural stethoscope is applied to the surface of the body covering the organ under examination, and is held in place by the patient or an assistant. The examiner at the same time percusses lightly, using a pleximeter or the fingers alone, and approaching the supposed outlines of the organ from points at some distance. As soon as the outer limits of the organ over which the stethoscope is applied are reached, the ear detects a decided change of note. This change consists in an elevation of pitch and greater intensity of sound, and is recognized without any difficulty after a very little practice.

In suggesting his method of plessimetric auscultation De Mussy foresaw that objections would arise on the part of those who had not practised some such method, and who might be disinclined to investigate and acquire new modes of examination. This fear was well grounded, and objections have been urged, as I shall show below. It is well, therefore, to recognize in the beginning that auscultatory percussion embodies no really novel principle. We recognize by its aid exactly the same phenomena that occur in ordinary percussion, with the difference that the sound vibrations are conveyed directly instead of indirectly. In percussion of any organ or part of the body vibrations are set up that occasion certain sounds—resonant or dull, according to the state of the organ or the part examined. These vibrations are produced in the parts beneath the point of percussion, and are diffused more or less extensively, according to the nature of the parts and the strength of the blow. To a certain extent vibrations may be transmitted beyond the confines of the organs percussed, this transmission depending upon the distance from the limits of the organ at which percussion is practised, the strength of the strokes, and the nature of the adjacent organs. It is therefore difficult to determine the exact limits where the vibrations passing through the air are depended upon. Auscultatory percussion is useful in eliminating disturbing sounds and in allowing the recognition of vibrations emanating from a single part. In the following figure (Fig. 1) these points are graphically represented. The relative positions of the heart (*a*), lungs (*b*), and chest-wall (*c*) are represented, and the vibrations occasioned by percussion at various points are illustrated diagrammatically. When the pleximeter is placed at 1 the vibrations are confined to the chest-wall and the lung-tissue, and the clear note of pulmonary resonance is obtained. When the per-

cussion is practised at 4 the dull sound of the heart is noted. At 2 vibrations arise that involve the lung-tissue to a greater and the cardiac to a lesser degree; while at 3 the reverse obtains. In either case it is difficult to determine precisely whether the note is that of cardiac dullness or pulmonary resonance. The difficulty is to a large extent removed by the simultaneous use of the stethoscope. If the chest is placed at 4, for example, and percussion is practised at 1, no vibrations, or at most distant ones transmitted through the lungs or chest-wall, are recognized. When percussion is carried to 1' the sound becomes louder, but still indistinct. Only when the point 2 is reached, and the percussion-stroke is directly over a part of the heart (even though a thin edge of lung separate the heart from the chest), is the sound obtained, immediate and clear. Even with this method there must be a certain amount of error in determining the limits of certain organs, like the heart, which slope away from the chest-wall; but the error is much less than with ordinary percussion.

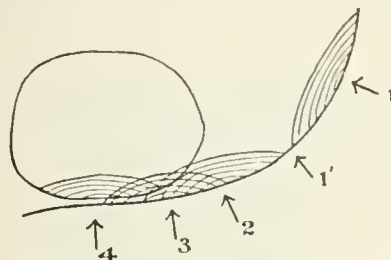


FIG. 1. Showing diagrammatically the distribution of vibrations caused by percussion over the heart and lung.

Care must always be taken to place the patient in such position as to relax the superficial parts, and thus eliminate the vibrations transmitted through the fasciae and muscles.

In the practical application of the method I have repeatedly satisfied myself of its superiority over ordinary percussion in cases in which an experienced diagnostician could readily use either method. In my demonstrations to students, for example, I have frequently marked the limits of the heart by ordinary percussion, and then allowed the students to determine the limits by auscultatory percussion, keeping their eyes closed while I percussed lightly. The accuracy of the results have been very striking, and contrasts strongly with the variability in the outlines novices obtain from ordinary percussion of this organ.

Objection has been made to this method by a number of writers, some of whom have evidently practised it but little. I wish only to allude to the criticism of Dr. Herschell. This observer found that the change of note occurred when the pleximeter was brought within a certain distance from the chest-piece of the stethoscope, the distance being equal on all sides, and therefore in no way dependent upon the underlying organs. Mr. Bezly Thorne has adequately answered this criticism, which manifestly rests upon insufficient observation; but I have repeatedly demonstrated the unsoundness of Dr. Herschell's view in a practical way to the satisfaction of students and others inexperienced in this method. I have, for example, placed the chest-piece of the stethoscope over some part of an organ near its periphery (as over the heart, at 4, Fig. 2), and outlined the organ, finding the same change of

note when the percussion reached the limits of the organ near the stethoscope as that occurring when the pleximeter reached the periphery of the organ most distant from the stethoscope. I have then placed the stethoscope at a distant part of the organ (as at *B*, Fig. 2), and found that the limits determined by the percussion were exactly the same as before. This practical demonstration that the change of note is dependent upon the underlying organ, and not upon the mere distance of the pleximeter from the stethoscope, is convincing, and I do not therefore find it necessary to invoke theoretic considerations in explanation or defence of the method. It may, however, be well to explain, as Thorne has done, that there is a certain amount of vibration of the chest-walls themselves which will reach the stethoscope from variable distances surrounding the stethoscope, and that these become audible when percussion is practised within this area. A very little experience, however, will teach us to distinguish between such a change of note and that arising from vibrations in the deeper structures.

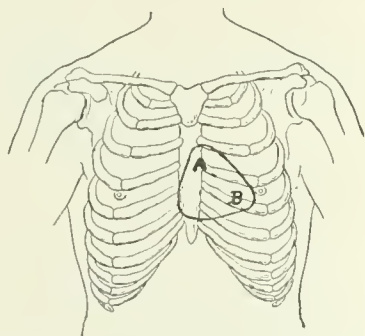


FIG. 2.

Very recently a method has been proposed by Bianchi and Compté, in which the phonendoscope of the former observer is employed. This instrument is a modified form of microphone, in which the vibrations over the chest are transmitted directly or through a metal stem to a system of ebonite plates, and from these through rubber tubing, as in the ordinary stethoscope, to the ears.

The instrument itself has certain advantages in conveying faint sounds very clearly to the ear, and it may be employed as the ordinary stethoscope. I have, however, found little advantage over the binaural stethoscope and several disadvantages. The pressure necessary when the metal stem is used is such that at times, with the small size of the button upon the metallic stem, considerable pain or discomfort is occasioned; and when the stem is not used the instrument covers too large an area. In young children I have found it practically impossible to use the phonendoscope with satisfaction on this account. It was hoped from the magnification of the sounds obtainable with this instrument that it would prove especially useful in auscultatory percussion, and Compté in particular described a method of procedure for which he claimed brilliant results. The button of the phonendoscope, according to this method, is placed over the organ to be examined, and the ear-pieces are adjusted, whilst the finger is drawn over the skin, beginning at the point where the button is applied and running outward in radiating lines from this to the centre. As soon as the finger passes beyond the limits over which the button is

placed it is claimed that the rasping bruit heard before suddenly ceases. This change of note is described as being very abrupt and distinct. In my experiments with this method I have uniformly found that such was not the case. The note does suddenly change when the finger has passed to a certain distance from the button of the instrument; but this distance is equal more or less, in all directions, and it seems to me easy to explain this fact. The vibrations occasioned by the finger drawn over the skin cannot manifestly occur in the deeper tissues or organs, but only in the skin and the immediately subdermal tissues. It is quite improbable, therefore, that the position of the deeper organs would have any influence upon the sounds obtained through the instrument, and it is altogether probable that these sounds would be greatly influenced by the distance to which the finger is carried from the instrument. This distance, of course, represents that to which vibrations in the skin are readily transmitted. The method of Compté is therefore, I believe, wholly useless. The phonendoscope itself may be employed for auscultatory percussion after the ordinary method; but I find no advantage here over the ordinary stethoscope, and perhaps the loudness of the sounds may in some cases prove an actual disadvantage.

I wish now to consider somewhat in detail the value of this method in the examination of the different organs.

THE HEART.

In applying auscultatory percussion to this organ I am accustomed to place the stethoscope near the apex and then to mark the limits on all sides by percussing lightly and then heavily, but always with strokes of equal force in each separate determination. The lower border, where the left lobe of the liver and stomach lie adjacent, is usually determined with great precision, and the same to a slightly less extent may be asserted of the oblique border and the apex where the change of note in passing from the lung to the heart is usually quite distinct. The upper limit, particularly that immediately beneath the sternum, is more difficult to determine accurately on account of the more ready transmission of vibrations through the sternum and ribs. In persons with emaciated thoraces, and particularly in those in whom the sternum bulges forward, the difficulty may be very great; but I have never as yet failed to determine with measurable satisfaction what seemed to me to be the limits of the organ in this direction. It will in difficult cases be necessary to percuss a number of times and with varying force before a conclusion is reached; but when the practical impossibility of determining by ordinary percussion the position of the upper border in the cases here alluded to is considered, the advantages of the stethoscopic method must be admitted to be very great. Thorne contends that the note over the great vessels at the base of the heart (the aorta and pulmonary artery) may be distinguished from that of the heart, and that a bipartite outline of the organ, due to the auriculo-ventricular groove, may be determined. These claims seem to me somewhat too extravagant; and though I am prepared to admit that some distinction may at times be noted in normal cases between the sound heard when percussion is practised over the vessels and that audible when the heart itself is percussed, I have never been able to draw sharp lines and cannot pretend to distinguish the position of the auriculo-ven-

tricular furrow. In some few cases of enlargement of the aorta in aortic valvular disease, and still more in cases of aortic aneurism, I have found separate areas, such as those represented in Figs. 3 and 4.

The right border of the organ above the hepatic dullness is usually easy to determine, though there is some difficulty in emaciated persons. Projection of the right auricle beyond the right border of the sternum is discovered in many normal individuals, though by no means in all. The inferior border on the right side, where the heart and liver are adjacent, is somewhat difficult when the ensiform cartilage and the ribs are closely approximated and projecting, but as a rule little difficulty is encountered. Ordinary percussion may in some cases suffice to determine where cardiac dullness ceases and the hepatic begins by the change of note detected; but there can be no comparison in accuracy between the older method and stethoscopic percussion.

I have not preserved sufficient records of the exact outlines of the heart obtained in normal cases to state

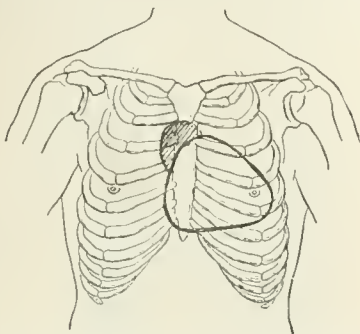


FIG. 3. Mitral and aortic disease, showing distinct area of aortic enlargement. The line of demarcation between aortic and cardiac dullness was not as distinct as the diagram would suggest, but was undoubted.

the limits in health, but have repeatedly noted that the area is greater than that obtained by ordinary percussion. The right border frequently extends beyond the right side of the sternum, as I have said before, and the left border as far to the left as the nipple-line; the base is found as high as the second interspace in many instances.

Besides the greater accuracy obtained by this method of exploration in ordinary cases it may be mentioned that in emphysema of the lungs stethoscopic percussion often proves satisfactory when the older means of examination are useless. In cases of moderate marginal emphysema, of malformation of the lungs, or of abnormal lobulation or retraction of the anterior portions of the lungs, in which the heart is either excessively or insufficiently covered by the lungs, a comparison of the extreme limits obtained by auscultatory percussion with those determined by the ordinary method may clear up conditions not otherwise discoverable. Finally, an advantage of this method is found in children or sensitive adults in whom it is undesirable to use force in striking the chest, and in whom, therefore, ordinary percussion is unsatisfactory.

My experience with auscultatory percussion in pericardial disease is limited to a few cases, and I can merely state that it commends itself on account of the early discovery, possible by this means, of dullness on the right side of the sternum. The liquid collects in the

pericardial sac surrounding the right auricle quite early in the disease, but may for some time occupy only the posterior part of the pouch. Auscultatory percussion will determine such effusion much sooner than the ordinary method.

LUNGS AND PLEURA.

The spongy structure of the lung renders this organ less satisfactory for the application of the method under discussion. It is possible to limit areas of consolidation with accuracy when they are considerable in size, but in this respect the method has little advantage over simple percussion. When the areas are small and the consolidation merges gradually into the normal pulmonary tissue, auscultatory percussion is unsatisfactory. I have not found the method of material assistance in cases of beginning consolidation of the apices. In these cases so much disturbance may be occasioned by varying conditions of the bony framework, by the force of the percussion-strokes and other factors that I should hesitate to accord it special advantages in diagnosis. In cases of large

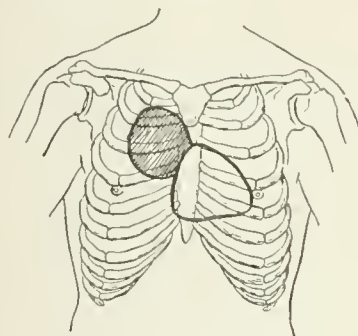


FIG. 4. Aneurism of the arch of the aorta, showing distinct area of dullness. The line of separation was sharply marked.

cavities I have found stethoscopic percussion useful, though but little more satisfactory than ordinary percussion. When there are small cavities these may at times be localized by placing the stethoscope over a somewhat removed portion of the lung and percussing near the supposed situation of a cavity. There will be found quite a marked reduction of sound when the percussion passes from the healthy or consolidated lung to the area of evacuation. Unfortunately, the consolidation surrounding small cavities is usually so dense or extensive that vibrations emanating from this source interfere with the nicety of the method.

A great advantage is found in cases of consolidation of the bases when it is difficult to determine by ordinary methods to what extent dullness is due to hepatic or splenic enlargement or to pulmonary consolidation. It is true, of course, that the spleen and liver, as a rule, become displaced or enlarged in a downward rather than an upward direction; but still there are cases in which the question of the upper limit may be difficult to determine. In such instances the stethoscope may be placed over the liver and the upper border of this organ determined; then over the lung and its lower limit defined. I have found this mode of examination useful in several cases, particularly in one of great hepatic enlargement in a rachitic child recently under my care.

In case of thickening of the pleura the extent of the area of involvement may be determined by this

method, though there is no material advantage over ordinary percussion. In cases of pleural effusion, however, the upper limit of the liquid is easily determined, and, as has already been indicated in speaking of the delimitation of the liver and of pulmonary consolidation, auscultatory percussion has special value in permitting a ready distinction between the dullness of the pleural effusion and that of the subjacent liver. I conceive that in cases of interlobular pleural exudate the outlines of the area of dullness might be more easily determined by this method than by ordinary percussion, but have had no experience in this matter. It is possible, also, that auscultatory percussion may prove of some value in distinguishing between obscure cases of subdiaphragmatic collections of pus and pleural effusions by revealing, on the one hand, a gradual increase in the intensity of the note heard with the chest-piece of the stethoscope over the liver while percussion is carried downward toward the liver, this gradual increase in sound being explained by the transmission of vibrations to the liver from the liquid

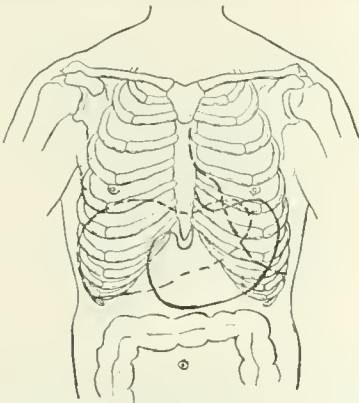


FIG. 5. Showing the extent to which the liver and lung cover the stomach normally, and the relation of the colon to the greater curvature. (Modified from Luschka.)

immediately above it, while in pleural effusion a sharply defined line would be obtained as soon as percussion was carried below the diaphragm and to the upper border of the liver. This, also, is purely speculative, as I have had no occasion to test the matter in practice.

THE ABDOMINAL ORGANS.

While the advantages of the method under discussion are sufficiently great in the diagnosis of thoracic diseases to warrant its more general adoption, I have found it particularly serviceable in obscure abdominal affections and as a routine method in examination of the stomach.

THE STOMACH.

The unreliability of direct percussion of the stomach need not be considered at length. It may be said, however, that among the conditions which render it inadequate are the extent to which the left lobe of the liver covers over the lesser curvature and upper part of the organ, the fact that a large part of the body is concealed by the ribs on the left side and covered over by the arch of the diaphragm, and by the fact that not rarely a distended colon or one containing fecal matter may remove the lower part of the organ from the abdominal walls and render percussion uncertain. Auscultatory percussion has the advan-

tage that it is rarely difficult by firm percussion and by repeated trial to distinguish the limits of the organ even beneath the thin portion of the liver that usually covers it over. The same may be said of the portion of the stomach covered by the lung, diaphragm and ribs, and, to a lesser extent also, of the inferior border where clonic distention ordinarily interferes (Fig. 5).

The routine employment of this method in the examination of the stomach of many patients has convinced me that its advantages in the recognition of the size of this organ are second only to those of direct inflation with atmospheric air or gas. It is practically always possible to determine the lower border of the organ, the position of the fundus, and of the lesser curvature. From these data the probable size and position may be determined with considerable certainty.

In the accompanying diagram (Fig. 6), representing the outlines of the organ as determined by stethoscopic percussion in a case of carcinomatous stenosis of the pylorus, the positive demonstration that these

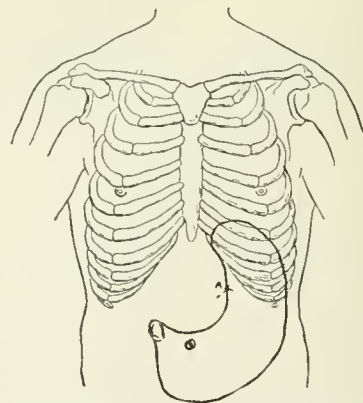


FIG. 6. Carcinoma of the pylorus, showing the outline of the stomach obtained by auscultatory percussion; confirmed by inflation.

outlines were correct was furnished by subsequent inflation of the organ with the aid of a stomach-tube and the bulb of a Davidson syringe. It will be readily seen from the diagram that the lesser curvature was considerably depressed below its normal position, so that an explanation was readily obtained for the depression visible in the epigastric region. At the first examination of this particular case the great enlargement of the organ was not discovered, and I was inclined to attribute the failure to the method, whereas it was subsequently discovered that this failure was attributable rather to hasty examination. In an examination of the patient the chest-piece of the stethoscope was placed over the position of the normal fundus and percussion was made from a point just above the umbilicus toward the inferior margin of the left ribs. Gastric tympany was not obtained until the point A was reached, and it was erroneously inferred that the organ was rather small than large. Subsequent examination showed the outlines in the diagram. The determination of the upper curvature by this method is of particular advantage in distinguishing cases of gastropotosis and gastric dilatation. In the case of tumors of the pyloric region it is generally possible to determine that the neoplasm is connected with the stomach, and thus an aid is afforded to the differential diagnosis between gastric tumors and tumors of the

gall-bladder. The determination of this point is accomplished by placing the stethoscope over the body of the stomach and carefully percussing toward the tumor from all directions. The note obtained from the tumor may be quite different from that found over the uninvolved portions of the organ, but it will be noted that the tone over the tumor is much more nearly like that of the stomach proper than that found in the surrounding parts. The diagram (Fig. 7) represents a case of neoplasm of the liver in which the test just alluded to was made, and served to indicate that the tumor was situated away from the stomach, this being confirmed by inflation of the stomach and subsequently by exploratory incision.

Great advantage may be obtained by combining inflation with auscultatory percussion, in which case the exact limits of the organ are usually obtained with very great ease. As a rule, however, inflation is unnecessary, and in routine practice is undesirable.

INTESTINAL DISEASES.

It is possible at times to determine the exact course and size of the colon by this method, providing, of course, that the bowel is empty and well inflated.

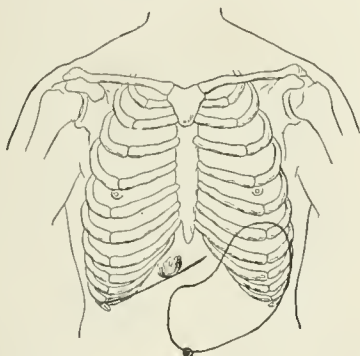


FIG. 7. Tumor of the liver. Outline of stomach determined by auscultatory percussion.

Lavage and partial inflation may be practised previous to the examination in cases of particular interest. I have found, by placing the chest-piece of the stethoscope over the caput coli and percussing over the centre of the abdomen toward either side and toward the epigastrium, that the inner limit of the large bowel could often be determined; and subsequently, by percussing from the extreme flanks and from above toward the middle of the abdomen, the outer limit of the ascending, descending, and transverse colon could be determined. If the small intestines are greatly inflated, however, it is scarcely possible to distinguish sharply between the note of the small and large bowel. In one case I was able to determine that a tumor occupying the left flank was connected with the descending colon, and in another instance located a carcinomatous mass at the hepatic flexure by this method. In these instances the limits of the colon were first determined and the tumors referred to were found to correspond to the course of the gut; then careful percussion was made over the tumor and toward it from all sides with the stethoscope over the adjacent but uninvolved part of the bowel. Finally the stethoscope was placed over the tumor itself and percussion directed toward the intestine near by. The result of all of these procedures showed plainly that the tumors involved the bowel walls.

THE LIVER.

The exact limits of this organ are easily determined, as a rule, by this method, and neoplasms directly connected with it are readily distinguished from tumors of adjacent viscera which occupy a position near to the liver, but unattached to it. The example already alluded to of a neoplasm of the lower edge of the liver serves to indicate the advantage of the method in distinguishing the exact seat of such growths. When adhesions have taken place between the liver and tumors of the neighboring organs, particularly of the stomach, and especially when the tumor has infiltrated the liver-substance and a confused mass of neoplasm is thus established between the originally involved organ and the liver, greater difficulty is experienced, and, as a rule, it is impossible to determine whether the seat was primarily in the substance of the liver or in an adjacent organ. As an instance of this I may cite a case of carcinoma of the pylorus and lesser curvature of the stomach which had become connected with the left lobe of the liver and in which auscultatory percussion determined a gradually diminishing note toward the stomach and toward the liver. It was impossible to determine which organ the disease had invaded most extensively. In cases of neoplasm of the body of the gall-bladder and in case of empyema or dropsical swelling of this sac the distinction from new growths of the stomach or from movable kidney may sometimes be possible. I have found it so in several instances of moderate enlargement of the gall-bladder; but must admit that in cases of greater enlargement of the gall-bladder difficulty would probably be experienced, since the vibrations would not be transmitted to the liver when the neck of the gall-bladder or the pedicle of the tumor, so to speak, is much attenuated. Unfortunately, I have had no opportunity to examine such a case by this method.

THE SPLEEN.

Greater exactness may be obtained in determining the limits of this organ by auscultatory percussion than by the ordinary method; but I am not as yet convinced that it possesses sufficient advantages to determine in all cases by this method alone whether the organ is enlarged or not. So much depends upon the exact position of the organ, whether it projects against the chest-walls with the narrow edge or the broader side, and upon other conditions, that I am unwilling to assert that it is possible to determine, from the percussion limits, whether the organ is normal or somewhat enlarged. Of course, in cases with great enlargement auscultatory percussion will be found satisfactory, but it may be said that ordinary percussion is available in the same cases. After all, a combination of palpation with percussion should be relied upon rather than either method alone.

THE KIDNEYS.

In several cases of pyonephrosis I have found that the enlarged organ could be readily outlined by stethoscopic percussion; but in these cases palpation and even inspection of the back with ordinary percussion were almost as satisfactory. The only advantage obtained was that of a greater feeling of security in ascertaining the enlargement of the affected organ.

I have met with no case of moderate enlargement of one kidney in which I have been able to assert

from the use of this method that the organ was enlarged when the ordinary methods of examination had failed to reveal any enlargement. It is not impossible or improbable, however, that such border-line cases may be discovered now and then.

In practising the method upon the kidney the greatest possible attention to certain details is necessary. If a patient is standing in an erect position, the large lumbar muscles are so stretched and prominent that the vibrations obtained from these will overshadow any that might be obtained from the deeper-lying organs, and I have found that it is practically impossible to determine with any degree of satisfaction the position of the kidneys. The same may be said of the prone position in bed unless the patient be placed upon a number of pillows heaped up so that the back is somewhat arched and the muscles are entirely relieved of any tension. A more comfortable position, however, is one midway between the prone and the lateral position. The patient is placed in this posture and the physician stands at his back and is then able to examine the kidney of the opposite side from that on which the patient is lying, with a fair amount of certainty in the results. On the whole, however, I have obtained no striking results in the examination of the kidneys.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE STAFF.

J. COLLINS WARREN, M.D., SECRETARY.

REGULAR Meeting, February 10, 1897, the President, DR. CHARLES B. PORTER in the chair.

The following cases were reported, the patients, specimens and photographs being shown :

TYPHOID FEVER, WITH PERFORATION.

DR. F. C. SHATTUCK: A Harvard student, nineteen years old, entered my service on the 22d of October. For ten days he had had malaise, headache, lack of energy, etc. Four days before entrance he went to bed, with frontal headache as the most troublesome symptom. On entrance physical examination was practically negative. The diazo-reaction was present in the urine; no leucocytosis; 6,500 white cells; no plasmodia in the blood. He came from New Jersey, and we thought of malaria. No rose-spots. On the 25th rose-spots appeared. It was a mild case. There was not the slightest symptom to cause uneasiness. On the morning of the 26th, at my visit soon after eleven o'clock, I noticed that he looked somewhat distressed, and he said that pain in the belly had just come on. The bowels had not moved for two days, and I supposed that the pain was probably due to wind or constipation. I gave an order that he should have an enema and, if necessary, later a hypodermic of morphia. An enema was given, with fair results, though he could take only about a half-pint. He had a hypodermic at one o'clock. In the evening, about seven o'clock, they telephoned that he was much less well. The pain was persistent and the pulse had gone up. At 8.30 Dr. Porter and I held a consultation. It seemed clear that he had a perforation. He

had been doing absolutely well, and this pain had come on very suddenly in a perfectly unaccountable way. The face was anxious, rather pinched; and the change in less than twelve hours was very striking indeed. The white count had gone to 14,700 from 6,500 on entrance. The first symptom being on the 9th of October and this on the 26th, there were only seventeen days from the first suggestion of his being ill, and less than ten days from the time he took his bed. We had the advantage of a young man in first-rate condition, with a mild process which had not greatly impaired his resistance, and we also had the advantage of having got the perforation pretty early: the consultation was within twelve hours after the first symptom suggestive of its occurrence. I will leave the rest of the case to Dr. Porter.

OPERATION FOR INTESTINAL PERFORATION IN TYPHOID FEVER.

DR. C. B. PORTER: On October 26, 1896, an incision, five inches long, passing to the left of the umbilicus, was made. Some turbid serum escaped, but no fecal matter was seen. The odor was slightly fecal.

The coil of distended intestine which bulged out through the wound was carefully examined, and was gradually drawn out, being replaced as fast as examined. The duodenum was finally reached without finding a perforation. From this point the small intestine was systematically examined. At the lower portion flakes of fibrin were found on the bowel, and in one or two spots the intestine looked as if ulcers were on the verge of perforation. Finally, near the cecum a sloughing area was found on the peritoneal surface from which gas bubbled. No fecal matter was seen. There was an indurated thickened area around the perforation. Intestinal sutures were placed in a diamond-shaped area, the line of the stitches being transverse to the axis of the bowel. The ulcer was turned in, the peritoneal surfaces being apposed over it. A second row of sutures was placed, covering the first row, and the bowel was replaced. The abdomen was thoroughly wiped out, and a drainage-wick was put into each side of the pelvis.

The pulse was 150, and of poor quality after the operation. Under stimulation and the use of salt solution by enema and subcutaneous injection the pulse fell to 120, and the patient came out of the ether fairly well, and seemed to feel better than before the operation, the acute pain being relieved.

October 27th. On the day following the operation the patient steadily improved. There was nausea and the regurgitation of small amounts of brownish fluid, but no real vomiting. At night the pulse was full, regular and strong, about 110. The temperature was lower than before the perforation.

October 28th. The patient spent a very restless night and was delirious. He seemed to be less nauseated than on the day before, but was unable to take anything by mouth. Pulse very good and regular. Patient seemed to be holding his own. The abdomen was much distended. The wound was draining well. In the evening he vomited, and passed much gas and a little fecal matter. After enemata of sulphate of magnesia, aloes and turpentine, the abdominal distention decreased markedly.

October 29th. On this day the pulse became very weak; and notwithstanding stimulants and salt solu-

tion enemas the patient failed rapidly, and died at 11.45 A. M., sixty-one hours after the operation.

AUTOPSY ON ABOVE CASE.

DR. J. H. WRIGHT described the autopsy, made October 29th.

The body is that of a young man of good height and good osseous development, but rather emaciated. In abdominal wall, beginning about three centimetres above umbilicus, and extending downward slightly to left of same for a distance of about twelve centimetres, is a linear wound, closed above with sutures, its lower portion packed with gauze. Incision restricted to abdomen and lower portion of thorax. Rigor mortis not marked. Slight post-mortem discolorations. Subcutaneous fat small in amount. Intestines distended and rather firmly bound together, and adherent to anterior abdominal wall about wound by a rather thick, grayish-yellow, dry exudate. Serous surfaces injected. Little or no fluid.

In the ileum, about thirty centimetres above ilio-cecal valve, there is a row of black silk sutures extending around two-thirds of the circumference of gut, and binding the serous surfaces firmly together. The wall of the gut has been folded in upon itself in such a manner as to bring the adjacent serous surfaces together. On the mucous membrane beneath the row of sutures is an ulcer about nine millimetres in diameter, with elevated, smooth margins, somewhat undermined, and with a fairly smooth base. The lumen of the gut opposite the ulcer is diminished by about one-half, and is choked with a rather firm, dry, putty-like fecal mass, which seemed to be moulded into the narrowed portion. Pressure upon the unopened gut in the neighborhood of the sutures shows no leakage, but firm union. The ileum below the sutures shows perhaps a half-a-dozen ulcers, the largest about one centimetre in diameter. These have smooth, clean bases and elevated, somewhat reddened, smooth margins. One ulcer extends to peritoneum, and its base is formed by the serosa. The mesenteric glands adjacent to ulcerations, enlarged, reddened with grayish-white mottlings. The remaining mesenteric glands slightly reddened and not enlarged. The large intestine is not especially affected. The jejunum, over a space of about four feet, shows extensive irregular areas in its mucous membrane, black-red, and dirty-yellowish-gray in color. The black-red color seems to be due to hemorrhage into the tissue, while the grayish color seems to be due to a necrotic or degenerated condition of the mucous membrane. No definite ulcerations. The external appearance of the intestine beneath these areas in some cases is dark red, in others not.

The spleen shows a large, gray-red, mottled, hard, irregular, projecting area, about the size of a five-cent piece. On section this is seen to correspond to one or two confluent, firm, slightly yellowish, irregularly outlined, sharply defined areas in the spleen-pulp. Another similar area, the size of a large pea, also present. Length, twelve to thirteen centimetres.

Heart. Normal. Muscle firm and in apparently good condition. No fluid in thorax or pericardium. Lungs normal, except for small scattered dark-red areas in parenchyma. Some old adhesions on left lung.

Aorta. Smooth.

Liver. Rather gray and opaque on section.

Kidneys. Rather pale. Cortex, seven to eight

millimetres. Capsule easily removable. Markings distinct.

Bladder small and contracted.

Anatomical diagnosis. Typhoid ulceration of ileum at stage of about latter part of third or the beginning of fourth week. Acute general fibrinous peritonitis. Intestinal suture for perforating ulcer. Stercoraceous inflammation of jejunum. Acute degeneration of liver and kidneys. Infarctions of spleen, probably due to thromboses of small splenic arteries.

DR. C. B. PORTER: I would like to say with regard to something omitted that none of the sutures were tied until they were all in place, and then tied from each end towards the middle of this area. It was because the thickening from the indurated base of ulcer would not allow of turning in in the centre, but finally starting at the two ends that was accomplished.

It seems to me that the element of obstruction entered into the final cause of death, as well as a certain amount of sepsis of the abdominal wound, and it seems to me that if we had not been afraid of injuring the part that had been sutured and had made the stools liquid, this obstruction might not have taken place.

DR. BEACH: I should like to ask what Dr. Porter would have done if he had found fecal extravasation.

DR. PORTER: I think I should have irrigated the whole abdominal cavity and done intestinal suture.

A CASE OF FRACTURED PATELLA; WIRING THE FRAGMENTS.

DR. C. B. PORTER: It is still a question as to the desirability of wiring fractured patellae, and I think that we have not arrived at a final decision in the matter. This man had a fracture that had existed eight months and a separation of the two fragments amounting to three and a half and four inches, and he was absolutely incapacitated. The fragments had been separated from the first, showing no tendency to fibrous union and no attachments at all except by the skin. Having cut down and refreshed the edges I put in very strong silver wire and with the assistance of Dr. Newell I endeavored to bring these fragments together. I finally cut the rectus and part of the vastus internus and divided certain of the deeper bands and at last, after nearly an hour of pulling and resting alternately we got the fragments together and he has a perfect union. The exceptional thing about it is in the division of such masses of muscle to bring the fragments together, and another exceptional thing we could not have expected in the old treatment is union by first intention of both wounds.

HEMANGIOMA OF THE BUCCAL POUCH, TWO CASES.

DR. J. C. WARREN: These remarks refer principally to two cases of what I have described as hemangioma of the buccal pouch, a form of tumor I do not remember having seen before in that situation, and curiously enough both came into the hospital at the same time. Both young women, eighteen and twenty-four. Both had precisely the same thing appearing on the left cheek. The tumors were lobulated, feeling like lipomata, about the size of a hen's egg and of the substance of the cheek, deeply situated. On consultation it was decided they might be, the first at all events, lipomata or possibly obstruction of the duct of Steno by a salivary calculus. The patients were both operated upon by the same method,—a vertical in-

cision to the mucous membrane of the duct on that side. Introducing the finger through this incision the tumor was isolated from its surroundings which were very loose. It was then forced out through the cut made in the cheek and its attachments tied and removed. They both turned out to be plexiform angioma, a coil of small blood-vessels. One healed with some suppuration and the other by granulation without any incident worthy of note.

REPORT ON THE ABOVE TUMORS OF THE BUCCAL POUCH.

DR. WM. F. WHITNEY reported as follows:

(1) The tumor was an irregularly flattened ovoid mass measuring one and one quarter by one by one-half inch. It was imbedded in fat tissue into which it passed without any distinct line of separation. The section surface showed an alternating fatty and fibrous aspect, the latter further marked by very small irregular dark-red areas, in places of a decidedly fine spongy texture.



FIG. 1.

Microscopic Examination. — In the outlying fat tissue were dilated veins filled with blood and about them the connective tissue was increased slightly. The central part was composed of a meshwork of fibrous tissue in which were scattered small bundles of smooth muscular fibres, the inner surface was covered with a thin endothelium. The spaces thus formed were filled with blood. In places the walls were thin and very fibrous, the spaces large and subdivided by partial partitions. In others the spaces were circular and the walls about thick and evidently of vascular origin. On the periphery were numerous small thick-walled vessels (arteries).

Diagnosis. — Cavernous and telangiectatic hemangioma.

(2) A firm, rounded mass, three-quarters of an inch in diameter, imbedded in fat tissue. Section surface variegated by small dark red areas separated by greyish and more translucent ones, giving to it a finely marbled appearance.

Microscopic Examination. — It was seen to be composed of vascular, fibrous and fat tissue. In places there was no question but of dilated vessels with thick

walls. One such was seen, irregularly dilated, giving off side branches for some distance and then suddenly expanding into a cavernous space with sinuous walls, well supplied with smooth muscular fibres. Elsewhere the structure was cavernous, with thin, fibrous partitions, from which were papillary-like projections forming partial subdivisions. Among these essentially fibrous and vascular parts was scattered fat tissue.

Diagnosis. — Telangiectatic and cavernous hemangioma.

OSTEO-MYELITIS OF THE HUMERUS.

DR. J. C. WARREN: The next case is one of common type, and that is the reason I decided to show him to-night, a type of disease which I think often goes unrecognized. Here in the hospital we see the results, not the primary symptoms. I refer to osteo-mylitis. I have said so much about this that I feel a little hesitation about speaking of it. It is, however, one of practical interest, and ought to be brought to the attention of the staff, owing to the difficulties of diagnosis



FIG. 2.

in the early stages and the very serious results which follow a neglect to operate in time.

This boy is seventeen years of age; and when you look at him you will think he is a good deal younger; he is a delicate subject. He worked hard in a clothing store at the North End; and about three weeks before his entrance to the hospital in Dr. Shattuck's ward he was taken with a chill and symptoms of acute rheumatism, and was treated for this by his physician from whom I had a verbal account of the case. He had swelling and tenderness of his left shoulder and (these are points I hope the gentlemen will keep in mind) apparently an acute rheumatic affection of his right knee and left ankle also. He was treated for rheumatic fever, and the swellings in the knee and ankle subsided, but remained in the shoulder; and then he was sent to Dr. Shattuck's ward. Shortly after that the skin reddened, and fluctuation was detected by Dr. Shattuck, and the case was referred to me. I made the diagnosis of acute osteo-mylitis of the head and shaft of the left humerus, and a day or two later performed an operation, a diagram of which is here sketched by Dr. Mosier (Figs. 1 and 2). There was

a vertical incision made through the deltoid muscle, and a large quantity of pus was allowed to escape. In the centre of this abscess, standing like a pillar, was the bone, somewhat but not entirely denuded; and here is where I wish to make a point. Many surgeons would be satisfied with making a free incision like that into the abscess cavity, but those familiar with the peculiarities of this disease would recognize that this was only the outer area of infection, and that the primary focus was seated in the bone itself, in the interior. Consequently, a channel was dug out with the chisel and mallet from the head of the humerus above the epiphyseal line about one-third way down the shaft. Very characteristic appearances were found inside the bone — purulent infiltration, breaking up of the spongy part and thinning of the cortical bone. Several small sequestra were removed. The trough thus made was washed out with carbolic acid and other disinfectants, and the wound, which is shown in the second diagram, was filled with iodoform gauze, and the edges brought together. The boy has been convalescing since, and the temperature, which was high, has subsided.

The points I wish to bring out in this case are the fact that in the early stages of this disease the affection resembles so closely articular rheumatism; the subsequent early operation before general extensive necrosis of the bone had come in and an involucrum had formed, and, consequently, cutting off that period which develops in this disease and which is so slow in working itself out, namely, the formation of the new bone around the dead bone and the gradual separation of the sequestrum.

The subsequent history of this boy will be interesting. It will be interesting to see whether or not his disease has not been shortened by nearly a year by this operation. Here is the boy. The wound is healing readily. He has gained a good deal of flesh, and is in first-rate condition.

In connection with the report of this case I will pass a photograph taken from another case where the disease was allowed to run untreated until the whole thigh had become infiltrated with pus, and the patient lost his life in spite of the operation. The operation I performed was to lay open the knee with two long incisions (Figs. 3 and 4) which were united by a transverse cut so as to form an H-shaped incision, turn back the flaps and chisel out the bone. It ought to be said that in this case I did the best I could, the man refusing amputation.

The PRESIDENT: Will Dr. Shattuck speak of this case of osteo-myelitis of the shoulder?

DR. F. C. SHATTUCK: The first few days I supposed the case to be one of rheumatism. The history was suggestive of this disease, but my suspicions were awakened by the infiltration of the skin and muscles on the outer aspect of the shoulder-joint, extending as far down as the lower attachment of the deltoid. In spite of this infiltration, I still regarded it as probably rheumatic, perhaps partly because I had just had a quite similar case in a man who presented no other evidence of suppuration whom Dr. Porter had seen with me, and who gradually but slowly improved under anti-rheumatic treatment.

In the boy, however, one spot soon softened and became fluctuant. I aspirated, drew pus, and then transferred the case to Dr. Warren.

The board-like infiltration of the skin and muscle,

with subsequent suppuration, differentiated the case sharply from the ordinary case of either rheumatism or gonorrheal synovitis.

DR. WARREN: In regard to the infection of the right knee and the left ankle, I attribute that to general sepsis, not to rheumatism, and yet such conditions simulate polyarticular rheumatism very closely indeed. A culture was made from the wound, and Dr. Wright reports that he found very numerous colonies of the staphylococcus pyogenes aureus, the most frequent organism found in osteomyelitis.

The PRESIDENT: I think what Dr. Warren said with regard to getting at these cases in the early stage is of great importance, and that a great deal of time for the patient is saved, and in hospital practice a great deal of time for the hospital itself is saved in getting the cases early. I don't think too much emphasis can be put upon this.

DR. WARREN: In the next bed was a man who had had acute osteomyelitis, and had had his first opera-



FIG. 3.

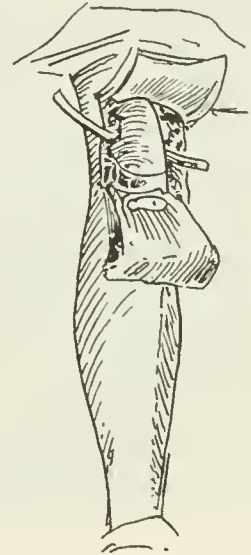


FIG. 4.

tion for the removal of the sequestrum five years after, and was just having his second operation for the attempt to heal the old sinus about ten years after the first.

DR. HARRINGTON: I don't see how in the early stages you are going to make the diagnosis much earlier than it was made here. I wonder if Dr. Shattuck thinks now if he had a similar case he would know earlier.

DR. SHATTUCK: Not more than a week or so earlier. It was about three weeks before it came to operation. I don't see how you could get hold of it much quicker than that.

DR. WARREN: Of importance in the diagnosis would be the age of the patient; it comes on at this period of life. Also the locality of the disease — either the head of the humerus, the lower end of the femur, or the upper end of the tibia being favorite seats; then, too, very intense pain, perhaps chill. The age of the patient, I think, ought to put us on the alert. Primary attacks come between puberty and twenty-five years of age; secondary attacks, which are not uncommon, may be recognized easily by the old scars.

A CASE OF OSTEO-SARCOMA OF BOTH SUPERIOR MAXILLÆ.

DR. J. C. WARREN: The tumor, of which the following is a photograph (Fig. 5), was of seven years' duration and was sent into the hospital by Dr. Cabot. It was a very slow-growing tumor, and I operated upon it by the usual method of cutting down, turning back the cheek and performing the regular operation for resection of the upper jaw. When I got the left upper jaw out, I found a good deal of the disease remained, and removed the right upper jaw also. The tumor is, as you see, a large one. All that was left

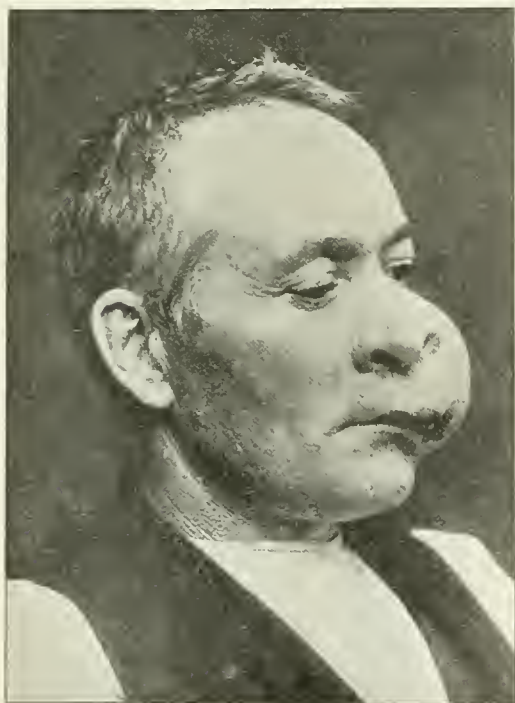


FIG. 5.

inside the mouth was the soft palate, and a rim of mucous membrane on each cheek. These were stitched together, and the corners tightened until the hole which separated the mouth from the nasal fossa was diminished one-third in size, and that diminished still more by cicatrization. The patient has been fitted with a plate, and you can see how little deformity there is in a man both of whose upper jaws are gone. He has only just had his plate fitted, and does not speak very plainly. The point of the case is to see how little deformity there is. The operation was performed about two months ago, November 28th.

The patient was then shown with the plate removed.

ASEPTIC INCISION WITH A SIMPLE FRACTURE.

DR. J. C. WARREN: Now that we have means of taking cultures and knowing where we stand, whether we have a septic or aseptic wound to deal with, we can make ventures we did not dare to do before. It is to illustrate this point that I report the following case. The patient was caught between the couplings of a freight car and an engine January 23, 1897. He was brought to the hospital; and the next morning the

whole leg, from the toes to the knee, was intensely swollen and black-and-blue—the skin shiny, glistening and pale. He was suffering a tremendous amount of pain. I asked Dr. Richardson and Dr. Porter to see him in consultation, and they both decided that it was important to lay the integuments open freely. I had hesitated to do that, as it was a case of fracture and I felt in doing that I was going to make a compound fracture; and we know how hard it is to make compound fractures in the neighborhood of the ankle-joint heal with antiseptic treatment. But it was a question of saving the leg. He was etherized, and an incision made from the upper malleolus nearly to the head of the tibia, down through the skin. This did not relieve the tension entirely, and an incision was made through the deep fascia. Then the muscle bulged up of a deep claret color, so that it was almost a question whether it was muscle or blood-clot so dark was the color. There was no hemorrhage except from two small arteries. A similar incision was made over the outer malleolus. Through the outer incision the interior of the joint could be seen. Through the inner incision the broken malleolus could be felt, showing it to be Pott's fracture, with laceration of the joint. The incision was aseptic; it was dressed with a dry aseptic dressing, and the moment the patient came out of ether his pain had gone. Looking at the wound forty-eight hours afterwards, it occurred to me that a culture should be taken from the wound; and if it was found to be sterile, these large wounds should be sewed up again. The report came that the culture was sterile, and consequently sutures were put in and the greater part of the long incisions were sutured; and I produce the man to show how we have practically changed a simple fracture into a compound for the purpose of saving the limb and the compound fracture back again into a simple one, or nearly so, after the danger had passed. It shows what the laboratory enables us to do.

The PRESIDENT: I should like to say a word in addition to what Dr. Warren has said. It seems to me the incisions which he made saved a large amount of gangrene of the skin which would otherwise have come about, and it was with that in mind that I advised the incision. I think it would ultimately have resulted in amputation of the leg, so much of the skin would have sloughed if it had not been incised; and I would like to report briefly in connection with this an operation I did some months ago, in which I converted a simple fracture into a compound fracture for the purpose of getting a better position. A lady in riding a bicycle sustained a fracture of both bones of the leg, and the fracture of the tibia was so oblique that it was impossible to keep the fragments from sliding by. A radiograph was taken. I told her there would be a deformity. I also told her of the slight danger there would be in making it a compound fracture, and she consented at once. The operation was done successfully. It was made a compound fracture, and wired, and immediately closed up; and she is now out of the hospital wearing a plaster, so that we have not had a second picture taken.

A CASE OF EXTRA-UTERINE PREGNANCY.

DR. J. C. WARREN: The patient, a young unmarried woman, had her catamenia the last time October 25, 1896. No flowing in November. In December, about the time when the catamenia should have ap-

peared, she had a sharp pain, and a slight flow from the uterus followed. That was December 27th, the time apparently the rupture took place. She entered the hospital the next day; and the operation was performed on December 29th, and the tube in question removed. On December 30th she passed the decidua. The patient made an excellent recovery, although in an extreme condition at the time of the operation. Here is the tube, and here are drawings of the decidua; and it is clear that the flow which came from the uterus was the flow from this membrane.

A CASE OF PYLORIC STRICTURE.

DR. W. W. GANNETT: The case is one of pyloric stricture, with dilatation of the stomach, hypertrophy of its wall and secondary catarrhal gastritis. The medical interest of the case relates to the differential diagnosis of the pyloric stricture.

The patient is forty-nine years old, of good family history and good past history.

Previous to six years ago he abused alcohol, and has always used tobacco to excess.

Four years ago slight gastric indigestion came on, giving but little trouble at first, but gradually increasing till two years ago, when vomiting became a prominent symptom, but which act gave immediate relief to the distress in the stomach, so much so that he frequently induced it by the finger in the throat. Nothing especial was noticed by patient as to the vomitus except the recognition at times of food eaten several days before. The amount of vomitus he states to have been occasionally two quarts. Eructation of gas has been nearly constant.

A loss of weight of twenty pounds occurred in two years. In June last he gave up work on account of weakness. For six to eight months previous to the entrance to the hospital he had noticed marked peristaltic movements in the stomach. Thirst, hunger and constipation have been marked. Stools did not attract his attention.

Patient entered the hospital September 16, 1896. A well-developed, fairly-nourished man. A harsh, dry skin, slightly coated tongue. Pupils equal, react to light, normal patella reflexes.

Heart, lungs and urine negative. No cachexia. Epigastrium prominent. Marked peristalsis of stomach. Succussion marked.

The usual investigation of the stomach showed its capacity to be 2,300 c. c.; and when distended with air, it reached well into the hypogastrium. The contents were undigested, fermenting food. Peristalsis active at all times; was marked after washing.

The evidence thus far offered proves sufficiently the existence of the dilatation of the cavity and hypertrophy of the wall of the stomach. Inasmuch as these result practically always from obstruction at the pyloric orifice, the rest of the evidence offered will relate to the data to be obtained for differential diagnosis of stricture.

During the three weeks stay on the medical side the stomach was washed out nearly every day. Examination of contents showed absence of HCl. three times — 17th and 21st of September and 4th of October; presence of free HCl. twice — September 28th and October 3d. Lactic acid present in all specimens. Examination of the blood showed 4,984,000 red corpuscles and 4,800 white, and 70 per cent. hemoglobin. Leucocyte count before meal 4,800; four hours

after meal 7,200, showing distinct digestion leucocytosis. No permanent leucocytosis.

Repeated examination by palpation in various portions of patient and varying degrees of distention of stomach failed to show evidence of tumor about the stomach or its neighborhood. Neither could a movable kidney be found nor any mass which by pressure from without or by retraction might cause obstruction.

Under lavage and regulated diet some improvement in the condition took place.

Weighing the evidence obtained by three weeks' study of the case, the preponderance was in favor of stenosis of non-cancerous origin. These points were the following: the duration of the disease; absence of cachexia; absence of secondary anemia; presence of digestion leucocytosis and absence of persistent leucocytosis; presence of free hydrochloric acid on two occasions, especially at a time when the catarrhal condition had been benefited by the lavage; absence of tumor by palpation. While all these factors were points against cancer, there has been no characteristic symptoms of peptic ulcer. But bearing in mind the frequent existence of scars at the autopsy, where no symptoms of ulcer have occurred during life, less stress need be laid on the absence of such positive evidence.

The evidence collected in three weeks so strongly pointed to stricture of benign origin that operation was advised.

Dr. Beach kindly saw the case with reference to exploratory laparotomy, and with his approval, as well as the consent and approval of the patient, it was done.

PYLORAPLASTY.

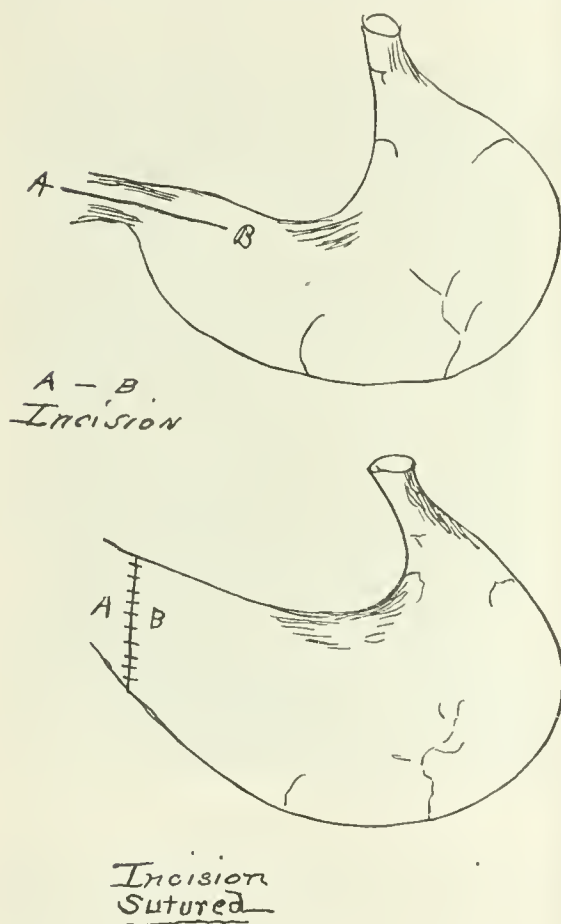
DR. H. H. A. BEACH: In describing the surgical side of the case presented by Dr. Gannett, I wish to testify to the judicious preparatory treatment the patient had received while in his hands, which, by reducing the distention and improving his general condition, facilitated the operation and materially added to his chances of recovery.

The stomach, somewhat enlarged, was carefully explored through an abdominal incision of five inches in the median line. At the pyloric end there was firm thickening but no adherence to the neighboring parts. A straight incision of an inch was made into the stomach, just above the stricture. By passing the finger in that direction the usual valve-like opening was found nearly closed by the contraction of a firm fibrous ring as thick as the little finger. The incision was continued in the long axis of the pyloric end of the stomach through the stricture and into the duodenum for an inch. The stomach was found empty, having been washed out immediately before etherization. There were no enlarged glands nor any condition that suggested malignancy. The stricture material was dense and tendinous-like in structure, and no objection appeared to the use of it in making a new pylorus and closing the wound.

The extreme ends of the incision were brought together by sutures which changed its direction to a line crossing it at a right angle. The lumen of the pylorus had been increased so as to admit three fingers. A double row of eighteen Lembert fine silk sutures were used to complete the union of stomach and duodenum. Two small gauze wicks were left from the pylorus to

the abdominal wound which was then closed as usual with the exception of two provisional sutures, to permit the withdrawal of the wicks (Figs. 6 and 7). This operation first employed by Henieke and Mikulicz independently of each other, not only removes the stricture but creates a new pylorus.

His recovery and convalescence were uneventful. The temperature on one occasion reached 99°, and once later, after a transfer to another ward, 100°. His pulse rose once to 104. During the remainder of the time it ranged between 60 and 90. His nutrition



FIGS. 6 and 7.

was provided for by enemata for the first two weeks and supplemented after the fifth day with small quantities of diluted peptonized milk by the stomach, gradually increased until sufficient was taken to make the enemata unnecessary. After that the diet was gradually increased by broths, oysters and eggs until three weeks after the operation, when he was eating chicken and chops and gaining rapidly. Five weeks after the operation he was walking about, and weighed 111 pounds, a gain of 15 pounds. In three weeks more he weighed 123½ pounds. For the first month after leaving his bed he was troubled with more or less distention and some eructations in the latter part of the day. These were relieved by an occasional washing out of the stomach, and restricting his diet. His appetite was ravenous, and his general gain remarkable.

On December 7th the gastric contents contained free HCl. and a small amount of free lactic acid.

Report on January 18, 1897. Feeling well. Has no distention of stomach or sour eructation. Takes no medicine. Is earning his living, and weighs 132 pounds, a gain of 36 pounds since the operation, October 7, 1896.

February 10th. Patient exhibited. Weight 135 pounds. Has no distention or sour eructations. Is at work and eating anything he desires.

DR. E. G. CUTLER: I should like to say that the diagnosis was a very careful and logical one, and the operation eminently successful. The result is very striking in every way, and reflects much credit on both Dr. Gannett and Dr. Beach.

THE PRESIDENT: It seems as though when a brilliant result has been reached there is nothing to be said on such a case. It is certainly extremely interesting to have heard the account both medical and surgical of the case.

NEPHRITIS, MOLLUSCUM CONTAGIOSUM: DEMONSTRATION OF MICROSCOPICAL PREPARATIONS OF THESE TWO DISEASES.

DR. J. H. WRIGHT: The case of nephritis was one characterized by extensive general edema, which had been treated in Dr. Shattuck's wards for some months.

The lesions in the kidney consisted in extensive, obliterating, degenerative changes in the glomeruli, an increase in the interstitial tissue and various degenerations of the secreting tubules. The condition was essentially that of a chronic glomerule nephritis.

The specimen from molluscum contagiosum was shown for the reason that it exhibited very clearly the so-called parasitic bodies in the cells of the tumor. That these bodies are more probably the products of cell-degeneration seemed clear from the examinations of the specimen. The case was that of a child who had come under Dr. White's observation in the outpatient department.

SKIAGRAPHS OF COLLES' FRACTURE.

DR. WILLIAM M. CONANT: I wish to present to this meeting for their consideration a number of skiagraphs of Colles' fracture that have been taken at different stages of the accident — some before any reduction, some forty-eight hours after reduction has taken place, a few two or three weeks after, and two or three showing the final result at the end of four or five weeks.

The first set which I show is a normal wrist and then a plate which contains a Colles' fracture on one side and a sprain of the wrist on the other. One point that I wish to bring out is that in almost every case shown there is a fracture of the styloid process of the ulna as well as a fracture of some part of the radius.

Another point that will be understood in looking over the skiagraphs is that there appear to be three types. The first one is that of the boy, in which there is a fracture through both the epiphyses and also a fracture of the styloid of the radius. The deformity in such cases is very similar to the deformity in a Colles' and might be mistaken for a true Colles'.

The second type is shown by the skiagraph that demonstrated a chipping off of the outer edge of the radius taking in the styloid of the radius; and the other form is an oblique form, which runs from the outer to the ulnar side, and usually goes into the joint running across the whole lower extremity.

One of the skiagraphs shows a fracture of the wrist

as it entered the out-patient department before anything was done. One is much disappointed that it shows no greater amount of deformity, because it was very marked in the fracture as a whole. There are several skiagraphs which show the result taken soon after the fracture was set, and enable one to tell whether or not the process was good. Another set was taken two weeks after the accident, and shows the beginning of the callus, with a certain amount of blurring of the lines of the bone. The last set were taken, one at three weeks, one at four, and another at five weeks. All of these are instructive as showing that there is comparatively little deformity in the plate itself; and careful notes of the cases show that there is almost no deformity as far as the different motions of the wrist is concerned.

As most of these cases were put up first by the seniors in the accident-room, it seems to me that they demonstrate with what care fractures of this sort are treated by the house-officers.

The things especially noticeable in this set of plates, and in the history of the patients as seen from time to time, is that it has given us definite data to work upon, and has allowed for the correction of any deformity which may have existed before it was too late to mould the bones. It has also demonstrated that, in addition to the fracture of the lower end of the radius, there is almost always a fracture of the styloid of the ulna. I am, however, somewhat surprised that in some of the plates there should be so much apparent deformity when none could be felt or demonstrated by touch. I am therefore led to believe that the skiagraph somewhat exaggerates the amount of injury received, and must therefore be taken as showing an interesting condition as far as the union of the bones is concerned, but should not be used as a means to exaggerate in the eyes of the patient the injury from which he is suffering. It has been my custom in taking these skiagraphs not to let the patients see them, lest the inference which they should draw from the deformity be magnified out of all proportion, from their lack of exact knowledge of just what the deformity means.

DR. W. A. BROOKS, JR.: I should like to show these radiographs. Two of them are of the same fracture, and were taken shortly after the accident happened. They show clearly, what was known before the use of the x-rays, namely, that the deformity on the back of the wrist is largely due to the prominence of the lower end of the upper fragment, of the radius, while that on the anterior side is due to the displacement of the lower fragment. The study of this fracture, by means of the x-rays, has deeply impressed me with the importance of not using too much violence in reducing the impaction. The fragments should be *moulded* into their proper positions, after the impaction has been broken up as gently as possible. With the hand half-way between pronation and supination, the lower fragment is forced in this manner away from the upper, and then moulded towards the ulna, into its normal position. Care must be taken that the lower fragment is not pushed too far toward the ulna, as is shown by this radiograph. If it is, however, it can be corrected by the use of properly applied pads, as I am able to show by this radiograph, which is of the same fracture as the last, but a week later, and after Dr. Mosier, the house-officer, had applied pads with the object of separating the two bones.

DR. BEACH: After a considerable use of the x-ray and admitting the enormous advantage it gives surgery in many directions, it seems to me that there is another side to the question. When a surgeon assumes the charge of an injured limb he accepts a contract to use reasonable care toward the restoration of its integrity. He is not bound to extraordinary care or measures. In changing the standard by which the quality of the surgeon's work shall be measured and estimated, from what has been accepted heretofore, to the ideal suggested by x-ray applications, is to require such extraordinary service of the surgeon, as to demand exceptional precautions for his own protection. The useful limb and symmetrical contour no longer satisfy the individual who demands a restoration of the anatomic outline of the fractured bone, however well the uniting callus may have strengthened and united the splintered fragments. Where such a result is expected, it is just after a proper representation of the fact, for the surgeon to require the opportunity of *seeing* the relation of the fractured ends through an incision and adjusting them carefully — retaining their apposition by wire if necessary, in place of attempting the adjustment through varying degrees of fat and skin, with the added risk of displacement beneath the splints — the patient accepting the additional risk from the conversion of a simple into a compound fracture.

The appearance of bony union shown by the x-ray may give a totally inadequate idea of the solidity and utility of the junction to one not accustomed to x-ray pictures; for instance, the photograph by the ray of a *normal* knee-joint shows a considerable space between the condyles of the femur and the head of the tibia. If these were fractured ends, they would be reckoned by the uneducated observer as imperfectly united, the cartilages actually filling the space appearing as mistily defined as the soft tissues.

DR. C. L. SCUDDER: Apropos of what Dr. Beach has just said, I have been extremely interested in fractures of both bones of the forearm occurring in children. The space between the bones at the centre of the shaft being greater than the space at either end, one finds that usefulness in pronation and supination is greatest when the fracture occurs at the middle of the shaft. In a case the other day a radiograph was taken in which the fracture was near the epiphysis. On the surface the alignment was perfect, but the radius had approximated to the ulna so that there was one-half to three-fourths inch separation of the fragments and yet motion and usefulness were perfect; certainly no judgment should be brought in court in such a case against the surgeon because of evidence produced through the use of the x-ray — the radiograph showing considerable deformity.

I have been very much interested in these radiographs in connection with Colles' fracture and have been making some in the out-patient department. The thing I have discovered is that in adults, where there is not the opportunity for a separation of the epiphyses of the ulna, there is a tearing of the cartilage off of the lower end of the ulna without any fracture of the styloid process; in children there is a separation of the epiphyses of the ulna in Colles' fracture; in adults there is found a lesion of the cartilage from off the surface of the ulna, as was described by Moore, of Rochester, some years ago. It is important to recognize a lesion of the ulna in Colles'

fracture in addition to the lesion of the radius to which attention has invariably been directed. It is important also not to manipulate the wrist by grasping the hand in the old way and making tremendous adduction to break up the impacted fragments of the radius, but to manipulate each fragment by taking hold of the distal and proximal fragments with the fingers and to replace carefully and thus not add to the bone lesion a sprain of the wrist which it seems to me in old times was done.

A CASE OF SPLENIC MYELOGENOUS LEUKEMIA.

DR. H. F. VICKERY: The patient I have to show is of Russian birth, forty-five years old, who has had a winter cough for four or five years, but who assures me that he feels as well as twenty-five years ago. About two years ago he had an attack of diarrhea, and since that time he has occasionally had some looseness of the bowels. In 1872 he had apparently articular rheumatism, and there is now a mitral regurgitation which does not concern us at present. There is a history of malaria in childhood, and he also once had an ulcer on the lip which was cankerized, and which was thought, as near as I can understand what he said about it, to be a chancre, but no evidence of syphilis since that time can be obtained. He has been reduced in the last twenty-five months from 228 pounds down to 177 pounds, and perhaps rather to his advantage. The striking things about him are that, with a very large spleen indeed and a disease of great gravity, he should feel so very well. The blood-count of the red corpuscles is very nearly normal, being 4,016,000 corpuscles to the cubic millimetre. The white cells number 546,000. They have been counted repeatedly by several persons, and all substantially agree. A differential count of the white corpuscles has been made repeatedly. Dr. R. C. Cabot, at my request, made the blood-count, and reported 28 per cent. of myelocytes in a count of 700 white cells; that is, this man has the so-called splenic myelogenous leukemia, in spite of which he feels perfectly well. He is here, and perhaps an examination of the spleen would be of some interest. He has occasionally a little nose-bleed, and has had lately swelling of the ankles, but not more edema than could be accounted for by the mitral regurgitation. Dr. Greenough has prepared a stained specimen of the blood, which is under the microscope. The large proportion of myelocytes is very striking.

In conclusion, I desire to express my thanks to Dr. Fitz for taking this patient into his wards in order that he might be shown to-night.

THE PHONENDOSCOPE.

MR. W. H. SMITH, Medical House-Officer: To demonstrate the practical value of the phonendoscope, for which so much was claimed by Professor Bianchi, of Florence, a series of over 150 cases has been examined. The observations extend over a period of several months, during the service of Dr. Fitz and Dr. Gaunett at the Massachusetts General Hospital. Each case has been first examined with the stethoscope and then with the phonendoscope. The following conclusions have been reached:

In work upon the lungs, the phonendoscope has been found of little value. Owing to the way sounds are magnified, the noise of the inspiratory and expiratory murmurs tends to obscure other signs. In ten

cases, fine, moist râles were overlooked entirely by this instrument. Even with the removable disc in place, which in most examinations should be removed, such an increase in the sounds is heard as to limit its value in the analysis of inspiratory and expiratory murmurs.

For ascertaining the size of the liver, spleen and stomach, the facility and accuracy with which these organs can be mapped out with the phonendoscope with gentle percussion, would seem to recommend it. Stomach tympany is easily differentiated from that of colon by this means.

For the mapping out of the kidney area we have not found the instrument of much assistance.

It is in the examination of the heart, however, that it has been found of especial value. (1) It makes more absolute the diagnosis of myocarditis with dilatation, where the chest walls are thick, and percussion of the cardiac area necessarily difficult. By means of the phonendoscope, the difficulties are much less. Furthermore, murmurs in several instances were discovered with this instrument, which could not be heard with the ordinary stethoscope. In one case, of carcinoma of the stomach, with myocarditis, a soft systolic murmur at the apex was entirely overlooked with the phonendoscope, but easily heard with the stethoscope. A possible explanation for this lies in the fact that owing to the extreme degree of emaciation present in this case, the larger cap of the phonendoscope was less accurately apposed to the chest wall, than was the smaller bell of the stethoscope. With the staff in place on the phonendoscope the murmurs were readily audible.

In one case a pericardial friction rub was first discovered by means of the phonendoscope; several observers failing to find it with the ordinary stethoscope. The objection was raised that the sound was extraneous; yet its presence during a period of two days, associated with sharp precordial pain, in a girl suffering from rheumatic polyarthritis; its absence in 20 or 30 subsequent observations upon the same case; and the fact that the sound was never present in any of the other cases examined, seem to negative the objection.

The fetal heart can be heard much more readily with this instrument than with the ordinary stethoscope. It does not replace the stethoscope, but serves as a necessary adjunct to its use.

A PHYSICIAN DIES UNDER CHLOROFORM.—Dr. James A. Ethridge, a well-known physician of Macon, Ga., died March 14th from the effects of chloroform. Dr. Ethridge was about to undergo an operation for fistula, and almost at the first inhalation of the chloroform his pulse and respiration ceased, and every effort to resuscitate him failed. Upon a preliminary examination of Dr. Ethridge no contraindication to the use of chloroform could be discovered by the physicians in attendance. Dr. Ethridge was about forty years of age, and had practised his profession successfully in Macon for many years. He was a member of the Board of Health of Macon, visiting physician to the city hospital, and surgeon to the Georgia Southern and Florida Railroad. — *Atlanta Medical and Surgical Journal*.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, APRIL 15, 1897.

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THE DUTY ON BOOKS IN THE DINGLEY BILL.

It was one of the good features of the McKinley tariff bill that it put on the free list books and works of art. The framers of that bill, while aiming in the main at protective rates, intended largely to exclude foreign products from the markets of this country, but they still recognized the fact that untrammelled freedom of exchange in art, in literature and science is a good thing, and that a tariff on knowledge is an abomination. It is true that an exception was made in reference to books published in England, which, unless transported unstitched, were still kept on the dutiable list in response (doubtless) to the demands of American publishers — and this objectionable feature was allowed to remain in the Wilson bill; but both the McKinley and the Wilson bills admitted without duty books published in foreign languages.

We need not dwell on the advantages to public libraries — and we emphasize medical and scientific libraries — of the introduction of all foreign books free of duty, these advantages being obvious to every one who thinks of the limited funds at the disposal of such institutions and the fact that every dollar paid for duties curtails by so much the amount available for literature.

The question in its relation to education presents itself thus: Immense sums are annually collected by government from citizens for schools and other institutions for learning, that is, to furnish the means of knowledge. School-books are supplied 'gratis' to schools and to pupils. Works of science and literature are among the means to a liberal education, and it should be made easy for citizens to obtain them, rather than difficult by a burdensome tariff. In other words, a tax on knowledge is monstrously incongruous with a governmental policy which aims to encourage, enforce and foster education. The general principle of "protection" may be right or it may be wrong — we are not here concerned with this question — but none of the considerations applicable to the fruit-raisers in

California or Florida, the wool-growers of Ohio, the lumber merchants of Maine, are applicable to the products of art, literature or science; and it is worthy of note that no artist of prominence, author or publisher appears among the petitioners asking for the imposition of a duty on these productions. As has been well observed, our American artists do not need to be protected, they produce many of their best works in studios in Paris, Rome, and on the banks of the Arno, side by side and in fair competition with their foreign brothers. Genius of that order will thrive better under competition than under protection.¹ With regard to the imposition of a duty on books now admitted free, we have the testimony of Mr. Edwin Ginn, one of the largest manufacturers of school, college and educational books in this country, "that it would be a great misfortune to the educational world, and no publisher with any breadth of character and any interest in the good of his country could wish to make any money on such publications as are in this (Dingley) law compelled to pay duty."

With regard to works of science and of medicine, with which readers of this journal have the most interest, it may be said that few of our legislators realize the injury which will be done to physicians by reimposing a tax on foreign books. As has often been said, genius is cosmopolitan; there is but one Virchow, one Charcot, and their published works belong to the whole world. No familiarity with the writings of the late Mr. Blaine or with American histories, or even with the speeches of Nelson Dingley, Jr., or of our present chief executive, though well bound in protected muslin or vellum and translated into classic German, will to the intelligent physician, anxious to be abreast of the times, compensate for the failure to be acquainted with Leube, Lancereaux, Wundt, Meynert, Kocher, Vulpian, Chantemesse, and other original workers in various departments of medicine or surgery whose writings are to but a very small extent published in this country and available in translation. It is an undoubted fact that during the six years in which foreign medical works have been admitted free there has been a considerable addition of such works to the libraries of physicians throughout the country. Doubtless the number of physicians who habitually purchase books in languages other than English is relatively small, but these few are generally men of moderate means who ought not to be taxed because they desire to know Italian, French or German and study the masterpieces of medical literature in the language in which they were written. It may seem incomprehensible to the Ways and Means Committee, but it is an actual fact that the adding of a few dimes or dollars more to the price of a book in the way of a tax will very often operate as a deterrent from purchasing, and so no revenue is obtained from this source. Many physicians will think twice before they will decide whether they can afford the "Nouveau Traité de Médecine," and they will be apt to forego

¹ Speech of Hon. Saml. W. McCall, in the House of Representatives, March 29, 1897.

the purchase if a duty of twenty-five per cent. is added. Besides there is the delay and vexation consequent on customs — entries and appraisals with additional tributes to official red tape, or if the book comes through the post-office, delay and cost consequent on inspection by the government officer whose valuation is often wide of the mark, but whether high or low must be accepted without protest. It cannot be maintained that the little revenue which the United States government is likely to obtain from this source offsets all the inconvenience and loss to individuals.

There are occasions when considerations of gain or of revenue should give way to measures intended to promote the intellectual and moral good of the community at large, and this tax on the means of learning — called by the *New York Tribune* a "tariff on ideas," and appropriately stigmatized as "barbarous" and "medieval," should be emphatically repudiated by the Senate as a step backward. We are pleased to note that in the House, prior to the final vote on the bill, some concessions were made to public libraries and institutions of learning which are to be allowed to continue the importation, under certain restrictions, of the products of art, science and literature. The earnest plea made by Representative McCall, and ably seconded by other representatives from Massachusetts (notably Mr. Moody), for the adoption of a still more liberal measure was without effect. It is to be hoped that the Senate, which now has the tariff bill in hand, will insist on keeping books on the free list, although Mr. Dingley declares that "we publish an abundance of foreign books in this country."

THE BACTERIOLOGY OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

In view of the present epidemic of cerebro-spinal meningitis in Boston, it may be of interest to summarize what is known in regard to the etiology of the disease. Meningitis may be caused by a variety of organisms of which the most common are the tubercle bacillus, the staphylococcus pyogenes aureus, the streptococcus pyogenes and the micrococcus lanceolatus (pneumococcus of Fraenkel and Weichselbaum). The organism usually found in sporadic and endemic cases of acute cerebro-spinal meningitis has been the micrococcus lanceolatus, and it has been generally assumed that the epidemic form of the disease has been due to the same organism.

In 1887 Weichselbaum reported finding in the exudate of six cases of cerebro-spinal meningitis an organism which he named the diplococcus intracellularis meningitidis, on account of its morphology, and its situation usually within the leucocytes of the exudation. Little attention had been paid to his discovery until an article by Jaeger appeared in the *Zeitschrift für Hygiene* in 1895. Jaeger investigated bacteriologically ten cases of cerebro-spinal meningitis which appeared in epidemic form among the soldiers in bar-

racks and in all of them found the diplococcus intracellularis meningitidis.

The organism has the following peculiarities. It closely resembles the gonococcus, appearing in the form of a diplococcus of which the two halves are broader than they are long, and flattened along the line of apposition so that they appear separated by a perfectly straight line. Many appear as tetrads, and the chains found in the water of condensation of cultures show a longitudinal line due to the transverse division of the diplococci into tetrads. In the meningeal exudation the organisms are found almost wholly within leucocytes, either singly or in large numbers. In the latter case a cover-slip preparation closely resembles the picture presented by gonorrheal pus. Jaeger claimed that he could often detect a faint capsule around the organism, but this observation lacks confirmation. The diplococcus intracellularis stains readily with the ordinary bacterial stains, such as Löffler's methylene-blue solution. It is decolorized by the Gram method of staining, as was first pointed out by Weichselbaum. Jaeger maintains that although the organism is readily decolorized in sections by Gram's method, it is not decolorized in cover-slip preparations. This observation on his part is unquestionably wrong, due to too short washing out in alcohol, for the diplococcus intracellularis decolorizes as quickly as the gonococcus. Both require longer washing in alcohol than the typhoid or colon bacillus. The method sometimes employed for differentiating gonococci (Gram's method followed by vesuvium), gives very good pictures with the diplococcus intracellularis. The organism grows readily on the ordinary opaque Löffler's blood-serum mixture used for diphtheria bacilli. In twenty-four hours the colonies reach a size obtainable on glycerine agar (recommended by Jaeger) only after forty-eight hours. The colonies are slightly elevated, round, viscid, fairly transparent and about one millimetre in diameter. Inoculations into animals are successful only when made into the pleural or peritoneal cavity.

The differential characteristics of the micrococcus intracellularis meningitidis may be briefly summed up as follows: It resembles the gonococcus morphologically, in its situation usually within pus cells, and in its reaction to Gram's method of staining, but differs from it in growing on ordinary culture media, and in being virulent for animals when properly inoculated. It differs from the micrococcus lanceolatus in form, in the lack of a capsule (at least of a well-marked capsule), in its reaction to Gram's method of staining, and in the fact that it is not virulent for animals when inoculated subcutaneously but only when injected into the pleural or peritoneal cavity.

Much interest is being taken in the various pathological laboratories in Boston, in the investigation of the cases afforded by the present epidemic. The fluid obtained by lumbar puncture has proved of the greatest value both clinically in clearing up doubtful diagnoses, and bacteriologically in furnishing the means of determining to what organism the lesions are due, for

by the time the cases come to autopsy the organisms have often almost or entirely disappeared so that cover-slip preparations and cultures prepared from autopsy material have given mainly negative results. When lumbar punctures are made early the organism is usually found in large numbers in the pus cells and cultures yield an abundant growth.

It is too early yet to report the results obtained at the different hospitals, but in nearly every case examined bacteriologically the diplococcus intracellularis meningitidis of Weichselbaum has been found. One case only was clearly due to the micrococcus lanceolatus. The fluid obtained by lumbar puncture has varied from a very slightly cloudy serum to thick pus. The exudation found in the meninges at autopsy has likewise varied from a slight amount to a thick yellow layer. The exudation in the meshes of the pia is singularly rich in fibrin and very tough, so that cover-slip preparations and cultures are made from it with some difficulty. The organism to which the lesion in a given case is due cannot of course be determined except by careful histological and bacteriological examination. The value of such knowledge, is, however, self-evident, if the fact claimed by Jaeger is true that in at least a certain number of cases the organism is found in the nasal secretion of those affected with cerebro-spinal meningitis.

The few facts above presented in regard to the character of the cases of cerebro-spinal meningitis now prevalent in the city would seem to show that certain epidemics, at least, are not due to the micrococcus lanceolatus but to the diplococcus intracellularis meningitidis.

MEDICAL NOTES.

THE MEDICAL SCHOOL OF THE UNIVERSITY OF ILLINOIS. — The College of Physicians and Surgeons, of Chicago, has recently become the Medical School of the University of Illinois.

THE NINTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY. — This congress, which was to be held at Madrid next autumn, will probably be postponed till Easter, 1898, or given up entirely. The reason for this action is stated to be the distress which prevails in Spain owing to the various wars in which she is engaged.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, April 14, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 79, scarlet fever 73, measles 132, typhoid fever 5.

THE BOYLSTON PRIZE. — The Boylston Medical Prize of \$150, for 1897, has been awarded to J. Francis Walsh, M.D., for an essay entitled, "The Anatomy and Functions of the Muscles of the Hand and of the Extensor Tendons of the Thumb."

APPOINTMENTS AND RESIGNATIONS. — Drs. Augustus Thorndike, E. H. Nichols, John Dane and J. S. Stone have been elected junior assistant-surgeons of The Children's Hospital; Dr. John T. Bowen, dermatologist; and Dr. George L. Goodale, assistant-surgeon in the Throat Department.

Dr. George A. Harlow has been appointed district physician to the Boston Dispensary, and Dr. Charles S. Wright, assistant-physician to the Department for Diseases of the Ear.

Dr. W. A. Dunn has resigned his position of trustee of the Boston City Hospital, after three years of service. Dr. C. H. Cogswell has resigned from the superintendency of the City Institutions on Long Island, and Dr. Lowell F. Wentworth, of Bridgewater, has been appointed to the position.

THE SURVIVAL OF ONE OF THE FITTEST. — At a recent meeting of the Clinical Society of the Boston City Hospital, a patient was presented who was convalescent from pneumonia. He is a sailor, eighty-four years old, and at various times in his life had been the victim of the following injuries: Fracture of the left femur (which had united with marked callus and two and one-half inches of shortening), of the left patella, of the head of the right tibia, of the left clavicle, of several of the lower ribs on both sides, of the index fingers of both hands (these presented marked deformity), of the left ankle, and of the right scapula. He had also suffered from double otitis media, bronchitis and asthma. He now has double incipient senile cataract. Several years ago he had had an epithelioma removed from the lower lip, and there had been no recurrence. The man's limbs are still muscular, though his age and the vicissitudes of his career have necessarily caused some wasting. His breadth of shoulders and depth of chest give evidence of what must have been extraordinary physical strength and endurance. He is never known to have suffered from pain in the back, sleeplessness, "that tired feeling," indigestion, loss of ambition, inability to do his work or concentrate his attention, restriction of the visual field, local anesthetic areas, or any of the other symptoms of traumatic neurasthenia or hysteria, so that he has not been deprived of his ability to earn his livelihood, or required provision for the care of his declining years by those who employed him at the time of his various injuries.

NEW YORK.

THE CONSOLIDATION OF TWO GREAT MEDICAL SCHOOLS. — A measure which has created much surprise in the profession, but which, it appears, has been in contemplation for some time, was made public on April 8th, when it was announced that the State Board of Regents at a meeting held in Albany on that date had effected the consolidation of two of the principal medical schools of New York City, namely, the Medical Department of the University of the City of New York and Bellevue Hospital Medical College. The name of the consolidated institution will be the New York University Bellevue Medical College,

and it is hoped to make it one of the largest and most thoroughly equipped medical schools in the world. It is stated that at the beginning it will have an annual income of about \$160,000, and the belief is expressed that this will from time to time be increased by gifts and legacies. The first formal step in the matter of the union was taken on March 17th, when the University corporation adopted a resolution inviting the faculty and trustees of Bellevue to join in the consolidation of their institution with theirs, upon a plan similar to that recently adopted when the University Medical College placed itself under the immediate care of the University. It is probable that the project of consolidation was hastened by the fire which two months ago partially destroyed the Bellevue building, which stands within the grounds of Bellevue Hospital, on city property, the lease of which expires in two years. Pending the refitting of the building the college was transferred to the Carnegie Laboratory, belonging to the Bellevue School, and, in anticipation of the expiration of the lease, a site for a new building was purchased. This adjoins the Carnegie Laboratory, and has a frontage of 75 feet on 26th Street and 150 feet on First Avenue. On this lot, it is announced, a handsome and commodious structure will be erected, and, in addition, the University Medical College building, which stands near-by, will be enlarged by the addition of two stories, making it eight stories in height. The manner in which the various professorships in the consolidated institution will be arranged from the faculties of the two schools has not yet been made public, and probably has not as yet been fully determined upon.

TO STAMP OUT SMALL-POX.—A special appropriation of \$37,500 has been promptly made by the Board of Estimate and Apportionment for the pay of medical inspectors engaged in the work of stamping out small-pox, although, happily, the present outbreak has by no means assumed alarming proportions. In making application for the appropriation President Wilson, of the Board of Health, stated that up to April 8th twelve cases of the disease had been reported. The most serious feature of the matter is that cases were found in eight different tenement houses.

A REMARKABLE CENTENARIAN.—Joseph Field, a farmer of Middletown, N. J., died recently at the advanced age of 104 years, six months, and six days, which is said to be well authenticated. He lived all his life on the farm where he died, with the exception of a short period spent in the produce business in New York. It is stated that he came of very long-lived stock, his father having attained the age of ninety-four and his grandfather, one hundred and two. He remained a bachelor up to his seventy-fifth year, when he married a young woman of twenty-eight, by whom he had three children. It is furthermore reported of him that he never used tobacco, but was "fond of good old home made apple-jack."

DEATH OF DR. CHARLES HAMMER.—Dr. Charles Hammer, a prominent physician of Schenectady, died at his residence in that city on April 7th, of apoplexy, at the age of sixty-five years. Dr. Hammer was largely identified with the New York State Medical Association and the American Medical Association.

Miscellany.

SIR WILLIAM MAC CORMAC AND QUEEN'S COLLEGE, BELFAST.

THE distinguished career of Sir William Mac Cormac, who was last year elected President of the Royal College of Surgeons of England, was recently commemorated by the presentation of his portrait to Queen's College, Belfast, of which he was alumnus. As he is the holder of the most distinguished position to which a British surgeon can aspire, a brief review of his life and work may not be amiss to our readers:

"He was born at Belfast, 1836, being the eldest son of Henry Mac Cormac, M.D., and Mary Newsom. He was educated in the Belfast Institution, in Dublin, and in Paris; he became Bachelor and Master of Arts, also Master in Surgery and Doctor of Science *honoris causa* of the Queen's University, and received its gold medal. He was afterwards a member of the Senate and examiner in surgery of the University. He was appointed surgeon, and afterwards consulting surgeon, to the Belfast Royal Hospital. He saw service at Metz and Sedan during the Franco-German war, 1870-1, as surgeon-in-chief of the Anglo-American ambulance, and during the Turco-Servian war, 1876. He has been senior surgeon and lecturer on surgery at St. Thomas's Hospital, and consulting surgeon to the French Hospital, Italian Hospital and Queen Charlotte's Hospital. He is a Fellow of the English and Irish Colleges of Surgeons, and has been examiner in surgery in the University of London. In 1881 he acted as honorary secretary-general of the International Medical Congress in London, and in consideration of his services in that capacity the Queen conferred upon him the honor of knighthood. He is a Knight of the Legion of Honor, Commander of the Orders of the Medjidieh, the Dannebrog, the Crown of Italy and the Takovo; also possessor of the Orders of the Crown of Prussia, North Star of Sweden, St. Iago of Portugal, Ritter Kreuz of Bavaria and Merit of Spain. Sir William Mac Cormac is the author of 'Work under the Red Cross' and treatises on 'Antiseptic Surgery' and 'Surgical Operations,' besides numerous surgical papers contributed to medical journals and addressed to medical societies."

Lord Dufferin presided at the ceremony of the presentation of the portrait, and in a speech full of his usual charm of words and manner, eulogized the personality and career of Sir William Mac Cormac, who responded in terms marked by loyalty to the college at which he received his medical education. The ceremony of presentation was as impressive as it must have been gratifying to the central figure and was attended by a large gathering of the alumni, as well as by professors and students of the college. The portrait was subscribed for by friends and former students of Queen's College resident in England, India and the Colonies.

Correspondence.

CHLOROFORM IN LABOR.

DENVER, COL., April 8, 1897.

MR. EDITOR:—In your issue of March 18th, the use of chloroform in labor is considered by Drs. Boland, Twombly and others. May one who has long been away from the city which gave us ether add a word to the discussion?

In four and a half years of medical study and hospital work in Boston, from 1878 to 1883, I never saw chloroform given, nor did I receive instruction as to its administration. I was taught that ether was the only anesthetic to use; and I admit freely that, as regards the very great majority of cases, I believe that teaching to have been correct, although probably one-half of the cases I have seen anesthetized in this State have taken chloroform.

For years, however, my firm conviction has been that chloroform should be preferred, in certain cases, as the safer and better agent, and my teaching has been in accordance with this view. Not to mention here some cases of albuminuria, bronchitis in aged people, and certain inflammatory conditions of the air-passages, we have, I believe, in labor a set of conditions demanding chloroform rather than ether.

One of the speakers stated in the discussion that ether "works just as well, and gives us practically no anxiety at all." If the first proposition were correct, I should have nothing to say; but I am convinced, after an experience of several hundred cases in which I have used chloroform in labor, and previous to which I had for some years, used ether, that it is not so. Chloroform has, in labor, all the advantages attributed to it by Dr. Boland, and one more, of greater importance than any other excepting safety, namely, greater rapidity of action. It thus relieves the oncoming pain more quickly than ether. As the head distends the perineum the anesthesia may be pushed to the extent of surgical narcosis with great ease and rapidity, and without the excitement sometimes so troublesome with ether. I believe that no fair-minded physician, who will use the two drugs each in a dozen cases of labor, will use ether in labor thereafter excepting for operative cases, in which, at times, I use it myself.

Dr. Boland says of chloroform that, in childbirth, "it is practically as safe as ether." I believe this statement to be correct, all authorities supporting it so far as I know. I certainly have never seen a sign of danger, although the drug has been given often in my cases by untrained assistants.

If because, as one speaker stated, "we are born and bred up to it," we are to continue to use ether to the exclusion of all other agents, in spite of the teachings of scientific medicine; and if a great representative medical school is to utterly ignore in its teaching of practical anesthesia, as it did a dozen years ago, an anesthetic used by half the physicians of the world, I can only express the conviction that, in these matters, prejudice and conservatism have altogether too much weight. There can be no reason why, in selecting an anesthetic, the physician should not act exactly as in choosing a cathartic, using the one best suited for the particular case in hand. No medical community is justified in refusing to hear the other side of the question of ether or chloroform anesthesia.

In closing, I wish to add that, although we believe we are correct in considering ether to be the great anesthetic, we should not be so hide-bound as to refuse to give chloroform a fair trial in suitable cases. If the surgeons of the Massachusetts General Hospital, on the 16th of October, 1846, had wrapped themselves up in their conservatism, and refused to listen to "the other side of the story," the world would have waited for years for the glad tidings of anesthesia. Yours very truly, J. N. HALL, M.D.

A PRINCESS AS TRAINED NURSE. — Princess Frederick Leopold of Prussia is undergoing a regular course of training as a hospital and field nurse.

METEOROLOGICAL RECORD

For the week ending April 3d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S... 28	30.04	38	44	33	70	45	58	N.	N.W.	8	10	O. C.
M... 29	30.24	42	51	33	57	29	43	N.W.	N.W.	10	8	C. C.
T... 30	30.22	46	57	35	45	34	40	N.W.	N.	7	11	C. C.
W... 31	30.28	40	47	34	45	45	45	N.	N.	10	2	C. C.
Th... 1	30.36	40	48	31	40	34	37	N.	W.	15	6	C. C.
F... 2	30.09	50	62	39	34	33	34	N.W.	N.	13	14	C. C.
S... 3	30.44	36	40	31	59	52	64	N.E.	S.	11	8	O. C.

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threat; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 3, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,892,332	798	298	13.13	18.72	1.69	4.68	1.69	
Chicago	1,619,226	430	141	12.42	17.81	4.83	2.53	—	
Philadelphia	1,164,000	479	140	13.65	16.38	.84	7.14	1.47	
Brooklyn	1,100,000	441	165	10.81	17.71	.46	5.29	1.61	
St. Louis	560,000	189	43	4.77	22.26	—	.53	—	
Boston	491,305	214	68	10.08	21.60	.48	1.92	1.92	
Baltimore	496,315	166	48	6.60	12.00	.60	2.40	2.40	
Cincinnati	336,000	106	—	.94	18.80	—	.94	—	
Cleveland	314,537	77	—	3.8	20.71	—	—	1.29	
Washington	275,500	94	25	3.18	20.14	2.12	—	—	
Pittsburg	238,617	92	36	14.04	15.12	5.10	2.16	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	27	7	—	18.50	—	—	—	
Charleston	65,165	26	5	3.84	3.84	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,687	31	10	12.92	5.69	—	6.46	—	
Fall River	88,040	47	1	6.39	36.21	2.13	2.13	—	
Lowell	84,355	29	14	6.90	31.05	—	—	—	
Cambridge	81,519	25	12	8.00	16.00	—	8.00	—	
Lynn	62,355	19	4	5.26	5.26	—	—	—	
New Bedford	55,254	28	11	3.57	35.70	—	3.57	—	
Springfield	51,534	21	5	18.04	23.80	—	4.76	14.28	
Lawrence	52,153	27	10	7.40	29.60	—	3.70	—	
Holyoke	40,149	—	—	—	—	—	—	—	
Salem	34,437	13	4	7.69	23.07	—	—	—	
Brockton	33,187	8	3	25.00	12.50	—	—	12.50	
Haverhill	30,185	11	—	—	27.27	—	—	—	
Malden	29,709	9	1	—	11.11	—	—	—	
Chelsea	31,295	12	4	16.66	25.00	—	—	—	
Fitchburg	26,394	6	0	16.66	33.33	—	16.66	—	
Newton	27,422	9	2	—	22.22	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	7	0	14.28	28.56	—	14.28	—	
Waltham	20,877	8	3	—	25.00	—	—	—	
Quincy	20,712	—	—	—	—	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	6	3	—	33.33	—	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,564	2	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,523; under five years of age 1,087; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas and fever) 351, acute lung diseases 646, consumption 372, diphtheria and croup 133, diarrheal diseases 50, scarlet fever 44, typhoid fever 35, measles 31, whooping-cough 24, erysipelas 15, cerebro-spinal meningitis 13, small-pox (Chicago) 1.

From typhoid fever Chicago 7, New York, Philadelphia, Pittsburg and St. Louis 4 each, Boston and Lowell 2 each, Brooklyn, Cleveland, Washington, Charleston, Fall River, Lawrence, Springfield and Taunton 1 each. From measles New York 13, Chicago 8, Brooklyn 6, Philadelphia and Boston 2 each, Brockton 1. From whooping-cough Chicago, Philadelphia and Brooklyn 5 each, New York 4, St. Louis and Boston 2 each, Pittsburg 1. From erysipelas New York 6, Boston 3, Philadelphia 2,

Chicago, Baltimore, Pittsburgh and Worcester 1 each. From cerebro-spinal meningitis Boston 3, New York, St. Louis and Chelsea 2 each, Worcester, Lynn, Somerville and Brockton 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending March 27th, the death-rate was 18.7. Deaths reported 3,939; acute diseases of the respiratory organs (London) 313, whooping-cough 98, measles 88, diphtheria 64, diarrhea 43, scarlet fever 30, fever 30.

The death-rates ranged from 12.9 in Croydon to 24.2 in Salford; Birmingham 19.9, Bradford 18.0, Brighton 13.7, Cardiff 15.6, Halifax 18.0, Leeds 16.7, Leicester 17.7, Liverpool 21.5, London 17.9, Manchester 24.0, Newcastle-on-Tyne 20.1, Nottingham 24.0, Oldham 21.5, Sheffield 18.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 3, 1897, TO APRIL 9, 1897.

Leave of absence for six months, to take effect on or about May 18, 1897, is granted CAPTAIN EDWARD R. MORRIS, assistant surgeon, Fort Spokane, Wash.

The leave of absence for seven days granted CAPTAIN HENRY S. T. HARRIS, assistant surgeon, is extended twenty-three days, Fort Preble, Me.

CAPTAIN EUGENE L. SWIFT, assistant surgeon, is relieved from duty at Fort Yates, N. D., to take effect upon the expiration of his present sick leave and ordered to Fort Slocum, N. Y., for duty.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 10, 1897.

C. U. GRAVATT, surgeon, when finished with examination for promotion April 5th, detached from the Museum of Hygiene, ordered home and then hold himself in readiness for sea.

J. A. GUTHRIE, passed assistant surgeon, detached from the "Katabdin," and ordered to the "Alliance."

J. F. LEYS, assistant surgeon, detached from the "Alliance," on relief and ordered to the "Vermont."

T. N. PENROSE, medical director, detached from the New York Hospital, June 5th, and placed on waiting orders.

G. W. WOODS, medical director, detached from the Mare Island Hospital, May 10th, and ordered to the New York Hospital, June 5th.

G. P. BRADLEY, medical inspector, ordered to the Mare Island Hospital, May 10th.

E. P. STONE, passed assistant surgeon, detached from the "Indiana," April 12th, and ordered to the "Bennington."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING MARCH 31, 1897.

CARTER, H. R., surgeon. Granted leave of absence for one day. March 27, 1897.

WHEELER, W. A., surgeon. Granted leave of absence for seven days from March 23, 1897.

BANKS, C. E., surgeon. Detailed as inspector of marine hospitals and marine hospital stations. March 9, 1897. Detailed to inspect stations of Cincinnati, O., Chicago, Ill., and Detroit, Mich. March 18, 1897.

BROOKS, S. D., passed assistant surgeon. To proceed from Port Townsend, Wash., to principal ports of Japan and China on special duty. March 30, 1897.

GEDDINGS, H. D., passed assistant surgeon. To proceed from Marseilles to Paris, France, on special duty. March 22, 1897.

STIMPSON, W. G., passed assistant surgeon. To assume charge of Marine Hospital, Port Townsend, Wash., in addition to quarantine station, during absence of Passed Assistant Surgeon S. D. BROOKS. March 31, 1897.

NYDEGGER, J. A., passed assistant surgeon. Granted seven days' leave of absence from April 2, 1897. Relieved from duty in Hygienic Laboratory, April 2d, and upon expiration of leave of absence to rejoin his station at South Atlantic Quarantine. March 29, 1897.

GAIDNER, C. H., passed assistant surgeon. When relieved from duty at Chicago, Ill., on or about April 2, 1897, to proceed to Baltimore, Md., for duty. March 27, 1897.

SPRAGUE, E. K., assistant surgeon. To proceed from Boston, Mass., to Washington, D. C., for temporary duty in Hygienic Laboratory. March 27, 1897.

PROCHAZKA, EMIL, assistant surgeon. To proceed from Reedy Island Quarantine to Delaware Breakwater Quarantine Station for temporary duty. March 29, 1897.

WICKES, H. W., assistant surgeon. To proceed from New Orleans, La., on or about April 3, 1897, to Boston, Mass., for duty. March 27, 1897.

GREENE, J. B., assistant surgeon. When relieved from duty at Baltimore, Md., on or about April 3, 1897, to proceed to Detroit, Mich., for duty. March 31, 1897.

CLARK, TALIAFERRO, assistant surgeon. To proceed to Chicago, Ill., for duty. March 27, 1897.

HASTINGS, HILL, assistant surgeon. To proceed to New Orleans, La., for duty. March 27, 1897.

LAVINDER, C. H., assistant surgeon. To proceed to New York, N. Y., for duty. March 27, 1897.

APPOINTMENTS.

TALIAFERRO CLARK, of District of Columbia; HILL HASTINGS, of Kentucky, and CLAUDE H. LAVINDER, of Virginia, commissioned as assistant surgeons. March 25, 1897.

TUFTS COLLEGE MEDICAL SCHOOL. EVENING LECTURES.

Hon. Hosea M. Knowlton, Attorney-General of Massachusetts, will deliver an address on "Medical Jurisprudence," Friday evening, April 23d, at 8 o'clock at the Chauncy Hall School Building, Boylston Street. The profession is cordially invited to be present.

CHARLES P. THAYER, *Secretary*.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The annual meeting will be held at the Massachusetts Institute of Technology, Walker Building (corner of Boylston and Clarendon Streets), Room 22, on Saturday, April 24th, at 8 P. M.

The following papers will be read:

"Some Medical and Surgical Uses of the Röntgen Rays," with illustrations, by Dr. Francis H. Williams.

"Therapeutics of the Alimentary Canal," by Franz Pfaff, M.D., Ph.D. Drs. A. L. Mason, E. G. Cutler, and G. Liebmann have been invited to participate in the discussion.

Business: Report of Librarian and Treasurer. Election of officers. Appointment of delegates to the annual meeting of the American Medical Association.

Supper at the Brunswick after the meeting.

JOHN G. BLAKE, M.D., *President*.

JOHN DANE, M.D., *Secretary*.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene will meet at the Medical Library, 19 Boylston Place, Wednesday, April 21st, at 8 o'clock.

At 8-8.30. Short communications by Drs. J. E. Clark, E. C. Stowell and Henry Jackson.

At 8.30. Dr. J. L. Morse: "Infantile Atrophy."

E. W. TAYLOR, M.D., *Secretary*.

BOOKS AND PAMPHLETS RECEIVED.

On the Systematology of the Bacteria. Infantile Dysanæsis. Can Tuberculosis be Diagnosed from the Blood? By C. Fisch, M.D., St. Louis, Mo. Reprints. 1896-97.

Transactions of the Eighteenth Annual Meeting of the American Laryngological Association held in Pittsburgh, Pa., May 14 to 16, 1896. New York: D. Appleton & Co. 1897.

Hypnotism in General Medicine; A Few Suggestions from Personal Experience. Symptoms of Speech Disturbances as Aids in Cerebral Localization. By J. I. Eskridge, M.D., Denver, Col. Reprints. 1897.

Introductory Clinical Lecture. Ulcers of the Cornea; Implantation of a Glass Ball for the Better Support of an Artificial Eye. Ophthalmia Neonatorum. By L. Webster Fox, M.D., Philadelphia, Pa. Reprints. 1896-97.

Nineteenth Annual Report of the State Board of Health of the State of Connecticut with the Registration Report for 1895, Relating to Births, Marriages, Deaths and Divorces. New Haven: Printed by Order of the Legislature. 1897.

Elementary Bandaging and Surgical Dressing, with Directions concerning the Immediate Treatment of Cases of Emergency for the Use of Dressers and Nurses. By Walter Pye, F.R.C.S., Late Surgeon to St. Mary's Hospital. Revised and in part rewritten by G. Bellingham Smith, F.R.C.S., Surgical Registrar, Guy's Hospital. Seventh edition. Philadelphia: W. B. Saunders. 1897.

Original Articles.

A STUDY OF THE BLOOD IN RICKETS.¹

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

THE blood of infants under two years differs in certain of its characteristics from that of adults. The number of red corpuscles is about the same or a little larger, averaging a little over 5,000,000 per cubic millimetre. The number of white corpuscles per cubic millimetre is somewhat larger, averaging from 10,000 to 12,000. The relative proportions of the various forms of leucocytes are also considerably different. The limits, as given by Gundobin, are as follows:

Small mononuclear	50-70 per cent.
Large mononuclear	6-14 "
Polynuclear neutrophiles	28-40 "
Eosinophiles	1-10 "

That is, the proportion of mononuclear, or unripe forms, is about three times as great as in adult life, while that of the polynuclear neutrophiles, or over-ripe form, is only half as large. The mononuclear cells, moreover, are not merely lymphocytes but vary much not only in the size of the cell as a whole but also in the size of the nucleus and in the amount of protoplasm. Finally, an increase in the number of eosinophilic cells, even if considerable, seems to be of less significance.

Anemia of various sorts is very common in children. It develops more easily and more frequently as the result of various morbid conditions and diseases in them than in adults. This is because the tissue changes in them are more rapid as the old tissues have not only to be nourished and replaced but new ones formed. Hence any disturbance of nutrition is more serious and results in more rapid and significant changes in the blood.

The classification of the anemias of children is at best a vexed one. That of Monti is the most complete, but seems unnecessarily complicated. They, as those of adults, may be roughly divided into the primary and secondary, the primary being subdivided into simple anemia, chlorosis and pernicious anemia. Chlorosis with its typical symptom-complex and blood is not a disease of early childhood. Warner, however, has noted that "in the simple anemias of childhood the percentage of hemoglobin is diminished to a much greater extent than that of the red globules." I have also noted this in the anemia secondary to various diseases. Although cases of the so-called progressive pernicious anemia have been reported in young children, they are all open to criticism, and it is very doubtful if the condition occurs in them. The simple and secondary anemias may be divided into the mild and severe forms (anemia levis and anemia gravis). In the former the diminution in the specific gravity, hemoglobin, and number of erythrocytes, is slight, and the red corpuscles show non-histological changes. In the latter, the diminution in the specific gravity, hemoglobin, and number of red corpuscles, is marked and the histological changes in the red cells are often considerable. The differences, however, are merely in degree, and only show a greater or less amount of disturbance of the blood-forming organs. Either may or may not be accompanied by leucocytosis. In all but the mild anemia without leucocytosis the

spleen may be enlarged. It is to these cases that the term "splenic anemia" has been applied. They do not merit a special name, however, as there is nothing characteristic in the blood condition, and an enlarged spleen may be associated with a normal condition of the blood.

Much confusion exists concerning the so-called anemia infantum pseudo-leukemica. The description of this blood condition as given by Luzet and Alt and Weiss, is as follows: Constant diminution in number of erythrocytes; constant more or less marked diminution in hemoglobin; poikilocytosis; very many nucleated red cells mostly of abnormal form and many showing karyokinetic figures; polychromatophilia of the nucleated red cells and of many of the non-nucleated; pretty marked leucocytosis, always polymorphous. In addition there is always splenic tumor and more or less enlargement of the liver. Those who consider this blood condition characteristic are divided as to the limitations of the disease. Some, who consider it always primary, would rule out those cases in which it develops secondary to rickets, syphilitic, or other anemias, while others would include them. Others think that there is nothing characteristic in the blood condition, but that it is merely a very severe anemia, and not typical of any disease. Fischl has found the same type of blood in cases of rickets both with and without splenic enlargement. Moreover, cases of progressive anemia with enlarged liver and spleen do not always show this condition of the blood. Whether the condition known as anemia infantum pseudo-leukemica is to be considered as a separate disease or as merely a severe form of anemia gravis with leucocytosis must therefore be left for the future to determine.

It is generally recognized that leucocytosis develops more quickly and to a higher degree in children than in adults. While in adults the increase of white cells is almost entirely in the polynuclear neutrophiles, this is not the case in children. In them the leucocytosis is sometimes due to the increase of lymphocytes, sometimes to that of the large mononuclear forms, sometimes to that of the polynuclear neutrophiles, and sometimes even to that of the eosinophiles. According to Weiss, the lymphocytes are much increased proportionately in affections of the gastro-enteric tract, while the mononuclear cells of all sorts, as well as the transition forms, are proportionately increased in those of the respiratory tract. When there are complicated tissue changes and severe organic disturbances the proportions of the various forms of leucocytes show wide variations. He concludes that the proportions of the leucocytes correspond to certain tissue conditions and alterations and are thus characteristic for certain diseases, only in so far as quite definite tissue changes occur in these diseases. As the same pathological changes occur in many diseases, and different ones in the same disease, it is evident that the same histological blood condition is not always to be found in the same disease.

Monti has found that in normal children there is a constant relation between the specific gravity of the blood and the amount of hemoglobin. They vary directly. This relation is not constant in disease, however, and may vary in various ways.

Although the blood must have been examined in many cases of rickets, the literature of the subject is very meagre. No work worthy of mention seems to

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Eighth Series.

have been done in this direction before the beginning of the present decade. Since then, however, several observers have reported short series of cases, although no one seems to have undertaken a systematic investigation of the subject.

Monti found all the forms of anemia described by him in his classification in rhachitis. As a rule, he found the more severe forms in the severe cases. No definite connection between the clinical course of the cases and the condition of the blood could be made out, however. A greater proportion of the severe than of the mild forms showed splenic tumor. A greater proportion of the cases, with splenic tumor, showed leucocytosis than did those without. Certain cases with very large spleens showed no leucocytosis, however, and others without splenic enlargement showed a high grade. He concludes that "rickets as such does not cause any peculiar anemia, but that according to the severity of the rhachitic process and the associated involvement of the blood-forming organs very different forms and gradations of chronic anemia may occur."

Felsenthal examined the blood in 12 cases of rhachitis between the ages of nine months and two years, nine of which were mild cases with little or no enlargement of the spleen, while three were severe and had large, hard spleens. He obtained the same results in all. The number of red corpuscles was normal or almost normal, and there was no evident relation between the number of corpuscles and the severity of the case. The hemoglobin was diminished in all cases and always to a greater extent than the red corpuscles. The number of white corpuscles was always increased. He considered the oligochromemia as the most striking feature. He found that the red corpuscles often showed a considerable variation in size, and that nucleated forms, mostly normoblasts, and never very numerous, occurred in the severe cases. The majority of the white corpuscles were small and large mononuclear.

Weiss examined the blood in six cases. He found that all cases of severe rhachitis show a typical leucocytosis, the principal part of which is to be attributed to an increase of the mononuclear cells. The transition forms are also numerous, so that the polynuclear cells appear relatively diminished.

Gundobin found the same condition in the blood of rickets as that of other forms of retarded development. He concludes that rickets as rickets causes no peculiar pathological change in white cells, and that any change in them is dependent on concurrent involvement of the internal organs.

Luzet thinks that the blood in rickets associated with splenic enlargement may show all stages from mild anemia to leukemia. He thinks that the splenic tumor causes leucocytosis, increases the anemia, and makes the prognosis more gloomy.

Rotch reports the results of the examination of the blood in two cases of rhachitic anemia, one without and one with splenic tumor. The diminution of red corpuscles and of hemoglobin was more marked in the latter. It showed no leucocytosis, however, while the former did.

Hock and Schlesinger have found that the specific gravity of the blood in rickets is entirely independent of the severity of the rhachitic process, but varies with the anemia. Felsenthal and Bernhard have also shown that it varies with the amount of hemoglobin.

I have examined the blood in twenty cases of active, uncomplicated rickets in infants under two years of age. The blood was in every case taken from the lobe of the ear, and examined with a Thoma-Zeiss apparatus. It was diluted (1-200) with a three-per-cent. salt solution colored with methylene blue. The red corpuscles in one-tenth of a cubic millimetre and the white corpuscles in two cubic millimetres were counted. The hemoglobin was estimated with a von Fleischl instrument. Cover-slips were in all cases made at the same time, hardened in equal parts of alcohol and ether, and stained with Ehrlich's "triple stain." A differential count of at least 500 white corpuscles was then made, the classification recommended by Ehrlich being used. As far as possible the blood was taken about noon, and in most cases about three hours after food. The cases may be roughly divided into three groups according to the severity of the process; those in which the manifestations are mild, those in which they are more severe, but in which there is no splenic enlargement, and those in which there is splenic tumor. The first group comprises nine cases; the second, four; and the third, seven. The data of the individual cases are as follows:

MILD CASES.

CASE I. Male, negro. Eight months.

Breast for six weeks. Mellin's food since.

Marked sweating of head for two months. Always little cough. Bowels usually regular.

W. D. and N. Flabby. Holds up head. Head of good shape. Anterior fontanelle widely open. No teeth. Sits alone feebly with marked kyphosis of weakness. Moderate rosary. Moderate retraction of ribs at diaphragm with flaring below. Heart and lungs normal. Abdomen large but soft. Liver normal. Spleen not palpable. No enlargement of epiphyses. No glandular enlargement.

Hemoglobin	60 per cent.
Red corpuscles	4,170,000
White corpuscles	9,600
Small mononuclear	34 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	61 "
Eosinophiles	1 "

No irregularity in size or form of red corpuscles.

CASE II. Female, Irish. Seven months.

Breast for three months. Then Horlick's Malted Milk.

Head sweats. Restless at night. Tendency to diarrhea.

F. D. and N. Flabby. Pale. Holds up head. Head normal. No teeth. Sits alone feebly with moderate kyphosis of weakness. Moderate rosary. Heart and lungs normal. Abdomen full and soft. Liver and spleen normal. Slight enlargement of epiphyses at wrists. Slight general glandular enlargement.

Hemoglobin	57 per cent.
Red corpuscles	4,200,000
White corpuscles	9,300
Small mononuclear	36 per cent.
Large mononuclear	3 "
Polynuclear neutrophiles	60 "
Eosinophiles	1 "

No irregularity in size or shape of red corpuscles.

CASE III. Female, negro. Seven months.

Breast for five months. Condensed milk since.

Head sweats. Rolls head. Kicks off clothes. Vomits occasionally.

Large, fat child. Head normal. No teeth. Sits

alone with fairly straight back. Slight rosary. Heart and lungs normal. Abdomen little, full and tense. Liver and spleen normal. Slight enlargement of epiphyses at wrists. Little bowing of tibiae. Slight general glandular enlargement.

Hemoglobin	60 per cent.
Red corpuscles	5,048,000
White corpuscles	14,770
Small mononuclear	61 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	33 "
Eosinophiles	2 "

Moderate variation in size of red corpuscles, many being large. No poikilocytosis. One normoblast seen in two slides. Several of the large mononuclear leucocytes very large and containing a very large nucleus.

CASE IV. Male, Irish. Thirteen months.

Breast for ten months. Now arrow-root and milk.

Pertussis at seven months. Sits, creeps, and stands alone.

W. D. and N. Flabby. Pale. Head a little large. Fontanelle normal. Six teeth. General kyphosis of weakness. Moderate rosary. Heart and lungs normal. Abdomen soft and not distended. Liver and spleen normal. Considerable enlargement of epiphyses at wrists. No glandular enlargement.

Hemoglobin	67 per cent.
Red corpuscles	4,936,000
White corpuscles	18,800
Small mononuclear	24 per cent.
Large mononuclear	14 "
Polynuclear neutrophiles	58 "
Eosinophiles	4 "

CASE V. Female, negro. Thirteen months.

Breast off and on. Mellin's Food for eight months. Then milk. Also a little "table food."

Never well. Very fussy. Head sweats a good deal. Cannot creep or stand.

W. D. and N. Flesh firm. Head rather large, but of fair shape. Fontanelle three-quarters of an inch square. No teeth. Sits almost straight. Moderate rosary. Heart and lungs normal. Abdomen large and rather tense. Large umbilical hernia. Liver and spleen not enlarged. Moderate enlargement of epiphyses at wrists. Slight knock-knee. Some general glandular enlargement.

Hemoglobin	48 per cent.
Red corpuscles	5,024,000
White corpuscles	17,900
Small mononuclear	47 per cent.
Large mononuclear	8 "
Polynuclear neutrophiles	44 "
Eosinophiles	1 "

Very slight variation in size and shape of red corpuscles.

CASE VI. Male, Irish. Twenty-two months.

Still on breast. General diet since fourteen months. Always well. Does not stand.

F. D. and N. Flabby. Pale. Frontal and parietal eminences large. Fontanelle one-half inch square. Ten teeth. Sits with fairly straight back. Marked rosary. Slight retraction at diaphragm. Heart and lungs normal. Abdomen, liver and spleen not enlarged. Cannot stand. Epiphyses at wrists, and ankles much enlarged. Anterior bowing of femora and outward of tibiae. No glandular enlargement.

Hemoglobin	70 per cent.
Red corpuscles	5,144,000
White corpuscles	10,700
Small mononuclear	52 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	42 "
Eosinophiles	2 "

No variation in size or shape of red corpuscles.

CASE VII. Male, negro. Seventeen months.

Still on breast. General diet since twelve months.

Always fairly well. Head sweats. Fussy.

F. D. and N. Flabby. Head rather large. Fontanelle nearly closed. Six teeth. Sits fairly straight. Moderate rosary. Heart and lungs normal. Abdomen rather large but soft. Small umbilical hernia. Liver and spleen normal. Cannot stand. Epiphyses at wrists large. Slight bowing of tibiae. Slight general glandular enlargement.

Hemoglobin	64 per cent.
Red corpuscles	5,102,000
White corpuscles	14,000
Small mononuclear	49 per cent.
Large mononuclear	6 "
Polynuclear neutrophiles	43 "
Eosinophiles	2 "

No variation in size or shape of red corpuscles.

CASE VIII. Female, negro. Eight months.

Condensed milk, one month; cow's milk, three months; malted milk, four months.

Head sweats a great deal. Sleeps poorly. Diarrhea for long time.

F. D. and N. Rather flabby. Head normal. No teeth. Cannot sit alone. Moderate rosary. Heart and lungs normal. Abdomen not enlarged. Liver and spleen normal. Epiphyses at wrists enlarged. Tendency to knock-knee. No glandular enlargement.

Hemoglobin	67 per cent.
Red corpuscles	4,840,000
White corpuscles	10,200
Small mononuclear	53 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	41 "
Eosinophiles	2 "

A very little variation in size, but none in shape of red corpuscles.

CASE IX. Male, negro. Fourteen months.

Never nursed. Oatmeal and milk. Then general diet.

Head sweats. Restless at night. Always little cough. Constipation. Weak. Tries to stand.

F. D. and N. Head large, flat on top. Anterior fontanelle not widely open. Two teeth. Back straight. Marked rosary. Sternum prominent. Marked drawing-in at diaphragm. Heart and lungs normal. Abdomen large and soft. Liver and spleen normal. Epiphyses at wrists considerably enlarged. Knock-knee. No glandular enlargement.

Hemoglobin	62 per cent.
Red corpuscles	5,528,000
White corpuscles	9,000
Small mononuclear	32 per cent.
Large mononuclear	16 "
Polynuclear neutrophiles	51 "
Eosinophiles	1 "

A good deal of variation in the size of red corpuscles. Numerous microcytes and macrocytes. Moderate poikilocytosis. Numerous very large mononuclear cells with large, pale nucleus and wide, pale protoplasm.

SEVERE CASES.

CASE X. Female, Irish. Six months.

P. D. and N. Pale. Craniotabes. Moderate rosary. Heart and lungs normal. Abdomen large and soft. Liver extends four centimetres below costal border. Spleen not palpable. Epiphyses at wrists large. No glandular enlargement.

Hemoglobin	65 per cent.
Red corpuscles	4,704,000
White corpuscles	13,300
Small mononuclear	48 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	48 "
Eosinophiles	0 "

Moderate variation in size of red corpuscles. Slight poikilocytosis.

CASE XI. Male, Italian. Two months.
Condensed milk.

Small and emaciated. Skin dry. Pale. Sutures open and bones movable. Slight rosary and retraction at diaphragm. Heart and lungs normal. Abdomen soft. Liver and spleen normal. No enlargement of epiphyses. No glandular enlargement.

Hemoglobin	52 per cent.
Red corpuscles	3,508,000
White corpuscles	9,200
Small mononuclear	69 per cent.
Large mononuclear	5 "
Polynuclear neutrophiles	25 "
Eosinophiles	1 "

Marked variation in size of red corpuscles. Macrocytes much more numerous than microcytes. Marked poikilocytosis. Three macroblasts and two normoblasts seen in counting 500 whites.

CASE XII. Male, Italian. Nineteen months.
Breast for a year. General diet since.

Sweats a good deal. Diarrhea for a month. Quiet. Sits alone. Cannot creep or stand.

P. D. and N. Much hair. Pale. Head rather large, but not abnormal in shape. Anterior fontanelle open, one-half inch in each diameter. Four teeth. Marked general kyphosis, not disappearing on suspension. Marked rosary. Heart and lungs normal. Abdomen very large, tense and tympanitic. Liver and spleen normal. Epiphyses at wrists large. Large glands in groins only.

Hemoglobin	67 per cent.
Red corpuscles	5,298,000
White corpuscles	7,200
Small mononuclear	29 per cent.
Large mononuclear	17 "
Polynuclear neutrophiles	53 "
Eosinophiles	1 "

Slight variation in size of red corpuscles. Occasional microcyte and macrocyte. A very little poikilocytosis. Numerous very large mononuclear white cells.

CASE XIII. Male, negro. Two years.

Brought for "general weakness." Head sweats. Tendency to looseness of bowels. Sits alone. Cannot creep or stand.

P. D. and emaciated. Head large and forehead square. Anterior fontanelle open, an inch each in diameter. Ten teeth. General kyphosis of weakness. Pigeon breast. Marked rosary. Slight retraction of chest at diaphragm. Heart and lungs normal. Very large abdomen.

Umbilical hernia. Liver and spleen normal. Epiphyses at wrist large. Inguinal glands enlarged, others not.

Hemoglobin	64 per cent.
Red corpuscles	4,604,000
White corpuscles	5,500
Small mononuclear	39 per cent.
Large mononuclear neutrophiles	45 "
Eosinophiles	1 "

Very little variation in size and none in shape of red corpuscles.

CASES WITH SPLENIC TUMOR.

CASE XIV. Female, Irish. Nine months.
Breast and general diet.

Constipation. Losing weight. Restless at night. Kicks off clothes.

Head sweats. Sits alone.

F. D. and N. Flabby. Rather pale. Parietal eminences very large, frontal somewhat so. Fonta-

nelle almost closed. No teeth. Sits straight. Slight rosary. Heart and lungs normal. Abdomen little full. Liver extends an inch below costal border. Spleen just palpable. Epiphyses at wrists a little large. No glandular enlargement.

Hemoglobin	77 per cent.
Red corpuscles	4,724,000
White corpuscles	22,000
Small mononuclear	63 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	31 "
Eosinophiles	2 "

A little variation in size and shape of red corpuscles.

CASE XV. Male, Norwegian. Twenty months.
Always cow's milk. New fair diet.

Measles at one year. Very few digestive symptoms. Constipation. Sat up at nine months. Just beginning to creep. Doesn't stand. Brought because he cries when stood on feet. Not tender to touch. F. D. and N. Flabby. Pale. Large head. Fontanelle widely open. Sixteen teeth. Sits with marked kyphosis in lower dorsal region, which is only partially obliterated on suspension. Small chest. Marked rosary. Heart and lungs normal. Abdomen large and soft. Liver large. Spleen palpable. Epiphyses enlarged at wrists and ankles. Anterior and lateral bow-legs. General glandular enlargement.

Hemoglobin	73 per cent.
Red corpuscles	4,448,000
White corpuscles	14,400
Small mononuclear	49 per cent.
Large mononuclear	8 "
Polynuclear neutrophiles	40 "
Eosinophiles	5 "

Moderate variation in size of red corpuscles, but no microcytes or macrocytes. Very little poikilocytosis.

CASE XVI. Male, Italian. Nine months.
Breast and general diet.

Measles and diphtheria at six months, followed by running ear. Subject to attacks of vomiting and diarrhea. Head sweats badly. Sits alone.

F. D. and N. Flabby. Pale. Large square head. Fontanelle very widely open but not tense. No teeth. Back straight. Small chest. Marked rosary. Heart and lungs normal. Abdomen large and tense. Liver normal. Spleen palpable. Epiphyses at wrists and ankles enlarged.

No glandular enlargement.

Hemoglobin	60 per cent.
Red corpuscles	4,068,000
White corpuscles	14,500
Small mononuclear	34 per cent.
Large mononuclear	3 "
Polynuclear neutrophiles	58 "
Eosinophiles	7 "

No variation in size or shape of red corpuscles.

CASE XVII. Female, Irish. Fifteen months.
Now on milk and cracker only.

Brought because of "weakness in legs." Sits alone. Doesn't creep. F. D. and N. Pale. Head a little large. Fontanelle almost closed. Seven teeth. Back straight. Marked rosary. Heart and lungs normal. Abdomen full. Liver normal. Spleen distinctly palpable. Large epiphyses at wrists. Legs held loosely and rotated outward at hips. Tendency to talipes varus. No spasm. Knee-jerks present and equal. No glandular enlargement.

Hemoglobin	64 per cent.
Red corpuscles	4,936,000
White corpuscles	11,900
Small mononuclear	39 per cent.
Large mononuclear	6 "
Polynuclear neutrophiles	48 "
Eosinophiles	7 "

Moderate variation in size of red corpuscles. A few macrocytes and numerous microcytes. Slight poikilocytosis.

CASE XVIII. Male, Irish. Five months.

Never gained. Cries constantly. Sleeps very little. Frequent vomiting. Constipation.

Small but not much emaciated. Marked pallor. Head negative; can hold it up. Cannot sit alone. Marked rosary. Systolic murmur over whole præcordia. Heart otherwise normal. A few râles here and there in both chests. Abdomen lax. Liver normal. Spleen palpable below costal border, as large as last phalanx of thumb. Epiphyses at wrists slightly enlarged. No glandular enlargement.

Hemoglobin	57 per cent.
Red corpuscles	4,519,000
White corpuscles	15,900
Small mononuclear	44 per cent.
Large mononuclear	4 "
Polynuclear neutrophiles	47 "
Eosinophiles	5 "

A very little variation in size and shape of red corpuscles. One normoblast seen in counting five hundred white corpuscles.

CASE XIX. Female, Russian. Twenty months.

Breast and patent foods at first. Now general diet. Always digestive disturbances. Very restless at night. Sits and stands; cannot walk.

F. D. and N. Flabby. Pale. Large, square, flat head. Anterior fontanelle nearly closed. Eleven

teeth. General kyphosis of weakness. Pigeon breast. Marked retraction at diaphragm. Very marked rosary. Heart and lungs normal. Abdomen large and soft. Liver not enlarged. Spleen palpable below costal border, seven centimetres laterally and three centimetres vertically. Marked enlargement of epiphyses at wrists. Moderate bowing of both femora and tibiae. No glandular enlargement.

Hemoglobin	68 per cent.
Red corpuscles	5,518,000
White corpuscles	15,200
Small mononuclear	51 per cent.
Large mononuclear	5 "
Polynuclear neutrophiles	40 "
Eosinophiles	4 "

Considerable variation in size of red corpuscles. Numerous macrocytes. Moderate poikilocytosis. Occasional normoblasts.

CASE XX. Female, Irish. Seventeen months.

Condensed milk and barley-water.

Pale for a long time. Rapid loss of flesh in last three months.

Tumor in abdomen noted two months ago, as large then as now. Just beginning to sit up alone. No vomiting. Constipation.

F. D. and emaciated. Marked pallor with yellowish tinge. Fontanelle not closed. Four teeth. Rosary. Heart and lungs normal. Abdomen very full and tense. Umbilical hernia. Liver not enlarged. Spleen fills left half of abdomen, reaching nearly to median

No.	Age in Months.	Type of Disease.	Hemoglobin.*	Erythrocytes.	Leucocytes.	Small Mononuclear.*	Large Mononuclear.*	Polynuclear Neutrophils.*	Eosinophiles.*	Morphology of Erythrocytes.
1	8	Mild.	60	4,170,000	9,600	34	4	61	1	Normal.
2	7	"	57	4,200,000	9,300	36	3	60	1	Normal.
3	7	"	60	5,048,000	14,770	61	4	33	2	Moderate variation in size. Normoblasts.
4	13	"	67	4,936,000	18,800	24	14	58	4	Nearly normal.
5	13	"	48	5,024,000	17,900	47	8	44	1	Nearly normal.
6	22	"	70	5,144,000	10,700	52	4	42	2	Normal.
7	17	"	64	5,102,000	14,000	49	6	43	2	Normal.
8	8	"	67	4,840,000	10,200	53	4	41	2	Slight variation in size.
9	14	"	62	5,528,000	9,000	32	16	51	1	Considerable variation in size. Moderate poikilocytosis.
10	6	Severe.	65	4,704,000	13,900	48	4	48	0	Moderate variation in size. Slight poikilocytosis.
11	2	"	52	3,508,000	9,200	69	05	25	1	Marked variation in size. Marked poikilocytosis. Macroblasts and normoblasts.
12	19	"	67	5,290,000	7,200	29	17	53	1	Slight variation in size. Slight poikilocytosis.
13	24	"	64	4,604,000	5,500	39	15	45	1	Nearly normal.
14	9	Spleen palpable.	77	4,721,000	22,000	63	4	31	2	Nearly normal.
15	20	"	73	4,448,000	14,400	49	6	40	5	Moderate variation in size. Slight poikilocytosis.
16	9	"	60	4,068,000	14,500	34	3	56	7	Normal.
17	15	"	64	4,936,000	11,900	39	6	48	7	Moderate variation in size. Slight poikilocytosis.
18	5	Spleen considerably enlarged.	57	4,519,000	15,900	44	4	47	5	Slight variation in size. Slight variation in shape. Rarely a normoblast.
19	20	"	68	5,158,000	15,200	51	5	40	4	Considerable variation in size. Moderate poikilocytosis. Occasional normoblast.
20	17	Spleen very large.	60	3,556,000	12,400	28	10	55	7	Marked variation in size. Moderate poikilocytosis. Numerous nucleated forms.

* The figures in these columns represent percentages.

line and to within half an inch of anterior superior spine. No ascites. Epiphyses enlarged. No glandular enlargement. Purpuric spots on abdomen. Urine negative.

Hemoglobin	60 per cent.
Red corpuscles	3,556,000
White corpuscles	12,400
Small mononuclear	28 per cent.
Large mononuclear	10 "
Polynuclear neutrophiles	55 "
Eosinophiles	7 "

Marked variation in size of red corpuscles. Many macrocytes and microcytes, the former being the more numerous. Moderate poikilocytosis. Moderate number of nucleated red corpuscles, megaloblasts being the most common form. Occasionally free nuclei. No abnormal forms of white corpuscles.

The results of the blood examinations are more evident, perhaps, in the table on the preceding page.

An analysis of these cases shows that the number of red corpuscles was in all cases normal or but slightly diminished; that the percentage of hemoglobin was always diminished, and always proportionately more so than that of the red corpuscles; that there was a leucocytosis in a little more than half the cases; that this leucocytosis occurred more frequently in these cases with splenic tumor than in those without; that the amount of the leucocytosis was independent of the presence, or absence, or size, of the splenic tumor; and that the histological changes in the red corpuscles increased, as a rule, with the severity of the case, being most marked in those with the splenic tumor.

The approximately normal number of red corpuscles and the absolutely and relatively diminished proportion of hemoglobin agrees with the results obtained by Felsenthal. It must be remembered, however, as has already been noted, that this condition is not an uncommon one in the anemias of childhood.

The results as regards the white corpuscles do not agree with those of Felsenthal, who found a leucocytosis in every case, but rather corroborate Monti's conclusions that leucocytosis may or may not be present, and that it is more frequent in the cases with splenic tumor. They also confirm his observation that certain cases with very large spleens have no leucocytosis, as the case with the largest spleen had but little more than the normal number of white corpuscles. The average of the different forms of leucocytes in the nine cases without leucocytosis gives the following proportions, which are somewhat different from those given by Gundobin for normal blood:

Small mononuclear	43 per cent.
Large mononuclear	8 "
Polynuclear neutrophiles	47 "
Eosinophiles	2 "

The average proportions in the eleven cases with leucocytosis, as well as in the six cases with enlarged spleens, are:

Small mononuclear	45 per cent.
Large mononuclear	5-6 "
Polynuclear neutrophiles	45 "
Eosinophiles	4-5 "

That is almost the same as in the cases without leucocytosis.

These results do not agree with those of Weiss and Felsenthal, who found the increase in the mononuclear and transition forms, but rather with Weiss's general statement that when there are complicated tissue changes the increase may be in any or all of the different forms of leucocytes. It is noticeable that eosinophilic cells are considerably more numerous in the

cases with splenic tumor. The association of nucleated forms and of variations in the size and shape of the red corpuscles with an almost undiminished number is of interest.

CONCLUSIONS.

The results obtained in these cases, together with those obtained by others, seem to justify the following conclusions: Most cases of rickets are accompanied by anemia. This anemia may be of any form and of any grade of severity. The severity of the anemia varies in a general way with the severity of the process. The most common form is that in which the number of red corpuscles is normal or nearly normal, and the percentage of hemoglobin both absolutely and relatively diminished. The anemia may or may not be accompanied by leucocytosis. Leucocytosis occurs more frequently in the cases with splenic tumor than in those without. It may be due to an increase in any or all of the varieties of white corpuscles. The specific gravity varies with the amount of hemoglobin. Finally, there is no form of anemia found in rickets which may not be found in other conditions, and no form of anemia found in other conditions which may not be found in rickets.

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A REPORT ON THE BACTERIOLOGICAL INVESTIGATIONS OF THREE HUNDRED AND TWELVE CASES OF SURGICAL INFECTION.¹

(FROM THE SURGICAL WARDS AND OUT-PATIENT DEPARTMENT OF THE BOSTON CITY HOSPITAL.)

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IN this paper, in addition to the bacteriological report, the results of the clinical study of the cases have been presented as far as possible. Two hundred and fifty cases were from the wards and sixty-two from the Surgical Out-patient Department. The Out-patient Department cases occurred from September 1 to December 1, 1895, and the ward cases from January 1, 1896, to December 31, 1896.

The work was carried on under the direction of Prof. W. T. Councilman, in the Pathological Laboratory of the Boston City Hospital.

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Eighth Series.

METHODS OF STUDY.

The methods of study pursued were the same as those used by Wright and Stokes which they described at length in their report on the bacteriological investigations of autopsies, published in the sixth series of these reports.

Löffler's blood-serum mixture in slants (Dr. Mallory's modification) was used almost entirely. In the differentiation of typhoid and colon bacilli, and in several other cases, the usual special media were employed. In some of the cases inoculations of animals were also made.

ABSCESES.

One hundred and fifteen cases examined, with the following results:

Streptococcus pyogenes occurred 56 times.
Staphylococcus pyogenes aureus occurred 52 times.
Staphylococcus pyogenes albus occurred 29 times.
Bacillus pyocyaneus occurred 4 times.
Micrococcus lanceolatus occurred 2 times.
Bacillus diphtherie occurred 1 time.
Bacillus coli communis occurred 6 times.
Bacillus pyogenes fetidus occurred 1 time.
Bacillus typhi abdominalis occurred 1 time.
Gonococcus occurred 1 time.
Ameba coli occurred 1 time.
Undetermined bacteria occurred 3 times.

Of these 115 cases 78 were caused by a single organism and 37 were due to a mixed infection. Of these 78 cases in which pure cultures were obtained the streptococcus occurred in 31; the staphylococcus aureus in 32; the staphylococcus albus in 8; the bacillus coli communis in 3; the bacillus typhi abdominalis in 1; the micrococcus lanceolatus (pneumococcus) in 1; gonococcus in 1, and the ameba coli in 1. Of the 37 cases of mixed infection the streptococcus occurred in 25; the staphylococcus aureus in 20; the staphylococcus albus in 21; the bacillus coli communis in 3; the bacillus pyocyaneus in 4; the bacillus diphtherie in 1; the bacillus pyogenes fetidus in 1; the micrococcus lanceolatus in 1, and undetermined bacteria in 3.

It will be noticed that the streptococcus was found in these cases much more frequently than is usual in abscesses. In the pure infections the streptococcus occurred in 39 per cent., the staphylococcus aureus in 41 per cent., and the albus in about 10 per cent. This large percentage of streptococcus can be accounted for partly by the fact that by far the greater number of these cases occurred in the wards. Usually abscesses due to the staphylococci are of a milder nature so that they can be treated in the Out-patient Department; consequently it would be expected that in the cases severe enough to warrant admission to the hospital there would occur a relatively higher percentage of streptococci. That such is the fact will be seen by a study of the following cases: Of the 78 pure infections 18 occurred in Out-patient Department and 60 in the wards. Of the 18 out-patient cases the staphylococcus aureus occurred in 13; the staphylococcus albus in 4, and the streptococcus in 1.

Of the 60 ward cases the aureus occurred in 20, the albus in 4, and the streptococcus in 30. In the out-patient cases it will be seen that only a little over 5 per cent. were due to the streptococcus, while in the ward cases the streptococcus occurred in 50 per cent.

Of the 37 cases of mixed infection 5 were out-patient and 32 ward cases. In the 5 out-patient cases

the streptococcus occurred twice, the albus twice, and the aureus once.

In the 32 ward cases the streptococcus occurred in 23, the aureus in 18, and the albus in 19. The mixed infections show also a relatively higher percentage of streptococci in the ward cases, about 72 per cent., while the out-patient cases show 40 per cent. The combination of the mixed infections in which the streptococcus occurred are as follows: Streptococcus with aureus, 11; with albus, 8; with the diphtheria bacillus, 1; with other bacteria, 5. The mixed infections were, as a rule, more severe than the pure infections. Occasionally, however, the different bacteria antagonize one another in mixed infections, producing a milder inflammation. The combination of the streptococcus and aureus produced the most severe symptoms.

Of the cases of abscess in which other than the staphylococci and streptococci occurred there were a number which are deserving of mention. The diphtheria bacillus occurred once, with the streptococcus in an abscess of the back following antitoxin injection. This abscess showed no special features and healed readily. The colon bacillus was found three times in mixed cultures. The pure cultures were from abscesses of gall-bladder, kidney and pelvis. The mixed cultures were obtained from three pelvic abscesses.

The typhoid bacillus was found once in pure culture in an abscess of the gall-bladder. The gonococcus occurred once in a labial abscess. The ameba coli was found pure in a case of liver abscess.

The pyocyaneus occurred in four cases, but in each instance with one or more of the pyogenic cocci.

The three cases of abscess due to the colon alone were mild. The abscess of the kidney due to colon bacilli discharged for a long time. In this case, however, there was a mixed infection after operation. The wound could not be closed, and the drainage opening gave entrance to the pyogenic cocci.

Of the rarer abscesses that of the gall-bladder due to the typhoid bacillus is worthy of note. This abscess occurred in the third week of typhoid fever. The patient at the time was in too precarious a condition for surgical interference. The abscess was aspirated by Dr. A. L. Mason, and about three or four ounces of purulent fluid withdrawn, from which cultures were made. The patient made a good recovery, and was discharged after the usual time of typhoid convalescence.

The case of abscess of the liver due to ameba coli is uncommon in this part of the country. Cultures from abscess showed no growth of bacteria. The diagnosis of the presence of ameba coli was made by fresh examination.

CARBUNCLES.

Three cases. In each case the staphylococcus aureus was obtained in pure cultures.

PUSTULES.

Six cases. All pure infections; the staphylococcus aureus occurred in four; the bacillus diphtherie in one; and the bacillus pyocyaneus in one.

FURUNCULOSIS.

Six cases (pure infections). The aureus occurred in four; the streptococcus in one; and the pyocyaneus in one.

FELONS.

Three cases of pure infection. The aureus occurred in each case.

MALIGNANT PUSTULE.

One case in which the staphylococcus citreus was found with the anthrax bacillus. This case will be reported fully under mixed infections.

CELLULITIS.

Thirty-five cases, of which 17 were pure infections and 18 mixed infections. The streptococcus was found in 19; the aureus in 16; the albus in 7; the pyocyaneus in 3; the micrococcus lanceolatus in 2; the megatherium bacillus in 1; and undetermined bacilli in 2.

Of the 17 pure infections the streptococcus occurred in 9; the aureus in 6; and the micrococcus lanceolatus in 2. In the 18 mixed infections the streptococcus occurred 10 times: 5 times with the aureus, 3 times with the albus, once with the pyocyaneus, and once with the albus and pyocyaneus. Of the remaining 8 cases of mixed infection the megatherium and albus occurred once, the albus and aureus in 2, the aureus and pyocyaneus in 1, and the aureus and undetermined bacilli in 2.

In the pure infections the streptococcus produced the more marked symptoms with slower recoveries. Those due to the aureus were, as a rule, of milder character, though in several the symptoms were fully as marked as in the severe streptococcus cases. Even in the severer types of inflammation due to the aureus, they were, as a rule, of shorter duration than the streptococcus infections.

The cases due to the pneumococcus did not show any special severity.

In the mixed infections the streptococcus and aureus were the most severe. The presence of the pyocyaneus did not exercise any marked influence. The megatherium with the albus produced a rapid and intense inflammation. This case will be reported under mixed infections.

ERYSIPELAS.

Two cases. In each the streptococcus was obtained in pure culture.

DERMATITIS.

One case, in which the streptococcus and the albus were found.

BUBO.

Six cases. There were five of pure and one of mixed infection. Of the pure infections the streptococcus occurred in one, the aureus in one, and the albus in three. In the case of mixed infection the streptococcus and the albus.

ACUTE VESICULITIS.

One case, in which the gonococcus was found.

BONE.

Two cases of osteomyelitis of tibia and one case of acute periostitis were examined, and the staphylococcus aureus occurred in each case.

PYOSALPINX.

Six cases (tubes removed at operation). The streptococcus occurred in one, the aureus in one, the micrococcus lanceolatus in one, and the gonococcus in three. The clinical history of these cases is interesting. The

three due to gonococcus and the one due to the micrococcus lanceolatus made good recoveries. The case due to the streptococcus died of septicemia. The one due to the aureus was accompanied by pelvic abscess and recovery was very slow.

ACUTE ENDOMETRITIS.

Three cases. In each of these the streptococcus occurred in pure cultures. Two of these cases occurred after normal delivery and one after an abortion. In each case there were marked septic symptoms and slow recovery.

PERITONITIS.

One case. In this case the micrococcus lanceolatus and colon bacillus were found. Patient died in twenty-four hours after admission, with general fibrinous peritonitis.

GUMMA.

One case of gumma of arm. The skin was unbroken. Cultures taken after incision showed the aureus and albus, which were undoubtedly a contamination from the skin. The examination by cover-slip for Lustgarten's bacillus was negative.

CONJUNCTIVITIS.

Two cases. In one case the streptococcus and albus were found, and in the other the bacillus diphtheria. This latter case was especially severe, threatening destruction of the cornea, and was sent to contagious wards for antitoxin treatment.

INFECTED WOUNDS.

In one case of wound by bullet from revolver, the streptococcus and albus were found.

Wound from beef bone: one case, in which the staphylococcus aureus occurred.

Dog bite: one case, in which the albus and an unknown bacillus were found.

Insect bite: one case, in which occurred the staphylococcus citreus.

In these cases of infected wounds the bacteria were probably carried in from the skin.

ULCERS.

Thirteen cases of chronic ulcer of the leg were examined. In each case one or more of the pyogenic cocci were found, as might be expected on an exposed surface. These cases are reported, as they bring out several interesting facts.

In nine the pyocyaneus occurred, and in four the bacillus pyogenes fetides. The four cases in which the fetidus occurred were all extremely sluggish and stubborn to treatment. Under various dressings they showed no improvement. They were distinctly the worst class of ulcers that came to the Out-patient Department.

On the other hand, the pyocyaneus did not seem to exercise any deleterious effect on the ulcers. The green pus cleared up after a day or two and usually left the ulcer clean. There was no increased inflammation, and it seemed that the ulcers were benefited. A clean granulating surface was usually left behind. It is a curious fact that these cases of pyocyaneus infection occurred about the same time. On September 8th a patient came into the Out-patient Department with furunculosis of the arm in which the pyocyaneus was found. Before this no cases of pyocyaneus ulcers

were observed. Two days later three of the old chronic ulcers were surrounded by a green rim. The other six cases followed in a few days. Evidently the case of furunculosis was the source of this infection. Just how the pyocyanus was conveyed to the ulcers was not found out.

It was noticed that under dressings of corrosive (wet) gauze the green pus cleared up in a day or two.

APPENDICITIS.

Fifty cases of appendicitis were examined. In most of these cases there was abscess formation. The cultures were taken from the abscess cavity immediately upon the opening of the abdomen. Where there was no abscess the culture was taken from the stump of the appendix. There were 28 cases in which mixed cultures were obtained, 20 in which pure cultures were found, and 2 showed no growth. Of the entire number, 12 patients (or 24 per cent.) died.

The streptococcus occurred in 15, the aureus in 1, and the colon bacillus in 46.

Of the 20 cases in which pure cultures were obtained the colon occurred in 19 and the streptococcus in 1. Of the 28 cases in which mixed cultures were obtained, streptococcus and aureus occurred in 1, the streptococcus and colon in 13, and the colon *plus* a variety of undetermined bacteria in 14.

In case of appendicitis where there is abscess formation, there are usually large numbers of bacteria of various kinds found. These probably come from the intestine, and many of them have no pathological significance.

Of the 12 fatal cases, the cultures taken at the time of operation showed in 7 pure colon, in 3 streptococcus and colon, in 1 colon and undetermined bacteria, and in 1 no growth occurred.

In this latter there was undoubtedly an error in taking the culture, as the case was that of a perforated gangrenous appendix.

Of the 38 cases of recovery, in 12 the colon was found in pure culture, in 1 the streptococcus in pure culture, in 1 the streptococcus and aureus, in 10 the streptococcus and colon, in 13 the colon *plus* undetermined bacteria, and in 1 no growth.

A study of the clinical records of these cases is interesting. Taking first the 38 cases of recovery, it was found that in the 12 cases from which pure colon was obtained 11 made good recovery, averaging 33 days in the hospital, and 1 was discharged relieved after 10 weeks. Of the 13 cases in which colon *plus* undetermined bacteria were found, 10 made good recovery, and 3 were slow, 1 of which was operated on a second time.

In this case the streptococcus was found at the second operation. Of the 12 cases in which the streptococcus occurred, one in which the streptococcus and aureus were combined made a slow recovery and was accompanied by pelvic abscess, for which a secondary operation was necessary. The one in which the pure culture was obtained was a case which had been operated on three months before, and which came in again for a third operation. In this case also the streptococcus was found at the secondary operation, but not in the primary operation. Only colon was found at time of primary operation. Of the remaining 10 cases in which the colon was combined with the streptococcus, in four the convalescence was slow, and two of these came to secondary operation; three made good recovery,

and three are now in the wards, having been operated on within the past week. The case showing no growth made good recovery, in less than four weeks.

In 7 of the 12 fatal cases, pure cultures of the colon bacillus were found. Of these 2 died on the day of operation, 1 within 24 hours, 1 in 48 hours, and 3 in from 5 to 8 days. In all 7 there had been perforation, and in 3 at time of operation there were symptoms of general peritonitis and collapse.

In the case in which the colon bacillus *plus* undetermined bacteria were found, death occurred from general peritonitis in two days. The case from which no growth was obtained had a perforated gangrenous appendix, and death followed on the second day after operation. Of the three cases in which the streptococcus occurred, one had made good recovery for two weeks, then suddenly developed secondary abscess and general peritonitis; death two days later. The other two streptococcus cases died in five and seven days, with symptoms of general infection. There was only one autopsy. This was on a case in which at time of operation the cultures showed colon bacilli, but no streptococci. The autopsy revealed a general purulent peritonitis, from which both in cover-slip preparations and in the cultures numerous streptococci were found.

The study of these cases brings about this fact, that the absence of the streptococcus from cultures taken at time of operation, where there has been perforation, is of negative value. That it may be an etiological factor is shown by the three cases mentioned above, in which at time of primary operation no streptococci were found, but subsequently they were obtained, once at the autopsy and twice at secondary operations. It is probable that in the presence of the large number of colon and other bacteria usually present in such cases the streptococcus could not grow.

Out of a total of 15 cases of streptococcus there were 3 deaths and 6 slow recoveries, in 4 of which, later, secondary operations were necessary. Three had normal convalescence and 3 were operated on too recently to give full report.

Leaving out the 3 cases now in the wards, we have a death-rate of 25 per cent., and 4 out of the 12 cases, or 33 per cent., having secondary abscess formation demanding another operation.

When we consider the cases in which the streptococcus was absent in cultures we find, out of a total of 35 cases, 9 deaths, 5 slow recoveries, and 21 of normal convalescence. In one of the fatal cases the streptococcus was found at autopsy. This case died 8 days after operation. Of the remaining 8 cases 6 died within 3 days, 1 in 5, and 1 in 6 days. The fact that in every one of these nine cases there had been perforation explains this high death-rate due apparently to the colon bacillus. That the colon bacillus can produce a fatal peritonitis is undoubtedly true, but it is uncommon and only when they are in immense numbers. Welch, in his article "Bacteria of Surgical Infection,"² does not regard the colon bacillus in cases of appendicitis as the primary organism. He says, "There is reason to believe that the highly resistant colon bacillus may survive in an inflamed part after the primary organism which started the trouble has died out or has been crowded out by the invader."

² Vol. i, Dennis's System of Surgery.

This view corresponds with our experience in these cases, and the bacteriological examination of cases of peritonitis which have come to autopsy corroborates it. It is rare to find a case of peritonitis due to the colon alone.

Out of the eight deaths mentioned above, six never rallied after the operation, and in the other two there was ample time and opportunity for a streptococcus invasion.

The probability is that in the cases of pure colon the inflammation was started by the streptococcus or some other of the ordinary pyogenic bacteria, and the failure to grow them in cultures was due to the presence of immense numbers of colon.

A careful study of these 50 cases cannot fail to impress us that the occurrence of the streptococcus brings a grave element into the prognosis. Of the cases which came to secondary operation the streptococcus was found in every instance, either at time of first or second operation. In the cases of recovery the streptococcus showed a higher percentage of long-drawn-out convalescence.

The results of the bacteriological investigations of appendicitis are far from being satisfactory. The study of these cases simply emphasizes the fact that the presence of the streptococcus is usually attended with symptoms of the severest type. There is a great variability in the virulence of the streptococci found here as well as in other inflammations. They may cause but slight disturbance, but are far more liable to result in a general peritonitis or septicemia.

In cases of perforation and abscess formation, it must be borne in mind that the absence from the cultures of the pyogenic cocci is of negative value.

OTITIS MEDIA.

Thirty cases, 24 pure infections, and 6 mixed infections. The streptococcus occurred in 14: 12 times in pure culture, and twice with aureus. The micrococcus lanceolatus five times, in pure culture. The capsule bacillus occurred in two: once in pure culture and once with the diphtheria bacillus. The aureus occurred five times: twice in pure culture, twice with the streptococcus, and once with the diphtheria bacillus. The albus in four: twice in pure culture, once with the diphtheria bacillus, and once with an unknown bacillus.

The Klebs-Löffler (bacillus diphtheriæ) occurred four times: once in pure culture, once with the capsule bacillus, and once each with the aureus and albus. A large spore-bearing bacillus, closely resembling the anthrax bacillus in its growth and size, was found in two cases: once in pure culture from the mastoid cells and once from middle ear with the albus. This bacillus was not pathogenic for guinea-pigs or rabbits. The writer was unable to identify it.

Of these 30 cases of acute otitis, 14 developed a severe mastoiditis which necessitated operation. Cultures were taken from these latter from the mastoid cells as well as from the middle ear. In these mastoid cases the streptococcus occurred in 10: eight times in pure culture and twice with the aureus. The micrococcus lanceolatus occurred in two, in pure culture; the diphtheria bacillus with capsule bacillus in one, and the large spore-bearing bacillus in one.

There were five deaths in the 30 cases. In these cases the streptococcus occurred in one, the pneumococcus (micrococcus lanceolatus) in one, the aureus in

one, and the capsule bacillus in two, once pure and once combined with the diphtheria bacillus.

The capsule bacillus found in these cases resembled that of Friedländer, but differed from the Friedländer bacillus in that it always grew with capsule surrounding it, when cultivated on artificial media. There were also several minor points of difference. It apparently was identical with the capsule bacillus described by Mallory and Wright.⁸

Of the fatal cases, in the one due to the streptococcus, the patient died with symptoms of general infection within five days. In the case due to the aureus, a brain abscess followed, death resulting in three weeks after ear trouble began.

In these two cases the middle ear was the primary focus of the fatal infections. In the other three cases the ear trouble was secondary and death was due to other causes. In the two cases in which the capsule bacillus was found, one in which the diphtheria bacillus was found, the patient died of pneumonia and general infection with the micrococcus lanceolatus. At the autopsy the micrococcus lanceolatus was found in the lung, heart's blood, and kidney, but not in the middle ear. The capsule bacillus and the diphtheria bacillus were found in the middle ear, but nowhere else. There was no extension of ear trouble to the cranial cavity. In the other case of capsule bacillus death was due to fracture of the base of the skull. In the case of the micrococcus lanceolatus there was pneumonia and general infection. The ear trouble began during the course of the pneumonia. Of the 25 cases which recovered the streptococcus occurred in 13, the aureus in 4, the albus in 4, the micrococcus lanceolatus in 4, the bacillus diphtheriæ in 3, and a large unknown bacillus in 1.

The cases in which the streptococcus occurred were, as a rule, the worst. This is illustrated by the fact that in the 14 streptococcus cases 1 died and 10 came to operation for mastoiditis, while only 3 made recovery without any severe symptoms.

Of the five cases in which the aureus was found, two recovered in one week. One in which the streptococcus was also found, recovered in six weeks; one accompanied by the streptococcus also recovered in three weeks; and one died with brain abscess.

Of the five cases in which the micrococcus lanceolatus was found, one died (death due to pneumonia and general infection), two came to operation for mastoiditis, and two made recovery in one and two weeks respectively. The two cases which came to operation recovered, one after five weeks and one after two weeks. The cases in which the diphtheria bacillus was found did not show any special symptoms, except the one in which the pure culture was found. This patient had been in the diphtheria wards, from which he had been discharged some time before his ear trouble began. It was several weeks after his discharge that he presented himself at the Out-patient Department with an acute otitis media. Bacteriological examination showed a pure culture of the diphtheria bacillus from the discharge from ear. Patient recovered without any unusual symptoms being observed.

Of the two cases in which the large unknown bacillus was found, the one which came to mastoid operation was discharged well in six weeks, the other in two weeks. The latter was accompanied by the albus; the culture was taken from the middle ear.

⁸ Centralblatt f. Bacteriologie, 1895.

It is a question whether this large bacillus had anything to do with the process. The cases in which the albus was found were all of a mild nature. It is probable that in several, at least, of these, the presence of the albus was due to contamination of swab from external ear.

Six of the 30 cases occurred during the course of acute diseases: three in the course of typhoid, and three in the course of pneumonia.

Of the three cases occurring during typhoid, two were in the third week and one in the second week of the disease. In the first two the streptococcus was found, and in the latter the micrococcus lanceolatus. Of the three cases occurring during pneumonia, in one the aureus and diphtheria bacillus was found on the third day of the disease. In the second case the micrococcus lanceolatus was found on the seventh day.

In the third case the capsule bacillus and bacillus diphtheria were found at the post-mortem examination. Patient complained of his ear just before death.

The conclusion to be drawn from a study of these cases is that the pyogenic cocci, especially the streptococcus, produce the severest forms of inflammation of the middle ear. While the pneumococcus may produce very severe inflammations and involve the brain or its coverings, still in the absence of pneumonia or other complications the case tends to recover readily.

EMPIEMA.

Eighteen cases. Of these 16 were caused by a single organism and in 2 mixed cultures were obtained. The streptococcus occurred 8 times, the pneumococcus 9 times, the staphylococcus aureus once. In the cases where mixed cultures were obtained, in one, in which there was an accompanying pneumothorax, the streptococcus and a variety of undetermined bacteria were found. In the other case the culture was taken some time after operation, and the pyocyanus, the pneumococcus, and a number of other organisms were found.

Taking the 16 cases in which pure cultures were found, 8 were due to the pneumococcus, 7 to the streptococcus, and one to the staphylococcus aureus.

In the eight pneumococcus cases there was one death. This patient also had heart disease. Of the recoveries one combined with unresolved pneumonia was slow, extending over some months. The other six patients made good recovery.

The case due to the staphylococcus aureus was very slow, with marked constitutional disturbance. In the study of these cases we are impressed with the uniformly favorable course and termination of the cases due to the pneumococcus in the absence of complications. On the other hand, those due to the streptococcus have been as uniformly severe, with the high death-rate of 43 per cent.

MIXED INFECTIONS.

Of the cases of mixed infection deserving special mention those of the fetidus and pyocyanus in connection with chronic ulcers of the leg have been spoken of under ulcers. There are two others of interest.

The first is the case of cellulitis due to the staphylococcus albus and megatherium bacillus.

The history of the case: Patient a man about fifty years, in the employ of the health department of the

city of Boston. His work consisted in collecting garbage. Came into the Out-patient Department September, 1895, giving the following history: Scratched the back of his hand in some manner the day before. The scratch was not deep and not particularly painful and did not bother him any, and for the time he forgot all about it. That night noticed his hand was considerably swollen. This grew rapidly worse. Hand and forearm swelled considerably during the night and became very painful, so he could not sleep. Examination showed right hand and forearm very much swollen; back of hand red and tender; patient, though a strong man, looked very shaky. The hand was freely opened by Dr. Dwight; there was no pus. Cultures were taken from swollen edematous subcutaneous tissue. A wet corrosive dressing covering the hand and wrist applied. Patient advised to go into the hospital, but went home. Cultures showed staphylococcus albus and an unknown bacillus, which after cultivating on various media was identified as the megatherium. These cultures gave off a peculiar characteristic odor, that of stale swill. This bacillus was first discovered by DeBarry on the leaves of boiled cabbage. It is non-pathogenic. This sudden intense inflammation coming on a few hours after inoculation could hardly be due to the albus alone, which usually takes several days to produce any marked inflammation, and usually with the albus the process is mild. It is probable that the megatherium, though by itself non-pathogenic, played an important part in this case by markedly increasing the virulence of the albus.

The second case was that of the anthrax and staphylococcus citreus, in a case of malignant pustule of the neck. This case, a young man, a longshoreman by trade, came into the hospital in the service of Dr. H. L. Burrell, in February, 1896. The man at time of entrance had a temperature of 105°. Before the operation bacteriological examination of the fluid contained in the vesicles surrounding the eschar showed many of the characteristic anthrax bacilli. Cultures were made from the vesicles, from the subcutaneous tissue after removal of tumor, and from the tumor itself. From the vesicles and just under skin mixed growths of anthrax and citreus were obtained. From the depth of the wound after removal of tumor a pure culture of the citreus; no anthrax.

The first thing that struck the writer upon examining the cultures after eighteen hours' growth was that in all three there was apparently macroscopically a pure growth of the citreus. It was only on close inspection that a slight whitish ill-defined growth at bottom of tube was observed in two of the tubes. Microscopical examination showed this whitish growth to be anthrax. The staphylococci far outgrew the anthrax. The anthrax and citreus were finally obtained in pure cultures from the original mixed culture. It occurred to the writer upon observing that the citreus grew so profusely with mixed cultures, while the anthrax showed but slight growth, that there might be some autogonism between them. A series of experimental inoculations was conducted on guinea-pigs, with the following results:

The cultures used were second and third generations obtained in pure cultures from original by transplantations on Löffler's blood serum. The guinea-pigs were all about same size, varying slightly from 400 grammes. (1) One pig, inoculated with half a cubic centimetre of

a twenty-four-hour bouillon culture pure anthrax, died in less than forty-eight hours. At autopsy, pure cultures of anthrax recovered from heart's blood and spleen. (2) Two pigs inoculated on same day as the first, each with half a cubic centimetre of a twenty-four-hour bouillon culture of anthrax and half a cubic centimetre of a twenty-four-hour bouillon culture of the staphylococcus citreus, were alive and well after two weeks, and were subsequently used for other inoculations. (3) One pig, inoculated with one cubic centimetre of twenty-four-hour bouillon culture of the pure citreus failed to produce any marked effect. Animal was kept under observation for a month, and after the first day or two was as lively as ever. The inoculations were all made in the abdominal subcutaneous tissues.

The writer was unable to find any evidence that this action of the staphylococcus citreus was observed before. Other observers have shown that the streptococcus and the staphylococcus aureus possess the same power of antagonizing the anthrax bacillus. Emmerich⁴ in 1886, experimenting on rabbits, found that the streptococcus, injected subcutaneously or into the vein, would arrest the growth of anthrax. He first inoculated the animal with pure anthrax, then followed it with a subcutaneous or intravenous injection of the streptococcus. Other observers have reported a similar action by the staphylococcus aureus and by the capsule bacillus of Friedländer.

POST-MORTEM INFECTIONS.

It is interesting to note the experience of pathological staff with infections from post-mortem work. The only infections worthy of mention have occurred either by hang-nails or by means of hair follicles. By far the greater number occurred through hair follicles. Cuts received by the autopsy knife healed readily. The usual treatment was: allow the wound to bleed freely, wash with corrosive, and dress with corrosive pad. The usual places of hair follicles infection are back of hand and ulnar side of wrist or lower forearm on its posterior aspect. The organisms are massaged into the hair follicles by the friction attending the removal of the various organs, and often by the habit of the operator resting his wrist upon the edges of the open thoracic or abdominal cavities.

In connection with these infections it is also interesting to note that different individuals are more susceptible to certain bacteria than others. For example, in one man connected with the Pathological Department the infections are always with the aureus, while the streptococcus is the infecting organism in another. The writer's experience in four post-mortem infections has been in each case with the aureus.

CONCLUSION.

The writer is indebted to Dr. Thomas B. Cooley, house-physician, for valuable assistance in the work on Out-patient Department cases, and to Dr. Charles S. Wright, aural house-physician, for assistance in taking cultures and preparing report of aural cases.

Medical Visitor to Hospital. — Who in the world is that bellowing and moaning so in the private room?

Assistant Superintendent. — Oh, that is Dr. Gauzewick, our senior visiting surgeon; he had a small furuncle on the back of his neck opened yesterday.

PSEUDO-METALLIC INCRUSTATION OF THE CORNEA.

BY HASKET DERBY, M.D.

I TAKE this title from that which heads an article in the *Revue Générale d'Ophthalmologie*¹ to which Dr. W. J. Daly has called my attention as bearing on a case, the subject of this paper, and which I exhibited to the New England Ophthalmological Society at its meeting in November, 1896.

In the article referred to an account is given of a case brought before the Paris Ophthalmological Society in June, 1896, by M. Darier. The patient, a man, had the previous month got a particle of the horn of some animal in his left eye. A slight corneal ulceration followed, which was treated by iodoform ointment. The patient asseverated that he had never used any preparation of lead, and that this had been his only treatment. When M. Darier saw the man he discovered an erosion of the lower half of the cornea, which presented precisely the metallic white appearance that would proceed from the employment of a collyrium of subacetate of lead. The epithelium had re-formed, but there was ciliary redness and iritis. Since it had been under observation the spot had grown no larger.

In the discussion which followed the presentation of this case, opinions as to its nature were found to differ. Some supposed it to be a calcareous keratitis, others that it was due to infection. The subsequent progress of the disease is not given.

My own case is as follows. Miss X, aged eighteen, was sent me by her family physician December 7, 1895. She had never had any trouble with her eyes until six weeks previously, when, without apparent cause, soon after retiring for the night, a sensation as of a foreign body came on in the left eye and lasted all night. It was unattended by pain, but there was, as she expressed it, a feeling of something "going round" in the eye, and this lasted till morning. The next day the lids were swollen, but the eyeball apparently not affected. October 27th she consulted her physician, who wrote: "She seemed to be suffering from a simple conjunctivitis of both eyes. I examined them with a lens, but could discover no trace of ulceration of cornea. So I gave her a simple collyrium of zinc sulphate and belladonna. Two days later she called again. The eyes were better, but I thought it would be better to strengthen the solution, so made it two grains to the ounce, and I did not see her again till she called on me the day before I advised her to come to you." Four days after the date of this letter the patient suddenly noticed the white corneal spot which is about to be described.

The left eye presented no signs of irritation or inflammation. Situated at the junction of the middle and lower thirds of the cornea was an opacity which covered the lower third of the pupil, at medium dilatation. It was four-sided, nearly rectangular, eight millimetres in length and four in width, absolutely dense, of chalky whiteness, resembling a thin scale of porcelain let into the corneal substance, its edge sharply defined against the surrounding transparent portion. The corneal epithelium seemed continuous over its face. Cocaine having been instilled, the point of a broad needle was passed over the whole extent

⁴ Emmerich, R.: Die Heilung des Milzbrandes durch Erysipelserum, Munch. med. Woch., 1894, Nos. 28-31.

¹ July 31, 1896, p. 300.

of the leucoma, but it slid over its surface and no portion could be detached.

Unable to account for this appearance, save on the supposition that it was due to a deposit of lead, I wrote to her physician and received from him the positive assurance that nothing but zinc sulphate had ever been used as a collyrium.

Different forms of mercurial salve were applied almost daily till the following July. No change having occurred, I sought to excite moderate irritation by the instillation of Sydenham's laudanum. I also suggested tattooing, as a cosmetic measure, in case there should be no change by fall. In November I exhibited the case to the Society, and an opinion was expressed that the leucoma must proceed from the deposit of some preparation of lead. Having observed that the surface of the leucoma had, with time, grown perceptibly rougher, I soon afterwards placed the eye under cocaine, and succeeded in detaching one or two small flakes from the edge of the opacity. I now proposed to attempt removal of the whole, and early in January of the present year she signified her willingness to have the experiment tried. Cocaine was instilled and, after picking a little at the edges of the leucoma, with the point of a broad needle, the entire structure perceptibly loosened and was removed by the aid of a pair of ciliar forceps. It came away in two pieces, which were carefully preserved.

The cornea beneath was rough and the seat of a grayish infiltration. For several days there was swelling of the lids, lachrymation, pain and increased opacity. Gradually these symptoms subsided and the patient returned home. A letter from her under date of February 21, 1897, states that the eye continues to grow stronger, and that there is scarcely a trace of corneal opacity remaining.

Dr. J. B. Ogden, of the Harvard Medical School, to whom the specimen was given for examination as to the presence of lead, writes that he did not find the slightest trace of this metal. He says, "Although the particles were very small, yet if they had contained any appreciable amount of lead it would have been detected in the test which I used."

The entire specimen was consumed in this investigation, and unfortunately no microscopic examination could be made. In fact we had so definitely made up our minds that the patient had, in some way or other got hold of some preparation of lead, and that the specimen would disclose this fact, that this point seemed the chief end of the investigation.

THE CURE OF HERNIA.¹

BY HENRY O. MARCY, A.M., M.D., LL.D., BOSTON.

AMONG the many wonderful achievements in the art of surgery of the present generation, the easy and safe cure of hernia may well command high rank. It is very probable that no one of the many problems constantly pressed upon the attention of the surgeon, because of the multitude of sufferers from this affection, received more careful consideration and profound research by the great masters of the past generation. The special student is astonished at the enormous volume of the literature upon this subject. Over eighty

of the closely printed quarto pages of the index of our great national medical library are occupied by an abbreviated list of titles alone of authors who have written upon the subject of hernia.

It is questionable if the physician of to-day is more familiar with the anatomy, both normal and pathologic, of hernia than was the student in a former generation. It is certainly true, notwithstanding the careful dissections made for, and often by each medical student before graduation, that we are obliged to refer to the noteworthy works of Camper, Cooper, Scarpa, Cloquet, Langenbeck, Bourguery, and others of an earlier period for our most accurate and exhaustive illustrative teaching upon this subject. Indeed, in the earlier period operations undertaken for the cure of hernia were not infrequent and often were successful.

The key, however, was wanting to unlock the mystery which ever invested the surgical problems, and which gave to the repair processes of wounds the ever-illusive complication of the so-called supervening inflammations. The changes ensuing in incised wounds, made for the proper manipulations of the parts involved in hernia were followed by such a high mortality that experience forbade their continuance, and a quarter of a century ago the methods undertaken for the cure of hernia were limited to pressure processes, injections, and the subcutaneous appliance of wire ligatures; and these, in the hands of the most expert, as a rule, failed to cure.

Profiting by the demonstration that the so-called inflammatory processes supervening in wounds were due to bacteriological infection, and that science rendered it possible for the surgeon to make and maintain aseptic wounds as the decided rule in practice, later it became possible to deal with the various structures which are so deformed as to cause a weakness in the retaining abdominal walls.

This accomplished, the problem was simplified to the reconstruction of the parts after their normal pattern, and this pertains to every variety of hernia. However, in order to do this, one more factor in the surgical problems needed solving, and this appeared to me as plainly evident in 1870 as at the present. As I then thought, profiting from Mr. Lister's personal instructions and marvellous demonstrations, that I had mastered the art of making and maintaining a wound aseptic, it seemed a logical deduction, if primary repair ensued after the constricting of an artery by an animal ligature, the same result would follow the coaptation of the tissues by animal sutures.

It is not my purpose this evening, however interesting and instructive the subject may be, to refer to the evolution of these processes which, little by little, became applicable in the rejoining of all aseptic vitalized structures, and which are in daily practice in every surgical clinic.

It only suffices to say that certain precautionary measures are necessary which must pertain to the closure of all wounds:

- (1) That the structures are aseptic.
- (2) That they are devitalized as little as possible.
- (3) That they are coapted or rejoined by the use of aseptic absorbable sutures.
- (4) That these should be applied so as to hold at rest like structures with the minimum of constriction. This is essential, in order that the vascularization of the parts included shall be diminished as little as possible.

¹ Address before the Surgical Section of the Suffolk District Medical Society, January, 1897. Illustrated by the stereopticon.

(5) The coaptated structures must lie in easy juxtaposition so as to minimize the possible spaces for the formation of blood-clots, and as little suture material is to be used as will accomplish this purpose, remembering that every superfluous stitch inflicts a damage to the structures which must be repaired and adds suture material which must be absorbed. Undue constriction will frequently cause necrosis of aseptic tissues, which contributes by so much to the possible overburdening of the vital processes. The fatty tissues are the least well vitalized and not seldom break down and cause serious trouble even in aseptic wounds. This is especially true in the thick fatty layers of the abdominal wall.

(6) The skin is to be closed by a fine animal suture applied through the deeper layer only so as to coaptate in even juxtaposition its edges, the suture itself remaining buried. When a wound is thus properly closed in layers, there is nothing to drain, its coaptation is perfect, and no foreign material is subsequently to be removed from the parts involved. Hence drainage is not required, and the important end is thereby attained which renders possible to cover the infracted surfaces by a germ-proof seal. This has its ideal accomplishment by the application of a layer of iodoform contractile collodion reinforced by a few fibres of absorbent cotton. The seal should extend sufficiently broadly to hold firmly at rest the evenly approximated edges of the skin. Thus treated, if the wound is *aseptic*, it will remain *aseptic* and *primary union* will supervene. In no part of the body is this more important than in the region of the groin, confessedly one of the most difficult to maintain aseptic under the still too common treatment with drainage and sterilized dressings.

In order to effect the cure of hernia in any part of the body, it is only necessary to become master of these principles and reduce them to accurate, working practice. The former is the *science*, the latter the *art* of surgery. Here we enter a most earnest plea for a thorough familiarity with anatomy and a training in the practice of the art, best acquired under definite personal instruction of a master. The pressing want of to-day is apprenticeship, recognized in the trades, nowhere so important, however, as in the art of surgery. Technique can never be obtained from books.

A brief analysis of the varieties of hernia will necessarily extend beyond the limit of the present occasion, even when treated in abstract, because of the vast extent of the subject.

The simplest form of hernia is perhaps the *Ventral* variety, so commonly met with after laparotomy. Here the dissection must be sufficiently ample to permit the restoration of the sundered structures in co-ordination. If a considerable peritoneal pouch is found, this may be freely resected and the peritoneum evenly held in coaptation by a line of double continuous tendon sutures. The linea alba must be refreshed, and rejoined in a similar way. The skin is closed and the wound sealed as already described. No abdominal belt or bandage is afterward advised. In a personal experience of nearly, or quite, one thousand laparotomies thus closed, the wounds have remained firm, and hernia has occurred in less than one per cent. of the cases.

Inguinal hernia in the female requires no special description, since to this the principles above mentioned pertain.

Umbilical hernia is more difficult. Here the intra-abdominal pressure is usually much greater, the abdominal wall flat, and the contents of hernial sac are often adherent. Not seldom considerable portions of diseased omentum must be dissected and evenly sutured at its base and excised. The abdominal wall can generally be separated laterally in order to increase greatly the coaptating surfaces and secure a more firm union of the strong, unyielding parietal structures.

Femoral hernia requires a careful dissection, guided by accurate anatomical knowledge. If the sac is large, it is sutured and resected. If small and easily reducible, it is good practice to let it alone. Strong structures are slightly refreshed and evenly coaptated by a double continuous suture, closing the opening well in upon the femoral vein. The second layer of sutures coaptates the thick fascia over the plexus of vessels. In whatever way the sutures are introduced, the sheath of the femoral vessels must be brought clearly into view and is best protected by the finger during the suturing. It is surprising to note how little discomfort follows this operation. The results are most satisfactory. So far as I have been able to learn in not a single one of my entire series of cases of femoral hernia has recurrence taken place.

Inguinal hernia in the male. — Only in this variety of hernia, by far the most common and confessedly the most difficult of cure, is there much room left for difference of opinion. By general consensus, the operative wound should be ample to permit of free inspection and easy manipulation of the parts involved. The hernial sac, if at all large, should be opened, its contents inspected and cared for, the sac dissected to its very base, sutured in its long axis and resected. The cord is to be lifted from its bed with a minimum of injury, when it will be noted that in by far the majority of cases, the hernial opening has been caused primarily by an enlargement from above downward of the internal inguinal ring. The structures entering into its composition are relaxed and bulging, and the strong transversalis fascia which makes up the posterior border of the inguinal canal was of primary defective development. It is, indeed, very probable that the larger number of inguinal hernia that occur even late in life are owing to a defective congenital development. By some means the posterior border of the canal must be reconstructed and the canal itself restored to its normal obliquity. This means not so much the transplantation of the cord to new relationships, conditions which have been doubtless recently greatly over-emphasized, as the deflecting of the intra-abdominal pressure so as to bring it at, or near a right angle with the line of the cord, instead of on a line with it. Any method which will accomplish this and permit of primary union will result in the cure of the hernia. The anatomical factorage to be emphasized is the coaptation of the posterior border of Poupart's ligament to the posterior border of the conjoined tendon quite as high up as is necessary to re-form carefully the internal inguinal ring. These structures are coaptated about the cord at its exit from the abdominal cavity. It will be noted that the relaxed transversalis fascia is intrafolded, thereby re-enforcing the posterior border of the canal. The cord is now carefully replaced, and the external sundered structures are rejoined over it. I would emphasize the importance of this procedure, since by so doing a firm strong envel-

ope covers the cord, and the external ring is reformed entirely as in the normal construction of the parts. The advantage of this is apparent in that it protects the abdominal wall from the formation of a direct hernia at the site of the internal inguinal ring.

In this and the character and method of suturing consists the chief differences between the operation called after my name which I have so long advocated and the various modifications, known as the Bassini, Halsted, Fowler, and other methods.

When all the aponeurotic structures, which go to make up the walls of the inguinal canal, are sutured *beneath* the cord, the transplantation of it has been by a direct opening through the strong abdominal wall, and the new canal or bed of the cord is found entirely in the fatty subcutaneous tissues. Even when the nutrition of the testicle does not suffer by this violent transplantation, a new danger is added in the subsequent risk of a direct hernia, occurring through a small opening which must necessarily remain in the abdominal wall.

This is ever in direct line of the intra-abdominal pressure and will be found liable to yield to it in the subsequent history of the patient.

In evidence that this is not an hypothetical criticism is adduced the fact that within a year I have myself operated upon four cases of recurrent direct hernia, following operation by this method.

The plain corollary to the problem is that the surgeon should follow strictly the teachings of normal anatomy and reconstruct the structures as far as possible after the primal order of normal development.

This occasion demands a brevity which permits the criticism of dogmatism. At the risk of emphasizing it, I trust I may be permitted to state briefly that my experience extending over a quarter of a century seems ample to corroborate the statements herein made. In a series now numbering nearly four hundred cases, where the operation has been undertaken for cure, I have yet to see a case where the life of the patient seemed endangered when the integrity of the intestine was not involved. I have operated at all ages from two months to eighty-three years, involving perhaps every variety of hernia. So far as I have been able to trace results, more than ninety per cent. of the cases have remained permanently cured. As a rule, the patient is permitted to leave the bed at the end of the third or fourth week, resuming light duties at the end of the sixth week. No supporting bandages of any character are advised.

My first cases operated upon for the cure of hernia by complete primary closure of the wound by the use of buried catgut sutures occurred in 1870, and were published in the *Boston Medical and Surgical Journal* the following year.

Soon after I instituted a long series of original investigations upon animals in order to determine the exact results which supervened in wounds thus closed. It was clearly demonstrated that an aseptic animal suture was first inclosed by leucocytes which, little by little, invaded its structure with a resulting formation of a living band of connective tissue, replacing the foreign material.

Based upon these demonstrations I readily determined the great importance and value of buried aseptic sutures in all aseptic wounds, nowhere more apparent, however, than in their application for the cure of inguinal hernia.

These demonstrations I made public by a series of articles upon the subject, and it was not until after the acceptance of these teachings, that it became possible to formulate or put into practice any of the modifications of procedure, which have been advocated under various names for the cure of hernia.

The great practical difficulty has been in securing suture material of aseptic, trustworthy character which would maintain its integrity sufficiently long to hold in coaptation the sundered parts, finally disappear by absorption, and leave in its place a vitalized band of connective tissue. For this purpose catgut, no matter how prepared (primarily a flat band of obliquely interlaced connective tissue), is necessarily defective. The tendons of various animals are far more satisfactory. Carefully selected tendons from the tail of the kangaroo furnish sutures of nearly ideal perfection.

Dr. W. Coley, of New York, writes me, under recent date, that he has operated upon three hundred and fifty cases, using kangaroo-tendon sutures, with only one death and but two or three relapses.

It is needless to emphasize here the importance of modern aseptic technique, since upon this the safety depends as well as in large degree the results to be obtained. Present experience, however, is ample to prove that the operation for the cure of hernia in the male, the most difficult of all the forms of hernia because of the complication of the cord, is really not dangerous or difficult, if the principles above mentioned and the anatomy of the parts are well mastered, and the operation for the cure of hernia in a very large proportion of all the sufferers of this distressing and dangerous affliction merits general adoption.

ACUTE PERICARDITIS: A STUDY OF ONE HUNDRED CASES.¹

BY GEORGE G. SEARS, M.D., BOSTON.

THE cases forming the subject of this paper include all which could be found in the general index of the hospital between the 14th of January, 1882, and the 12th of April, 1896, irrespective of whether the pericarditis was the primary affection or occurred as a complication of some other disease. Classified according to the products of the inflammation, 54 were dry, or at least the effusion was insufficient to give distinctive physical signs, 41 were serous, 4 being hemorrhagic in character, and 5 were purulent. Seventy-four were males and 26 females. While no age was exempt, the youngest patient being nine and the oldest seventy-eight years old, the largest proportion was found in early adult life, 42 occurring between the twentieth and thirtieth years. From this as a maximum, the curve quite rapidly and uniformly descended on either side; thus, from thirty to thirty-four years there were 13 cases, and from fifteen to nineteen, 12; from thirty-five to thirty-nine, 8, and from ten to fourteen, 7. Above the age of forty the liability appears to rapidly diminish, 8 only being found in the fourth decade, while but 7 were over fifty. In 2 the age was not stated. No inference can be drawn from the fact that but one patient was under ten as to the relative prevalence of pericardial inflammation among children, since they form a very small part of the hospital clinic. Although the occupation of the patients has

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Eighth Series.

been classed among the general factors which induce the development of this affection, it seems to have exerted but little influence here, as no marked preponderance was engaged in pursuits necessitating any special exposure. The influence of season, however, was more marked, as was to be expected, from the large proportion which were secondary to rheumatism and acute diseases of the lungs, very few being admitted during the four months from August to November inclusive. Among the remaining months the cases were very evenly distributed, although a slightly larger number was found in January. A history of the abuse of alcohol was, perhaps, no more prominent than was to be expected among a hundred hospital patients, no matter what their disease, 23 having used it to excess, while 11 confessed to a moderate indulgence.

A striking feature of these cases was the large percentage in which the heart was already affected, 34 showing evidence of some valvular lesion, either mitral, aortic, or both, while in several others degenerative changes in the myocardium were present. This may have been simply a coincidence, but the number is so large that it is more probable that the pre-existent lesions acted as a determining cause. Besides this frequent association with old cardiac trouble so many of the cases were complicated by, or secondary to, pneumonia, pleurisy, or both, either by direct extension from one to the other, or from a simultaneous infection, that it is difficult, often even impossible, to differentiate the symptoms due solely to the pericardial inflammation, so that but few points in their clinical history are worth noting. Pain was fairly constant, being present in 65 cases, and when absent its place was frequently taken by a sense of oppression in the chest. Its usual position, as was to be expected, was in the precordia or in the left side of the thorax, but in one it was situated only in the back between the scapulæ. Often, however, it was not definitely located, the patients complaining simply of "pain across the chest." Next in frequency was dyspnea, though for reasons which have been mentioned, but little stress can be laid upon it. Palpitation and digestive disturbances were comparatively rare. In a dozen or more instances delirium is recorded, at times so active that the patients required restraint, but these cases were so often complicated by other pathological conditions or by alcoholism that figures are valueless. The febrile movement was almost always slight, although occasionally rising to 102.5° or 103° F. for a single observation. If it exceeded the former figure for several days, even in the rheumatic cases some other acute process, usually pneumonia or pleurisy, was almost always present. Subnormal temperatures continuing for several days, and with wide daily fluctuations, were not uncommon, even when recovery followed. In one very pretty chart what appeared at first glance to be a well-marked septic rise and fall proved to be the variation between a morning temperature of 96° and an evening one of 99.5°. The highest point was reached in a rheumatic case, complicated by pneumonia, 107.4° being recorded just before death.

Recurrent pericarditis occurred in one case of rheumatic origin without any return of the articular symptoms, the relapses, of which there were several, being confined to the pericardium, but running a course perfectly analogous to those which take place so frequently in acute rheumatism where the disease affects only the joints.

From the point of view of diagnosis two cases may be mentioned as showing the necessity of a careful examination of the back as well as the front of the chest, where the possibility of pericardial inflammation is suspected. In one the friction rub was heard very feebly over the precordia, but was pronounced inside, and just above the angle of the left scapula behind; in the other a collection of pus which distended the posterior portion of the pericardium to the size of two fists, its anterior surfaces being glued together by a previous affection, defied detection, and was first discovered at the autopsy. In the former a slight diminution of the friction sound might have rendered it quite inaudible in the usual position although distinctly perceptible behind, while in cases similar to the latter, when the lungs are clear, careful percussion of the back might show an area of dulness whose position might be of great value in diagnosis.

Etiologically, acute rheumatism occupied the most prominent position, as it was associated with 51 cases and appeared in the previous history of four others. Pneumonia or infection with the pneumococcus was next with 18. In seven instances chronic nephritis was the primary disease and in five pleurisy. Chronic rheumatism and gonorrhea are both credited with two cases, while one occurred in each of the following diseases: empyema, tonsillar abscess, acute nephritis, hepatic cirrhosis, and chronic fibrous pneumonia. The latter was apparently not tubercular, but no histological examination was made. Phthisis was, however, present in two others, one of which was also complicated by empyema, but in both the autopsy proved that the pericardial inflammation was of pneumonic origin, and not the result of infection with the tubercle bacillus. The latter may have been a factor in the five cases associated with pleurisy, but in four there was no direct evidence; in the fifth the jagged temperature curve, which persisted as long as the patient was under observation, and the aspiration of bloody fluid from the pericardial sac were strongly in favor of such a possibility, but the diagnosis could only be made by inference. Chorea appeared in the history of three cases, but in only one (a rheumatic patient) was it associated with the pericarditis, and there it came on several days after the onset of the latter.

The nine remaining cases have been classed as idiopathic, no efficient cause being found, although a history of exposure was given in two or three instances, but in only one was the patient in normal condition before the attack. Six had chronic valvular lesions, the result in one case of five attacks of rheumatism, the last five months before, and in another of an attack four years before. In both the latter a rheumatic origin is possible, the infection either being confined to the pericardium, or else the joint symptoms were so slight as not to be thought worthy of mention by the patient. Another case had markedly atheromatous arteries, a somewhat enlarged heart, and, probably, a mitral leakage, while still another was admitted with a soft systolic murmur at the apex, which persisted during his stay in the hospital, but it remained doubtful whether this was the result of organic or inorganic causes.

Many of the cases occurred before cultures were taken as a routine part of an autopsy, but records of a bacteriological examination were found in eight, in four of which pneumococci were found in the pericardial effusion, and in one (acute nephritis) the colon

bacillus. In a third (chronic fibrous pneumonia) streptococci were demonstrated, and, probably, also pneumococci and the Klebs-Löffler bacillus, but the latter were not absolutely differentiated. In one case pneumococci had been shown in the sputum, but the organ at the autopsy proved sterile. In another (rheumatism with recovery) colon bacilli were found in aspirated pleural fluid, but no opportunity was afforded to investigate the contents of the pericardium.

Rheumatism occupies so conspicuous a position among these cases, more than half being attributable to it, that a more detailed account of them is given. Thirty-eight were males and 13 females. The youngest patient was a boy of nine the oldest a man of fifty-two. Only four were over thirty-five and only five under fifteen, but for reasons which have been given the latter figures are no criterion of its frequency in childhood. Between these limits, fifteen and thirty-five, if divided into periods of five years, the cases were very evenly distributed, although a slightly larger proportion occurred between twenty and twenty-five than at any other time. So many of them entered with the signs of pericarditis already present that it is impossible to more than approximate the date of its onset in any considerable number. In a few it antedated the appearance of the joint symptoms, in a few others, they came on simultaneously, but in a great majority it showed itself within the first 15 days. After that time its development was quite rare, yet in one case the first evidence was found on the 34th day. It was decidedly more common in the first attack than in the second and in the second than in the third, the figures being 23, 15 and 7 respectively. After the third attack it was much less common, but in one case it came on as late as the ninth or tenth. It does not, however, necessarily follow from this that the liability successively diminishes, since more patients are admitted in the first or second than in later attacks, and no attempt was made to get at the relative proportion in each. It was also decidedly more frequent where the disease affected many joints, five or more being concerned in four-fifths (41) of the cases, and inferentially also, although the records are not always explicit, when the inflammation was migratory and skipped about from one position to another. Yet it also occurred where the articular symptoms were so slight that the patient complained only of transitory pain, more often in the knees, elbows or shoulders. The probability that the infection was particularly virulent is also suggested by the presence of pulmonary complications in nearly one-half of the cases (23), pleurisy being found in 18 and pneumonia in three, while pneumonia (once on the right and once on the left side and double pleurisy occurred simultaneously in two. Infection by contact appears to have been the usual course, as in the cases of pleurisy the left side was more frequently affected than the right, in the proportion of 12 to 1, while five were double. Of the three simple cases of pneumonia two occurred on the left side and one was double. In cases also where pleurisy was the primary disease pericarditis was more common when the left side was affected, in the proportion of 3 to 1, the fifth case being double; but with the primary pneumonias the condition was reversed, eight occurring on the right to four on the left side, three being double.

But little opportunity was furnished by these cases

of observing whether thorough treatment by the salicylates has any effect in preventing the development of pericarditis, as in nearly every instance it was either present at the time of entrance or appeared only a few hours later, or else the joint symptoms had so far subsided that the drug was not given. Only six patients had obtained an amount sufficient to bring them at all under its influence before the friction rub was discovered, and one of these received but three doses of fifteen grains of the soda salt. The other five received an amount which varied from ten grains every hour for two days as a maximum to fifteen grains three times daily for three days as a minimum. All that can be said is that so far as is known, since it is impossible to tell how much they may have received before admission, the great majority of the cases were not under its influence, but that in a small number it was unable, in the doses given, to prevent its development.

Based on the total number of 100 cases, the prognosis of pericarditis must be considered grave, as 43 per cent. died and four were discharged unrelieved; but when it is considered how frequently it occurred as a complication of some other disorder this estimate of its gravity must be shaded somewhat, according to the diseases of which it formed a part. When associated with hepatic cirrhosis or nephritis either acute or chronic every case but two terminated fatally, and of these exceptions one was discharged unrelieved, while the other was evidently not connected with the nephritis but was of rheumatic origin and went on to recovery after the manner of such cases. Nor is the fatal ending always to be attributed solely to the pericarditis, since its onset is often but one form of expression of the critical condition of the patient, or at most may have hastened the end by adding another item to the load which he was already carrying. So far as these figures go a similar observation is applicable to cases associated with other chronic diseases, all those complicating phthisis, fibrous pneumonia and chronic rheumatism being fatal with one exception, a case of chronic rheumatism discharged unrelieved. Where, however, the primary disease was of an acute infectious nature the results were somewhat better, yet the mortality rate was still very high except in rheumatism. Fifteen out of the 18 cases classed as pneumonia, for example, died, but this undoubtedly over-estimates the true rate, since several fatal cases are included in this list which would have been overlooked had not an autopsy been held, as the pericardial affection had not manifested itself by any physical signs, an occurrence probably not uncommon in pneumonia, whatever the outcome, its signs and symptoms masking those of the secondary disease. Both cases complicating gonorrhea, two out of the five cases of pleurisy (another was discharged unrelieved), and the single case of empyema, were all fatal. The case complicating tonsillar abscess recovered. The marked contrast in the result between those cases which were secondary to acute rheumatism and those which complicated all other affections is shown by the following figures. 10 only of the former dying out of 51, while 32 out of 40 of the former were fatal, and three were discharged unrelieved.

Of the 10 rheumatic deaths, two had pneumonia, three pleurisy, one of whom was also suffering from old valvular disease, and one had pneumonia, serous pleurisy and old endocarditis. Two others had advanced

cardiac lesions and another died of delirium tremens. The tenth entered moribund, and a satisfactory examination was impossible, but the presence of a pericardial effusion was demonstrated by a post-mortem aspiration of the sac.

Of the nine so-called idiopathic cases but one died, and he was also suffering from a chronic valvular lesion. Another with the same complication was discharged "unrelieved," a term which applied more to the valvular than the pericardial affection, the signs of which were fast subsiding.

In view of these results it seems justifiable to say that in itself acute pericarditis is not a very serious affection, but when it comes on in the course of some chronic disease, or when the integrity of the heart has been already invaded by previous valvular lesions, when pneumonia or pleurisy are also present either as the primary disorder or as coincident complications, or when it is due to a general septicemic process, as in the gonorrhoeal cases, the outlook is serious.

The medical treatment given may be dismissed in a few words, as it was entirely symptomatic, save that in some instances an ice-bag, more rarely a poultice, and still more rarely a blister, was applied to the precordium. The subject of paracentesis, however, deserves fuller discussion, although I have been unable to find any mention of its being attempted in more than four of the 46 cases where effusion could be suspected from the physical signs. In a large number of them it was so slight that the question of aspiration evidently did not arise, in others the prompt absorption of the fluid confirmed the wisdom of the policy of non-interference, but in a few of the fatal cases no explicit explanation could be found in the records of why it was not done, although probably, as most of them were complications of some serious process, it was thought that the critical state of the patient was due to other conditions than the presence of fluid, and that puncture would add to his discomfort without hope of granting him any relief. The necessity for puncture may be stated in general terms to arise when the action of the heart becomes embarrassed by the amount of the effusion, but a consideration of these cases also shows that the time must vary somewhat according to the disease with which the pericarditis is associated. In acute rheumatism, for example, the tendency toward recovery, even when the effusion is very large, is so strong that in most instances nature may be allowed to take its course, whereas in others a prompt resort to aspiration is imperative. This would seem to be notably true of pneumonia from the possibility that the fluid may be purulent, four of the five cases where the effusion was of this character being found in connection with that disease, while the fifth occurred as a complication of empyema, which may have been due to the same cause. The disappointing results which have so frequently followed permanent drainage of the pericardial sac might at times be averted if the diagnosis had been made promptly before the heart had become weakened by the continued presence of the fluid. That the danger arising from wounding the heart is theoretical rather than real received another illustration in one of these cases, when the needle thrust into the sixth interspace just to the right of the sternum entered a "solid body which pulsated" and caused it to describe an arc of one and a quarter inches with each beat; no harm resulted. Of the three other cases the site selected was in one in the

fifth interspace on the right, and in another in the fifth just to the left of the sternum. In the third fluid was obtained in the same interspace on the left just inside the nipple line; while an attempt with a hypodermic needle in the fifth right space failed; another attempt made later in the fourth left space slightly inside the mammillary line was successful.

Clinical Department.

FOUR CASES ILLUSTRATING A MARKED DEPARTURE FROM THE USUAL PHYSICAL SIGNS OF PLEURITIC EFFUSION.¹

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

My object in reporting the four following cases, which occurred in two of my services at the hospital, is to emphasize the fact that frequently the typical signs of a pleuritic effusion, especially that of a diminished respiratory murmur, may be supplanted by the usual sign of consolidation, namely, marked bronchial respiration, a fact which causes at times a good deal of difficulty in diagnosis, to be decided only by the aspirating needle.

That faint bronchial respiration may be heard in the region of pleuritic effusions is doubtless mentioned in some text-books, but I fail to find sufficient allusion made to the not infrequent cases in which the signs are such as are usually taught to the beginner as characteristic of intra-pulmonary rather than pleuritic disease. It is only comparatively recently that I have had cases brought to my notice in which the bronchial breathing mixed with râles has been very marked over the seat of effusion; and from my experience with aspiration in these cases I am led to believe that in one or two others which I can recall where in convalescence from pneumonia days after the return of the temperature to normal the marked bronchial breathing persisted, and which I attributed to an unresolved condition of the lung, there was a pleuritic effusion present, the amount of fluid, however, probably not being very great. In consequence of this experience I should never hesitate to aspirate under the conditions mentioned, believing that less harm can come to the patient by possibly puncturing a solid lung with a sterilized needle than by leaving a pleuritic effusion to partially hamper the free action of the lung.

CASE I (Vol. 401 B, p. 124). A. C., male, thirty-one, single, cigar-maker. Previous history shows nothing of special importance. Entered April 2, 1896.

Personal History.—Bad cough, with malaise, for eight weeks. Gave up work the day before entrance, when he had a chill and a sharp pain in the right breast and shoulder-blade. Considerable expectoration for twenty-four hours; bloody at time of visit.

Physical Examination.—Sputa hemorrhagic. Dyspnea.

Lungs.—Good resonance and respiration over left front and back; slight dullness over right front below fourth rib, and here respiration is faintly bronchial. Dullness in right back from one inch below spine of scapula, becoming flatness below at base, but not extending into axilla; over this area breathing is tubular,

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Eighth Series.

more intense in upper portion; voice sounds are intensified, and tactile fremitus is slightly increased. The apex beat was seen best about in the mammillary line.

April 6th. Dulness, amounting almost to flatness, over entire right front and back with tubular respiration; a few crepitant and medium moist râles over back and front. From this time on for several days, bronchial respiration, numerous crepitant râles, and medium moist râles were heard all over the right back, and signs of an extension of a pneumonic process into the left lung were also present.

The temperature came down to normal by lysis.

April 25th. There was slight dulness in the right apex in front and all over the right back compared with the left. Respiration remained bronchial in the right back, but indistinct in the axillary region.

Previous to this time, from the fact of the persistence of the bronchial respiration, it was thought to be simply a case of unresolved pneumonia, and the possible presence of fluid was not entertained until the persistence of the dulness and a slight lessening of the tactile fremitus in the right axillary region suggested the wisdom of aspirating the chest. May 1st the smallest aspirating needle was inserted just below the angle of the right scapula, and twenty-four ounces of clear yellow serum were withdrawn. The day following showed an entire disappearance of the bronchial breathing, leaving only a diminished respiratory murmur and absence of tactile fremitus.

On May 10th the respiration was again slightly bronchial, but the other physical signs had improved, and he was discharged.

On June 1st he returned for examination, having been in the country for two weeks, and the physical examination showed a good percussion note and respiration throughout the chest.

Synopsis of Case.—Pneumonia of right lung, with the usual signs of that disease. Bronchial breathing persists after fall of temperature and apparent convalescence of patient. Aspiration proves the presence of one and a half pints of clear serum in the area showing bronchial respiration.

CASE II (Vol. 401 B, p. 214). H. N. B., male, twenty-one, single, ward-tender. Entered April 14, 1896. Diphtheria and typhoid fever several years before entrance.

Five days before entrance took cold after nursing several severe cases of pneumonia. Two days later hard cough with tightness across chest. Sputa scanty and whitish.

Physical Examination showed at first nothing but a few moist and sonorous râles scattered about both lungs.

April 22d. Eight days later there was a more marked rise of temperature, much dyspnea, cyanosis, and the general aspect of pneumonia, although the sputa were not rusty, but bloody and slimy. Over one area near the angle of the left scapula bronchial breathing and some crepitant râles were noticed.

May 1st. Ten days later the dulness in left back showed a line of demarcation quite marked about the posterior axillary line. Bronchial breathing, crepitant and numerous coarse, almost bubbling râles, were heard over this region. No dislocation of heart. Sputa dirty, slimy, occasionally bloody.

Four days later the space of dulness increased, although not in a manner to indicate a pleuritic effusion

especially; that is, the line did not rise in the axillary region. In spite of harsh bronchial respiration, however, all over this region aspiration was resorted to just below the angle of the scapula, and 12 ounces of serum, rather brownish and turbid, were withdrawn. After this the physical signs gradually improved up to the time of the patient's discharge.

Examination of the sputa showed an absence of tubercle bacilli, but unfortunately no return was made as to the possible presence of the pneumococcus.

Synopsis of Case.—Typical case of pneumonia. Harsh bronchial respiration persists several days after fall of temperature and marked improvement of general symptoms. Tentative aspiration over site of bronchial breathing resorted to. Withdrawal of twelve ounces of brownish serum. Immediate diminution of bronchial respiration.

CASE III (Vol. 401 B, p. 208). J. J. O'C., fourteen, male. Entered April 14, 1896. Pneumonia three years before entrance, scarlet fever one year before, and, about five weeks before entrance, acute articular rheumatism.

Two weeks before entrance pain about heart with dyspnea; feverish. No rheumatic pain at time of entrance.

Physical Examination.—The percussion and auscultation of the heart showed the presence of a pericarditis with endocardial murmurs also present.

Over the lungs dulness was noticed in the left axillary region and at both bases behind. On the left, the dulness began one inch above the angle of the scapula, over which region the respiration was bronchial and there was whispered bronchophony. Respiration in the right base also faintly bronchial, with the vocal sounds increased. Later this character disappeared, and friction rubs developed in the right lower back, but the dulness and bronchial respiration in the left lower back persisted.

As the line of dulness extended in an upward curve in the lower axillary region, the presence of an effusion, *in spite of the bronchial respiration*, was thought probable, and aspiration one inch below the angle of scapula was tried, and about four ounces of bloody fluid were withdrawn.

Six days later the percussion note was more tympanic in character, and the bronchial respiration was replaced by a lessened murmur.

The patient slowly improved, although the cardiac symptoms persisted, and two months after entrance he was discharged, at which time there was fair resonance over the left back; the respiration was rather harsh, with a few indistinct râles or fine friction sounds after forced inspiration.

Synopsis of Case.—Peri- and endo-carditis with pleuritic effusion in left lower back, proved by aspiration in spite of marked bronchial respiration in that region.

CASE IV (Vol. 362 A, p. 130). A. T., female, twenty, single, laundress at Boston City Hospital. Entered October 2, 1893.

Previous history excellent, except for "brain fever" as a child after exposure to sun. Strong and well since.

Two days previous to entrance felt a sharp stinging pain in the right side near the edge of the ribs, increased upon deep inspiration. No chill, no cough. Headache.

Physical Examination at entrance was negative

throughout. Temperature 102.4°, pulse 88, respiration 24.

For at least seven days nothing new could be discovered upon examination, but almost continual pain in the right flank was complained of. At the end of that time slight cough began to appear, and extreme dulness increasing to flatness in lower right axillary region was noticed, and the same conditions in the back from one inch above angle of right scapula. Over this region was heard faint bronchial breathing in various portions mixed with crepitant râles and in places diminished respiration.

Slight amphoric whisper in different parts of this area. Some râles noticed in axillary region and in lower right front, but not so marked as behind. Respiration in front puerile. Vocal fremitus faint on both sides; rather less on right side. Impossible to find apex beat.

Four days later, although the bronchial respiration, amphoric whisper, and crepitant râles persisted, from the fact that the dulness slowly moved upwards, and there was slight change of note upon change of position on the right side, an exploring needle was inserted about one inch below the angle of the right scapula, and about 29 ounces of reddish fluid were withdrawn.

The note made on that date reads as follows:

"The only definite physical sign of pleuritic effusion as distinguished from a pneumonic process was the change of percussion note upon change of position. There was no apparent dislocation of the heart, no special difference in vocal fremitus while numerous crepitant râles and faint bronchial respiration with amphoric whisper could be heard throughout region of dulness. Three days after operation, the dulness was about the same. The râles had entirely disappeared, the amphoric respiration persisted, and for the first time the heart apex was distinctly felt outside the left mammillary line. One week after the first operation it was repeated, and four ounces of clear serum were withdrawn. The amphoric respiration disappeared after this, leaving only obscure respiration over the point of dulness, which slowly lessened, and the patient was discharged convalescent one month after entrance."

Two examinations of the serum failed to show the presence of tubercle bacilli or other objects of special import.

Synopsis of Case.—No definite physical signs for a week after entrance. Development of dulness in right back diminishing upwards with crepitant râles, bronchial respiration, and slightly amphoric voice over area of dulness. Tentative aspiration proved presence of fluid.

In Cases I and II the general signs of pneumonia were so marked that the diagnosis could be reached almost by the aspect of the patient and by the peculiar soft crackling sound of the respiration, heard without applying the ear to the chest, combined with the short, almost incessant cough so common in pneumonia. The persistence of the bronchial respiration in both of these cases, therefore, as far as the presence of fluid was concerned, was most misleading.

In Case III the whole appearance of the patient was one which suggested tubercular disease, and the bronchial respiration and dulness in the lower left chest suggested the possibility of consolidation rather than an effusion, the presence of which was proved by aspiration.

In Case IV the general symptoms gave no aid to the diagnosis, but the bronchial respiration and the presence of râles more or less disseminated over the affected area, the absence at first of apparent dislocation of the heart, made the diagnosis difficult until aspiration revealed the presence of fluid.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, January 6, 1897, DR. H. L. BURRELL in the chair.

DR. H. O. MARCY presented the subject of

THE CURE OF INGUINAL HERNIA IN THE MALE.¹

DR. RICHARDSON: I had no idea of making any remarks on this subject. I came for the purpose of hearing what Dr. Marcy had to say, and I have been very much interested in what he says about the use of the tendon suture. I have to do with hernia, as any general surgeon does. I have had a very limited experience with it, and I do not feel that I can say anything of any special value. The method I have used has been that of Halsted, and I am not able to say anything about the ultimate results of my cases, for I have seen almost none of them since the operation, and I have not had occasion to look up the subject. I like to use for buried sutures silk and silver wire. For a long time, when Dr. Mumford was with me, we used silver wire for everything, external wounds and buried suture, and in all the hernias in 1889, 1890, 1891 and 1892. In most of the wounds I closed the structures with deep silver wire. These buried substances are still there; and I have never seen trouble from silk, and do not recall any cases in which it was necessary to remove the wire. I have intended to use the kangaroo-tendon suture of Dr. Marcy, which every one speaks of in the highest terms. I think Dr. Marcy is deserving of very great credit for the work he has done on hernia and for the introduction of this animal tendon.

DR. N. GREENE: I have no statistics to give of the results of the various methods of operating, as I do not have the opportunity to follow out cases. A great many cases come to me to have trusses applied that have been operated upon and the operation has failed; but as, in most of these cases, I do not know the special method employed, I am unable to give an accurate estimate of the value of one operation as compared with another. Occasionally an intelligent patient comes to me who is able to tell what has been done in his case, or the surgeon sending him informs me as to the details of the case, so that I know the special operation that has failed; but I cannot now classify these so as to give information that will be of interest or value to this discussion. I will add, however, that I have not had as many apply to me for trusses, because of the failure of the operation, this year as in previous years. I think advance is constantly being made by the surgeons. They are doing a better, more thorough operation than ever before.

DR. E. W. CUSHING: There is only one point that

¹ See page 381 of the Journal.

has not been brought up this evening, and that is, that if the operation for hernia is a simple and good thing in men in spite of the difficulty of providing for the cord, *a fortiori* it is simpler and better in women who do not have any cord to take care of. I had the advantage of instruction from Dr. Marcy a good many years ago in regard to this method of operating for hernia, and I have made a practice in a large number of women with hernias, who came under my care for operations under ether, to repair the hernia at the same time, and it gives most satisfactory results. And it seems, as Dr. Marcy implies, that people with hernias ought to be repaired rather than be subjected to wearing a truss all their lives. In regard to the suture, I was looking over an old volume representing the work of the sixteenth and seventeenth centuries in repairing hernias, in which I found the use of gold wire was in full operation at that time, although it was usually deemed best to perform castration at the same time. It was generally supposed in this country that Dr. Sims had most to do with the introduction of wire for sutures, but it is a very old method.

DR. GOLDTHWAIT: With reference to the age at which operations may be performed, I should like to report a case which I saw some years ago with Dr. A. S. Knight.

The child had a strangulated inguinal hernia, the bowel having been down for nearly forty-eight hours. An operation was performed and the child made a perfect recovery.

DR. BURRELL: The subject of the radical cure of hernia has always interested me deeply. For the last five years I have been using kangaroo tendon, and have been thoroughly satisfied with the results. Last year I used some moose tendon which I was fortunate enough to secure, and I was very much disappointed in its strength, for it frayed out and was not sufficiently strong.

So far as the indications for operation are concerned, I don't think I can take the position that Dr. Marcy does in reference to this matter. It seems to me, if he will pardon me for saying so, that his position, which as I understand it is advising operation in every hernia, is advanced ground.

I believe that each patient with a hernia should be considered as an individual. If the hernia is untrussable, there can be no question as to the advisability of operating. If, on the other hand, the patient's life will be endangered by operating owing to some coexisting disease, as, for example, chronic interstitial nephritis, it is improper to operate.

It is true that there is extremely little risk in doing the radical cure of hernia, and in skilful hands the results are extremely satisfactory, but there is the danger of an occasional slip-up in antisepsis. If it does occur, we must recognize it. I know that anti-septic surgery is not "cock-sure" surgery, and this is a thing that must be recognized as a fact.

A patient who has a hernia which is untrussable or irreducible, or one which, by the circumstances of his life, is liable to become strangulated, I believe should be strongly advised to have an operation. If, however, a patient has a hernia which is held by a truss, I believe that this patient should have presented to him clearly the advantages to be gained by an operation, and the patient should decide whether he will be operated on or not.

DR. MARCY, in closing the discussion, thanked the

members for their interest evinced in the subject, and said that the decision as to when one should operate must ever be determined by the individual conditions. Surely, the young as a class should be cured. In middle life, all cases where the truss fails to retain the abdominal contents and the general health is not impaired are proper subjects. Age, *per se*, is less an objection to operation than earlier believed. Aseptic wounds do well in elderly people. Dr. Marcy has operated upon thirty individuals over sixty years of age with uniform good results. Often he prefers the cases of large, old, retained hernia, especially when he is desirous of making a demonstration of the technique of the operation to members of the profession.

DR. C. G. CUMSTON read a paper on

TERTIARY SYPHILITIC EPIDIDYMITIS, WITH A REPORT OF A CASE.

DR. MUNRO: I should like to call attention to one particular. I recall seeing four cases during the last year, and three of these came for treatment of hydrocele. The hydrocele had been tapped in each patient two or three times. There was undoubted gumma of the epididymis. In two of the cases the chancres had occurred nine or ten years previously, and one man claimed that he had had the chancre nineteen years ago. In one case the cord was involved as well as the epididymis. I think it is rather important to bear in mind that cases like these apply for treatment of a hydrocele which may be secondary to syphilis of the epididymis. In three of the patients the disease was unilateral, while in the fourth there was a considerable enlargement of one testis without involvement of the epididymis and in the side that had the gumma of the epididymis there was also gumma of the testicle itself.

Recent Literature.

The American Year-Book of Medicine and Surgery.

Being a yearly digest of scientific progress and authoritative opinion in all branches of medicine and surgery, drawn from journals, monographs and text-books, of the leading American and foreign authors and investigators. Collected and arranged, with critical editorial comments by eminent American specialists and teachers, under the general editorial charge of GEORGE M. GOULD, M.D. Profusely illustrated. Philadelphia: W. B. Saunders. 1897.

The issue of this work for 1897 contains 1257 pages, including the index, which is very complete, as it should be in a book of this sort. This is 75 pages more than last year. We have nothing to retract from the comments made upon this Year-Book for 1896, and nothing to add except to emphasize the statements there made. The editor is the same, and the editorial staff is, in the main, the same. Dr. Duhring succeeds Dr. Hardaway in the editorship of the Department of Dermatology and Syphilis. The same thoroughness and the same expert intelligence mark the various sections this year as last. The practitioner will not regret the acquisition of this excellent and useful volume.

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ANTISTREPTOCOCCIC SERUM AS A PROPHYLACTIC IN CASES OF OPERATION INVOLVING SUBSEQUENT SEPSIS.

THE difficulty of establishing the proposition that in cases of septic infection which have recovered after injection of antistreptococcic serum, the recovery has been due to the action of the serum, must have presented itself to all who are conversant with such cases, and who have read the published reports. So large a number of cases of streptococcus infection get well under strictly surgical combined with stimulating and supporting treatment, the virulence of infections varies so greatly, and it is often so hard at the beginning of a case to estimate the extent and virulence of the infection, that statistics as to the results of antistreptococcic serum injections are, and will probably remain of little help to us in forming an estimate of the value of this method of treatment.

In cases of septic infection we are not dealing, as in diphtheria, with a definite disease, which enters the system by a single infection atriun, a disease which may be now practically always definitely diagnosed, is reported to boards of health, and with regard to which statistical information of real and definite value may be secured. On the contrary, the course of these cases of streptococcus infection and the rapidity with which irremediable general infection takes place, show such great variation as to greatly impede the formation of a correct judgment of the value of the serum; so that, as Watson Cheyne remarks in a recent number of the *Practitioner*, the proof that the recovery of the patient in the published cases has been due to the injections, is not quite satisfactory. At the same time the experimental evidence is strongly in favor of the view that the serum ought to exercise a prophylactic action, and Cheyne suggests that trial ought to be given to the serum as a prophylactic in cases where unavoidable infection is to be expected, such as operations upon the tongue and throat and about the rectum. It is well known that extensive operations about the

tonsil, pharynx and base of the tongue are frequently fatal by reason of the occurrence of a septic pneumonia due to streptococcus infection. With the idea of, if possible, preventing any such complication, Cheyne has employed the antistreptococcic serum in three cases of this nature.

In the first case, which was one of carcinoma, involving the base of the tongue, the anterior pillar of the fauces and the tonsil, the cervical lymph glands, and necessitating preliminary tracheotomy and ligature of the external carotid, antistreptococcic serum was injected on the two days preceding the operation. There was no elevation of temperature after the first twenty-four hours following the operation, with the exception of a single rise some days later, which Cheyne attributes to the after-effects of the serum. There was no inflammation or tendency to septic infection about the wound, no septic smell in the breath, and the case recovered without any complication whatever. On the day after the operation 10 cubic centimetres of serum were injected and on the fifth day the rise before alluded to, which reached 100°, occurred; it was attended by the appearance of a serum rash over the body, which passed off in a week, and did not affect the patient's general condition.

Cheyne's second case was one of malignant disease of the left side of the lower jaw, spreading onto the inside of the cheek and the anterior pillar of the fauces, and involving the posterior part of the alveolar process of the upper jaw, together with a few cervical lymph glands. Injections of the serum were made on the two days preceding the operation and on the morning of the operation. The case quickly recovered without any trace of septic complication and with no rise of temperature after the first twenty-four hours, when it only reached 100.4°.

The third case was one of very extensive epithelioma of the tongue and floor of the mouth, spreading onto the tonsil and involving a large mass of glands in the neck. The patient was so weak that after the extensive operation for removal of the glands, it was thought best to postpone the excision of the tongue until she had recovered some strength. In all 90 cubic centimetres of the serum were injected, and during the four days following the operation there was the same absence of septic infection. On the fifth day the tongue was removed, and again there was absence of sepsis, and everything looked well, when the patient died suddenly from cerebral embolism. The post-mortem showed that a thrombus had formed in the lingual artery and extended to the external carotid, whence an embolus had been carried to the brain. In this case a little sloughing was found in the posterior part of the wound; but the greater part was clean, and had it not been for the unfortunate accident of thrombosis, Cheyne thinks that the case would undoubtedly have gone on to recovery.

Although the number of these cases is too small to enable us to form any judgment of the value of antistreptococcic serum as a prophylactic, the results

were certainly not such as to discourage others from making a trial of the serum in similar cases. If the septic pneumonia, and diffuse septic infiltrations which so often follow these operations can be prevented, the prospects of success in undertaking them will be greatly increased.

The use of the serum as a prophylactic rather than as a curative agent, will, it is to be hoped, be given further and more extensive trial.

MEDICINE, SORCERY, WITCHCRAFT, SPIRITISM IN THE MIDDLE AGES.

EDMOND DUPOUY has written a very readable book on "Medicine in the Middle Ages"¹ in which he gives much interesting information about monk-lore, the great epidemics, and especially the demonomania of the dark ages. We will follow him through the mazes of this last subject.

Dupouy traces the origin of the occult sciences back to the most remote antiquity. They were a part of the philosophical lore of the Eastern civilizations and were derived from them by the Western nations; genii and demons, good and bad, and the preponderant influence of these agencies on mankind were accepted. After the fall of the Roman Empire, epidemics of demonolatry prevailed for successive centuries, like the pestilential maladies of the sixth, thirteenth and fifteenth centuries. The magic of the Chaldeans and Middle Ages was, according to Dupouy, a form of hypnotism and spiritism. The application to medicine of notions embraced under the heads alchemy, magic, the black art, etc., was a characteristic feature of the pathology and therapeutics of those times when Jean of Valois, Knight-errant, thanked God that he could neither read nor write. Disease was regarded as the infliction of some malignant power, and there was an undeniable potency in enchantments and exorcisms. Gifted minds, like Ambroise Paré and Jean Wier in the sixteenth century, were tintured with these notions. The familiarity which the writers of that age and previous ages show with such mysterious supernatural agencies as work mischief to man is evidenced by some of the names applied to them by Ambroise Paré "the father of French Surgery": *Cacodemons, coque-mares, incubes, succubes, goblins, lutins, mauvais ange, Satan, Lucifer, etc.*

In 1459 there was an epidemic of demonomania in Arras, a city of Artois, which resulted in the speedy execution of many of the victims, who died confessing the most horrible crimes committed under a solemn pact with Satan. The records of the courts of that age exist, and are full of disgusting particulars a part of which Dupouy, with a keen appreciation of the rank and gross in literature (as evinced in his former work on "Medicine and Manners of Ancient Rome," in which he has massed together all the passages ordinarily expurgated in the Classics), has served up in Court-Latin for the delectation of his Parisian readers. A

similar epidemic prevailed in Valery-en-Savoie in 1574, in which eighty peasants were burned at the stake, and in Haut Languedoc, where four hundred persons perished in the same manner. In 1582, a great many persons were executed at Avignon by the Inquisition for witchcraft. The number subsequently put to death for the same offence is almost incredible. These are matters of common history.

The hystero-demonomania of the cloisters was an epidemic neurosis, characterized by complex disorders of the nervous system in which symptoms of this kind were noted: cutaneous anesthesia (constituting those "marks of the Devil" for which the inquisitors searched with their pointed steel instruments); hyperesthesia and spasms of the stomach and abdominal organs, with hallucinations of poisoning by the victims; hyperesthesia of the uterus, vagina and ovaries, and hallucinations of painful cohabitation with the incubes; spasms of the pharynx and laryngeal muscles manifested in the barkings, cough, cries of the prodromal period of the convulsive attacks; vaso-motor troubles showing themselves in various cutaneous stigmata attributed to the Devil; somnambulisms, aptitude for hypnotic and waking-state suggestion, catalepsy, lethargy, delirium, etc. Charcot, Bourneville and others have made an exhaustive study of these convent epidemics, and shown their affiliation with ordinary hysteria. Among these epidemics were noted the hystero-epilepsy of the nuns of Uvertet, in 1550, the convulsive hysteria of the convents of Sainte Bridgette, of Kintorp, of Nazareth, in 1554, in which Jean Wier "recognized that the *religieuses* were possessed by the demon of lubricity, and that the most frightful debauchery reigned in the monastery." Much has been written concerning the demonolatry of the Ursulines of London, in which were fully illustrated the ignorance concerning diseases of the nervous system of that period, the weakness of character and incompetence of the physicians, and the fanaticism of the monks and clergy. The phenomena of this epidemic were almost exactly reproduced among the nuns of the convent of St. Elizabeth of Louviers, in 1643. They had active hallucinations of all the senses, convulsions and delirium. Like the Ursulines, these unhappy victims blasphemed, vociferated, gave themselves up to all imaginable contortions, declared themselves possessed of devils and described in obscene terms the orgies of the "Sabbath."

The painters and chroniclers of those times have given us representations and descriptions of these epidemics, and of St. Guy's Dance, of the Convulsionists of St. Medard, etc., which are invaluable to him who would study that protean malady, hysteria, in all its phases. The phenomena were conformable to the beliefs and superstitions of the times; in many instances, the malady was intensified by the cruelties and perquisitions of inquisitors and fanatical judges, the dense ignorance, the poverty and misery of the masses. The popular cerebrum was in a state of absolute receptivity to all pathological influences of a nervous

¹ Le Moyen Age Médical, Paris, 1896, Soc. d'Editions Scientifiques

nature. Children were taught erroneous beliefs and legends. They acquired a vague sentiment of unrest, and a constant preoccupation of sin prevailed. Religious monomania is often linked to intense sexual excitation and erotic ideas. These latter lead to corresponding hallucinations.²

Thus far the ordinary medical reader will follow this author with interest and with sympathy.

A long chapter devoted to "Hysteria and the Psychic Force" seems, in the connection, rather illogical and inconsequential, but serves to bring out the peculiar views of the author as to spiritism. Modern spiritualism, according to him, is really a continuation of medieval demonology. The poor victims of the tribunals really were "possessed" in the literal sense of the term, and so far the judges were *right*. It is the old demonological interpretation revamped: *mutato nomine permanet res*. After conceding the naturalistic explanation (now held by modern neurologists), presto, he returns to the supernatural hypothesis. The demons barred out at the gate, come back by the open windows.

It is somewhat exasperating to find him referring complacently to such self-confessed and often exposed frauds as Slade — now everywhere discredited, to the elder Fox sister who late in life owed to the trickery of her early performances, to the Katie King episode, etc. He speaks of the phenomena of movement without contact of solid bodies as common occurrences, which, he says "I have myself frequently witnessed." Many of his *confrères* at home and abroad would pay very liberally to witness a phenomena of the kind, such as he says, occurs at the séances of Madame L. B. He explains the phenomena of double personality as implying possession by another spirit (page 276) apparently ignorant of the researches in this department of mental physiology by his countrymen Janet, Guinon, Ribot, Richet and others. We might refer him also to the "Proceedings of the Society for Psychical Research" as a warning not to be too rash in forming conclusions.

Dupouy scores the doctors of to-day for their incredulity and scepticism, and because they will not investigate. Many of them have done so and find nothing worthy of investigation; others wait till the spiritualists shall have weeded out the frauds from their ranks.

THE HYGIENE OF SWIMMING-BATHS.¹

In a paper upon the swimming-baths of Berlin, Baginsky makes the following observations:

"(1) The swimming-baths constitute a hygienic arrangement for the population of those large towns which cannot make sufficient use of the river bathing-establishments.

"(2) For this reason the swimming-baths should be

placed under constant sanitary and police control, which should attend to the choice of location, cleanliness, ventilation, clothing-closets, soap-boxes, normal condition or character of the water in use, the quantity flowing in and out, the regularity of the complete cleansing of the tanks, and the daily number of bathers.

"(3) Thorough scientific investigations as to the limits of the use of the bathing water should be made under the charge of the sanitary and police officials."

The foregoing observations appear to have been written in consequence of certain criticisms which had been made as to the management of the swimming-baths of Berlin, six in number. The following are the principal points of interest relative to these baths:

The Neuenburger Street bath or tank, has a size of 12 by 8 metres and a capacity of 160 to 170 cubic metres (42,000 to 45,000 gallons). The number of bathers averages 300 to 400 daily in summer, and 100 in winter.

The Askanian bath has a capacity of about 40,000 gallons.

The Admiral's Garden bath, Friedrich Street, is 15½ by 9 metres, has a capacity of about 63,000 gallons, and is inlaid with glass tiles.

The Commandant Street establishment has one large swimming-tank for men, 26 by 16 metres; one tank for learners, 9.2 by 5.15 metres; one large tank for women, 17.6 by 9 metres; and one small tank for women, of the same size as the small tank for men. The depth of the large tank ranges from one to four metres.

Cleaving-baths are also provided, which must in all cases first be used before the bather enters the swimming-tanks.

Of the two public city baths, one has a capacity of 80,000 gallons, and accommodated 20,014 bathers in the fiscal year 1894-95. The other, with a capacity of 60,000 gallons and a size of 15 by 8.5 metres, accommodated 141,281 bathers in the eleven months ending February, 1896, or an average of 539 in summer and 280 in winter. The water was partly that of the public supply and partly from wells.

The frequency of renewal of the water in the swimming-tanks varied in the different establishments, but was usually daily or every other day in summer, and twice or three times a week in winter.

In this connection it may very properly be stated that the town of Brookline, Mass., was the pioneer town in New England to establish the first municipal, all-the-year-round bathing-establishment, with all the necessary appliances of cleaving-baths, swimming-tanks, etc. Instruction is given in swimming; and a town swimming-club has been organized. The establishment is a model and well worthy of imitation by other municipalities, and it is to be hoped will be appreciated and supported in a way to encourage such imitation.

¹ Verhandlungen der Deutschen Gesellschaft für öff. Gesundheitspflege zu Berlin, No. 6, 1896, p. 35.

² Dupouy: *Loc. cit.*, p. 172.

MEDICAL NOTES.

LORD LISTER'S PORTRAIT PRESENTED TO THE ROYAL COLLEGE OF SURGEONS.—The portrait of Lord Lister, painted by Mr. W. W. Ouless, was presented to the Royal College of Surgeons on March 29th.

SUMMER COURSES IN PATHOLOGY AT THE JEFFERSON MEDICAL COLLEGE.—The Board of Trustees of the Jefferson Medical College have decided to open the laboratories of that institution for summer courses for post-graduate and under-graduate students in histology, pathological anatomy, and bacteriology.

TUBERCULAR APPENDICITIS.—At a recent meeting of the Société de Chirurgie of Paris, M. Letulle said that he had made special researches on the nature of appendicitis, and came to the conclusion that it was in all cases characterized by infectious folliculitis due to various microbes, and that every chronic inflammation of the appendix should be considered *à priori* of a tuberculous nature.

A NEW HOSPITAL IN BALTIMORE.—The University of Maryland, which was founded in 1807 and is one of the oldest institutions in the country, is rebuilding the University Hospital. The new building will accommodate 175 patients and will cost about \$70,000. It will be built in the colonial style, to conform as far as possible to the old buildings of the University of Maryland.

THE MICROBE OF BALDNESS.—Great prominence has been given in the daily press to a discovery stated to have been made by M. Sabouraud, author of a well-known work on the biology of tinea, and superintendent of one of the laboratories at the Clinic of Dermatology. M. Sabouraud has succeeded in cultivating a microbe which he considers to be the cause of baldness, and which he has found to exist in great abundance in bald people. It invades the periphery of the hair follicles and brings about an influx of leucocytes, which choke the bulb and arrest its development. This is due to a special toxin which it secretes and which, according to M. Sabouraud, has a selective action on the hair follicle. A filtered culture injected into a rabbit is reported to have made all its hair come off. — *Paris Correspondence of the Lancet.*

Let all due haste be made in the preparation of an anti-alopecic serum!

NEW YORK.

PASSAGE OF THE BILL AGAINST ABUSE OF MEDICAL CHARITY.—It is reported that the stringent measure looking to the abolition of the abuse of medical charity in dispensaries, which was described in the JOURNAL for April 1st, has passed both houses of the Legislature, and is now awaiting the action of the Governor.

EXAMINATION OF SCHOOL CHILDREN.—The weekly report of Dr. Blauvelt, Chief of the Bureau of School Inspection, for the week ending April 10th,

shows that in the public and parochial schools of the city 7,398 children were examined, and 364 excluded. The number of cases of disease were as follows: Measles, 2; diphtheria, 13; scarlet fever, 1; croup, 3; whooping-cough, 4; mumps, 10; contagious eye-diseases, 59; parasitic diseases, 227; chicken-pox, 15; skin diseases, 19.

THE MORTALITY FOR THE FIRST THREE MONTHS OF SEVEN YEARS.—President Wilson of the Board of Health has sent to the Mayor a report in which the mortality for the first three months of the last seven years, and the annual death-rates per 1,000 of the population, are given as follows:

	Deaths.	Death-rate.
1891	10,212	24.99
1892	11,458	27.23
1893	11,844	27.33
1894	10,970	24.63
1895	11,728	25.34
1896	10,940	22.00
1897	9,937	20.35

It will thus be seen that not only has the death-rate been smaller in 1897 than in the first quarter of any of the other years, but that, notwithstanding the large increase in population, the actual number of deaths has also been smaller. The most gratifying statement in the report, however, is the announcement that the death-rate for 1897, 20.35, is the smallest that has ever been recorded for the same period of the year.

Miscellany.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The Twenty-sixth Annual Meeting of the American Public Health Association will be held at Philadelphia, Pa., October 26 to 29, 1897.

The Executive Committee have selected the following topics for consideration:

- I. The Pollution of Water-Supplies.
- II. The Disposal of Garbage and Refuse.
- III. Animal Diseases and Animal Food.
- IV. Car Sanitation.
- V. Steamship and Steamboat Sanitation.
- VI. The Prevention of the Spread of Yellow Fever.
- VII. The Transportation and Disposal of the Dead.
- VIII. The Relation of Forestry to Public Health.
- IX. Nomenclature of Diseases and Forms of Statistics.
- X. Cause and Prevention of Infectious Diseases.
- XI. Public Health Legislation.
- XII. Cause and Prevention of Infant Mortality.
- XIII. Transportation of Diseased Tissues by Mail.
- XIV. River Conservancy Boards of Supervision.
- XV. The Period during which each Contagious Disease is Transmissible, and the Length of Time for which each Patient is Dangerous to the Community.
- XVI. Sanitation, with special reference to Drainage, Plumbing and Ventilation of Public and Private Buildings.
- XVII. Some Method of International Arrangement for Protection against the Transmission of Infectious Diseases.
- XVIII. Disinfectants.

XIX. Existing Sanitary Municipal Organizations of the Countries belonging to the Association, with a view to a Report upon those Most Successful in Practical Results.

The President of the Association is Henry B. Horlbeck, M.D., Charleston, S. C. The Secretary, Irving A. Watson, M.D., Concord, N. H. The Chairman of Local Committee of Arrangements, Benjamin Lee, M.D., 1532 Pine Street, Philadelphia, Pa.

TRAINED NURSES AND THE PUBLIC.

"PRIVATE nurses often suffer at the hands of the public from too much being expected of them—too much work in many cases, to sit up all night, and sometimes half the day, with only an hour or two for sleep, in a noisy room, with interruptions by foolish questioning—if nurse complains, the answer is ready, sister or wife sat up day and night for the first few days till they broke down; why should not nurse, and her trained to the work, do the same? They forget that nurse must not break down; if she does, she may have to starve. What they fail in doing for a day or two, nurse has to spend her life doing; and if overtired or sleepy she is the less a valuable nurse. Too much sympathy, indulgence which is bad for the patient and impertinent in the nurse, is often expected, and if not found, nurse is said to be so unsympathetic in her manner. Patients, too, expect that a nurse, like faith, can move mountains, that a little woman should be able to haul a sixteen-stone invalid up and down the bed.

"One nurse, having suffered much in the service of such a case, put her woes rather neatly by saying that the patient's friends expected her to be a judicious blend of an angel, a horse, and a steam-crane!

"There is, of course, another side to the story. A nurse in a middle-class house with few servants may sometimes be an intolerable burden. Airs and graces, meals at all odd hours to be carried up to her, constant ringing of bell for coals and hot water. If she expects the conveniences of a hospital in a private house, there will soon be friction.

"Her tongue often wags too freely. Gossip about previous patients, appalling and apocryphal stories of hospital life, its operations and its young doctors. Noise in the sick-room at night, and, worst of all, light for her book or her work, when the patient cannot sleep if a glimmer is seen in the room. Want of consideration in trifles. To hang an enema syringe to dry over a crucifix, will not be a way to win the heart of a high-church maiden. To turn the faithful old nurse out of her nursery will estrange, once and for ever, the shy and ailing child."

[From "The Relation of the Trained Nurse to the Profession and the Public," by Joseph Bell, M.D., F.R.C.S., *Scottish Medical and Surgical Journal*, April, 1897.]

CHARAKA SAMHITA.

THE sixteenth fasciculus of this quaint old medical treatise has recently appeared, and contains a great deal that is of interest to the medical archeologist.

The general causes (with their respective characteristics) of destructive plagues, etc., having been expounded, the root of those causes is explained as the

unrighteousness of the inhabitants of the cities and towns which are devastated by them.

In the Krita age, says the sage, men were endowed with energy, puissance stainless and abundant, capable of beholding in the flesh the deities, competent to ordain rules in respect of piety of conduct, and sacrifices; with bodies unacquainted with change, and compact as Himalayan adamant; with agreeable complexion and senses competent to discharge their functions; with strength, speed and prowess, like those of the deity of wind; with handsome hips, of agreeable statue and lineaments and excellent suppleness and growth; possessed of truth, sincerity, compassion, charity and self-restraint; observant of regulations of conduct, penances, fasts and vows, and freed from fear, attachment, malice, stupefaction of judgment, cupidity, wrath, grief, pride, disease, sleep, languor, fatigue, weariness, sloth, and all surroundings (in the form of family and property). In consequence, they all attained to unlimited length of life.

When the Krita age was expiring, in consequence of a few of the well-to-do having become covetous, their bodies became heavy. In consequence of the heaviness of the constituents of the body, fatigue appeared (as the result of labor). From fatigue came sloth. From sloth came the laying up of stores. From the laying up of stores came the desire of having as much as possible from all sources. From the desire to have as much as possible came cupidity or covetousness. Then, when the Krita age expired, from covetousness arose rivalry. From rivalry rose untruthfulness of speech. From this arose lust, wrath, pride, animosity, hostilities, fear, heart-burning, grief, anxiety of heart and other evils.

In the Krita age, righteousness diminished by a quarter. (Exactly how the decrease of righteousness was measured the sage does not tell us.) In consequence of this diminution of righteousness the virtues of land and the rest disappeared by a quarter. The food produced by the land lost a quarter of its virtues, and the physical forms of human beings, not properly supported by the crops, lost a quarter of their virtues and became surcharged with heat and wind, and a prey to diseases and decrepitude.

Of interest later in this chapter is the list of the classes of patients the Hindu physician should not attempt to treat. They are:

- (1) One that is not disposed to remove the cause of censures directed to one's self.
 - (2) One that is very poor. (The objection to treating the very poor, says the translator, is based upon his inability to conform to the instructions of the physician.)
 - (3) One that has no attendants to look after him.
 - (4) One that is full of pretensions regarding his own skill as a physician.
 - (5) One that is of a fierce temper.
 - (6) One that is envious of other people.
 - (7) One that is exceedingly addicted to unrighteous acts.
 - (8) One that is exceedingly weak in strength, flesh and blood.
 - (9) One that is suffering under an incurable disease.
 - (10) One in whom the symptoms of the near approach of death have discovered themselves.
- By treating a patient of any of these kinds, the physician incurs both sin and infamy.
- The fourth lesson, which is included in this fascicu-

lus, treats of the methods of diagnosis of diseases; and the fifth of the various ducts of the body and their diseases.

THE HEIGHT AND THE VELOCITY OF THE FLIGHT OF A FLOCK OF GEESSE MIGRATING NORTHWARD.

MR. H. H. CLAYTON, writes to *Science* under date of March 22d, that on that morning while Mr. A. E. Sweetland and he were measuring clouds, at the ends of a base line 1178.4 metres in length, extending from the Blue Hill Meteorological Observatory to the base of Blue Hill, they succeeded in measuring, with their cloud theodolites, the height and the velocity of a flock of geese. So rapid was the flight that the flock was visible only about two minutes, but during that time two sets of measurements were taken with the theodolites on the leader of the flock. The calculations gave the height as 905 feet above the Neponset River valley, or 960 feet above sea level, and the velocity of flight as 44.3 miles an hour. The direction of flight was from southwest to northeast.

The wind at the time of the measurement was from the west northwest, with a velocity of eight miles an hour.

On a previous occasion, as described in *Science*, January 1st, p. 26, these observers found a flock of ducks flying from the northeast at a height of 958 feet, with a velocity of 47.8 miles an hour. The close agreement between the two results is suggestive.

Obituary.

JOHN O. DOW, M.D.

At the last meeting of the Middlesex (East) District Medical Society the following resolutions were read and adopted:

MELROSE, April 20, 1897.

The Middlesex East Medical Society places on record the following tribute to the memory of Dr. John O. Dow, of Reading:

From his first advent in this district in 1874, Dr. Dow very soon became known as a practitioner of marked ability and skill. In a short time he entered upon a large and successful practice—a practice which was won entirely by his own reputation and ability, and never by unfair or unfriendly means. Dr. Dow was to every one who knew him, a true friend, not only to his patients but also to his brother practitioners. His peculiarly gentle demeanor in the sick-chamber and at the bedside of his patients won for him a place in their hearts which was never forgotten.

At the meetings of our Society Dr. Dow appeared to the casual observer to be of a quiet, and reticent nature; but this was due to genuine modesty and disinclination to obtrude his opinions, and his immediate associates, who had occasion to consult him often in practice, invariably found his advice of the highest professional value, and given in such a manner as to be not only profitable to the patient, but also to increase his confidence in the attending physician.

To the younger members of the profession the character of Dr. Dow may especially be commended as an example worthy of imitation, both as an upright and honorable citizen, and as a physician of unswerving devotion to one of the noblest of all professions. It is not too much to say that to Dr. Dow pre-eminently belonged the title of "Good Physician."

SAMUEL W. ABBOTT,
CHARLES DUTTON,
ARTHUR H. COWDREY.

METEOROLOGICAL RECORD

For the week ending April 10th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-				Relative		Direction		Velocity		Weth'r.		Rainfall in inches.	
	meter.	Daily mean.	Maximum.		Minimum.		humidity.		of wind.		of wind.		*		
			Daily mean.	Daily mean.	Daily mean.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			8.00 A. M.
S...4	30.31	44	57	31	63	55	59	W.	S.W.	8	11	C.	O.	C.	.21
M...5	29.78	49	59	39	91	96	94	S.W.	S.W.	14	8	O.	F.	R.	.02
T...6	29.72	58	58	50	92	82	87	W.	W.	8	8	F.	R.	R.	.02
W...7	30.00	48	48	40	70	100	85	N.W.	N.W.	12	12	C.	R.	R.	.22
T...8	30.12	41	41	38	74	88	81	N.	S.E.	8	8	O.	O.	C.	.42
F...9	29.76	39	39	36	100	100	100	E.	N.E.	15	15	R.	R.	R.	1.61
S...10	29.87	42	42	36	98	83	90	N.E.	W.	5	4	O.	C.	C.	.14
Mean	30.37	49	39		85										2.62

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 10, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,892,332	728	257	10.92	21.14	1.26	4.90	1.68	
Chicago	1,619,226	436	165	13.34	17.25	5.52	5.25	2.07	
Philadelphia	1,164,000	485	161	11.55	15.12	.81	2.52	1.89	
Brooklyn	1,100,000	433	111	7.59	16.79	.92	4.60	.46	
St. Louis	560,000	207	59	4.32	20.16	.48	3.84	—	
Boston	491,205	260	99	11.31	17.55	—	3.51	2.34	
Baltimore	496,315	158	50	8.82	17.58	2.52	3.78	.63	
Cincinnati	336,000	99	—	4.04	14.14	—	3.03	—	
Cleveland	314,537	87	37	10.71	13.09	1.19	4.76	—	
Washington	275,500	107	25	2.79	15.81	—	—	—	
Pittsburg	238,617	75	33	9.31	17.29	—	2.66	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	23	4	—	13.05	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	98,087	21	10	7.40	7.40	—	7.40	—	
Fall River	88,020	32	17	15.65	40.69	6.26	6.26	—	
Lowell	84,359	31	8	6.46	9.69	—	6.46	—	
Cambridge	81,519	31	11	6.46	25.84	3.23	3.23	—	
Lynn	62,355	22	—	—	4.15	—	—	—	
New Bedford	55,254	11	11	8.30	20.75	—	4.15	—	
Springfield	51,534	23	4	—	21.75	—	—	—	
Lawrence	52,153	15	8	—	6.66	—	—	—	
Holyoke	40,143	—	—	—	—	—	—	—	
Salem	34,437	—	—	—	—	—	—	—	
Brockton	33,187	—	—	—	—	—	—	—	
Haverhill	30,185	17	5	17.64	11.76	—	11.76	—	
Malden	29,709	12	1	—	16.66	—	—	—	
Chelsea	31,295	13	4	—	15.58	—	—	—	
Fitchburg	26,394	8	0	12.50	12.50	—	12.50	—	
Newton	27,022	11	3	—	9.09	—	—	—	
Gloucester	27,663	—	—	—	—	—	—	—	
Taunton	27,093	17	6	—	5.88	—	—	—	
Waltham	20,877	3	0	—	6.66	—	—	—	
Quincy	20,712	10	3	—	10.00	—	—	—	
Pittsfield	20,447	—	—	—	—	—	—	—	
Everett	18,578	9	3	22.22	—	11.11	—	—	
Northampton	16,738	—	—	—	—	—	—	—	
Newburyport	14,554	6	3	—	33.33	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,523; under five years of age 1,102; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fever) 330, acute lung diseases 616, consumption 380, diphtheria and croup 141, diarrheal diseases 52, scarlet fever 34, whooping-cough 32, typhoid fever 32, measles 19, cerebro-spinal meningitis 16, erysipelas 4.

From whooping-cough Philadelphia 10, New York 7, Chicago 6, Brooklyn 4, Baltimore 2, Boston, Washington and Everett 1 each. From typhoid fever Chicago 8, Philadelphia 7, Boston, Cleveland and Pittsburg 4 each, New York 3, Brooklyn 5, Fall River 1 each. From measles New York 6, Chicago 5, Brooklyn and Boston 2 each, Baltimore, Cincinnati, Pittsburg and New Bedford 1 each. From cerebro-spinal meningitis Boston 6, New York 4, Somerville 3, Washington, Lawrence and Nashville 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending April 3d, the death-rate was 18.3. Deaths reported 3,866; acute diseases of the respiratory organs (London) 282, whooping-cough 105, measles 89, diphtheria 66, diarrhea 33, scarlet fever 28, fever 23.

The death-rates ranged from 34.8 in Bolton to 12.6 in West Ham; Birmingham 17.6, Blackburn 14.7, Brighton 14.2, Croydon 12.9, Gateshead 13.4, Hull 16.2, Leeds 17.8, Leicester 17.9, Liverpool 22.7, London 17.6, Manchester 23.9, Newcastle-on-Tyne 19.4, Nottingham 24.0, Portsmouth 17.1, Sheffield 15.9, Sunderland 17.4, Swansea 15.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 10, 1897, TO APRIL 16, 1897.

FIRST-LIEUT. LEIGH A. FULLER, assistant surgeon, will proceed from Fort Meade, S. D., to Fort Harrison, Mon., and report for temporary duty at that post, during the absence on leave of CAPTAIN EDWARD C. CARTER, assistant surgeon.

The leave of absence granted FIRST-LIEUT. GEORGE D. DE SHON, assistant surgeon, Washington Barracks, D. C., is still further extended to include May 1, 1897.

Leave of absence for one month, with permission to apply for an extension of two months, is granted CAPTAIN EDWARD C. CARTER, assistant surgeon, Fort Harrison, Mon.

LIEUT. GUY C. M. GODFREY, assistant surgeon, is ordered by the Secretary of War, as necessary for the public service, to proceed to St. Paul, Minn., and report in person to the commanding general, Department of Dakota, for temporary duty in that Department, and when his services shall no longer be required, to return to his proper station at Fort Sheridan, Ill.

CAPTAIN NATHAN S. JARVIS, assistant surgeon, is relieved from duty at Willet's Point, N. Y., to take effect on the expiration of his present leave of absence and ordered to Fort Huachuca, Ariz., instead of Fort Clark, Tex., for duty.

PROMOTIONS.

FIRST-LIEUTS. FRANCIS A. WINTER and WILLIAM E. PURVIANCE, assistant surgeons, to be assistant surgeons with the rank of Captain, after five years service, March 9, 1897.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 26th, at 8 o'clock.

Dr. William T. Porter will read on "The Physiology of the Sympathetic Nerve."

Dr. F. B. Lund will read on: "Enteroptosis and Movable Kidney." Drs. Thomas Dwight, J. W. Elliott, F. S. Matson and A. K. Stone have been asked to take part in the discussion.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, April 28, 1897, at 8 P. M.

The following papers will be read:

A. K. Stone, M.D., "Enteroptosis as a Clinical Factor in the Diseases of Women."

Eruma L. Call, M.D., "Acute Tuberculosis in Puerperal Women."

F. W. JOHNSON, M.D., *Chairman*.

C. H. HARE, M.D., *Secretary*.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—Owing to the fact that the Medical Congress in Washington comes on Wednesday, May 5th, the last meeting of this Section for the year will be held at the Medical Library, 19 Boylston Place, on Friday evening, April 30th, at 8 o'clock, instead of on the above date.

At 8.05 P. M. "The Incision and Method of Procedure in the Removal of Diseased Processes in the Neck, occupying the Space behind the Sterno-mastoid Muscle," by Dr. Frank Hartley, of New York. The paper is a description of Dr. Hartley's operative method in such cases, and the subject is considered under the headings: "The Incision," "The Exposure of the Field," "The Resulting Scar." Dr. G. H. Monks will open the discussion of this paper.

At 8.45 P. M. "Projection Demonstration of an Unusual Degeneration in the Spinal Cord due to Metastatic Carcinoma of the Spine," by Dr. J. H. Wright.

At 9 P. M. "Deformities of the Feet in Art," by Dr. E. H. Bradford. Illustrated by the stereopticon. Synopsis: A description of the shape of the foot as represented in Barbaric, Egyptian, Greek, Roman and Modern art; a description of the shape of a normal foot, and of the foot as distorted by footwear; a description of the Greek sandal and its effect upon the foot; evidence of sandal distortion seen in Greek and Roman art which is copied in modern art.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

POSTPONEMENT.

The address on "Medical Jurisprudence" by Hon. Hosea M. Knowlton, announced in the last issue of the JOURNAL for Friday evening, April 23d, has been postponed.

RECENT DEATHS.

FRED WEBSTER WHITTEMORE, M.D., M.M.S.S., died in Cambridge, April 14, 1897, aged forty-five years.

WILLIAM GOODNOUGH WHEELER, M.D., M.M.S.S., died in Chelsea, April 17, 1897, aged seventy-six years.

BOOKS AND PAMPHLETS RECEIVED.

A Hot Operating Table and Its Advantages. The Mechanism and Diagnosis of Traumatic Cerebral Lesions. Case of Intussusception due to Invagination of Meckel's Diverticulum; Operation, Recovery. By J. W. Perkins, M.D., Kansas City, Mo. Reprints. 1895-96-97.

The Use of Antitoxic Serum in the Treatment of Diphtheria under the Supervision of the New York City Health Department, with a *Résumé* of the Published Reports on the Subject. By Hermann M. Biggs, M.D., of New York, and Arthur R. Guerard, M.D., of New York. Reprint. 1896.

A Manual of Physiology, with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D. (Edin.), D.P.H. (Camb.), of Downing College, Cambridge; Professor of Physiology in the Western Reserve University, Cleveland, etc. With numerous illustrations, including five colored plates. Philadelphia: W. B. Saunders. 1897.

Trifacial Neuralgia; Ligation of Common and External Carotids; Report of a Case, Age Ninety-seven Years. Anal Fistula, Peritonitis, Laparotomy, Recovery. Surgical Melange. Twelve Deaths. Chest Surgery. Branchial Cysts; Case; Extirpation; Recovery. By Merrill Ricketts, Ph.D., M.D., Cincinnati, O. Reprints. 1896.

Lectures on Renal and Urinary Diseases. By Robert Saundby, M.D., Edin., Fellow of the Royal College of Physicians, London; Emeritus Senior President of the Royal Medical Society; Fellow of the Royal Medico-Chirurgical Society; Member of the Pathological Society of London. With numerous illustrations. Second edition. Philadelphia: W. B. Saunders. 1897.

An Account of the Life and Works of Dr. Robert Watt, Author of the "Bibliotheca Britannica." By James Finlayson, M.D., Physician to the Glasgow Western Infirmary and the Royal Hospital for Sick Children; now Librarian to the Faculty of Physicians and Surgeons, Glasgow, etc. With a portrait. London: Smith, Elder & Co. 1897. [All rights reserved.]

Diphtheria and Antitoxin. By Nestor Tirard, M.D., Lond., Fellow of the Royal College of Physicians; Fellow of King's College, London; Professor of Materia Medica and Therapeutics at King's College; Physician to King's College Hospital and Senior Physician to the Evelina Hospital for Sick Children. London: Longmans, Green, & Co. 1897.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In photo-lithochromes from models in the Museum of the Saint Louis Hospital, Paris. With explanatory wood-cuts and text by Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Physicians to the Saint Louis Hospital, with the co-operation of Henri Fehard, Curator of the Museum, Secretary, L. Jaquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P., Physician for the Department for Diseases of the Skin at the Middlesex Hospital, London. Part VIII. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders. 1897.

The Retrospect of Practical Medicine and Surgery, being a half-yearly Journal containing a Retrospective View of Every Discovery and Practical Improvement in the Medical Sciences. Edited by James Braithwaite, M.D., Lond., Obstetric Physician and Surgeon to the Leeds General Infirmary, late Lecturer on Diseases of Women and Children, Leeds School of Medicine; Fellow and late Vice-President of the Obstetrical Society of London, etc.; assisted by E. F. Trevelyan, M.D., Lond., B.Sc., M.R.C.P., Assistant Physician to the Leeds General Infirmary, Professor of Pathology, Yorkshire College, Leeds. Volume CXIV, January, 1897. New York: G. P. Putnam's Sons. 1897.

A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners. Fourth and revised edition by James Nevins Hyde, A.M., M.D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago; Dermatologist to the Presbyterian, Augustana and Michael Reese Hospitals of Chicago, and Consulting Dermatologist to the Chicago Hospital for Women and Children, and Frank H. Montgomery, M.D., Lecturer on Dermatology and Genito-Urinary Diseases and Chief Assistant to the Clinic for Skin and Venereal Diseases, Rush Medical College, Chicago; Attending Physician for Skin and Venereal Diseases, St. Elizabeth's Hospital, Chicago. Illustrated with 110 engravings and 12 plates in colors and monochrome. Philadelphia and New York: Lea Brothers & Co. 1897.

Original Articles.

THE TREATMENT OF OLD DISLOCATIONS OF THE SHOULDER.¹

BY F. B. LUND, M.D.,

Surgeon to Out-patients, Boston City Hospital; Assistant in Anatomy, Harvard Medical School.

THE number of old dislocations of the shoulder which present themselves for treatment at surgical clinics is fortunately becoming smaller from year to year. Thanks to the wide publication of the work of Kocher and others on recent dislocations and their reduction, by far the greater number of dislocations are reduced as soon as seen by the surgeon or general practitioner. Notwithstanding this fact, however, a certain number of patients with old dislocations present themselves at the clinics, some of whom have never previously consulted a surgeon, and a few who have been unfortunate in their choice of a surgical adviser. By the personal observation of a few of those, which I have been kindly allowed to examine by members of the visiting staff at the Boston City Hospital, and by personal experience of some of the difficulties of their reduction, I was led to look up the question of their treatment, and see what light, if any, could be thrown upon it by an examination of the literature of the subject and of the hospital records. The result, though not entirely satisfactory, owing perhaps to the small experience in these cases which comes to any one man, and the resulting meagreness of the literature of the subject, has nevertheless been that certain interesting and important points with reference to the treatment of these injuries have been brought out.

In the first place, as is well known, the difficulty of reducing dislocations of the shoulder after the lapse of a very short period, say two weeks, increases directly in proportion to the interval of time. Dislocations of less than two weeks' duration are almost as easy to reduce as fresh dislocations; and since Kocher has shown that all fresh, uncomplicated dislocations are reducible by manipulative methods, all dislocations two weeks or less old are capable of reduction by methods of manipulation. The same anatomical characteristics which render the shoulder-joint the most liable to dislocation of any joint in the body in themselves facilitate reduction. It is comparatively easy for the large globular head of the humerus to slip out of the shallow cup of the glenoid cavity, if the necessary rupture of the capsule is present, and the rupture of the capsule made by the head of the humerus is always big enough to let the head slip back, if it is properly opened by Kocher's, or other methods of manipulation. The free play of the head of the bone under the arch of the acromion, the comparative looseness of the capsule, all render dislocation and reduction comparatively easy. The tendons of most of the muscles about the joint are short, and so intimately blended with the capsule as not to afford obstacles to reduction by slipping in between the head of the bone and the socket. Even the long tendon of the biceps, which at first thought one would suppose most likely to fall in between the head and the socket, so as to prevent reduction, is held up out of the way by its special fibrous channel in the capsule of the joint, from which, in the ordinary subcoracoid dislocation, it is never displaced.

The manipulative methods for reduction of the shoulder-joint, especially the simple, beautiful and efficient method devised by Kocher, of Berne, are too well known to need discussion here. Suffice it to say that Kocher's method is to be preferred in all fresh dislocations, as being the simplest and easiest, as requiring no direct pressure on the axillary vessels and nerves, and as being successful in a large proportion of cases without anesthesia.

Dislocations of the shoulder a week or less old, then, should be reduced in all cases, preferably by Kocher's method.

After the head of the humerus has been out under the coracoid process for two weeks or more, however, difficulties in the way of reduction begin to present themselves. The unruptured posterior portion of the capsule, which has been tightly stretched across the glenoid cavity, has become in old cases rather firmly adherent to that cavity. The head of the humerus has become adherent as it lies nipped between the biceps and coraco-brachialis muscles and the neck of the scapula. The posterior rotators of the humerus, the supra-spinatus, infra-spinatus and teres minor muscles, have become so paralyzed by continued stretching as to no longer afford efficient aid to the surgeon in pulling the head of the bone back into place. In order to successfully reduce the dislocation, the head of the humerus must be freed from the adhesions which bind it into its new position, the adherent capsule must be peeled off from the surface of the glenoid cavity, and the head of the humerus forced back under the acromion, lifting the adherent capsule and the tendons of the posterior rotators out of the way. After a still longer time, say two or three months, has elapsed, the neck of the humerus has become fixed under the coracoid by firm fibrous adhesions, the capsule has become so firmly bound down to the glenoid cup as to actually form a part of it, and the atrophy of the deltoid and posterior scapular muscles bear witness to the fact that even if the dislocation should be reduced, these muscles would require a long course of training in order to recover strength enough to hold the head of the humerus up in place in its socket. The important part played by these muscles in holding the head of the bone in place is shown by the subluxation of the head of the bone which takes place when they have become paralyzed. In paralysis of the deltoid and scapular group without dislocation we have seen the head of the humerus fall downward and forward out of its socket, within the loose capsule of course, to such an extent that the head got over the anterior edge of the glenoid, the arm was lengthened nearly an inch, and this, together with the flattened deltoid, gave a typical picture of a dislocation. By grasping the humerus, however, the head of the bone could be easily lifted into position, but the paralyzed muscle could not hold it.

Now with regard to this adhesion of the posterior portion of the capsule to the glenoid cup. The capsule, of course, is more or less thickened by the inflammatory processes, and fills up the cavity, adhering over its broad surface, so that it cannot be stripped off. It is in this class of cases that we read in the records, that the head was almost reduced, but could not quite be made to get into perfect position, that it remained just on the edge of the glenoid; that although something had been gained, reduction could not be considered quite satisfactory. What has hap-

¹ Read before the Surgical Section of the Suffolk District Medical Society, February 3, 1897.

pened in these cases, is in all probability this: that since the efforts at forcing the head back into place fails to strip the adherent capsule off the surface of the glenoid, the capsule, by the violent efforts at reduction, is ruptured opposite the anterior edge of the glenoid, and the head forced back over the glenoid is kept out of its socket by the part still adherent. Unless that adherent capsule be peeled off, the complete and satisfactory reduction of the head of the bone will be, and is, impossible. The question suggests itself, Why not open the joint in these cases by operation, and peel off the capsule, or gouge it out so as practically to make a new socket, by a method analogous to Hoffa's operation in congenital dislocation of the hip, so as to allow complete reduction of the dislocation? The answer to this query opens up the wide question of operative reduction of dislocations of the shoulder, which will be considered later on.

With reference to the obstacles to reduction in cases of old dislocations of the shoulder, I may refer to Kocher's article in the *Deutsche Zeitschrift für Chirurgie*, 1890, p. 423, in which we find the details of his findings at operation or autopsy on eight cases ranging in age from five weeks to eleven months. In some cases the capsule was adherent to the glenoid, as described above, in others the rent in the capsule had healed so completely behind the head of the bone as to prevent reduction. In seven of the eight cases, the great tuberosity had been pulled off, and in several portions of the capsule were greatly thickened and at times calcified. The glenoid cavity was sometimes filled up with a thick, rough deposit of bone. The head of the humerus had in one case of six months' standing formed for itself a new socket in the front of the neck of the scapula. The familiar picture of such a socket upon a scapula from a case of Sir Astley Cooper's figured in Stimson and Hamilton's work on fractures and dislocations, you will, doubtless, most of you remember. An interesting fact about this case is that in one it is classed among acromioclavicular and in the other among glenoid dislocations.

Such being the pathological conditions found in cases of old dislocations of the humerus, what is to be our method of procedure in attempting reduction? In order to answer this question intelligently we must consider the relation of the danger attending attempts at reduction to the severity of the symptoms which we are endeavoring to relieve, the prospect of successful reduction, and the advantages gained thereby.

What are the symptoms for which our patients apply to us for relief? In the first place, we find that these old dislocations of the shoulder present a very different picture from the fresh dislocations. The atrophy of the deltoid and scapular muscles allow the bony landmarks to stand out in bold relief, and the diagnosis is so easy as to admit of no doubt whatever. The elbow is not held away from the side as in fresh dislocations, as the deltoid has been stretched sufficiently to allow it to fall easily in. Rotation of the head of the humerus is absent or nearly so, abduction of the arm is possible only by elevation of the scapula, and very rarely can be carried to a right angle. Forward elevation is possible to a right angle, and backward not at all. All motions of the forearm, elbow and hand are normal. The patient can do light work, fetch and carry, but is usually unfitted for the heavy work of a laborer.

The above picture is doubtless recognized to be

more favorable than certain cases which we have all of us seen, in which pain, edema, paralysis, etc., from pressure of the head of the bone upon the brachial flexus, are present; but it is proposed in this discussion to deal with the average cases. Cases in which the latter symptoms are present, require, of course, more heroic treatment.

Old cases are also occasionally seen in which such excellent motion of the arm has been obtained, that the hand can be easily placed on the head, and almost all movements performed with ease. Such a case has been recently seen by the writer at the Boston City Hospital in the service of Dr. H. W. Cushing.

In the treatment of these cases, manipulative methods, as the simplest and least radical, will, of course, first be tried, and the question be considered as to what manipulative methods combine the greatest effectiveness, with the least danger. And the danger in these cases is of two sorts: first, fracture of the humerus, not a very uncommon accident; and a second and much more serious mishap, rupture of the brachial artery or vein. This accident happened to no less eminent and careful a surgeon than Sir Joseph Lister, who tied the artery, but lost his patient from shock. The autopsy in his case showed, in the first place, atheroma of the vessel, a finding which should make us cautious in the application of violent manipulative methods in aged patients, and also revealed beautifully the mechanism by which the injury took place. Although the attempt was made only eight weeks after the dislocation, at the autopsy was found a "strong fibrous band, connecting the head of the humerus with the coracoid process, and intimately blended by condensed tissue with the sheath of the axillary artery, which lay directly over it. Strong traction made upon this band, was necessarily communicated to the axillary artery, which had a small hole torn in its side. This autopsy is of interest, as showing that rupture of the artery is more likely to take place from traction upon fibrous bands, which is essential to all manipulative methods of reducing dislocations of the humerus, rather than from pressure, as over a pad or heel in the axilla, which pressure, if properly applied, ought to be behind the artery, rather than directly upon it. Although but few cases of rupture of the axillary artery in attempts to reduce dislocations of the shoulder have been published, most surgeons of experience have either seen such cases or heard of them. Violent manipulations should then be avoided in old patients or those with atheromatous arteries.

Stimson² reported 44 cases of rupture of the axillary artery or vein obtained from the literature of the subject up to that date. In more than half the cases, the dislocation had existed less than three weeks. In not more than a third of them was it reasonably certain that the injury was caused by the attempts at reduction and not by the dislocation itself. The danger of the accident is attested by the fact that only 12 of the 44 cases recovered; 31 died, and in one the result was not known. Of 20 cases not operated upon six recovered and 14 died. Of 14 in which the subclavian was tied five recovered and eight died; of six cases in which an incision was made in the axilla and the artery tied above and below the wound all died. Of four in which the limb was disarticulated one recovered and three died.

² Annals of Surgery, 1885.

In order to avoid these dangers, Kocher in his article above referred to, advocated the application in these cases of his own method for the reduction of fresh dislocations, slightly modified to meet the requirements arising from the adhesions and other changes present in old dislocations. These modifications consisted chiefly in that the manipulations should be made more slowly, that the elbow should be carried in the first movement a little back of the mid-axillary line instead of directly to the side, that the arm should be held for some time in complete outward rotation, and that during the third movement, lifting the elbow in the sagittal plane, a pad might be placed in the axilla to act as a fulcrum in prying the head of the bone outward into position. Kocher has found this method successful in reducing 25 out of 28 old dislocations, three of them being over four months old. He had fractured the humerus, however, in three cases, a rather large proportion.

The advocacy of this method in old dislocations by so great an authority as Kocher has led to its extensive trial in old dislocations, and in other hands it has apparently not met with such good success. I think it can be shown that this method in reality is attended with great danger of fracture of the humerus. The liability of the humerus to fracture under twisting strains has been shown by Monks;³ and the second movement of Kocher's method, extreme outward rotation, the forearm at right angles and used as a lever, exposes the humerus, if its head is firmly held by adhesions, to a twisting strain of extreme severity.

Morton⁴ reports three cases in which this accident has happened in the attempt to reduce old dislocations by the Kocher method. In his own case the fracture, which was "very oblique through the head and neck of the bone" (probably a spiral fracture), occurred just as the arm, after being completely rotated outward, had been raised to the termination of the third movement, across the chest. Here we have twisting strain combined with leverage, a very dangerous combination if the head of the bone is firmly held by adhesions. The occurrence of at least one other case in which fracture resulted from the employment of this method is known to the writer. As Morton suggests, it is unwise to employ this method in old dislocations unless previous manipulations have already been employed to rupture as far as possible the adhesions that hold the head of the humerus in its new position.

Now what manipulations are the safest and most efficient to employ in breaking up adhesions between the head and neck of the humerus and the scapula? It is self-evident that we must first fix the scapula, before we attempt to move the humerus on it, whatever method we adopt, else the whole shoulder girdle will follow the excursions of the humerus, and no motion between the scapula and the latter will take place. In the reduction of fresh dislocations by Kocher's method, without anesthesia, the scapula is beautifully fixed by involuntary spasm of the muscles, the edge of the glenoid being firmly held as a fulcrum for the motions of the head of the bone. In these old dislocations, however, we will find it necessary to resort to anesthesia in almost all cases, and must find some artificial means of fixing the scapula. This is done rather efficiently by the surgeon's heel as it is forced into the

axilla in Sir Astley Cooper's method, a method which the writer has found efficient in reducing one case of old dislocation, and may be accomplished, though rather inefficiently by the hands of an assistant embracing the trunk of a patient from the opposite side, and clasped over the scapula. The most efficient method, and one which was successful in the remarkable case of Dr. Burrell's, was that of passing folded sheets over the shoulder and around the body, these sheets being held by assistants.⁵

Rapid and forcible rotation of the humerus back and forth, within short limits at first and gradually increasing, is probably the safest method of breaking up adhesions. In performing this rotation the forearm should not be used as a lever.

Extension of the arm above a right angle to the body stretches the axillary vessels and brachial plexus across the head of the humerus, and is attended with danger of injuring them. It should therefore be avoided.

All manipulative methods in old cases require the application of considerable force. The amount of force which it is safe to apply must be left in each individual case to the judgment of the surgeon. Atheroma of arteries and firm adhesions in aged patients contraindicate great force. In young patients a very considerable degree of force, if carefully and intelligently carried out, may be safely employed. Dr. Burrell's successful reduction after eight months, it will be remembered, was in the case of a muscular man twenty-three years of age. The probability of success in these cases, decreases directly with the length of time since the accident happened.

We are now confronted by the question, If manipulative methods fail, shall operative methods be resorted to for reduction? In order to answer this question intelligently we must consider, first, the extent of the disability which we are attempting to relieve; second, how much good will probably result from operative measures; and third, what the danger of such methods is, and their prospect of success.

The first question we have already answered before considering manipulative methods and their dangers.

The second can only be answered by a brief consideration of the various operative methods in turn.

The methods which have been proposed for the operative treatment of old dislocations of the shoulder are, first, osteotomy of the surgical neck with formation of a false joint (Mears⁶); second, subcutaneous section of the capsule and reduction (Pollaillon⁷); third, reduction by open incision; fourth, resection of the head of the humerus.

The subcutaneous section of the neck of the humerus has failed to show good results. The subcutaneous section of the capsule, is a survival of pre-antiseptic methods. The blind section of the adhesions about the head of the humerus is manifestly attended with great danger of wounding arteries and nerves, and the open incision is manifestly simpler, easier and safer. The reduction by open incision and the resection of the head of the humerus, remain as the only methods worthy of serious consideration.

Reduction by open incision was first performed by Wattman of Insbrück⁸ in 1820. He succeeded in

³ Boston Medical and Surgical Journal, January 9, 1895, and March 21, 1896.

⁴ Philadelphia Polyclinic, December 15, 1894.

⁵ Medical and Surgical Reports of the Boston City Hospital, Eighth Series.

⁶ Philadelphia Medical and Surgical Reporter, October 13, 1877.

⁷ Bull. de la Soc. de Chir., 22 Fevrier, 1882.

⁸ Knapp: Bruns Beiträge zur klin. Chir., 1888, 4, 372.

effecting reduction, but (strange to say!) suppuration followed, but healing finally took place, and the patient left the hospital (time not stated) having still great limitation of motion.

The introduction of antiseptic methods naturally encouraged further attempts of the sort; and in 1888 Knapp published a report of 12 cases, of which two died, one of sepsis and the other of delirium tremens. Of the remaining 10, one attempt resulted in fracture of the surgical neck with pseudarthrosis, three in necrosis of the head of the humerus, necessitating subsequent extraction; in two the reports were incomplete, and in the remaining four material functional improvement resulted. Surely not a very brilliant showing for the operation. Of operations by resection of the head of the humerus, he had collected 20 cases, of which four were fatal. Of the remaining 16, the later reports were inadequate in six, leaving 10 cases in which the results were in part equal to those of arthrotomy, and in part decidedly better.

The results of Kocher's experience with bloody reposition, published in 1890,⁹ are scarcely more reassuring. Of eight cases on which he operated he found only one to be uncomplicated by fracture of the tuberosities or of the glenoid rim. In six bloody reposition was done, and in two of these was final improvement in the use of the arm noted. One died of sepsis. Of two resections of the humeral head one gave a good functional result.

Both bloody reposition and resection of the humeral head have, according to the showing of these two writers, not given results sufficiently brilliant to encourage their general adoption. Resection of the humeral head has, however, the advantage that it can be successfully carried out in cases where owing to the filling up of the joint cavity or other causes, bloody reposition is unsuccessful.

We cannot leave the question in 1896, however, exactly where it was in 1890; and let us now see what has been accomplished in this field since that date. The gloomy showing given above naturally failed to encourage many surgeons to attempt operative relief in shoulder dislocations, but a certain number of cases have presented themselves for treatment in which any slight prospect of improvement was to be preferred to the present pitiable condition of the patient, and in which operative relief has been undertaken. Such cases are those in which pressure of the humeral head upon the axillary vessels and nerves has resulted in unbearable pain and swelling of the arm, and two cases in which the patient was rendered absolutely helpless by a double irreducible dislocation. I think it will appear, that the results of these more recent operations have been more satisfactory than those of the earlier cases reported by Kocher and Knapp.

A Pearce Gould¹⁰ reports a case in which he performed reduction by open incision upon a dislocation of fourteen months' standing, after manipulative methods had failed. "After nine months rotation of the shoulder was nearly perfect, and all the usual movements could be performed." The man was able to perform severe and continuous manual labor, the only injury remaining being some disability of the hand, due to damage to the ulnar nerve.

Watson Cheyne¹¹ showed a case upon which a simi-

lar operation had been performed in a dislocation of four months' standing. The result was less satisfactory than in the preceding case, but the man was enabled to do his work as a French polisher.

Sir Joseph Lister¹² had the rare good fortune of operating successfully on two cases of double irreducible dislocation of the shoulder. The propriety of any operative attempts at relief of such cases as these can hardly be questioned. In the second case the man was unable to put either hand to the gluteal region; the pitiable dependence resulting from which condition is obvious.

In Lister's first case, a robust laborer of forty-seven, with a double dislocation of four months' standing, bloody reposition was done upon each shoulder at a separate operation. The result was complete recovery of every motion of the shoulder except ability to lift the arm above a horizontal level, ability to perform hard manual labor, and recovery of the full size of the deltoid muscle. In the second case, that of an epileptic, both of whose shoulders had been dislocated for seven months, two operations were also done, with the result that the man was enabled to earn his living on a farm, and to perform very hard manual labor.

Polisson¹³ reports five cases of arthrotomy and reduction of old dislocation, in three of which good functional results were obtained. In one suppuration necessitated subsequent resection of the head of the humerus, and in one death resulted from the operation.

MacCormac¹⁴ reports a case in which arthrotomy had to be followed by resection on account of suppuration.

Owen¹⁵ reports a case of resection for old dislocation.

Monks¹⁶ reports a case of resection of the head of the humerus in a case of old dislocation attended by pain, atrophy of the muscles, and swelling of the arm from pressure on the nerves and vessels, in which the operation gave an excellent result.

Delbet¹⁷ reports a case of resection of the head of the humerus for an old dislocation in which attempts at reduction by arthrotomy by a posterior incision had been unsuccessful. The functional result of the operation was excellent. As a result of this experience he condemns the posterior incision, which he had been led to attempt by the results of experiment upon the cadaver. In his paper he gives a list of the reported cases of arthrotomy and resection, showing that there had been up to that time 28 arthrotomies reported, three of which died, a mortality of 10.72 per cent. Of 34 resections five had died, a mortality of 14.36 per cent. Although the mortality of resection is a little higher, the number of cases is too small and extends over too long a time to be of much value for purposes of comparison.

Arthrotomy would seem to be a more difficult operation than resection, and it is a little surprising that the latter should show a higher mortality. Of the 25 cases which recovered from the operation by arthrotomy, the results were good or fairly good in 12; five results were poor. In four secondary resection had to be done, and in three results were unknown. In one

¹² Loc. cit.

¹³ Assoc. Franc. de Chir. Proc. Verb., Paris, 1893, vii, pp. 384-388.

¹⁴ Loc. cit.

¹⁵ Clinical Journal, London, 1894, iii, pp. 273, 277.

¹⁶ Medical and Surgical Report, Boston City Hospital, 1895, and Boston Medical and Surgical Journal, April 30, 1896.

¹⁷ Arch. Coén. de Méd., Paris, 1893, I, 19, 144.

⁹ Knapp: Bruns Beiträge zur clin. Chir., 1888, 4, 372.

¹⁰ British Medical Journal, February 27, 1892.

¹¹ Loc. cit.

the attempt resulted in fracture of the humerus and subsequent pseudarthrosis.

Polosson's results are not included in the statistics of Delbet. If these are added, we have 33 cases, with 15 good results, six poor results, five secondary resections, four deaths, and three cases not heard from; mortality 9.1 per cent.

Collecting the cases since 1890, we find arthrotomies as follows:

Gould, one case. Result good.
Cheyne, one case. Result good.
Lister, two cases. Result good.
Polosson, five cases. Three results good, one poor, one death.
MacCormac, one case. Result poor.

This gives 10 cases, with six good results, two poor results and one death. In the two cases in which the result was unsatisfactory, secondary resection was performed on account of suppuration.

Of 29 cases which survived the operation for resection in 13 the results were satisfactory (to these may be added the cases of Monks, McCormac and Owen, making 37 cases with 16 good results), in five the results were mediocre, in two bad, and in six they were unknown. The mortality is reduced to 13.5 per cent.

Schede has stated that the results of arthrotomy with reduction are far preferable to those of resection; but, as Delbet points out, the results are not comparable, and each case must be judged upon its merits. In the large majority of cases, the operation is begun with the attempt at reduction, and if this is unsuccessful, resection is performed. Resection can be performed secondarily if necrosis of the head of the humerus or long-continued suppuration should follow arthrotomy, and these accidents may be avoided by strict asepsis.

Arthrotomy with reduction should be our ideal, as it more nearly restores the normal conditions of the joint and surrounding structures. It is, however, a very difficult operation, more difficult than resection, and in cases where on opening the joint we find the head of the humerus enlarged by bony new growth, so that it cannot be forced into the glenoid cavity, it must be resected. When the glenoid cavity cannot be satisfactorily opened up so as to receive the head with a fair probability of its staying in place, resection should likewise be done.

It is a question whether, as Delbet says, cases in which reduction by arthrotomy is attended by great difficulty, so that extensive division of the muscles about the joint is required, and the head of the humerus will be held tightly by firm adhesions when healing has taken place, resection should not be preferred to arthrotomy as a primary measure. In Lister's and Gould's very successful cases, however, the muscles reunited after extensive section, and an excellent functional result was attained, so that they speak strongly in favor of arthrotomy. After resection the power of rotation, which was retained in these cases, will be necessarily lost, as the attachments of the rotations to the tuberosities are removed. If resection is necessary, only so much of the head of the bone should be removed as will enable the operator to slip the upper end into the socket. Too extensive removal gives a loose flail joint, too economical a cut exposes to danger of ankylosis.

I have collected from the records of the Boston City Hospital since 1882 the results of 24 cases which as will be seen have been treated by manipulation only, in all except two cases.

The results in these cases are of interest as show-

ing the prospect of success by manipulative methods at different times after the injury, and as showing that after a certain very limited period, the dislocation if reduced at all must be with rare exceptions reduced by open incision.

Dislocations of two weeks' and less duration are considered as fresh dislocations, and do not enter into our treatment of the subject. Cases in which the note reads, "reduction fairly successful," or "head of bone in fair position," have been classed as unsuccessful cases. I found records of four dislocations of from two to three weeks' standing, all of which were reduced successfully by manipulation. Three were reduced by traction downward and outward, with pressure upon the head of the humerus in the axilla. In one case in which the head of the humerus was said to lie under the clavicle which was reduced by extension at right angles to the body, we find it noted that pain in the arm, numbness of the fingers, paralysis of the deltoid with reaction of degeneration, and weakness of other muscles, persisted after reduction. This state of things indicated injury to the circumflex nerve which, as is well known, encircles the neck of the humerus close to the head and would, it seems probably, be liable to severe stretching in cases where the humeral moves far inward (subclavicular). The method of extension at or above a right angle to the body is attended with danger of injury to the brachial plexus and axillary artery.

At three weeks two successful cases are reported.

At four weeks two cases are reported, in which manipulative methods succeeded.

At five weeks four cases, all successful.

At six weeks two successful cases, and one unsuccessful, the later being a patient of seventy-two years. The patient came into the hospital with edema of the hand, great limitation of motion and much pain, and left in the same condition.

At nine weeks one case was not reduced by manipulative methods. The patient was sixty-four years of age and had fair use of his arm. Manipulation was desisted from owing to the difficulty and danger of further attempts.

At three months there are two cases, in both of which complete reduction was not attained, though the head of the bone was in better position than before operation.

At four months one case is reported. "Head of bone could not be replaced in the socket."

These cases in which, as shown by the fact that the head of the bone was freed from adhesions and brought to the edge of the glenoid, but could not be slipped in, illustrate well the effect of the filling up of the glenoid cavity and closure of the rent in the capsule which has been alluded to above.

At five and a half months we find a case reported of a sailor who fell from aloft on shipboard, and in whom several attempts at reduction made at various times had been unsuccessful. In attempt at reduction, rotation, very moderate in force, was attended by fracture of lower part of body of scapula, and fracture of surgical neck of humerus. The danger of rotation, using the forearm as a lever, has been commented upon above.

At six months two cases are found, in both of which attempts at reduction were unsuccessful, and in one of which, fracture of the surgical neck of the humerus resulted during the attempts.

At eight months one successful and one unsuccessful case are reported, the former being the case of Dr. Burrell alluded to above.

At ten months we find one case, in which Dr. Geo. H. Monks resected the head of the humerus for pain, paralysis and atrophy of the muscles about the shoulder and of all the muscles supplied by the median and ulnar nerves. The man had absolutely no use of his arm. The operation resulted in great improvement of his condition.

At one year there is one case, in which attempts at reduction by manipulation were desisted from on account of fear of fracture.

At one and a half years we have one case, in which Dr. Burrell resected the capsule for a recurrent dislocation on a man of twenty-seven with good result.

A tabular view of the cases, arranged according to time, follows:

Time.	Cases.	Successful.	Failures.	Remarks.
2 to 3 weeks.	4	4	0	
3 "	2	2	0	
4 "	2	2	0	
5 "	4	4	0	
6 "	2	1	1	
9 "	1	0	1	
3 months.	2	0	2	
4 "	1	0	1	
5½ "	1	0	1	Fracture of surgical neck.
6 "	2	0	2	One fracture of surgical neck.
8 "	1	1	0	
10 "	1	0	1	Resection of head of humerus.
1½ years.	1	0	1	Open incision and resection of capsule.
	24	14	10	

A glance at this table shows that all the cases reduced by manipulation were of six weeks' duration, with one exception—that reduced by Dr. Burrell at eight months.

There were 14 successful cases, 13 of them under six weeks. There was one failure at six weeks.

All the cases over six weeks in duration could not be reduced by manipulation, except in the case above noted. There were thus 10 cases in which manipulation failed, and of these 10 only one was of less than seven weeks' duration. In one of these resection of the head of the humerus was attended by a happy result, and in one, a recurrent case, excision of the capsule was successful.

In two of the unsuccessful cases, one at five and a half and one at six months, fracture of the surgical neck resulted from attempts at reduction by manipulation.

If these cases show anything, it is that after more than six weeks have elapsed, such changes have usually taken place as to render success with such manipulative methods as it is safe to employ without danger of fracture of the humerus or rupture of the axillary artery, improbable.

If reduction is to be effected at all, it must be ac-

complished by arthrotomy, with or without resection of the head of the humerus. Whether such operative interference should be adopted, must be decided upon the merits of each individual case. We must be guided by—

- (1) The extent of the present disability.
- (2) The amount of pain.
- (3) The pressure symptoms.

Where very great disability involving inability to earn a livelihood, pain, or paralysis from pressure are present, in dislocations of over six weeks' standing and in patients who are in good condition to bear operation, operative relief should be considered, although both operations are of such severity that the question of their performance should be carefully weighed in each case.

The results of arthrotomy and resection in the last six years give us somewhat greater hope of affording relief to our patients by their employment than those reported in Kocher's and Brun's papers.

The mortality of operative procedures will probably be low if cases in which senile or other constitutional defects render operation dangerous are rigidly excluded, and if in cases where arthrotomy is attempted, and the conditions found point to a difficult and tedious operation, prompt resection is performed.

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STERILITY IN THE MALE.¹

BY JOHN G. BLAKE, M.D.

THE rare mention in current medical literature of this subject is the chief reason for this paper. A short summary of the views of writers may not be out of place, and the report of two cases of a rare form of the affection may have some interest for gynecologists.

Sterility in the male is that condition in which, if there be any seminal fluid at all, it lacks all fecundating power. The absence of this power may be dependent upon one or two conditions, namely: the semen may be ejaculated in normal amount, but the spermatozoa are either entirely absent or dead when discharged. This constitutes the condition of azoöspemia. Or there may be a total absence of all seminal fluid, constituting what is known as aspermia. In both cases the act of copulation may be complete. As a corollary to the above two conditions, we might mention malemission, the condition in which the semen is discharged into the male urethra, but is not ejaculated into the vagina.

¹ This paper will appear in the Boston City Hospital Medical and Surgical Reports, Eighth Series.

First of all we will discuss the condition known as azoöspemia, or the ejaculation of semen in which the spermatozoa are either dead or absent when discharged. This condition may be due (1) to failure of the testicles to produce spermatozoa, or (2) to mechanical obstruction in some part of the passage by which the spermatozoa reach the urethra. The testicles fail to secrete spermatozoa when there is a bilateral retention or a bilateral atrophy, or malignant, syphilitic, or tubercular degeneration of both glands. It is also obvious that no spermatozoa will be secreted when both testicles are absent either congenitally or from castration. Occlusion of any part of the excretory ducts may be either congenital or acquired. The latter is the more common; and of the acquired forms, bilateral gonorrheal epididymitis is by far the most common. Among the rarer causes we may mention wounds, syphilitic and tubercular degenerations, and pressure of tumors, whether benign or malignant.

Aspermia is that condition in which either no semen is produced, or it is entirely retained in the seminal vesicles, and no ejaculation takes place. The latter condition occurs only when there is an occlusion of the common ejaculatory ducts, and would not be produced by obstruction of the vasa deferentia. Occlusion of the common ejaculatory ducts is usually caused by posterior urethritis, but it may be congenital, or be caused by traumatism (chiefly that inflicted by surgeons in operating for stone. Concretions are a very rare cause of obstruction of the ducts. The forms of obstruction mentioned above produce, it is true, an apparent condition of aspermia; but, strictly speaking, it is not true aspermia, for semen is produced, although it is retained in the vesicles or in the ducts.

True aspermia is a much rarer condition, and may be due to anesthesia of the *glands penis*, whereby there is no reflex excitation of the ejaculatory centre in the cord. Occasionally anorchides, while incapable of procreation, nevertheless have sexual desire, and occasional involuntary emissions, and are quite able to copulate.

Malemission is where — although testicles and accessory sexual glands secrete normal seminal fluid, capable of fecundating — the fluid is not properly ejaculated into the vagina, but is retained in the male urethra, and exudes drop by drop after coitus has been completed; or the power of ejaculation may be perfect, but owing to some fault in the urethra, such as hypospadias, epispadias, or fistula, the semen escapes from the urethra before it reaches the vagina. The patient suffering from this condition cannot be said to be sterile, neither is he impotent, yet the result is the same; he is incapable of procreation. In view of the fact that about one woman in eight is barren, and that the proportion of sterile men is about the same, it becomes a matter of considerable importance for the physician to decide in which, the husband or wife, the trouble lies. It is usually the young wife who comes to the physician on account of barrenness. The husband is not apt to be as sensitive on this point, since it means a great deal more to the woman. The semen, if there is any, should be thoroughly examined for living spermatozoa. This should be done under the microscope soon after it has been passed. If the spermatozoa are found to be alive, of course the man is potent and we must examine the woman more thoroughly. This applies to cases where the semen is ejaculated normally. Of course the semen,

while it is perfectly normal, may nevertheless, never reach the vagina. Sterility in the male has been confounded with impotence, no distinction having been drawn between the inability to procreate and incapacity for sexual intercourse.

Among gynecologists no inconsiderable number of the cases they are called upon to treat are for the cure of sterility in the female. And many times only failure attends the efforts, when from all appearances and results of local successful treatment the opposite should follow. In a general way, of course, we are aware that from many causes, congenital and acquired, the failure may be in the male, but the actual demonstration by microscopic examination is not often resorted to. Recently it has come under my observation to have this done, and in two cases the results showed that the fault did not belong to the female. And the curious feature of the cases was that in neither of the two was there the least suspicion that the man was in fault. Both were fine specimens of manhood, with keen sexual appetites, married to perfectly healthy young women.

Number one was a man in the prime of life, six feet high, weighing about 180 pounds, living in the open air most of the time, of temperate habits and correct life, with no hereditary tendencies; brothers and sisters married and fruitful; had been married to a woman a few years his junior, but perfectly healthy and of healthy family, for nine years, yet the woman was never pregnant. She consulted me for sterility. I took her into St. Elizabeth's Hospital, and under ether could detect nothing abnormal in the condition of the pelvic organs. Uterus did appear to be a little spongy, with a possible endometritis. It was dilated, curetted and packed, more with a view of ensuring a pervious canal and healthy endometrium than for any marked evidence of existing disease. When in the course of a couple of weeks she left the hospital I felt very confident that there was no obstruction to conception on her part. She had always been perfectly regular in regard to the menses. I was looking for success as the result of the operation, but it did not come. Month after month passed without interruption of the menses. I finally became convinced that the fault was not on the woman's side. A microscopic examination of the semen made by Dr. W. T. Councilman twice within a month showed an entire absence of spermatozoa in both specimens, much to the husband's surprise. He assured me that he never had had any private disease, gonorrheal or syphilitic, never received any injury, and was not aware of any defect in his organization; always enjoyed married life, vigorous sexually, no malformation or atrophy of organs. His disappointment was keen.

Number two was that of an Italian in the prime of life, married for the second time to a young and perfectly healthy woman ten years his junior. They were devoted to each other, and were very much disappointed that no children came. An examination of the wife showed a small os, but normal uterine. Menstrual function regular and not painful. No ovarian disease. The cervix was dilated and packed with gauze for a week, and afterwards an Outerbridge wire dilator inserted. No result. Some months afterwards cervix again dilated to insure an open and straight canal, but without success. After this it was deemed wise to investigate the husband's case. Before doing so, the second wife of the husband's brother remarked

that it was useless to be treating the wife, as the fault was not with her, but with the husband, and that it was a family peculiarity. She was a second wife, and had never been pregnant. Her husband's first wife, although a healthy young woman, had never been pregnant. My patient's husband's first wife had been a young and healthy Italian woman. She had never been pregnant; and so it ran through the family. Husband claimed to have been free at all times from disease of a specific character, showed no results of previous disease, and was free from malformation of any kind. Microscopic examination of semen showed an entire absence of spermatozoa, as in Case No. 1.

In discussing this subject with gynecologists, I find that some of them insist on investigating the husband's condition, and satisfying themselves that he is all right before submitting the wife to treatment, unless there is manifest disease which would prevent conception. I think this a wise precaution in many cases.

THE PERMANENT OR LATER RESULTS OF FRACTURES OF THE SKULL.¹

BY WILLIAM N. BULLARD, M.D.

THIS paper, which is intended only as a preliminary one, is the result of investigations in regard to the present condition of patients who were formerly in the Boston City Hospital with fracture of the skull. The diagnosis is taken from the hospital records and in most cases was evident.

I will not enlarge on the difficulty of this investigation except to say that it has occupied much of my time personally during portions of the past three years. I have attempted to find each patient, and have not accepted any records except from the patient himself or some person whom I believed fully competent to state his physical condition. Of course, very many persons were sought for who could not be found, and it was unusual when any one was found at the address given when at the hospital.

In undertaking this work I had hoped to be able to throw some light on the question as to whether the future condition of the patient with fractured skull were better with or without operation, and under what circumstances operation was advisable. Unfortunately the statistics obtained are too few to obtain any definite answers to these questions, but they may be of value to us as making a beginning in this direction, as well as in other ways. It seems to me that hitherto our views have been influenced by general considerations and by special conditions rather than by definite knowledge derived from a large number of carefully followed cases.

The number of patients in regard to whom information has been obtained is 70: male adults 44, children 15, female adults 2, children 5; age unknown 4 (3 males and 1 female).

The location of the fractures is as follows:

Base	19
Vertex	48
Frontal region	15, right 11, left 4.
Parietal region	19, " 9, " 10.
Temporal region	5, " 3, " 2.
Occipital region	9, " 6, " 2.
Unknown	5

¹ Read before the Surgical Section of the Suffolk District Medical Society, March 3, 1897.

Operations, that is, trephining or some serious surgical interference, occurred in 15. In 54 there was no operation. In one it is unknown whether there was an operation or not.

The longest time which has elapsed in any case between the time of injury and the time of examination is forty-seven years in one case. The next longest is fifteen. In nine patients the time elapsed was between ten and fifteen years; it was between five and ten years in 24 patients; it was four years in five patients; three years in nine cases; two years in nine cases; one year to eighteen months in eight cases; nine months in two cases; and in two cases the time elapsed was unknown, but it was at least several years.

In estimating the results of fractures of the skull, I have not taken into account the paralyses produced at the time of injury, for these are apt to be obvious, and their duration and severity can usually be determined with some degree of probability before the patient leaves the hospital. (There were noted, however, three cases of hemiplegia.) My object has been rather to draw attention to those symptoms which, while less obvious at first, later interfere with the patient's comfort, or ability to work and earn his living. I wish to consider these both in relation to the patient's condition and also in relation to the method of treatment at the time of injury.

Out of our 70 patients, 37 presented *no* symptoms due to the injury, when examined. Of these one was examined nine months after the injury, three one year after, four at two years after, five at three years after, five between three and five years, ten between five and ten years, and the rest more than ten years after, except for two cases in which the time was unknown, but in each it was several years.

Eight patients presented symptoms which were slight or insignificant.

Eighteen patients presented symptoms which were troublesome, but which would not prevent them from earning their living.

Seven patients presented serious symptoms.

In all the cases with serious symptoms there was mental trouble. I will mention these cases in detail.

CASE I. Male, forty-eight. Had fracture of the base of the skull. No operation. He seems to have been a hard drinker before the accident, but after the injury small amounts of alcohol affected him to an extreme degree, so that he would become so violent that his family were afraid of their lives and were obliged to leave him two or three times. When not under the influence of alcohol he was peculiar; "crazy since the injury." He died six and one-half years after the injury of tuberculosis pulmonum.

CASE II. Male, twenty-six years old when injured. Is now at the State Hospital for Dipso-maniacs at Foxboro; seven years after injury. He had been a hard drinker for some years previous to injury, and has continued to be so since. His mental symptoms are melancholy and hallucinations of sight and hearing. It is extremely doubtful whether they are connected with the injury, which was in the left frontal region. There was no operation.

CASE III. Male, ten years old at time of injury. Fracture in right frontal region. No operation. It is now fifteen years since the injury. He is said by his mother to be peculiar. Is "hasty," and probably at times rather violent. Is not addicted to alcohol,

but if he takes any shows its effects more quickly than natural. Has never been the same since the accident. Has a sister who is insane, and her insanity is attributed to the same accident. Is a plumber and able to work.

CASE IV. Male, fifty. Fracture of left parietal. No operation. Thirteen years after injury. Wife states that he has never been the same since the accident, has been less active minded. Was stupid for a time after leaving the hospital, but gradually improved. No headache, vertigo, deafness or tinnitus. Is at work; is a laborer.

CASE V. Male, fifty-five. Laborer. Fracture of left parietal. No operation. Became childish after accident. Was unable to work for a year, and died three years after injury of chronic bronchitis.

CASE VI. Female adult, age unknown. Fracture of base. No operation. After injury her mind was affected, was melancholic, and would sit all day doing nothing. This person was probably alcoholic.

CASE VII. Male, twelve. Fracture of base of skull; hemorrhage from right ear. Eighteen months after injury is slightly deaf; no tinnitus; has headache and dizziness at times. Cannot learn at school since the injury.

The symptoms in the second of these cases are undoubtedly due to alcohol, and those in the fifth and sixth probably so, at least in part. In the third case there is an undue excitability of moderate severity, while in the fourth and seventh we find the opposite, an abnormal mental slowness or stupidity and an inability to learn. In neither of these last two adults (III and IV) were the troubles severe enough to prevent them from working. In the remaining case the patient was said to have become childish.

The only other case where severe symptoms, other than paralysis, were recorded was that of a man seen forty-seven years after a fracture of the right frontal, which had occurred when he was eight years old. He had convulsions daily for a time, but had had only one during the past twelve years. He presented himself at the hospital on account of a posterior sclerosis of the spinal cord not connected with his injury.

The symptoms most frequently found after fracture of the skull in our cases, are, however, headache, vertigo, deafness, and a condition of the brain which shows itself by the extreme susceptibility of the patient to the effects of alcohol. This latter condition is probably present in a large proportion of cases, although not always mentioned.

Headache occurred in twelve, not counting one in which it was noted as rare and another in which it was not common; as a rule, it is not severe or troublesome and does not interfere with work. In two of the cases counted the patients were alcoholic, and it was doubtful how far the injury was the cause of the pain. In three cases the headache was unilateral and on the injured side of the head.

The only case in which the headache was troublesome was that of a man fifty years old at the time of the injury, who had a fracture of the posterior parietal region and of the base. The examination was made fourteen months after injury. He was deaf and troubled with dizziness, and had a constant diffused headache. He was probably alcoholic, so that the cause of the headache was not certain.

In only one of the cases in which headache occurred had an operation been performed, and even in this case

the cause of the headache was doubtful. The injury, which was a fracture of the anterior portion of the left parietal, occurred in a girl six years old. Some fragments of bone were removed and depressed bone elevated immediately after the injury. She was seen nine years later. Her family circumstances had been unfortunate and her inheritance poor. She had been subject to attacks of violent excitement or anger. Three months previous to my visit the headaches had ceased with the appearance of the catamenia.

Dizziness, or vertigo was found in thirteen cases, and in one other it was reported as having existed for two months after leaving the hospital and having then ceased. In three cases it was noted as slight. In one it was unilateral. In two cases it existed in company with tinnitus, and in five cases in company with deafness. Curiously, the tinnitus and deafness were not found in the same cases.

Too much stress cannot be laid on the location of the fractures in cases which are not examined post-mortem, because it is often impossible to determine where the cracks and fissures extend, and it is impossible to exclude other fractures than those noticed.

In the cases of headache, four of the fractures were of the base, four of the frontal and three of the parietal regions, while one was in the region of the posterior fontanelle. Of the doubtful cases one was a fracture of the base, one of the frontal and one of the parietal regions.

In the cases which suffered from vertigo, two of the fractures were in the frontal region, five in the parietal, one in the occipital and six were of the base. In none of these cases had any operation been performed.

Deafness was found in nine cases, in two of which it was noted as slight, and in another it was said to be diminishing. In one case it was bilateral. In four it coexisted with headache and in five with dizziness. In every case where there was deafness and headache there was also vertigo; thus there was only one case in which there was vertigo and deafness without headache. The seat of fracture was at the base or in the bony wall of the ear in six cases; in two it was seen in the occiput and in one the fracture was in the frontal region. As mentioned above, the site of fracture found during life does not show the real extent of the injury. We should naturally expect deafness to occur, principally in fractures of the base, or in such as involved the petrous portion of the temporal bone. In only one of these cases was an operation performed at the time of injury.

Tinnitus was not complained of in any of the cases in which there was deafness. It occurred only twice, and both times in company with dizziness. There was no operation in either of these.

In three cases a sensation of drawing or pulling in the wound was complained of, and this occurred chiefly when the head was in such a position as to cause the brain to sink away from the wound. Two out of the three complained of it especially at night, and said that it kept them awake. This symptom is probably more common than would appear from these statistics. Many of those who have it to a slight degree do not mind it much, and do not speak of it. There was no serious operation in any of these cases: in one some loose bone had been removed.

One of the above cases also complained of a sensation about the wound as if a piece of leather were tacked over it. One patient who had also headache,

complained of a "funny feeling about the head" for some time after the injury, which, when he was seen seven years after the injury, was slight and not troublesome.

In almost all the patients we find an increased susceptibility to the action of *alcohol*, often very noticeable.

CONCLUSIONS.

(1) Out of 70 persons with fractures of the skull, 37 presented no symptoms when examined some time later.

(2) Seven persons only presented serious symptoms, and in at least four of these it is doubtful whether the symptoms were due to the injury.

(3) The most frequent consequences found were headache, deafness, dizziness, and inability to resist the action of alcohol on the brain.

(4) Out of the 15 cases in which operation (trephining, etc.) was performed, 12 had no symptoms; in another it was doubtful whether the symptoms present were due to the injury; in another the symptoms were slight (headache rare, tension over wound while lying in bed); the other was deaf, but had no other trouble. We are justified, therefore, in concluding, so far as our statistics lead, that those cases in which trephining was performed have shown much better results, as far as the symptoms discussed are concerned, than those in which no operation was performed.

Clinical Department.

CASES OF MALIGNANT ADENOMA OF THE UTERUS, VAGINA AND RECTUM; WITH REMARKS UPON THE SURGERY OF THIS FORM OF MALIGNANT DISEASE.¹

BY MAURICE H. RICHARDSON, M.D.,

Visiting Surgeon to the Massachusetts General Hospital; Assistant Professor of Clinical Surgery, Harvard University.

OPERATIONS, even the most extensive possible, for cancer of the rectum and uterus are followed so frequently by hopeless recurrence that they must always be undertaken with reluctance and misgivings. When, however, the disease is of those less malignant types which are slow to invade remote structures the prognosis after thorough removal is so bright that even the most extensive mutilations are justifiable.

The malignant adenomata of the uterus, for example, present after thorough removal the most encouraging outlook. I recall several cases of this disease in which hysterectomy was performed long before the growth had penetrated from the mucous surface of the fundus, where it had originated, to the peritoneum. In these cases there was no return of the growth. It was only when the disease had already invaded contiguous structures that extirpation of the uterus was followed by a fatal recurrence. In cases of malignant adenoma of the rectum also, thorough extirpation has been followed in my experience by permanent cure. In such cases the recurrence, if any takes place, is localized, and the progress slow.

Whatever the views of the pathologists may be as to the course of the so-called malignant adenomata, clinical experience seems to indicate a prognosis much more hopeful than that of ordinary cancer. I recall

one case in particular which has encouraged me, even under the most unfavorable conditions, to remove the uterus when the diagnosis of malignant adenoma of the uterus had been made.

CASE I. Mrs. W. H. K., aged forty years, a patient of Dr. Andrews of Gardner, Mass., was married at nineteen. She had been as well as the average girl. After her second confinement, from which she got up very slowly, she began to have excessive flowing at the menstrual periods. The periods themselves became more frequent, and the exsanguination finally was extreme. On April 26, 1894, I found the patient greatly emaciated and anemic. The uterus was filled with a friable bleeding mass, which I removed as thoroughly as possible by means of a curette. Dr. Whitney pronounced the scrapings to be fragments of a malignant adenoma. On May 17, 1894, I removed the uterus through the abdomen. The fundus was filled with masses of the disease, which had not, however, penetrated to the peritoneum. At the operation no evidence of metastasis was found. A good recovery followed. In the first sixteen weeks she gained sixteen and a half pounds. On February 6, 1897, I saw the patient in perfect health.

Dr. Whitney's report is as follows:

HARVARD MEDICAL SCHOOL,
May 16, 1894.

DEAR DOCTOR:—The examination of the uterus from the case of Mrs. K. showed a large infiltrating growth ulcerating on the surface, with slightly raised, fungous edges. This occupied the cervical region, which was elongated and hypertrophied.

Microscopic examination showed the same characteristic as the scrapings, namely, irregularly shaped glands infiltrating the tissues. The limit between the growth and sound tissue is much sharper than in the cases of a similar character which have had their origin in the fundus of the uterus.

The diagnosis is a malignant adenoma starting from the cervical glands.

Yours very truly,

W. F. WHITNEY.

CASE II. A case of malignant adenoma of the rectum, that of Mr. J. A. R., aged forty-seven, pursued also a favorable course. This man, a jeweller, came to me November 22, 1890. He had had, in the preceding September, without apparent cause, an excessive hemorrhage from the rectum, accompanied by attacks of fainting. On October 19th he had another hemorrhage. He had been troubled for four or five years with constant diarrhea, accompanied by pain dating from service in the war. I found an ulcerated tumor situated in the posterior wall of the rectum, about two inches above the anus. The first operation, that of curetting and burning, was performed in 1890. On February 17, 1891, I removed the mass thoroughly through the dilated anus. Dr. Whitney pronounced the disease a malignant adenoma of the rectum, and gave a hopeful prognosis. In November, 1895, I saw the patient at his place of business in Amherst. He reported himself as perfectly well, and his looks confirmed his statement.

CASE III. Encouraged by cases like the preceding, I advised operation in the case of Miss L. M., aged forty, who had had for about a year some internal trouble which she thought to be connected with the uterus. She consulted Dr. — who found a small growth in the left side of the vagina near the cervix. This tumor was removed by Dr. — on December 11, 1894. It was pronounced a malignant adenoma

¹ Read before the Obstetrical Society of Boston, January 19, 1897.

by Dr. Whitney. On December 9, 1895, she consulted me, after having been told by several physicians that nothing further could be done, a local recurrence having taken place. I found an induration, about the size of a silver quarter, at the seat of the former operation. It could be felt through the rectum, and extended nearly to the cervix. In view of the microscopic diagnosis, it seemed to me possible to attempt extirpation, though such a procedure would evidently require an extensive dissection involving the rectum, the vagina, the peritoneum, and probably the uterus. Such was the magnitude of this operation that I hesitated a long time before undertaking it. The patient was sent to 38 Commonwealth Avenue for observation. She was examined under ether, and an abdominal section was made to see if the growth could be removed by the abdominal route. No indication of the tumor could be found by careful examination with the patient in the Trendelenburg position. Adhesions were evident in the posterior cul-de-sac. An examination of the rectum was made later by Dr. Otis, who reported that the disease did not appear to involve the mucous membrane of the rectum.

It was finally determined to attempt extirpation by an incision through the buttock after the manner of the Kraske operation. On February 6, 1896, a long cut was made through the gluteal muscles, extending from the posterior superior spinous process of the ilium nearly to the anus. The rectum and vagina were exposed by thorough dissection. It was found impossible to remove the mass without opening the rectum as well as into the vagina. The disease extended also into the pericervical space to the left of the uterus. A clean cut was made about the whole mass by means of scissors. A large portion of the cervix was removed, half the circumference of the vagina, and the greater portion of that of the rectum. The peritoneal cavity was widely opened. The open ends of the rectum were inverted and sewed together with interrupted sutures of silk. The wound was then packed tightly with iodoform gauze. The patient was in considerable shock as the result of the operation, which was an unusually long one, lasting nearly two hours. She made a good recovery, however, from its immediate effects. For a long time there was an abundant discharge of feces from the wound. This discharge finally ceased, and she left the hospital well March 21, 1896.

It is, of course, much too soon to assume that in this case the operation is permanently successful: yet in a letter from Miss M., dated September 7, 1896, she reports herself as feeling perfectly well. In view of the extensive operation in this case, and of the merely local malignancy of this form of tumor, it seems reasonable to expect a permanent cure.

CASE IV. Mrs. C. R., forty-eight years of age, living in Waltham, had had three children. The family history was good, except that one sister died of cancer of the breast. This patient had been under the observation of her physician, Dr. McCollester, for about six months. She had in the first place a granular and everted cervix. This healed over under treatment, and she was supposed to be rid of the disease. Nevertheless, she complained of feeling not as well as usual: her digestion was out of order. Soon she began to have attacks of flowing that would last as long as two weeks. There had been some irregularity of the menstruation before. The hemorrhage became exces-

sive. I found the uterus strongly anteflexed and movable, and the cervix indurated and ulcerated. The vaginal wall was not implicated. No metastasis could be found. On April 4, 1894, I removed this uterus at the Waltham Hospital. The patient made a very good recovery, and has been perfectly well ever since. Dr. Whitney's report is as follows:

SEARS LABORATORY,
HARVARD MEDICAL SCHOOL, April 6, 1894.

DEAR DOCTOR:—The uterus from the case at Waltham measured about seven centimetres in length. The fundus was enlarged by a new growth, soft, opaque, whitish, and more or less fungous in character. This growth projected into the uterine cavity and infiltrated the muscular tissue.

Microscopic examination showed it to be composed of large, irregular, tubular glands infiltrating between the bundles of muscular fibres.

The diagnosis is malignant adenoma.

Yours very truly,
W. F. WHITNEY.

The immediate results in extirpation of the uterus for ordinary cancer of the cervix have been in my experience very encouraging; in a considerable number of vaginal hysterectomies I have lost but one case. In many, however, the recurrences have been early, although several patients are now living and free from disease. Still I have no doubt, that my cases of carcinoma have the same deplorable percentage of recurrences that have been observed by most operators. When the diagnosis of malignant adenoma has been made, however, there have been no recurrences whatever that I have been able to find, with the single exception of a case in which at the time of operation the disease was found already to have escaped from the uterus into the intestine. The woman had a recurrence at the end of a year, and has just died. I felt in this case that had the operation been performed sooner a perfect cure would have resulted. Operation had been advised some years before by the attending physician. The patient declined, however, to have any operative interference.

CASE OF SUPPURATING FIBROID TUMOR OF THE UTERUS.¹

BY JAMES R. CHADWICK, M.D.

ON December 16, 1896, I was summoned to see a patient of Dr. S. C. Morrill, of Concord, N. H. She was a widow, sixty years of age, of extremely nervous temperament, the mother of several children. She had had an interstitial fibroid tumor of the uterine body, which since the menopause had gradually decreased in size and for many years had given rise to no symptoms. In August she had a distressing domestic difficulty which affected her seriously. Early in September she went to visit friends in Walpole, N. H., where after a long drive she had a severe chill, which was repeated often in the following four months, her temperature varying most of the time from 99° to 103° once rising to 104.5°. Nausea, emaciation to the extent of sixty pounds, and extreme nervousness were the only other symptoms. At no time had there been the slightest tenderness of, or discomfort in the fibroid uterus. Malaria, which is somewhat prevalent in and about Walpole, was suspected to be the cause of her

¹ Read before the Obstetrical Society of Boston, January 19, 1897.

fever, but no definite diagnosis could be made. About December 6th inodorous pus began to escape from the os uteri.

When I saw her on December 16th, the abdomen was filled with a uniformly rounded and hard tumor, manifestly a uterine fibroid. It was freely movable in the abdomen; was neither tender nor the seat of pain or even discomfort. From the os uteri was flowing a small but steady stream of purulent fluid devoid of odor. A specimen of this, submitted to Dr. Mallory on the next day, was pronounced to be pus, and found to contain streptococci pyogenes but no putrefactive bodies. The only two cases of sloughing interstitial fibroid that I had ever seen in my practice followed the use of Apostoli's method of electrolysis (without puncture of the tumor) in the hands of other practitioners. In both, besides continuous fever, there had been pain in, and tenderness of, the tumor, followed by the discharge of a most offensive pus. With these cases in mind I was slow to reach the conclusion that the tumor was disintegrating, so that I resorted to intra-uterine injections of a solution of permanganate of potash. As this treatment failed to have the slightest effect upon the fever, which ranged from 101° to 103° F., or upon the amount of pus discharged, on December 23d I removed the supra-vaginal uterus and the tumor by abdominal section, with the assistance of Dr. G. J. Engelmann, of Boston, and Dr. Wallace Russell, of Concord. The operation was simple and eminently successful, except that, in spite of precautions, a little pus from the tumor dropped upon the lower angle of the abdominal incision. Not a drachm of blood was lost. The peritoneum was brought together over the stump. There was no shock; the temperature fell at once two or three degrees.

The muscular wall of the abdomen healed by first intention throughout, but the lower half of the integument had been infected and is healing slowly by granulation. From the vagina the stump was also infected and pus began to escape from the os uteri about January 10th. As this opening did not seem to drain the abscess fully, on January 15th I made an incision from the vagina into the bottom of Douglas's pouch and washed out the cavity of the abscess.

The tumor, which weighed from four to five pounds, was submitted to Dr. Mallory, who made the following report:

Specimen consists of a spherical mass, sixteen centimetres in diameter, composed of the uterus, with tubes and ovaries, and a large dense tumor mass situated in the anterior wall of the uterus. Cavity of uterus much dilated. Portion of uterus connected with specimen measured thirteen centimetres long, seven centimetres wide. Ovaries small and scarred, and tubes slender.

In the anterior surface of uterine mucous membrane was a small opening, from which pus could be squeezed; a probe could be thrust into the opening two centimetres.

Section through the tumor's mass showed a spherical growth, with a regular grayish-white surface. Scattered here and there were small, irregular, opaque, yellow, dense areas, and also numerous small pockets of thick pus. In the lower anterior portion of tumor was a cavity containing a yellow, irregular, dense, oval mass, five centimetres in length, attached only at one side. Opening off from this large cavity were numerous large and small irregular cavities and sinuses running in all directions, but usually near the border between the tumor and investing uterine wall. Many of the smaller cavities and sinuses still contain pus.

Diagnosis.—Fibro-myoma, with necrosis and secondary infection with streptococcus pyogenes.

NOTE.—After the last report Mrs. B. progressed favorably as to local conditions. The abdominal wound nearly healed, and the pus almost ceased to come from the vagina; but evidences of septic infection became marked, and finally the kidneys became infected and brought about a fatal result about the middle of February, two months after the operation.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, January 19, 1897, the President, DR. J. R. CHADWICK, in the chair.

DR. J. L. MORSE read a paper on

PRECOCIOUS MATURITY.¹

DR. C. W. TOWNSEND read a paper on

PRECOCIOUS MATURITY.²

DR. J. R. CHADWICK read a paper on

A CASE OF SUPPURATING FIBROID TUMOR OF THE UTERUS.³

DR. C. M. GREEN referred to a case of large fibroid tumor he had seen one month after childbirth. There was a very foul odor present, and a large sloughing mass presented at the vulva. The fundus extended nearly to the umbilicus. After washing out the uterus thoroughly, he passed his hand into the uterus under ether, and found the tumor attached at the fundus. The mass itself which had dilated the cervix was larger than a fetal head. After cutting away the tumor with scissors, the uterus contracted rapidly, and on the tenth day it measured only three and one-half inches. The tumor was apparently an interstitial fibroid that had become polypoid, sloughing taking place from the cutting off of the circulation.

DR. G. J. ENGELMANN said that the case reported was unusual on account of the lack of symptoms and the discharge of pus for so long a time. Cases of fibroid tumors, treated by electricity, that suppurate he considers do so not on account of the electricity but from septic instrumentation. Martiu has found out of 300 fibroid tumors about one-half undergoing degeneration, and he believes that cystic degeneration is furthered by the electric current, but that suppuration is due to direct infection.

DR. G. H. WASHBURN spoke of a multiple fibroid tumor in a woman of fifty years where one of the masses suppurated and discharged through the uterus. There was apparently no history of infection. A radical operation being refused, he curetted. Later a second mass suppurated and all operation being refused, the patient died later of sepsis.

DR. J. R. CHADWICK, in closing, said that he was much surprised that with suppuration going on for four months, with a temperature extending to 103° or 104°, that there should have been no pain or tenderness, and that the pus was not offensive.

DR. MAURICE H. RICHARDSON read a paper entitled

¹ See abstract on page 232, No. 10 of Journal.

² See page 321, No. 10 of the Journal.

³ See page 407 of the Journal.

REMARKS UPON THE SURGERY OF THE MALIGNANT ADENOMATA, WITH ILLUSTRATIVE CASES.⁴

DR. J. R. CHADWICK referred to a case of malignant adenoma of the uterus that lasted for twenty years with frequent curetting. Ten years ago he took out the organ, and the disease has not recurred.

DR. W. E. BOARDMAN said he had a case of this affection under his care twenty years ago, when the patient died notwithstanding curetting. Soon after this he had another case where the diagnosis of malignant adenoma in its initial stage was made. The patient lived six years with the help of curettage. At that time he felt sure that if the uterus were removed the disease would be easily and completely cured.

DR. M. H. RICHARDSON, in closing, said that malignant adenoma was more circumscribed than ordinary cancer; it was more fungous in its growth and bled more easily. In the rectum it was more distinct and movable than ordinary cancer.

Clinical experience does not bear out the great malignancy as reported by some pathologists, although all do not agree on this point. The question is properly raised whether successful cases of removal of the uterus for cancer are not of this variety. When the disease starts, it grows slowly in the glands of the uterus, but when it reaches the surface its growth is rapid.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 3, 1897, DR. H. L. BURRELL in the chair. Dr. Burrell invited DR. PADDOCK, ex-President of the Massachusetts Medical Society, to preside.

DR. F. B. LUND read a paper on

THE TREATMENT OF OLD DISLOCATIONS OF THE SHOULDER-JOINT.¹

Dr. Lund showed a patient to illustrate the subject of dislocation.

This patient dislocated his left shoulder fifteen years ago, and was given some medicine by his physician, which he says brought his shoulder gradually back into place. It is easy to see that the head of the humerus is under the coracoid process, and the glenoid cavity is empty. The interesting point about the case is the amount of motion the man has, partly owing to the formation of a new socket under the coracoid process, and partly to the participation of the scapula. As you will see, all movements are normal, except that rotation is slightly limited, and he cannot raise the arm to a perpendicular without swinging it slightly forward of the median plane of the body. He can, however, touch the back of his head, put his hand behind him, and perform all these motions without pain. He has for practical purposes, a normal arm, and no one would think for a moment of operating on his old dislocation.

The man, who is fifty-three years old, and subject to occasional epileptic attacks, entered the Boston City Hospital (in the service of Dr. H. W. Cushing,

¹ See page 397 of the Journal.

⁴ See page 406 of the Journal.

who has kindly allowed me to present him) a few weeks ago for fracture of the surgical neck of the right humerus, with subcoracoid dislocation of the head, which was irreducible. In view of the excellent use he has of his other arm, and of his poor physical condition, it was thought best by Dr. Cushing not to attempt operation, but to dress the arm, allow the fracture to heal, and then begin manipulation with a view to establishing a new joint in the present position of the head of the bone. In view of all the conditions, it would seem that this is the wisest course in this case.

DR. PORTER: The paper of Dr. Lund has covered the ground so thoroughly that it does not leave a great deal but that of personal experience to supplement what he has said. It is true that old dislocations of the humerus present a difficult question for the surgeon. Writers have usually considered that dislocations after three months should be considered old dislocations. Dr. Lund's paper by statistics apparently establishes that after six weeks they must be considered old dislocations. Nevertheless, many instances of success in reduction have been reported at longer periods than three months. In the manipulative measures for breaking up adhesions great care must be used in order not to injure the vessels, as Dr. Lund has brought out, and especially when that force is directed upwards and when there is tension of the vessels over the head of the humerus. It would seem to me that in all cases of old dislocation attempts at reduction should be made, and that the length and violence of the attempt should be determined by the age of the patient, by the firmness of the adhesions, and by the amount of disability and pain. We have had shown just now a case where there is very little disability and no pain, and where the man has a good result without any reduction of the dislocation. It is not, I think, a fact that the length of time in all cases is the important factor. The kind of injury—the amount of injury at the time of the dislocation—determines to a large extent, I think, the denseness, the firmness of the adhesions. Where there is attachment of the axillary vessels or the nerves to the head of the bone, which is considered as one of the important reasons for not using violent attempts at reduction, it seems to me that if rotation is made, partial rotation, and the radial artery is affected in the pulsation, it might be a means of diagnosing as to whether the artery is involved in the adhesions; and the amount of pain or the amount of paresis or paralysis might indicate to a certain extent the involvement of the nerves. I made the statement that after longer periods than three months old dislocations had been reduced. I have the records of a case in which reduction was accomplished four years after the injury.

A number of cases are reported where there was rupture of the axillary artery and where ligature of the two ends of the artery was made, several cases where the subclavian was tied, and yet they have resulted fatally. I think, however, that nearly all those cases were cases operated on before our present methods of wound treatment; and now I think that such a class of cases should be approached with a much greater feeling of possible benefit to the patient than in the times when we were sure to have such things followed by suppuration. One of my own fatal cases was long ago, where a young man suffered so from pain that he was willing to have anything done to re-

lieve him from pain. It was impossible to reduce, and I cut down and exsected the head of the bone, and he died some time afterwards from sepsis and secondary hemorrhage.

The fracture of the bone or of the neck in reduction is, I should say, one of the methods of cure. It is not an ideal one; but I had a case of that kind years ago when I was dispensary physician where I fractured the head of the humerus in attempting reduction. The fact was entirely concealed from the patient, and he made an uninterrupted recovery. He was a builder, and before that time he was unable to climb a ladder; afterward he resumed his old vocation.

Dr. Lund spoke of subcutaneous division of refractory bands, and condemned it most heartily, as I do, as a very blind method. The open section and division of the muscles and the bands would be far preferable, and should always be resorted to in case the patient and the conditions admit operative interference. The section of the surgical neck and persistent passive motion might, as it has already been proved, be of benefit in a certain number of cases, and I am sure there are certain cases where an attempt to dig the bone out of its bed results in putting the patient into a much more serious condition than where there is simply section of the surgical neck. The exsection of the head itself is a really difficult task, and a dangerous task even, when you can see what you are doing as you can in the open method; but if successful, it is effective. If it is to be exsected, it is the safest method to do it subperiosteally, to dig it out from the attachments of the muscles and the periosteum; and in that way injury to the vessels and nerves is certainly avoided. The special indication for the operation is pain or paralysis. This subperiosteal operation is not to my mind the best, because the head forms again and the old pain is likely to return even if it is relieved at the time. I have done the operation subperiosteally and to the very great relief of the patient, and I do not know that the pain has returned, but the new bone has formed in the old place. That had formed to a certain extent before he left the hospital, but he did not complain of pain in certain parts of the hand, of which he complained very much before the operation. I should say with our modern method of treatment of wounds that the best surgical operation was open section if manipulations will not allow of the placing of the bone in the socket.

I asked one of my house-officers to look up the old dislocations at the hospital with these results; but he took all of the cases that were a week old, and from that to ten months. There were 36 cases: 27 reduced, partially reduced one, fracture with dislocation two (that was at the time of the accident), and fracture from the operation three, Kocher's method two, incision and wiring one. I asked to have statistics running from three to ten months: 11 cases, six reduced, five unreduced, and in looking over the list, the oldest one which I have reduced without operative interference was a dislocation into the axilla, adhesions broken up by manipulation, good position and good result at four months after the injury.

DR. J. W. ELLIOT: Dr. Lund has covered the subject entirely I should think, and there is very little for me to say. The only point on which I should differ slightly with him is as to how the force can with the greatest safety be used in breaking up the adhesions. It seems to me it is not so much how as it is the

amount of force. If you have an adhesion to break, it takes a given amount of force to break it. Whether you use leverage or rotation, if you break that adhesion you must use the necessary amount of force. The different ways of using force I do not believe make much difference. Suppose the adhesion was on the radial artery, if you use enough force to tear the artery open it does not make any difference whether you rotate or pry or pull, it is the amount of force. The same would be true in breaking the head of the bone. You can get more force with leverage than by a straight pull. It seems to me it makes very little difference how you use it, except, as Dr. Porter suggests, you must not push against the vessel. The force must correspond to the resistance, and it is a question of judgment as to how much force the bone will stand.

As to the operations, of course we all agree that the only two operations would be open section and replacing the head of the bone or excision. My own experience is that both are extremely difficult operations, and much more difficult than is ordinarily supposed, and much more difficult than I had expected.

One case which I did two years ago resulted fatally. It was an old dislocation, and attempts had been made in the out-patient department at the Massachusetts Hospital to reduce it, with the result of breaking the bone. The bone was broken in such a way that it could not be left as it was. It was a spiral fracture with a rough end. After a good deal of consideration I determined to try to get the head of the bone into place. The operation took me at least two hours. There was a great deal of hemorrhage. I think the bone had been out of place about three months. I found the glenoid cavity was not filled with fibrin but healthy and shiny. The adhesions about the bone and shortening of the muscles were very marked, and toward the end of the operation there was a great deal of venous bleeding, and I packed the wound and put on pressure. Unfortunately the bleeding came on later, and could not be stopped; and I now think (I did not think so then) that probably the axillary vein was ruptured at the time the bone was broken by the attempts to reduce the shoulder. But that experience showed me that the operation of returning the head of the bone is extremely difficult. I happened to see one of Dr. Porter's operations for excision of the head, and that was also extremely difficult. I do not know which was the more difficult. So far as the results go, it seems to me very probable, from what I know about these cases and from the statistics, that the resection of the head of the bone will give the best results, although there is one disadvantage in resecting the head of the bone, and that is, if you take off the head of the bone, you lose the power of rotating the arm, which is quite a serious disadvantage: on the other hand, the section of all the muscles which is necessary in the other operation, as they are almost always shortened in these cases, must usually lead to stiffness about the shoulder, in spite of the case reported by Dr. Porter as having given a good result.

DR. BURRELL: I would like to add just a word in regard to the application of force in reduction of dislocations in the head of the humerus. I have used in two instances what I term "fractional breaking up of the adhesions"; that is, in one case where I thought I had to deal with brittle arteries I was extremely cautious in applying force, and was finally successful in

reducing the dislocation of the head of the humerus at the third sitting, the breaking up of the adhesions being carried out at intervals of ten days. It is a method which I feel sure is applicable in certain selected cases.

DR. PORTER: I want to put a little more emphasis upon the great difficulty of removing the head of the bone when it is out of its place. I have done a number of cases now, and I have been impressed each time before I had finished with the difficulty of the operation; and I am sure it is not an exaggeration to say that it is an extremely difficult and certainly a dangerous operation.

DR. LUND: There is very little for me to say. I should agree with Dr. Porter that the cases of ruptured artery which have been so uniformly fatal have been mostly reported from the pre-antiseptic period. I was surprised to find how few cases had been reduced after six weeks, and if I had carried my investigation farther, I doubtless would have found certain cases reduced after longer periods, as I found Dr. Burrell's case at eight months, and Dr. Cushing has since told me of a case reduced at three or four months. I think that these statistics, although incomplete, are enough to show that in the joint which has been out six weeks changes have taken place which render reduction extremely difficult. I have never seen an account of the head of the bone forming after resection has been done. It would seem improbable that enough bone would form to take the place of the large globular head of the humerus which has been removed. As Dr. Elliott has said, resection of the head of the bone has the disadvantage of destroying the power of rotation. He speaks of the muscles being shortened. The posterior rotators instead of being shortened will be lengthened, as they are stretched over the glenoid cavity and carried in front so that there shortening would not make much difference. The subscapularis muscle, however, would be very much shortened from the deformity which takes place in dissection.

I showed from the statistics that resection of the head of the bone had a greater mortality than arthrotomy. From Dr. Porter's remarks it is evident that probably resection is nearly or fully as dangerous an operation as arthrotomy, and not less dangerous, as I had been led to believe from reading the accounts of the recent cases.

REGULAR Meeting, March 3, 1897, DR. H. L. BURRELL in the chair.

DR. W. N. BULLARD read a paper on

THE PERMANENT OR LATER RESULTS OF FRACTURE OF THE SKULL.²

DR. D. W. CHEEVER: I think the first thing that strikes us in this paper is the small number of people who have any symptoms, and the very small number who have serious ones. More than one-half, or quite one-half, have no symptoms: 7 out of the 70 have serious symptoms, or 1 in 10, and more than one-half of these have other causes to which the trouble might be attributed. I notice the word epilepsy, or epileptiform symptoms, is not once mentioned in the report; therefore I conclude there was nothing resembling that, which would attract the attention of an observer so careful as the reader. This, then, would

seem to be quite against our preconceived opinions; and if people can have undoubted fractures of the skull, whether treated or not, and go on for periods varying from a few months to forty odd years without necessarily having epilepsy, and without having symptoms which are severe enough to prevent them from getting their living, or appearing like ordinary people, then that is against our preconceived notions of injuries of the skull. We had supposed that slight depressions, irregularities on the inner surface of the skull, moderate degrees of adhesion of the meninges, slight thickening of the meninges, developed inside of the skull, due to the injury and not to syphilis, were causes of epilepsy. When we trephined for epilepsy we were satisfied if we found some little thing of this kind. In these cases such phenomena, as due to epilepsy, have not been observed. Moreover, these patients are of a class where a great many other causes come in to vitiate statistics, notably, heredity, alcohol and stupidity, native stupidity from want of true education and development. It is quite noticeable, I think, to those who have occasion to go about our public schools how many stupid children there are born of stupid parents; and if these children get an injury to the head, their stupidity may be in a degree ascribed to that, when it was the result of want of intelligence from birth. So that altogether I feel that the statistics do not prove that injuries of the head are necessarily followed in a large percentage of cases by symptoms which call for surgical interference, although as far as the statistics go they do show, that those who have been trephined or operated on were a little better off than the others. Now, what is the objection to interfering and trephining? The objection which existed formerly is gone. Formerly it was fatal. It was found in the first five years of the City Hospital that two-thirds of those operated on for fractures of the skull died. Precisely the same mortality occurred in those not operated on, so that the operation of trephining in those first five years was practically a useless operation, and it was looked upon with dread. All that is changed now under the antiseptic methods of treatment; and under improved technique a great many operations are done on the skull which are harmless; portions are sawed out, and pieces taken away, and large trephine holes made, and even new pieces implanted, without producing septic symptoms, or meningitis, or leading to any fatal result; consequently we have greater reason to operate now than formerly provided it will do good.

The reader has said that it is impossible to tell how far these injuries extend. That is notably the case with regard to cracks and fissures of the skull. Given a case of scalp wound in which we push back the flesh and find a crack running through the skull without depression, what are we to do? What are we to gain if we find one end and do not know where the other end is? Moreover, I am personally cognizant of several cases, one a very marked one, in which, over twenty years ago, I was called to a child of an epileptic mother, who had been thrown from a horse, and I found a scalp wound and a crack in the skull, but no depression. My dread of trephining in those times, and fear of doing more harm than good, led me to do nothing. That person grew up; no consequences have followed; inherited epilepsy has not come on, nor has induced epilepsy come on from the injury to the skull.

² See page 404 of the Journal.

There is another class of cases in which we cannot trephine with benefit, and those are the supposed fractures of the base. Some years ago, I published 21 cases where there was marked discharge from the ear, and 12 of those recovered, indicating that if there was fracture of the base it was recovered from; and indicating that discharge from the ear did not necessarily prove that fracture of the base had extended any farther than through the middle ear.

What can we do by trephining in fracture of the base? We cannot get at the seat of the mischief in the bone. Now I would not be considered as wishing to say that in these times when we can trephine safely we should interfere less than formerly, because I believe there are a great many cases where interference does good; but I would say in connection with these statistics, that the analysis of the 70 cases does not prove that the cases let alone did much worse than those interfered with. Trephining is indicated in all punctured fractures where the outer plate is cracked, but the inner plate is splintered and loose fragments are lying on the meninges. Trephining is indicated in every case with depressed fracture, in any case where we have symptoms of compression sufficiently localized to make us think we can reach a piece of bone or clot or anything of that kind. In these cases it is a safe operation, a useful one, and no doubt always will be done; but in cracks, and in a fracture of the base, in many cases, I think, we shall be able to get along without it. No harm can ensue, that I can see now, under antiseptic methods, in any case of supposed head injury, in exploring down to the bone, by cutting through the scalp; I should be a strong advocate for that. The diagnosis having been established that depression does not exist, and other symptoms having established that compression does not exist, in these cases I should be inclined to let the patient alone.

I wish to pay a tribute to the writer for the very laborious efforts he has made in preparing this paper. This paper embodies four years' work—four years of research, and under the most discouraging circumstances. It is the true and only way we can get at facts; and if we had more of this sort of investigation going on, in time we should get something on which we could base a mature judgment. If I may be allowed to quote some sentences written in 1860:

"The study and analysis of phenomena, and their relationships, and not the discovery of any general law like gravitation, marks those who are the Newtons of medicine. The science of medicine wants facts; comparable, numerous, well observed, carefully arranged, minutely classified, and acutely analyzed. But little reward awaits those who collect them. He who devotes himself to the science of medicine must expect little sympathy from the mere votary of the art. His reward lies in posterity, and the test of his conclusions must be in the future. No other agent but the lapse of time can rightly estimate the varied elements which constitute the science and the art of medicine. This alone can finally arbitrate between the claims of statistics and of the other methods of observation."

DR. WATSON: I have but little to add to what Dr. Cheever has just said, but should like to echo his tribute to Dr. Bullard for the admirable work that he has done in this department of surgery. The surgeons of the City Hospital are the only ones who realize its ex-

tent and all the labor that it has involved for him. And we who have derived so much benefit from its results, have much to thank him for.

As Dr. Bullard has said of his paper to-night, it contains insufficient data to rest a final judgment upon with regard to the ultimate results in patients who have been operated on, as compared with those who have not, and I cannot speak with any authority upon this aspect of the subject, and must confine myself to a word or two with regard to the immediate results.

I venture to differ with Dr. Cheever in his scepticism—if I understood him correctly—as to the value of trephining in cases of fracture of the base, for it does not seem to me to accord with our present experience, which records numerous examples of the saving of life by this means, and, so far as can be judged, of permanent recovery of the patients. Among these are some in which there can have been no doubt as to their inevitably fatal issue if left without operation.

I will only mention one of three or four striking instances that occur to me as an illustration of the advantages of trephining in fractures of the base. Dr. Bullard and I went to the hospital three years ago, and found a man who had been injured about seven hours before. There was a fracture beginning near the parietal eminence and extending forward through the frontal bone and the orbital plate, backward as far as the sella turcica and downward and laterally as far as the petrous portion of the temporal bone. The middle meningeal artery was ruptured, and also the cavernous sinus. There was a very large clot. The patient, when I had removed bone enough to sweep out this clot, was very nearly dead. Within a few seconds after removing the clot the respiration became normal, the pulse was restored, and the patient went on to recovery, as Dr. Cheever will remember, as he had the arduous task of pulling out three or four feet of iodoform gauze from beneath the brain. I saw him eighteen months after the operation, practically speaking perfectly well. I think that a good many of us who have had successful instances of trephining for fractures of the base, would not quite agree with Dr. Cheever's view; but I express this with some hesitation, in view of his far greater experience.

DR. BULLARD: I have only two things to say. One is in regard to the question of the certainty of the diagnosis. In the majority of the cases the fracture was seen at the hospital. Most of these cases were compound fractures, and the fracture was seen through the wound, so that the diagnosis was pretty certain. The question of epilepsy has been raised by Dr. Cheever. Convulsions were inquired about in every case, and I think we may say there were none, at least in the majority of cases. Convulsions are a symptom one would scarcely neglect to notice unless they come on at night, and I think we can fairly conclude that 69 of the cases did not have convulsions; the seventieth case did have them. He was a man who was injured when eight years old, seen forty-seven years later. He had convulsions daily for a time, probably epileptic in character; but these convulsions had disappeared as he grew older, and for the past twelve years he had had but one, so that he was practically free from them.

THE PRESIDENT: I believe I voice the feeling of the Section in expressing our thanks for this most admirable paper, and also the hope that Dr. Bullard will continue in this work.

Recent Literature.

The Practice of Medicine. A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, etc. Illustrated. Philadelphia: P. Blakiston Son & Co. 1896.

Dr. Tyson is no less qualified to write a Practice of Medicine than any of his contemporaries, and they are not a few, who have done the same within recent years. He offers no apology for his act, and does not claim that it was done to fill a long-felt want. He tells us that he had long contemplated such a work and had devoted to it several years of labor. Such a statement at once disarms criticism and invites confidence and appreciation. Dr. Tyson simply did what he had long wanted and intended to do. He has produced a good book on the Practice of Medicine—a text-book, but hardly a hand-book; a quarto, rather than an imperial octavo, of almost 1200 pages. Its pages offer internal evidence that much labor and time have been spent upon it, and as the work of one man it is a creditable monument to industry, learning and good judgment.

The book is divided into fifteen sections. Section I is devoted to the infectious diseases, and the first chapter begins with typhoid fever. The following sections up to XIII, with the exception of Section IX which comprises constitutional but non-infectious diseases, are based upon an anatomical or physiological classification. With Section XII we reach the intoxications; Section XIII deals with exposure to high though bearable temperature; Section XIV, the animal parasites and the conditions caused by them; Section XV, symptoms following overdoses of poisons, their treatment, etc.

Throughout the book both the English and metric Systems are used. The index is full and carefully prepared. The paper is good and the print is distinct and clear. The illustrations, some of which are colored, are well chosen, and the book is not overloaded with them, although the author found it necessary to depart from his original intention of avoiding them altogether.

A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians and Practitioners. By CHARLES E. SIMON, M.D., Late Assistant Resident Physician Johns Hopkins Hospital, Baltimore. In one octavo volume of 504 pages, with 132 engravings and 10 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1896.

The author of this work justly dwells upon the great importance in the modern practice of medicine of laboratory methods of diagnosis. The more medicine becomes a true science the more valuable a hand-maid will the laboratory become.

The author's aim has been to present to students and physicians those facts in clinical chemistry and microscopy which are of practical importance. Chemical and microscopic methods are described in such detail as to enable the student and practitioner without special training in the required manipulations to still obtain satisfactory results. Examinations of the blood, the secretions of the mouth, the gastric juice,

feces, nasal secretion, sputum, urine, transudates, exudates, cystic contents, semen, vaginal discharges and milk are described and detailed in the thirteen chapters into which the book is divided.

Dr. Simon's book covers the objects for which it was written very satisfactorily, and will be found useful by those who desire a guide in the department which he elucidates.

A System of Medicine. By many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.D., LL.D., Regius Professor of Physic in the University of Cambridge, etc. Volume I. New York: Macmillan & Co. 1896.

The editor of this work points out at once, in the introduction to this first volume, that the title chosen is only to be regarded as necessary for present purposes but not as defensible on logical grounds, that a system of medicine cannot now be written by one man or by many, and that this state of things is by no means to be regretted. He is naturally impressed with the vast increase of matter with which such a work to-day has to deal, even over that of the time of the first appearance of the system by Sir Russell Reynolds, to whom this is dedicated. This comparison, though not directly applied by Dr. Allbutt, must probably have been in mind.

To meet in some measure this difficulty, to obtain condensation, to avoid repetitions, to enlarge the conceptions of the student, to lead him to see the domain of medicine from points of advantage by means of broader surveys of general pathology, of statistics, of dietetics and therapeutics, the editor has adopted the incorporation of prolegomena or short introductory articles. The prolegomena in this first volume occupy nearly 500 pages out of a total of 960 pages, and make up Division I of the book. They are on a very considerable variety of subjects by very competent men, and offer a series of medical essays which have no necessary or essential relation to each other, but which are excellent reading. With the 491st page, Division II, the volume gets down to systemic work, and takes up Fevers. Division II is subdivided into two parts, the first of a few pages only on Insolation; the second part, which occupies the rest of the volume, is devoted to the Infections.

We cannot judge from this first volume how convenient Dr. Allbutt's System will prove as a book of reference, but it promises to offer interest and suggestiveness to the reader. There is a double index of authorities and diseases.

Rheumatism: Its Nature, its Pathology and its Successful Treatment. By T. J. MACLAGAN, M.D. Second edition. London: Adam & Charles Black. 1896.

Twenty years elapsed between the introduction of salicin to the notice of the profession by Dr. Maclagan in March, 1876, and the publication of this second edition of his book, the first edition of which appeared in 1881. Dr. Maclagan still holds to the miasmatic theory of rheumatism. Whatever the theory, as a matter of fact we all recognize the specific efficacy of the salicyl compounds in acute rheumatism. The disease has in a great degree lost its interest to the practitioner, and a new edition is changed in so far as it is a record of the continued triumphs of salicylic acid and its congeners.

A System of Practical Medicine. By American authors. Edited by ALFRED LEE LOOMIS, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and WILLIAM GILMAN THOMPSON, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the New York University. To be completed in four imperial octavo volumes, containing from 900 to 1000 pages each, fully illustrated in colors and in black. Vol. I, Infectious Diseases. Philadelphia and New York: Lea Brothers & Co. 1897.

It will not be the fault of the professors in our leading medical schools, or of the medical publishing houses, should any practitioner of medicine find himself unprovided with about the kind of Practice or System of Medicine which he requires. The choice is already great and is rapidly becoming greater. The increasing fruitfulness of investigation into the causes of disease, and the increasing definiteness of modern medicine in its practical applications are the reasons alleged for the preparation of new systems and new encyclopedias, and will probable continue to prevail as ostensible motives, at least, for superseding those already produced.

The present System has been prepared to meet a want. The editorship was originally assumed by the late Dr. Loomis, who associated Dr. Thompson with him. Dr. Loomis before his death had secured the contributors, apportioned their subjects, and decided the arrangement and classification of the work. The authors are all Americans. The design has been to give the system a practical character, to present a work of ready reference for the practitioner of general medicine. General articles have been excluded. The work when completed will have four volumes. This first volume treats of the infectious diseases, and among its contributors appear the names of not a few of our best-known medical writers and teachers.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. SREDMAN, M.D., New York City. In Twenty Volumes. Vol. IX, "Diseases of the Digestive Organs." Vol. X, "Diseases of the Nervous System." New York: William Wood & Co. 1897.

Volume IX of this Encyclopedia, which follows Volume X, is practically a continuation of Volume VIII on the "Diseases of the Digestive Organs." The difficulties almost inseparable from an attempt to realize the co-operation of many and widely separated contributors, have probably forced the editor to an arrangement of articles which he would not by preference have adopted.

Mikulicz and Kümmel contributed to Volume VIII an article on diseases of the mouth, which practically dealt only with systemic diseases. In this volume the same writers finish what was there begun, and deal with the local diseases of the mouth. Ewald, of Berlin, than whom no one is more competent, contributes a section on diseases of the intestines, exclusive of infectious diseases, parasites and hernia. Gibney and Walker, of New York, deal with hernia. Stengel, of Philadelphia, treats of diseases of the spleen. Scumola and Guoffredi, of Naples, have been entrusted with the important subject of diseases of the liver, and to it is given 326 out of the 820 pages of this

volume. The last article is on diseases of the gall-bladder, by Dr. John B. Murphy, of Chicago.

It is impossible to criticise at length a series of monographs on a variety of subjects, though all coming in a general way under the one head of "Diseases of the Digestive Organs." It is sufficient to direct attention to the names of the contributors, who are all men of reputation and some of marked distinction. The assignment of subjects was judiciously made, and the treatment of the topics by the writers justifies their selection by the editor.

Volume X is devoted to "Diseases of the Nervous System." With the exception of Dr. Féré, of Paris, who furnishes articles on hysteria, epilepsy, and the spasmodic neuroses, the contributors to this volume are all our own countrymen—the international element is less in evidence than in the preceding volume.

Dr. Joseph Collins, of New York, has a long article of 300 pages on the important subject of diseases of the brain, and another on diseases of the meninges. Dr. B. Sachs, of New York, deals with tumors of the brain, and is sanguine enough to predict even far greater success in the diagnosis and surgical treatment of intra-cranial neoplasms during the next decade than has been achieved in the recent past. Dr. Charles L. Dana, of New York, writes on neurasthenia; Dr. H. T. Pershing, of Denver, on disorders of speech; and Dr. Sanger Brown, of Chicago, closes this volume of 859 pages with a short article on the disorders of sleep.

Artificial Anesthesia. A manual of Anesthetic Agents and their Employment in the Treatment of Disease. By LAWRENCE TURNBULL, M.D., Ph.G., Aural Surgeon to the Jefferson Medical College Hospital, Philadelphia; Late Honorary President to the Otolological Section of the British Medical Association, and of the Section of Laryngology and Otology of the American Medical Association. Fourth edition, revised and enlarged, with illustrations. Philadelphia: P. Blakiston, Son & Co. 1896.

In the fourth edition of this well-known and successful book, the subject of anesthesia and anesthetics has been brought up to the present time by the addition of an account of the most important researches and discoveries in this subject during the last six years.

The discussion of the qualities of the most important anesthetics, their advantages, dangers, and methods of administration is very full; and excellent accounts of the symptoms and treatment of collapse under general anesthetics, are to be found.

The subject of resuscitation by the Laborde method of lingual tractions on the tongue is treated more fully than its importance warrants; and, in fact, the chief fault of the book as a practical manual is its loading up with consideration of unimportant and obsolete methods and anesthetics, which instead of being put together at the end of the book, are scattered throughout its whole body, to the confusion of the student who seeks to obtain from the book an idea of the relative utility and importance of the various anesthetics.

The book is better fitted for a reference book for the advanced student of the subject than as a practical manual for the undergraduate in medicine, being characterized rather by exhaustiveness than symmetry of arrangement.

The various methods of local anesthesia receive adequate consideration.

THE BOSTON
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KOCH'S NEW TUBERCULIN.

Koch has published a long article¹ in which he describes his new and improved tuberculin, towards the preparation of which he has been for several years experimenting. The end sought by all these endeavors in the employment of cultures of tubercle bacilli and their artificial introduction into the animal organism has been the prevention of tuberculosis, or what amounts to the same thing, the obtention of a state of immunity. Immunity to be efficacious must be twofold — against the bacteria and against the toxin — and this complete protection, always difficult of realization, is especially so in respect to tuberculosis. Concerning the difficulties encountered by him in seeking a lymph which would render the human subject immune, Koch found that solutions with dead bacilli caused bad abscesses. All attempts made to cause the absorption of tubercle-bacilli, living or dead, introduced into the subcutaneous cellular tissue, the abdominal cavity or the blood, failed completely. The endeavor by chemical means, as by subjecting the cultures to dilute mineral acids or to strong alkalies, indeed resulted in rendering the bacilli less irritant, but destroyed the immunizing property of the lymph. When he filtered the fluid, it had no better effect than his first tuberculin, the glycerized extract, which has proved so efficacious as a means of diagnosis of tuberculosis, even at so early a stage that clinical observation and physical examination fail to detect the disease.

When after several years of experiments he came to the conviction that the bacilli in an unchanged state could not be absorbed, he sought for means to destroy them mechanically without destroying their characteristic properties, as was done by dissolving them chemically. In former experiments he had found that the bacillus contained two peculiar chemical substances, both of which belong to the class of fatty acids, not saturated. The one is soluble in diluted alcohol and is easily saponified by carbonate of

soda lye, the other only in boiling alcohol or ether, and is not so easily saponified. Both assume the so-called tubercle bacillus tint, and keep this tint after being treated with nitric acid and alcohol. These fatty acids form a connected layer in the body of the bacillus. They protect the bacillus against attacks from the outside and render absorption difficult. The object, therefore, is to destroy this protective envelope, so as to render the tubercle bacilli easily absorbable. All the first experiments failed. Only when well dried cultures were taken and worked about for a long time in an agate mortar without any admixture, it was found that the bacilli decreased in number and that finally only a few remained. In order to get rid of these, Koch diluted the substance thus obtained with distilled water and worked it about by means of a very powerful centrifugal machine which made four thousand revolutions in a minute. The fluid was in about half an hour divided into a whitish, opalescent, but quite transparent upper layer which contained no more bacilli, and a muddy sediment sticking fast to the bottom. The latter was dried again, then worked in the mortar, and by the machine, and was divided as before. This manipulation was continued till nothing remained but a clear fluid.

This experiment was the basis of Koch's further work. At first he convinced himself by experiments on animals and later on human beings that the preparations so gained were all completely resorbable, and never caused abscesses. It was further shown that though the first fluid differed considerably from the others, these were all alike. Koch called the upper layer "Tuberculin O," abbreviated, "T. O.," and the bottom layer "T. R." (tuberculin remainder). Treated with glycerine, T. R. showed that it chiefly contained the ingredients insoluble in glycerine, while T. O. contained those soluble in it. T. O. is very much like the ordinary tuberculin in its qualities. The T. R., however, has a decidedly immunizing effect. It certainly causes some reaction if too large a dose is given, but its effect is quite independent of this reaction. Whilst in using ordinary tuberculin, reaction must be purposely provoked in order to obtain curative effects, Koch says that in using T. R. such reaction should be avoided. For this purpose he tried by gradually increasing the doses which were made to follow each other as quickly as the patient's condition allowed, to make him insusceptible to the effects of a larger dose — that is to say, render him immune to T. R. and against the tubercle bacillus itself. If a person can be rendered proof against T. R. he is proof against the bacillus itself. Koch affirms that he has made such numerous experiments with T. R. that no doubt can exist as to the correctness of his statement.

The treatment is very simple. Injections are made, as with tuberculin, in the back with a syringe. The fluid contains in one cubic centimetre, eight milligrammes of solid, and by dilution with salt solution, the proper dose is obtained. One five-hundredth of a

¹ Deutsche medicinische Wochenschrift, April 1, 1897.

milligramme is given first. This is such a small dose that very rarely any reaction sets in. When there is reaction, the dose must be still further diluted. The injections are made about every second day, and the dose is increased so slowly that the temperature seldom rises above half a degree. As a rule, the dose is increased up to twenty milligrammes, and if no reaction is perceptible, the injections are suspended. Koch has gained the impression that complete immunity is attained about two or three weeks after the application of large doses. The cure of tuberculous guinea-pigs succeeds only if the treatment is begun early. This is the same with human patients.

Koch asserts that this preparation has been applied in a great number of suitable cases, especially of lupus, and in early phthisis, and that he has achieved without exception a success far greater than was ever obtained with ordinary tuberculin.

In Koch's article, as originally published in the Berlin journal, mention is made of the commercial house charged with preparing and selling the new products. In short, the new tuberculin has become a proprietary preparation, with exclusive rights conferred on a certain firm. Koch's article, in a true commercial spirit, was withheld from publication *five months* till this pharmaceutical house was ready to supply the market; then the new discovery was trumpeted through the secular press some time before the publication of the article and telegraphed abroad with the name of the firm favored with the sale of the new product. The Berlin medical press and some of the Paris medical journals have very properly denounced the whole transaction as unworthy of a man of Koch's scientific eminence.

There is, to be sure, something to be said on the other side in regard to the preparation of an article requiring such careful and precise manipulation. But this difficulty could doubtless have been met in a more truly professional spirit. Whether the matter of Koch's new announcement is better than the manner, and is going to respond more satisfactorily than the first tuberculin to the hopes of the scientific world and the prayers of humanity, time must and will be allowed to show.

THE ANATOMICAL NOMENCLATURE OF THE NERVOUS SYSTEM.

It is said that there are something over ten thousand names in the chief languages applied to the six hundred parts of the central nervous system, which would indicate that the nomenclature of that part of anatomy, like the rest, is in a state of considerable confusion. Against that confusion Dr. Wilder, of Ithaca, has battled for many a year, and in a recent number of the *Journal of Comparative Neurology*¹ he has summed up the result of his labors.

That the nomenclature advocated by Dr. Wilder possesses many advantages must be admitted. The

terms are often briefer, they can be inflected, they are of classical origin, and they are often more definite; but they are in an unknown tongue, and the constructions of the English language are set at naught. Desirable as such a nomenclature might be if applied to a new subject, it is to be remembered that reforms are of slow growth in this as in every other matter. Many good New Englanders reckon to this day in the shillings and pence of the colonial era, and the most ardent advocate of the metric system will be puzzled to tell how many kilometres he "scorched" on his new '97 wheel. *Præcibum*, *paracœle*, *ripa* and *diacœle*, are strange terms even to the few who know something of cerebral anatomy, and the lover of English undefiled shudders at *dorsad* and *caudad*. Some love a good resounding term like *iter a tertio ad quartum ventriculum* in spite of the American desire for a short word, and others cling to the old associations with *Rolando*, *Willis* or *Herophilus*. Even the acceptance of a few of Dr. Wilder's terms by the American Neurological Association does not prevent its members from still talking of dorsal instead of thoracic vertebrae.

Dr. Wilder with reason criticises the report of the *Anatomische Gesellschaft* and his in that they have failed to consider the reforms he urges, but so sweeping a change in nomenclature is not to be expected. A few of his suggestions have been accepted and more undoubtedly will be adopted, but the knowledge of the anatomy of the brain possessed by the majority of physicians is unfortunately limited, and too sudden an overturn of their scanty knowledge might lead to despair and an abandonment of effort to know anything of so complicated a matter.

MEDICAL NOTES.

NURSES TO START FOR CRETE.—Mrs. Ormiston Chant, the social reformer, and six nurses, started from London, April 8th, for the Island of Crete.

APPOINTMENT.—Dr. Robert Abbé has been appointed to the newly created position of assistant surgeon to Roosevelt Hospital, with a seat in the Medical Board.

INFLUENZA IN LONDON.—Influenza in London is rapidly declining. For the past seven years it has been more or less fatally prevalent in that city during the month of March and early part of April.

A NEW HOSPITAL IN LONDON.—The Hebrews in London propose to celebrate the sixtieth year of the Queen's reign by erecting and endowing a home and hospital at Tottenham for Jewish incurables. A site of about four acres has been acquired, and accommodation will be provided for fifty patients.

INTERNATIONAL MEDICAL CONGRESS.—It is reported that Germany has notified the Russian government that it will withdraw its representation unless all restrictions with regard to the passports of the Hebrew members of the German delegation are at once with-

¹ December, 1896.

drawn. It is insisted that the Jewish members of the Congress shall receive from the Muscovite authorities identically the same treatment as their Christian colleagues.

A PROPOSED BRITISH NATIONAL MEMORIAL OF JENNER.—On March 31st, a meeting was held in the theatre of the University of London, with the object of establishing a national memorial of Edward Jenner. The Duke of Westminster presided, and expressed the opinion that the proper place for the memorial statue was Jenner's native village of Berkeley. Lord Herschell introduced the resolution, "That the present is an appropriate time to inaugurate a work of national utility in honor of Edward Jenner." Lord Lister proposed "That a subscription be set on foot with a view of promoting, in connection with the British Institute of Preventive Medicine, but in a manner distinguished by Jenner's name, researches on the lines which he initiated." Both were carried unanimously.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, April 21, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 74, scarlet fever 72, measles 179, typhoid fever 7. For the week ending April 28, the following cases were reported: diphtheria 109, scarlet fever 78, measles 203, typhoid fever 4.

FAILURE OF THE BILL TO REGULATE HOSPITALS FOR CONTAGIOUS DISEASES.—The Massachusetts House of Representatives has rejected, by a vote of 106 to 78, the bill to regulate Hospitals for Contagious Diseases. This question was discussed editorially in our issues of March 18th and 25th, when the original bill was before the committee.

SUFFOLK DISTRICT MEDICAL SOCIETY, CENSORS' EXAMINATION.—The Censors of Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society at 19 Boylston Place on Thursday, May 13, 1897, at 2 P. M. Candidates should make personal application to the secretary, John Dane, M.D., 29 Marlborough Street, Boston, and present their medical diploma, or its equivalent, on May 10th, 11th or 12th, between 2 and 3 P. M.

SUFFOLK DISTRICT MEDICAL SOCIETY.—At the annual meeting of this Society on April 24th, the following officers were elected for the ensuing year:

President, Francis H. Brown. Vice-President, Herbert L. Burrell. Secretary, John Dane. Treasurer, Augustus S. Knight. Librarian, E. Joy Jeffries.

Commissioner of Trials, C. W. Swan. Member of Nominating Committee of the Massachusetts Medical Society, W. L. Richardson. Committee of Supervision: S. L. Abbot, A. D. Sinclair. Committee on Social Meetings: Paul Thorndike, John Dane, J. T. Bowen, J. Bapst Blake. Censors: J. B. Ayer, E. O. Otis, George Haven, Harold Williams, John C. Munro.

Councillors: J. B. Ayer, E. M. Buckingham, J. F. Bush, A. T. Cabot, B. F. Campbell, D. W. Cheever, Hasket Derby, F. W. Draper, T. W. Fisher, R. H. Fitz, C. F. Folsom, W. W. Gannett, M. F. Gavin, George W. Gay, C. M. Green, W. H. H. Hastings, J. Homans, B. J. Jeffries, George F. Jelly, F. I. Knight, A. L.

Mason, J. H. McCollom, A. B. Morong, F. G. Morrill, A. H. Nichols, C. B. Porter, A. Post, J. J. Putnam, J. M. Putnam, W. L. Richardson, M. H. Richardson, T. M. Rotch, G. H. M. Rowe, F. C. Shattuck, G. B. Shattuck, A. M. Smuner, C. W. Swan, J. B. Swift, G. G. Tarbell, H. F. Vickery, J. C. Warren, J. C. White, E. N. Whittier.

SMALL-POX IN SOMERVILLE, MASS.—A case of small-pox has been discovered in Somerville. The house of the patient has been quarantined, and his family vaccinated. The Somerville Isolation Hospital was destroyed by fire a short time ago.

AN ENDORSEMENT OF THE COMMISSION ON PUBLIC CHARITABLE AND REFORMATORY INSTITUTIONS.—At the annual meeting of the Middlesex South District Medical Society, held at Watertown, Mass., April 21, 1897, the following resolutions were unanimously carried:

Resolved, That the Middlesex South District Medical Society fully endorses the recommendations of the "Commission to Investigate the Public Charitable and Reformatory Interests and Institutions of the Commonwealth."

Resolved, That the method of dealing with the Insane, advised by the Commission, commends itself to this Society as one which will give them humane, scientific and therefore, truly economical care.

PRIVILEGED COMMUNICATIONS AND PHYSICIANS.—At the trial of a recent will case in the Middlesex Superior Court in Cambridge, Mass., Dr. D. W. Cheever, surgeon in the Boston City Hospital, gave evidence as to having treated the testator from January of the year 1882 to September, 1884. He at first declined to state the nature of the disease, pleading professional confidence as a reason, and mentioning the fact that in eight other States there were laws prohibiting such communications. On the court deciding that he should answer, the witness gave his testimony without reserve. The court held that according to the laws of Massachusetts *lawyers* only were allowed privileged communications.

NEW YORK.

FIRE AT THE WOMAN'S MEDICAL COLLEGE.—The New York medical schools have been great sufferers from fire during the past season. First came the Polyclinic fire, then the one at Bellevue Hospital Medical College, and on April 22d the Woman's Medical College of the New York Infirmary, on Livingston Place, Stuyvesant Square, was partially destroyed. The loss on the building is estimated at \$20,000 and on the contents at \$35,000; but the damage is said to be fully covered by insurance.

THE BILL TO SUPPRESS THE ABUSE OF MEDICAL CHARITY.—It is learned that in the bill for the repression of the abuse of medical charity, as it finally passed the Legislature, the regulations governing all dispensaries offering free treatment are to be formulated by the State Board of Charities instead of by a board composed of representatives of various medical societies, as in the original bill drafted. There were also some other minor modifications in the act.

BEQUESTS TO NEW YORK HOSPITALS.—Andrew J. Garvey, a prominent member of the Tweed ring, who died recently in England, bequeathed half of

his fortune to various hospitals in New York. He is said to have made over a million dollars through frauds on the city, but he saved himself from prison by turning informer on his comrades, and he also managed to retain the spoils which he had accumulated.

DEATH OF DR. LEROY McLEAN.—Dr. Leroy McLean, one of the most prominent physicians of Troy, died at his residence in that city on April 23d, after a long illness. He was a native of Washington County, New York, and in the late war was a surgeon in the Union Army.

A DEATH FROM YELLOW FEVER IN NEW YORK.—Otis E. Bullock, a young man twenty-one years of age, of Haverhill, Mass., who arrived from Colon on board the Panama Railroad steamer *Finance* on April 22d, was found at Quarantine to be suffering from yellow fever, and was transferred to the hospital on Swinburne Island, where he died the same day. The diagnosis was fully confirmed by an autopsy, and the body was afterwards cremated. Dr. Doty, Health Officer of the Port, reports that a number of cases of yellow fever have recently occurred at Colon.

SMALL-POX IN NEW YORK CITY.—During the week ending April 24th there were three deaths reported from small-pox. Since the disease recently appeared twenty-one cases in all have been removed to the Hospital on North Brother's Island from the city and from the Asylum for Idiots on Randall's Island, where several of the children were attacked. The total number of deaths in the city was 749, against 783 during the week ending April 17th. In an estimated population of 1,977,850 this represents an annual death-rate again below 20 per thousand. The mortality from influenza decreased from 17 to 11, but the deaths from diphtheria increased from 20 to 39.

Miscellaneous.

OPENING OF A NEW RECEIVING WARD AND CLINICAL OPERATING HALL AT THE PENNSYLVANIA HOSPITAL, PHILADELPHIA.

WITHIN the last few years the venerable Pennsylvania Hospital has been thoroughly renovated and to a large extent remodelled, while its resources have been largely increased by the erection of additional buildings which are models of modern hospital construction.

The latest of these is the "Garrett Memorial," which was opened April 23d, and which is intended to be used as a reception ward, a clinical and operating hall and also a surgical ward for children. It also contains elaborate apparatus for disinfection of clothing and for the preparation of aseptic dressings for surgical purposes. The apparatus for the preparation of instruments and dressings for operations, as well as for the filtration and sterilization of water, is of the most approved form. One peculiar feature of the building is a special room for operations upon in-

fectious or septic cases, so constructed that the apartment can be filled with live steam and the walls, ceiling and floor thoroughly flushed with streams of hot water, after each operation. There are also rooms for the administration of anesthetics prior to operation, and others where patients may be kept until after their recovery from the anesthesia. There are special apartments for the surgeons when preparing for an operation, which include facilities for bathing. The nurses also have a room immediately adjoining the clinical amphitheatre where they can make themselves ready, in accordance with the requirements of modern surgery, to assist at operations. There are also rooms for examination of patients, including one containing a Röntgen x-ray outfit, and also microscopic and photographic apparatus.

The building is situated at the northeast corner of the grounds, at the southwest corner of 8th and Spruce Streets. It is three stories in height, and is built of pressed brick with brown-stone facings. It has two entrances—one from the street, through a colonial doorway, which is to be used by students attending the lectures; and one in the south for patients, opening on the enclosure. For the sick and injured the entrance is through the hospital gate, midway between Spruce and Pine Streets, on 8th Street, from whence a cemented drive and sidewalk lead to the new building 100 feet to the north. A large glass *porte-cochère* overhangs its entrance.

The dedication services, which were appointed for 3.30 p. m. were largely attended, and consisted in addresses delivered by members of the medical staff introduced by Mr. Benj. H. Shoemaker, President of the Board of Managers.

Dr. Thomas G. Morton, the senior surgeon and member of the medical staff, delivered the opening address, in which he first described the various features of the new building, which had been planned by Addison Hutton and Dr. Thomas S. K. Morton, and which is believed to be equal to any other structure of its description in the world—if, indeed, it is not superior to all others. It was erected through the generosity of one member of a family of philanthropists to whom the hospital was already indebted for very generous gifts. Dr. Morton explained the use of the sterilizing apparatus and incidentally referred to the antiseptic methods of wound treatment. He also spoke of the services to medical education in this country which have been rendered by the Pennsylvania Hospital, which soon after opening in 1752 began to utilize the material for clinical instruction by admitting students to the wards. The present clinical hall is an evolution of the idea which led to the construction of the first clinical lecture hall in the rotunda of the centre building early in the century. Subsequently, that was found to be too small and the more commodious octagonal lecture-hall was opened in 1868, which in turn is now abandoned for the present magnificent structure.

The development and growth of the hospital were attributable largely to its physicians. The early members of the medical staff were men not only of eminence in the profession but also occupied positions of trust and honor in the community. Thirteen of the twenty who served prior to the opening of the present century, were active in organizing the American Philosophical Society. Several were among the founders of the College of Physicians of Philadelphia,

and others became professors in the College of Philadelphia, which afterwards became the University of Pennsylvania. They were men of affairs, leaders of public opinion, who served their country not only in their profession but also in military and in civil life. Under the guidance of such men the hospital was enabled to take a leading place as an educational institution, and its influence has been widely felt in the development of the country.

Dr. J. M. DaCosta, whose Address will appear in full in next week's JOURNAL, also alluded to the services of members of the medical staff, confining his remarks mainly to those of more recent date. As to the value of their teachings he stated that many an enduring gift had been in this way given to the profession at large.

"Clinical teaching" he said, "rightly conducted is a benefit to the sick. There is an opinion that it is only of use to the medical profession and especially to those about to enter it. To them, indeed, it is invaluable, and through them to whole communities. But it is valuable, too, to the patients themselves. The very publicity of it, the hundreds of critical eyes with which it is observed, ensure that the best thought is given to the helpless and the sick. There is very rarely any objection on the part of the patient for having his case publicly investigated. On the contrary he likes it, he regards it as a mark of interest."

In conclusion, a strong plea was made for the establishment of a well-equipped laboratory for clinical, pathological and chemical investigations, which advances in medicine and surgery have now made indispensable in diagnosis and treatment.

Dr. John B. Chapin, Superintendent of the Department of the Insane, made the concluding address in which he traced the development of this department, and dwelt upon the humane methods which have always characterized the management of the insane in the Pennsylvania Hospital.

The company was then invited to inspect the hospital and partake of a lunch provided for them by the steward, Mr. Test, in the hall of the centre building. About three hundred invited guests were present, including many prominent members of the medical profession.

PARALYSIS OF THE POSTERIOR CRICO-ARYTENOIDS.

At a recent meeting of the Lyons Society of Medical Sciences, M. Benoud¹ reported a case of paralysis of the posterior crico-arytenoids during the course of a typhoid fever. The paralysis came on during the third week of the disease, and was accompanied with pain and inspiratory dyspnea with stridor; which increased rapidly, so that during a bath the patient became almost asphyxiated, and preparations were made to do tracheotomy. Microscopic examination showed that it was not a case of typhoid laryngitis, but that the vocal cords felt together during inspiration. A paralysis of the soft palate came on later, and served to confirm the diagnosis of the laryngeal lesion.

Paralyses in the course of typhoid fever are rare. In a recent monograph by Bouley and Mendel 17 cases are reported, of which six concerned the posterior crico-arytenoids.

¹ Lyon Médical, March 28, 1897.

Obituary.

WILLIAM G. WHEELER, M.D.

DR. WILLIAM G. WHEELER, of Chelsea, Mass., whose death was noted in the JOURNAL last week, was one of the most prominent, as well as one of the oldest practitioners of that city. He was born at Columbus, N. Y., August 3, 1821. His early education was obtained at Foster's private school, and at Benton Academy, Little Falls, N. Y. He practised medicine at Little Falls for two years and then moved to Chelsea. When Chelsea was a town he cared for the sick at the poor farm, and later served as city physician. He was a member of the Chelsea School Committee for a number of years. During the Civil War he was one of the examining physicians for the federal government.

He was a member of the American Medical Association; fellow of the Massachusetts Medical Society; member of the Boston Society for Medical Improvement; of the Boston Gynecological Society, being its president in 1875 and 1876; vice-president of the Suffolk District Medical Society in 1861; honorary member of the surgical staff of the Lynn Hospital since 1888, and consulting physician to the Massachusetts Soldiers' Home since 1890.

Dr. Wheeler was influential in securing from the late Hon. Rufus S. Frost the gift of the Frost Hospital, and after the founding of this institution was deeply interested in its welfare.

His interesting account of "An Incident in the Early History of the Introduction of Sulphuric Ether as an Anesthetic," read at the Massachusetts General Hospital on December 1, 1896, and published in the JOURNAL January 7, 1897, will be remembered by our readers.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 17, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York . . .	1,892,332	783	279	9.75	18.46	1.43	3.77	1.82	
Chicago . . .	1,619,226	436	165	13.11	17.25	5.29	2.76	.69	
Philadelphia . .	1,164,000	419	159	13.68	15.84	1.44	5.76	1.44	
Brooklyn . . .	1,100,000	374	129	10.36	15.68	1.12	7.56	1.40	
St. Louis . . .	560,000	180	32	2.20	17.05	.55	—	—	
Boston . . .	494,065	250	75	14.00	21.20	.40	5.60	3.20	
Baltimore . . .	496,315	179	56	7.84	11.64	2.24	3.92	.56	
Cincinnati . . .	336,000	96	—	1.04	13.52	—	1.04	—	
Cleveland . . .	314,637	106	35	1.88	15.98	.94	—	—	
Washington . . .	275,500	106	31	9.40	20.68	2.82	.94	—	
Pittsburg . . .	238,617	85	27	8.26	17.70	2.36	—	1.18	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	87,754	24	1	—	20.80	—	—	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . . .	98,687	39	13	7.68	15.36	—	5.12	—	
Fall River . . .	88,050	—	—	—	—	—	—	—	
Lowell . . .	84,359	30	7	—	20.00	—	—	—	
Cambridge . . .	81,619	31	10	12.92	19.38	3.23	9.69	—	
Lynn . . .	62,355	19	3	5.26	—	—	—	—	
New Bedford . .	55,254	27	13	11.11	22.22	—	7.40	—	
Springfield . . .	51,534	24	4	12.48	—	—	—	4.16	
Lawrence . . .	52,153	20	13	—	30.00	—	—	—	
Holyoke . . .	40,149	—	—	—	—	—	—	—	
Salem . . .	34,437	—	—	—	—	—	—	—	
Brookton . . .	33,157	—	—	—	—	—	—	—	
Haverhill . . .	30,185	14	—	14.28	7.14	—	14.28	—	
Malden . . .	29,709	5	2	—	20.00	—	—	—	
Chelsea . . .	31,295	—	—	—	—	—	—	—	
Fitchburg . . .	26,394	8	0	—	37.50	—	—	—	
Newton . . .	27,422	11	8	—	18.18	—	—	—	
Gloucester . . .	27,663	—	—	—	—	—	—	—	
Taunton . . .	27,093	11	5	9.09	18.18	—	—	9.09	
Waltham . . .	20,877	—	—	—	—	—	—	—	
Quincy . . .	20,712	—	—	—	—	—	—	—	
Pittsfield . . .	20,447	—	—	—	—	—	—	—	
Everett . . .	18,578	8	2	50.00	—	—	37.50	—	
Northampton . .	16,738	—	—	—	—	—	—	—	
Newburyport . . .	14,554	5	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,389; under five years of age 1,091; principal infectious diseases (small-pox, measles, diphtheria and croup,

whooping-cough, erysipelas, diarrheal diseases and fever) 317, acute lung diseases 566, consumption 381, diphtheria and croup 135, diarrheal diseases 57, scarlet fever 40, typhoid fever 31, whooping-cough 30, measles 22, cerebro-spinal meningitis 21, erysipelas 11.

From typhoid fever Chicago 8, Philadelphia 5, Boston, Washington and Pittsburg 3 each, Brooklyn, St. Louis and Providence 2 each, Baltimore, Cleveland and Springfield 1 each. From whooping-cough Philadelphia 12, New York and Chicago 6 each, Brooklyn 2, St. Louis, Washington, Pittsburg and Woburn 1 each. From measles New York and Brooklyn 7 each, Chicago 5, Lynn, New Bedford and Springfield 1 each. From cerebro-spinal meningitis Boston 8, New York 5, Washington, Providence, Worcester, Somerville and Everett 1 each. From erysipelas Philadelphia 4, New York 3, Boston 2, Baltimore and Cleveland 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending April 10th, the death-rate was 18.6. Deaths reported 3,917; acute diseases of the respiratory organs (London) 271, whooping-cough 106, measles 88, diarrhea 46, diphtheria 43, scarlet fever 31, fever 24.

The death-rates ranged from 11.2 in Brighton to 27.1 in Salford; Birmingham 19.2, Bolton 26.2, Bradford 17.6, Cardiff 16.6, Gateshead 17.0, Hull 18.3, Leeds 16.0, Leicester 19.0, Liverpool 23.1, London 17.5, Manchester 26.7, Newcastle-on-Tyne 20.0, Nottingham 19.7, Portsmouth 16.0, Sheffield 18.1.

METEOROLOGICAL RECORD

For the week ending April 17th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direcion of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...11	30.06	39	44	34	100	58	84	N.	N.W.	8	8	N.	C.	.05
M...12	30.18	46	57	35	61	53	57	N.W.	E.	5	3	C.	C.	
T...13	30.50	48	58	38	49	62	56	S.W.	S.	3	14	O.	C.	
W...14	30.02	58	69	46	75	69	64	S.W.	S.W.	12	7	O.	O.	
T...15	29.82	52	61	43	100	94	97	N.E.	S.W.	9	20	R.	O.	.30
F...16	29.88	54	66	41	66	52	59	W.	S.W.	12	14	C.	C.	
S...17	29.80	50	55	44	67	69	68	S.E.	N.W.	7	12	C.	C.	.12

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING APRIL 24, 1897.

J. W. BAKER, surgeon, detached from the "Bennington" on relief and placed on waiting orders.

M. H. SIMONS, surgeon, orders to the "Columbia" revoked and placed on waiting orders.

E. Z. DERR, surgeon, orders detaching him from the "Columbia" revoked.

E. S. BOGERT, passed assistant surgeon, detached from New York Navy Yard and ordered to the Marine Rendezvous, New York.

D. O. LEWIS, surgeon, ordered to Annapolis as member medical examining board, May 17th.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 17, 1897, TO APRIL 23, 1897.

Leave of absence for three months, with permission to apply for an extension of one month, to take effect upon his relief from duty at Fort Bliss, Tex., is granted CAPTAIN OGDEN RAPPERTY, assistant surgeon.

Leave of absence for one month, with permission to apply for an extension of one month, is granted MAJOR JOHN VAN R. HOFF, surgeon, Vancouver Barracks, Wash.

MAJOR CHARLES SMART, surgeon, is ordered to proceed to Fort Sill, O. T., at the proper time to accompany Troop E, 1st Cavalry, on a practice march, for the purpose of making a thorough test of the emergency ration recently established by the President, and when his services are no longer required with the command, to return to his station in this city, Washington, D. C.

CAPTAIN JAMES D. GLENNAN, assistant surgeon, is relieved from duty at Fort Sill, O. T., and ordered to Fort Clark, Tex., for duty, relieving MAJOR HENRY S. KILBOURNE, surgeon.

Leave of absence for one month is granted CAPTAIN WALTER D. McCAW, assistant surgeon, to take effect upon arrival at Fort Ringgold, Tex., of FIRST-LIEUT. CARL R. DARNALL, assistant surgeon.

Upon return of FIRST-LIEUT. FREDERICK P. REYNOLDS, assistant surgeon, to Fort McIntosh, FIRST-LIEUT. CARL R. DARNALL, assistant surgeon, will proceed to Fort Ringgold, Tex., and report for temporary duty during the absence on leave of CAPTAIN WALTER D. McCAW, assistant surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 15, 1897.

BANKS, C. E., surgeon. To inspect service at New Orleans, La., Mobile, Ala., Savannah, Ga., Charleston, S. C., and Wilmington, N. C. April 3, 1897.

McINTOSH, W. P., passed assistant surgeon. Granted leave of absence for one day. April 5, 1897.

STONER, J. B., passed assistant surgeon. To proceed on or about April 12th, from Savannah, Ga., to Norfolk, Va., for duty. April 2, 1897.

GEDDINGS, H. D., passed assistant surgeon. Detailed to represent Department at Twelfth International Medical Congress, to be held in Moscow, Russia, August 19-26, 1897.

WERTENDAKER, C. P., passed assistant surgeon. Granted leave of absence for three days from April 17, 1897.

OAKLEY, J. H., passed assistant surgeon. When relieved at Philadelphia, Pa., on or about April 8, 1897, to proceed to Savannah, Ga., for duty. April 2, 1897.

PROCHAZKA, EMIL, assistant surgeon. When relieved at Delaware Breakwater Quarantine, on or about April 20, 1897, to rejoin station at Reedy Island Quarantine. April 6, 1897.

CUMMING, H. S., assistant surgeon. To proceed on April 8, 1897, from New York, N. Y., to Philadelphia, for duty. April 2, 1897.

PROMOTION.

Assistant Surgeon J. H. OAKLEY commissioned as passed assistant surgeon, April 7, 1897.

SOCIETY NOTICE.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION. — Owing to the fact that the Medical Congress in Washington comes on Wednesday, May 5th, the last meeting of this Section for the year will be held at the Medical Library, 19 Boylston Place, on Friday evening, April 30th, at 8 o'clock, instead of on the above date.

At 8.05 P. M. "The Incision and Method of Procedure in the Removal of Diseased Processes in the Neck, occupying the Space behind the Sterno-mastoid Muscle," by Dr. Frank Hartley, of New York. The paper is a description of Dr. Hartley's operative method in such cases, and the subject is considered under the headings: "The Incision," "The Exposure of the Field," "The Resulting Scar." Dr. G. H. Monks will open the discussion of this paper.

At 8.45 P. M. "Projection Demonstration of an Unusual Degeneration in the Spinal Cord due to Metastatic Carcinoma of the Spine," by Dr. J. H. Wright.

At 9 P. M. "Deformities of the Feet in Art," by Dr. E. H. Bradford. Illustrated by the stereopticon. Synopsis: A description of the shape of the foot as represented in Barbaric, Egyptian, Greek, Roman and Modern art; a description of the shape of a normal foot, and of the foot as distorted by footwear; a description of the Greek sandal and its effect upon the foot; evidence of sandal distortion seen in Greek and Roman art which is copied in modern art.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

RECENT DEATH.

CARL EISENLOHR, M.D., of Hamburg, eminent neuropathologist and anatomist; author of "Spinal Lesions in Pernicious Anemia"; "Pathologic Anatomy of Central Paralysis of the Larynx"; "Simulation of Tabes by Specific Chronic Meningitic Affections of the Spinal Cord," etc., died recently at the Madeiras, of tuberculosis, in his fifty-first year.

BOOKS AND PAMPHLETS RECEIVED.

The International Medical Annual and Practitioners' Index: A Work of Reference for Medical Practitioners. By forty-one English and American Authors. Fifteenth year. New York: E. B. Treat. 1897.

Addresses.**OPENING OF THE GARRETT MEMORIAL CLINICAL HALL AND RECEPTION WARD.¹**

BY J. M. DA COSTA, M.D., LL.D., PHILADELPHIA.

It is difficult for any one intimately connected with an institution so old and renowned as the Pennsylvania Hospital to estimate fully the influence on thought and action of its very antiquity and renown. From the rooms that preceded the one we inaugurate, from the old rotunda, from the newer building in which until now successive generations of eager students assembled, have gone forth lessons that stamped themselves into the professional mind: lessons that stood by the listener in many a trial; lessons of readiness, of expertness, of cool determination in the surgeon; of profound analysis, of keen detection, of skill in meeting untoward symptoms, in the physician.

In the rooms that were anterior to this, have stood and taught those who were not unworthy successors to Rush, who for thirty years was the most conspicuous medical figure in this hospital — as, indeed, by his learning, captivating eloquence, and ardent zeal, he was the most conspicuous figure in the profession in the United States; and to Physic, the dignified surgeon, who, bringing with him into our century the appearance and manner of another time, stood before his class, with his hair powdered and clubbed, their idol, as in the tones of his cultivated voice he gave admirable illustrations of the conservative surgery of which he was the great exponent.

In those rooms taught John K. Mitchell, the versatile and gifted, with the eye of genius foreseeing the part minute organisms play in the production of disease; George B. Wood, as methodical and accurate in his statements at the bedside as everywhere in his respected career; William Pepper, clear in his descriptions and consummate in unravelling obscure processes; William Gerhard, take him for all in all, the greatest observer and clinician America has produced; John F. Meigs, inheriting with his famous name an interest in this hospital from the illustrious and inimitable teacher, whom also it is our boast to have had on our list, and showing here the same skill and kindness that made him the most sought-after physician in the community. In the old rooms also has been heard the voice of Barton, the pride of his colleagues, whose wonderful skill and ingenuity remained a tradition for long years, joined to regret for the early retirement from a profession in which, still young, he attained the first rank; of Norris, the truthful, honest, conscientious gentleman and teacher; of Joseph Pancoast, the brilliant surgical artist, devising processes that seemed to be the result of intuition, and practising, long before it was taught, a kind of antiseptic surgery, of which he himself did not recognize the importance or wider application; and of Agnew, the most esteemed man of our day in the American profession, cool, skilful, daring, yet of the soundest judgment, and a clear, concise, admirable teacher.

Thus, from the days one hundred and thirty years ago, when Bond enthusiastically, with the full appro-

bation of the managers, introduced clinical teaching into the Pennsylvania Hospital, and therefore on this continent — for it was in this hospital that the first bedside instruction in medicine was given — up to our time, there has been a succession of men bestowing publicly their best thought and experience without reward, or thought of reward, on those who were to come after them. It is scarcely possible for one who has long been associated with this hospital, and watched its workings with the eye of affection, to abstain from mentioning the present and his colleagues.

But if I may not speak of the living, I know and feel the influence they exert; I am aware of the love they bear this ancient and renowned institution; I see and hear in many ways how worthily they strive to emulate and equal the best records of the past, and to let the teachings of the Pennsylvania Hospital be distinguished, as in the past, for truthful exposition, sound practice, for enlightened, not blind, conservatism, for earnest wish and endeavor to contribute to medical progress.

The traits of the many distinguished teachers that have been connected with the hospital, and the influence of the character of the hospital itself, have formed indeed a great school of both practical medicine and surgery developing on rational lines. The men have formed part of the hospital; the hospital has formed part of the men. Nor is it only by oral teaching that the Pennsylvania Hospital has been helping to mould and guide the generations that have come here for instruction. It has also done its part in addressing the wider audiences to be reached through writings. It has given many an enduring gift to the profession at large. From this hospital have emanated or been chiefly promulgated the simplest, most direct and most successful treatment of fractures recognized and commended the world over; the method of manipulation in the reduction of dislocations; the use of animal ligatures in surgery; the distinction of typhoid fever as a separate form of fever in America, and as pre-eminently the fever of this country; some of the earliest, and to this day the best, descriptions of remittent fever and its consequences; the connections of joint affections with spinal diseases; the now universally adopted treatment of sunstroke by ice, and other forms of treatment that have become standard. To this — and it is but a partial list — may be added the description of many new operative processes by such masters in the art as Barton, Pancoast, Agnew, Levis; essays and clinical lectures innumerable by observers like Gerhard, Stewardsou, Pepper and Hutchinson. And all have the same stamp of directness, truthfulness, careful observation and practical value. It is greatly to be regretted that so much of this literature is scattered, and has not been collected in the way Guy's Hospital and other great hospitals bring together the work of their men. Some years ago the attempt was made, and two volumes were issued; but the undertaking had to be abandoned with reluctance on account of the expense, with all the greater reluctance because the volumes were most warmly received and lauded.

But to return to the clinical teaching of the hospital. It has taken a profound hold on the medical mind of the county, more profound, perhaps, than we who live in large centres realize. If I may be pardoned for speaking of what has happened to me personally, and of what is, I know, equally the experi-

¹ An Address delivered at the Pennsylvania Hospital, Philadelphia, April 23, 1897.

ence of my colleagues, I have often, when summoned out of town into a remote region, met a physician who, as soon as the immediate cause of our conference had been attended to, would ask me about some case he had heard expounded ten, fifteen or twenty years before at the Pennsylvania Hospital; or quote, in support of his view of the malady before us, a case there seen, and describe it so vividly that it seemed as if it had been but yesterday met with. And once, in the wilds of Colorado, encountering a middle-aged man who introduced himself to me, he asked, almost as his first remark, "Did the patient brought before us at a clinic," the date of which he mentioned "recover?" "What were the subsequent symptoms?" "And did all turn out as supposed?" I am ashamed to say his memory of all the circumstances was better than mine, and I could only give him a general answer, which, I fear, lowered me greatly in his estimation.

This wide diffusion of knowledge, this living interest in the doings of a hospital, is one of the advantages of clinical teaching, and it is certain that the hospital that neglects it, neglects a great means of doing widespread good. Moreover, it shuts itself off from the world; it has no ardent friends everywhere with its name on their tongues; it becomes purely local in its character and aims. It never takes rank with the first institutions of its kind, and must be content with a second or third-rate reputation.

Establishments for the sick existed in the time of the Romans. Hospitals, as we understand the term, have been founded since the fourth century. They were spoken of in the Council of Nicaea in 325, as institutions well-known and deserving support and encouragement. The Hôtel Dieu, with its motto, "Medicus et Hospes," began to receive the sick and destitute about the year 600. The Grand Hospital of Milan, with its several thousand patients, occupies the same building it did in 1466. But who has heard or knows anything of these hospitals, unless from their walls has gone forth something that has taught and been made use of to others; something that, in the minds of regardful men, has become identified with the progress of investigation and of ideas; something that, thrown on the billows of thought, has been carried far onward in the ocean of knowledge?

Clinical teaching, rightly conducted, is a benefit to the sick. There is an opinion that it is only of use to the medical profession, and especially to those about to enter it. To them, indeed it is invaluable, and through them to whole communities. But it is valuable, too, to the patients themselves. The very publicity of it, the hundreds of critical eyes with which it is watched, ensures that the best thought is given to the helpless and the sick. There must be accuracy, there must be the most strenuous effort for relief, where there are many eager watchers; and the influence of all this is, that the habit thus acquired is transferred to ward work, which in its turn becomes more exact. There is very rarely any objection on the part of the patient to having his case publicly investigated. On the contrary, he likes it, and is apt to seek it; he regards it as a mark of interest. To most teachers it has happened to see offended women bursting into tears, because, owing to inability to do so in the time allotted, they had not been taken to the clinic room after being spoken to about it; they were provoked at the favoritism thought to have been shown. Then it must be always remembered that the

very ill, or any whom it might possibly injure, are not taken before the class. No one with a spark of humanity thinks of such a thing. Certainly in this hospital the claims of patients have never been subordinated to bedside teaching, and, judging by the past, and the record to which we hold, never will be. We recognize, indeed, that we bring to this new room much from the time gone by. We are sensible that the old memories, the old traditions, the old spirit, are moving with us into this admirably arranged edifice. We feel their power, and no member of this ancient hospital can be unmindful of the strength of their hold on his fullest exertions and truest sympathies.

But the splendid room in which we are assembled has other uses than merely those connected with teaching. It is but a part of this Garrett Memorial Building that it will be alike a lasting monument to the generous philanthropists that endowed it, and to the forethought, the sagacity, the advanced knowledge, of those that planned it. Here is seen in a completeness nowhere, I believe, as yet equalled, an operating pavilion in which to make modern surgical treatment with its marvellous antiseptic results even more than ordinarily successful. The most minute details are attended to; years of professional experience have contributed to their elaboration. It is the perfection of mechanical ingenuity, the apotheosis of cleanliness, and, with its numerous attractive appliances, its movable tables, its large brass instruments, its adjacent tiled and marble dressing-rooms, would be fascinating, if one could only prevent a thought of the grim purpose of all this beauty from entering the mind.

Then, in this building with its combinations of means, other most valuable arrangements are manifest. There is a room devoted exclusively to operations upon those with infectious diseases that can be filled with live steam at a slight pressure; a room for the employ of the x-rays; there is electro apparatus for resuscitation and treatment; there are rooms for etherization. Then, in the other parts of the building — for it is more than a mere structure for lecturing and operating purposes — are rooms with every facility for immediate treatment of those brought here too ill or too severely injured to be moved farther; there are "quiet" or recovery wards for those whom noise might injure, or who have passed the worst stages; and receiving wards for the reception and distribution to the appropriate places of all patients who are not too ill to be at once assigned to the main medical or surgical hospital. Here, then, is a building of wide interest and beneficial purpose, planned to meet what years of thought and experience have shown to be the most desirable, and executed in a manner that makes it not only a credit to the Pennsylvania Hospital, but to the city, and the country.

This building, too, is only one of the improvements that the present Board of Managers has gradually effected. They have step by step transformed the hospital. An admirable School for Nurses, with a separate building erected by the generosity of the Misses Blanchard; a Surgical Hospital, due to the munificence of the family of their former President, Wistar Morris, whose memory it worthily celebrates; an endowed Out-door Department, with every facility, the gift of William E. Garrett, Jr., one of the same family that gives this Memorial Building; the reconstruction of the old building in a manner that makes it the equal of any modern hospital, — all this surely

shows careful thought, far-sighted action. The community which believes in them has, little by little, occasionally in large sums, supplied them with the means, and, as it is seen how they are used, the springs of benevolence are expanding into broad streams. But they never can be too broad; the need is still great. This hospital, once to a considerable extent supported by those who entered it, is now almost entirely a free hospital, open at all times to those of every nationality and every creed. It still spends more than its income in their support; but, owing to the feeling of affection and pride which the community has for it, and the trust in a management which one of my former colleagues in an address has described as an active, intelligent body which never wastes, never misappropriates, it meets all demands, and increases steadily. It instinctively attracts to it, both in its managers and warm friends, those who love their fellow-men, who have a genius for philanthropy, and calls forth the large bequests that, in virtue of the affection and trust it has inspired, have alone made possible the changes in this hospital, which are so splendidly transforming it. If it continue to grow on these broad lines, it will not be long before, in addition to its antiquity and renown, it will be cited as being one of the foremost developments of the hospital idea in its best form among the modern hospitals anywhere. How all this would have delighted the benevolent souls who founded it! How gladly would Bond be with us to-day, viewing the growth of what his humanity suggested; and if, at the first meeting of the managers in December, 1756, to inspect the new wards before the sick were admitted, they could have foreseen to what the hospital would attain, what would have been their gratification. Perhaps the then President of the Board, the great American, Benjamin Franklin, did; and we can see in the pleasure in his benign face, in the light in his large gray eyes, that there has come to him the vision of what, through the natural sciences so dear to him, through the intelligent care of successors as worthy and as true to their trust as the friends that there surround him, had grown to be structures as complete as his imagination could have pictured, and as full of such appliances as his genius would have delighted in, and have surely added to. If there could come to us from that vision into the unseen world an expression of the appreciation it occasioned, warm words of approbation would surely reach those whose crowned efforts we are to-day inspecting.

But in all the changes, you, the Directors of this great charity, are effecting, one appeal we still make to you for action in a matter we know you are contemplating, and the importance of which our daily work forces on us. Give us a laboratory commensurate with the dignity and reputation of this hospital. It will be one more claim to gratitude, not only of the profession, but of the ill and injured, and, in its far-reaching results, of science and of posterity. It is no longer possible, it is becoming scarcely conceivable, that physician or surgeon can recognize disease as completely, or treat it as well as it can be treated, without the aid of laboratory facilities. Good work he may still do; but it will not be his best, and very far from the best that can be done. The time has passed for mere bedside labor, and in justice to the sick and injured, in justice to those exposed to possible contagion, laboratory work must supplement or guide

professional effort. Crown, then, your work with what is a recognized need of the day! Crown it with what will have the beginnings in it to develop with the wants a portentous future: crown it with a laboratory that now and in times to come will gladden those who look for guidance to this famed institution.

But we well know that for the great plan of which the completed structure we are now in is but a part, neither means nor opportunity exists to accomplish everything at once. For all that has been done already there is true appreciation and gratitude. For the building which is formally opened to-day, let us here express it. It stands as a monument of generosity, of enlightenment, and of ideas carried to perfect conclusion. Noble was the thought that conceived it; noble the thought in one who bore the name of a family that was already among the great benefactors of this hospital to add to a large bequest all that was needed to make the ardently desired beneficent plans a reality. In this Garrett Memorial Building, with an equipment in which nothing that the most advanced science can suggest is absent, pain is to be abolished, the best possible results ensured to the injured and distressed. From here lessons will go forth that will penetrate into every hamlet. Men now, men in years to come, will, during many an arduous struggle of a long career, turn to it with a sense of gratitude to the generous donor, through whose aid many of their difficulties are smoothed, by giving them an opportunity of witnessing how difficulties could be best overcome. And, further, he who is brought to these emergency wards, stricken or so injured that he cannot be moved another step without the gravest risk, the most destitute, the most wealthy, will be treated with appliances and in a manner that not many years ago the most powerful of the earth could not have commanded, and will learn to give thanks reverently, that there were noble-minded souls that so splendidly and thoughtfully provided for his dire necessities.

THE INFLUENCE OF ANESTHESIA ON THE SURGERY OF THE NINETEENTH CENTURY.¹

BY J. COLLINS WARREN, M.D., LL.D.,
President of the American Surgical Association.

GENTLEMEN: In selecting a topic for the annual address before such a body as this, it seemed to me desirable that the opportunity should not be lost to refer to the great event—the fiftieth anniversary of which has so recently been celebrated—an event which is so indelibly associated with American Surgery, but one in the commemoration of which the whole world joined with us.

As one of the staff of surgeons whose predecessors played so prominent a part in the introduction of anesthesia, I feel it incumbent on me to recall to you to-day some of the great changes which it helped to bring about. Let me turn your attention first to the century which preceded anesthesia.

It is difficult to realize the crude state of surgical knowledge and technique, and the relation it still bore to medicine even so late as the eighteenth century. In the previous century it was quite beneath the dignity of a medical man of standing to do any surgical

¹ Address delivered at Washington, D.C., May 4, 1897, before the American Surgical Association.

work.² Capital operations were, however, performed; for we read that Abraham Cyprianus, of Amsterdam, towards the end of the seventeenth century had performed lithotomy 1,400 times, and had also done abdominal section and had championed radical operations for hernia. Amputations were still performed in a very crude way; and in spite of Paré's teachings of one hundred years before, the management of hemorrhage appears to have been of a most primitive character. They were confined to fingers and toes, the forearm and the leg, amputations above the elbow or knee being regarded as a very dangerous procedure. The introduction of the tourniquet by Petit in 1718 brought with it a greatly improved technique, and made possible the selection of a point of election for amputations and the more general use of the ligature and secured the permanent abandonment of the cautery and styptics.

The prejudice against surgery, however, still prevailed, and those who continued to advocate a union of surgery with medicine lost caste with their associates. The students in Freiburg threatened to mob M. von Wuthwehr who in 1774 pointed out the necessity for a union of surgery with medicine. Towards the middle of this century schools of surgery were established for the benefit of the armies, and more attention was paid to instruction in this department at the universities. It is recorded, however, that in Germany at this period it was still considered an important part of the duties of the military surgeons to shave both privates and officers. Finally the Academy of Surgery was founded in 1731. The degrading association of barbers and surgeons was abolished in 1743 at Paris by an edict, and the example was speedily followed in 1745 by a similar act in the English Parliament. Freed from this galling servitude surgery became a separate and distinct branch to be ever afterwards studied and cultivated by educated members of the profession.³ In England particularly, owing to a more careful attention to the study of anatomy, the technique of surgical operations was greatly improved; and many of the methods of operating still in use to-day trace their origin to this period, such as operations for stone, the removal of tumors, and amputations. Pott undertook to divest surgery of much of its horrors.

A prophetic utterance of Pott's in one of his books is interesting: "Many and great are the improvements which the Chirurgic art has received within the last fifty years; and much thanks are due to those who have contributed them; but when we reflect how much remains to be done, it should excite our industry rather than our vanity. Our fathers thought themselves a great deal nearer to perfection than we have found them to be; and I am much mistaken if our successors do not in more instances than one wonder both at our inattention and ignorance."

The means of teaching surgery in Paris were limited, owing to the bad condition of the hospitals. In the Hôtel Dieu the operating theatre was in the St. Jerome Ward, where more operations are said to be performed than in any hospital in Europe. It was placed almost directly over the dead-house, the odors of which were quite perceptible. This ward accommodated twenty beds and an out-patient department.

In some of the adjacent wards the walls were soiled with expectorations and the floors with the discharges of the patients. The mortality in this hospital before the Revolution was one death to every four to five patients who entered. This included many persons who were hardly ill, the insane, and pregnant women. It was the rule that every case of amputation of a limb died.

In 1787 a school of practical surgery was founded by Desault, and the union of the teaching bodies in medicine and surgery was effected in 1794 when the *Écoles de Santé* were established. (These names were soon changed to the *Écoles de Médecine*.)

In England at this period surgery was in a much better condition. This was owing to the fact that the teaching was done largely in private schools and by men of world-wide reputation, for these were the days of the Bells and Hunter. Much as the latter did for anatomy, pathology and surgery, the prejudices of early education still clung to him. In 1753 Hunter was advised to study medicine rather than surgery, as a higher branch of the healing art; and he continued to regard an operation as a tacit acknowledgment of the insufficiency of medicine.

The horrors of surgery without anesthetics caused even surgeons themselves to look upon operative surgery as the lowest, poorest side of their profession. An operation was attended with almost the formality of an execution. The hardest of them are described as steeling themselves to the duty of operating. John Hunter spoke of operations as "humiliating examples of the imperfectness of the science," and pictures the operating surgeon "as an armed savage." He says: "No surgeon should approach the victim of his operation without a sacred dread and reluctance and should be superior to that popular *éclat* generally attending painful operations, often only because they are so."

Abernethy and Cheselden regarded operations as the reproach of surgery. Abernethy felt the strain of operating keenly, it was an added hardship for him to work on a patient who bore pain with fortitude. It is reported that he felt such repulsion to operations that he regarded them as having no place in surgery as a science.

An anecdote illustrating his feeling is related by his biographer. He was performing a severe operation on a woman. He had, as was usual, given her some words of encouragement before he began, and the patient was bearing the pain with great bravery. After suffering some seconds she said earnestly, "I hope, sir, it will not be long."—"No, indeed," replied Abernethy with great feeling, "that would be too horrible."

Cheselden is said to have seldom slept the night before an operation, so much did he dread it. Yet he was always cool and firm and dextrous in its performance.

It is probable that the dread of patients was not confined to the operation, for in early days the after-treatment was of the most torturing description. Every flap of skin instead of being reunited was cut away; every open wound was dressed as a sore, and every deep one was plugged up with a tent lest it should heal. No attempt at first intention was made. Long tents were thrust into wounds of the neck and cheek until the neck and head swelled enormously. Even in compound fractures dressings were thrust

² "Der mediens soll nicht schneiden, brennen, noch Pflaster auflegen, weil es wieder die Würde eines medici nationalis ist, denn es sind fast überall Barbierer, Bader und Steinschneider zu haben."

—Fr. Hoffmann, *Politischer Medicus*, S. 57.

³ History of Medicine, Dunglison.

between the ends of broken bones, as if they had been afraid of the formation of callus.⁴

At the opening of the century the improvement in the technique of the French school was very noticeable. This was due not only to the organizing powers of Napoleon, but to the development of military surgery. The influence of such work as was done by Larrey upon French surgery must have been enormous. It is said that Larrey performed alone in one day 200 amputations after the battle of Moskowa. His operations were not confined to amputations alone. His memoirs contain accounts of double amputations of the thigh, resection of the head of the humerus, pharyngotomy for the removal of a portion of a bayonet compressing the laryngeal nerve, and several cases of wounds of the abdomen complicated with injury of the intestines and bladder — all successful.

Larrey points out that Faure reported after the battle of Fontenoy that of 300 amputations only 30 recovered, but that in his cases three-fourths of the patients recovered. He attributed these results to primary operations and to a more simple, speedy and less painful method of operation. The asepis which in a certain number of cases must have existed is no doubt to be attributed to the rapidity, and therefore extreme simplicity of the method employed. Warm camphorated or sweetened wine often formed an application on the dressing, and may have contributed to the favorable result.⁵

As severe a test as any upon his method was the successful excision of loose cartilages from the knee-joint. The operation consisted of a single cut while the skin was held tense, and was practically a subcutaneous operation; a plaster was quickly clapped on, and the wound healed by first intention. We may still be able to learn something from these old campaigners!

Ollier says: "Rapidity was the quality demanded of all operators, with coolness and accurate anatomical knowledge. To operate well was a most difficult task. These operations were spectacular, but the dressers became afterwards but too well aware of their imperfections. This was particularly true of operations for disease as contrasted with those for traumatism. From 1836 to 1841 major amputations for disease gave a mortality of 50 per cent., while those for transtism were only 3 per cent. The old operators endeavored to operate quickly; those of to-day endeavor to operate well."

The methods of civil practice were of the same rough and ready nature, and considerable skill was shown even by the country practitioner.

Blenkinsop⁶ describes his first experience of this kind — his cross-country riding with his principal to an amputation:

"In this kind of practice," said my companion, "it is necessary to have our instruments well secured: you see I have mine strapped fast around my body, I lost them once when I was going to amputate an arm; but I sharpened a cheese knife and borrowed the carpenter's saw, and got through it pretty well."

Then follows the graphic description of their arrival at a small farmhouse, of the doctor's interview with the man's wife, and of the nature of the injury, which involved an amputation high up in the thigh. The good wife having

been disposed of by being sent on a fool's errand, the case was explained to the patient. "Meanwhile every preparation had been made, and the man's consent had scarcely passed his lips when the tourniquet was applied and the first cut made. 'Attend to me,' said the doctor, 'watch everything I do and I'll explain it afterwards.' I felt a sad sickening and swimming of the head, but kept it down as well as I could, never for a moment taking my eyes off the quivering flesh. I nearly gave way when the bone was being sawed, but happily did not faint, and was as alert and attentive as possible. The operation, I think, scarcely exceeded ten minutes; and when the wife returned, the patient expressed himself comfortable and nearly free from pain."

It is hardly necessary for me to enumerate before such a body as this the rapid improvements which took place in surgery under the lead of the masters of the French and English schools in the early part of this century. The scope of operative surgery was thereby greatly increased, but some improved and elaborate methods brought with them prolongation of the operation and great increase of pain. People were afraid to undergo them. It was only the few who were made of sterner metal that had the hardihood to subject themselves to the ordeal. Such were the veterans of the Napoleonic campaigns, and Ollier relates how in his early days he had occasion to operate upon some of these men who refused etherization, which they regarded as the refuge of cowards, and laid motionless under the bistoury.

Of such material also was Dr. Ebenezer Hunt, who in 1789 consulted the councillors of the Massachusetts Medical Society in regard to a cancer near the ear. They decided that it must be eradicated. It was agreed that on the next day the operation should be performed. Accordingly, in a full meeting Dr. John Warren was selected as the operator. "We must bind his hands," said Dr. Warren. "No cable in Boston could hold them fast," rejoined Dr. Hunt. And with an effort that astonished the physicians themselves, he quietly laid his head upon the pillow and bade them begin. The ear was nearly cut off, though afterwards successfully replaced; then for thirteen minutes the operation continued, and every stroke of the knife so near the auditory nerve was like the report of a pistol. Dr. Hunt did not flinch in the least, though the sweat poured down his cheeks profusely. At length all was done; and as he raised his stately form, his first words were, "Now give me a certificate." Dr. Warren did not understand him, and asked for what reason. "Why," continued Dr. Hunt, "that I was not cropped for making money."

Cases have been reported of death from fright before the operation. Dupuytren said, "La douleur tue comme l'hémorrhagie."

John C. Warren, writing a year after the introduction of anesthesia, says: "In order to form a proper estimate of the value of the new practice, we should endeavor to realize the mental condition which precedes a surgical operation. As soon as a patient is condemned to the knife, what terrors does his imagination inflict! How many sleepless nights and horrible dreams and sinking of the heart does he experience? What apprehension of dangerous bleedings of wounds of vital parts and even sudden death does he paint to himself? And when to these is added the dread of insupportable pain, what a frightful picture presents itself to his mind! No wonder many persons are unable to bring themselves to submit. No wonder that some, worn out to desperation, are led to anticipate their sufferings by a voluntary death. Horror of the knife led a gentleman in this city afflicted with stone

⁴ Physic and Physicians.

⁵ Larrey relates that after the battle of Moskowa he performed amputations at the shoulder-joint on a *chef de bataillon*, who immediately after the wound was dressed, mounted his horse and departed for France. The horse died *en route*, but the officer arrived home safely.

⁶ Memoirs of Dr. Blenkinsop written by himself, London, 1852.

in the bladder to commit suicide." And well might he dread "the exquisite suffering, the spasmodic contraction of the wounded muscle, the irregular pouch-like contractions of the muscular coat of the bladder" which acted as obstacles to the operation of lithotomy before the days of ether.

The same author stated, in a paper in 1844, that in the course of forty years he had been called on to perform all the operations for stone which had been done in Boston. The whole number had not exceeded 25 cases.

It is not to be wondered that surgery languished, and that the old feeling against surgery which was so strong in the last century should leave traces of it among the representatives of surgery of the first half of the present century. Robert Liston, only two years before ether was first used, held practically the same opinion as to the operative part of surgery. In a lecture on operative surgery given in the University College Hospital in 1844, he says, "This is regarded as an inferior part of our professional duties, and truly it is so. The field of operative surgery, though happily narrowed, is still extensive." What a contrast! A great surgeon, two years before the dawn of anesthesia, rejoicing that the field of operative surgery was narrowed!

Students of surgery were taught how to give the least pain. Liston's directions were as follows:

"The divisions of the skin must inflict pain, but there is a way to render it less severe than it would otherwise be. The mode of cutting must be acquired to attain this desirable end. In the first place you must not divide the skin by scratches. You must carry the knife completely through the tissues at once, and doing it with rapidity you will save the patient a great deal of pain. Then again, by cutting the skin from within outwards, instead of from without inwards, you diminish suffering. This mode may be adopted in many operations. In hernias, the removal of tumors and in many amputations the parts may be divided in this way with one-twentieth part of the suffering often enough most unnecessarily inflicted."

Many surgeons abandoned the use of the knife and employed caustics in the eradication of tumors and other forms of chronic disease. Amputation by translixion was generally adopted as being not only more rapid but much less painful.

II.

ANESTHESIA.⁷

The records of ancient history show that physicians and surgeons had in mind the possibility of an agent being discovered, the use of which might prevent pain in surgical operations. The various potions that were from time to time recommended for this purpose have little more than an antiquarian interest.

Although it has been said that the discovery of surgical anesthesia was a surprise, that its advent was marked by no tentative steps, that it appeared to have had no preliminary experimental stage, but burst like a revelation upon the medical profession as well as the community, virtually in the fulness of perfection,⁸ yet a retrospective glance at the history of the previous half-century will show that the idea was working in men's minds more powerfully than before, and that, as Paget says, a great truth lay unobserved, though it

was covered by only so thin a veil that a careful physiological research must have discovered it. Dotted here and there over the stretch of time we find suggestions and hints full of significance to-day, but which at that period found no congenial soil in which to germinate into a substantial addition to the knowledge of the world. One of the earliest of these was that of Davy.

After two years' work he published (when twenty-two) an essay on chemical and philosophical researches concerning nitrous oxide. He observed the peculiar phenomena which gave it the name of "laughing gas," and he saw people made temporarily insensible by it. Among other suggestions, being of a surgical turn of mind, he wrote in his papers: "As nitrous oxide in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

It was during a popular exhibition given in Hartford in December, 1844, by Colton, that an individual while under the influence of the gas sustained several bruises which did not appear to cause him pain. This led one of the audience, Horace Wells, to remark, "A person might have a tooth extracted while under the influence of this gas and not experience pain." At Wells's request Colton went to his office and administered the gas to Wells while Riggs extracted a diseased tooth. The operation was a success, and Wells exclaimed after the effects of the gas had subsided, "A new era in tooth-pulling."

Ether came to be used on similar occasions as well as for "ether frolics" by medical students and others.⁹ An article written in 1818, probably by Faraday, states that, "When the vapor of ether mixed with common air is inhaled, it produces effects similar to those occasioned by nitrous oxide."

Ether had already been known at this time for nearly a century, the earliest period at which this fluid was distinctly mentioned by the name of ether being in the *Transactions of the Royal Society* for 1730, by Godfrey. From this time on the attention of chemists was much directed to ether. It was also often used in the last century for the relief of spasmodic asthma, phthisis and some other diseases of the chest. John C. Warren used it in Boston in 1805, to relieve the distress attending the last stage of pulmonary consumption, and very frequently after that, and notably in the year 1812 in the case of a member of his own family. Dr. Warren states that the manner in which it was applied was by moistening a handkerchief and placing it near the face of the patient.

In 1842 Dr. Crawford W. Long, of Georgia, removed a small encysted tumor about half an inch

⁷ The following letter is interesting in this connection:

CAMBRIDGE, February 15, 1897.

MY DEAR DR. WARREN:—Your note with regard to experiments with ether at the Massachusetts General Hospital in 1836 has reached me.

I remember well our amusements with sulphuric ether; Dr. Samuel Parkman was the house surgeon; I was the house physician, and Mr. C. K. Whipple, house apothecary.

We were especially jubilant when Mr. Whipple ordered a fresh quantity of ether, for it was apt to deteriorate by keeping. Each tested it by breathing it from the bottle till it produced unconsciousness, the others watching the different effects upon each.

We also experimented upon rats in a glass globe until they were entirely motionless, and often wondered that the treatment did them no harm. But with all our experiments we never thought of trying the sensibility under ether, even by pricking with a pin.

It was a great oversight.

As ever, sincerely yours,
MORRILL WYMAN.

⁸ As the *Journal* has recently published a number of papers upon the discovery and practical application of anesthesia, an abstract of this section of Dr. Warren's excellent address is given.

⁹ Hodges: *The Introduction of Surgical Anesthesia*.

in diameter, and he subsequently performed one or two other minor operations. He was not, however, fully satisfied that the anesthesia was produced by the ether, and that it was not the effect of the imagination. His patients were not carried beyond the "state of exhilaration," and he admits that having found ether impracticable, owing to the short duration of the anesthetic state, he therefore abandoned it. Long came very near achieving success, but the conditions surrounding him were unfavorable to such a result.

Meanwhile Wells followed up his personal experience by extracting several teeth, four in all, from several individuals. Wells visited Boston in January, 1845, and applied to Dr. John C. Warren for permission to try the gas. The experiment was made before the class but the patient screamed with pain, an insufficient amount of gas having been used, and the spectators laughed and hissed. It was not, therefore, until fifteen years after the death of Wells that Colton succeeded in bringing the gas into general use as an anesthetic agent in dentistry.

Anesthesia had been the dream of many a surgeon and scientist, but it had been classed with aerial navigation and other improbable inventions.

Warren refers to the sinking of the heart he felt in the distress of very painful operations to which no habit could render him insensible. Such feelings led to various trials with many different agents, with opium in all its forms and other narcotics, even in such quantities as really alarmed him without any satisfactory result.¹⁰ The first scientific account of the employment of hypnotic anesthesia for surgical purposes was given by Recamier and Baron de Potel in about 1821. It was recommended by Cloquet in 1829, who removed a cancer of the breast by its use without pain. Esdaile began to employ it as an anesthetic in surgery in 1846.¹¹ In Boston it was used successfully in the extraction of a tooth in 1836, the patient remaining under its influence about seventeen minutes,¹² but Warren states that mesmerism had never succeeded in cases under his inspection.

In 1839 Velpeau wrote: "To escape pain in surgical operations is a chimera which we are not permitted to look for in our day. A cutting instrument and pain in operative medicine are two words which never present themselves, the one without the other, in the minds of patients, and it is necessary for us surgeons to admit their association."

Scientific men were, however, now beginning to turn their attention to these anesthetic agents. For instance, M. Ducros¹³ presented a memoir to the Academy of Science in Paris in which he showed that sulphuric ether applied to the buccal and pharyngeal membranes of certain animals produced an immediate sleep and that it produced similar effects on man. He recommends its use in this way in hypochondriasis and insomnia. Rubbed upon the tongue, the soft palate and the tonsils ether produces an agreeable sleep. He advises its use also in puerperal eclampsia, in hysterical and epileptiform attacks and in trismus. Virchow also states that in Berlin in 1846 he had made independent investigations on "Aether Narkose."¹⁴

Warren said of ether in 1848: "Its general properties have been known more than a century, and the effect of its inhalation in producing exhilaration and insensibility has been understood for many years, not only by the scientific, but by the young men in colleges and schools, and in the shop of the apothecary who has frequently employed it for these purposes." Ether was even used in surgery, Thatcher, of Plymouth, employing it as a refrigerator for the reduction of strangulated hernia. Such was the situation when we first begin to hear of Morton.

[Dr. Morton's experiments and struggles with ether; his relations to his advisers; the final decision that the crucial test lay in a public demonstration in the operating theatre of a hospital in a surgical case; his introduction by Dr. J. Mason Warren to Dr. John C. Warren; the latter's consent to try the new agent; the story of the first operations have been already retold in the JOURNAL.]

Thus the great step was taken, the "thin" veil was suddenly thrown aside, and what had been before a surmise of the scientist, a pastime of the idle student, and the dream of the surgeon, suddenly assumed practical form and shape and became a living truth, revealed in all the fullness of perfection.

In looking back over the period just outlined, a half century later, it seems as if the observer could see with a clearer vision and reason with calmer judgment. The minor controversies of those days have already faded into the past, while the salient truths stand out all the more clearly.

In due course of time science gave first one and then another anesthetic to the world, but the world toyed with them for half a century, nearing and receding from the truth in a tantalizing way, until a practical man came forward, pushed aside one or two apparently unimportant obstacles, and, guided by good advisers, was fortunate enough to put the new method to that crucial test for which it had so long waited. As Ashurst has well said: "Surgeons went on in every country cutting and burning, and patients went on writhing and screaming, until on the 16th day of October, 1846, when surgical anesthesia became the priceless heritage of the civilized world."

III.

SURGERY AFTER ANESTHESIA.

Warren, writing in 1848, says: "A new area has opened to the operating surgeon. With what fresh vigor does the living surgeon, who is ready to resign the scalpel, grasp it and wish again to go through his career under the new auspices! . . . Since the fear of pain has diminished, the number of surgical operations has remarkably increased, at least in our vicinity."

An editorial article in the *Lancet*, written about six months after ether was first used in Boston, states that the number of operations in the London hospitals had more than doubled.

Mason Warren writes: "The domain of surgery has been enlarged by admitting into the list of justifiable operations some whose severity would otherwise in most cases have prevented even the thought of attempting them."

Erickson writes, in 1878: "During the last thirty years the actual number of operations performed in hospitals has enormously increased, and probably in a

¹⁰ Warren on Etherization, 1848.

¹¹ American Journal of Obstetrics, September, 1896.

¹² Boston Medical and Surgical Journal, July 6, 1836.

¹³ Gazette Médicale de Paris, March 16, 1846.

¹⁴ Boston Medical and Surgical Journal, October 15, 1896.

great measure owing to the employment of anesthetics."

Marshall, the emeritus professor of surgery at the University College Hospital in 1885, compared the surgical work of the hospital in Liston's time in 1844 and his own.¹⁵

Although the proportion of fractures and wounds was about the same in the two periods under comparison, the number of surgical cases admitted to the hospital in 1885 was more than double the number admitted in 1844. A numerical comparison, however, gives an inadequate idea of the increased amount of surgical cases; for in 1844 simple cases were treated as out-patients, and venereal cases in large numbers were admitted to the wards. In 1883 more patients with malignant growths came for operation. This was attributed, not to the increase of malignant diseases, but to the willingness of persons to be operated upon under anesthesia.

Diseases of the bones and joints did not differ much comparatively. Stricture of the urethra was operated upon very much more often in 1883.

In the whole year of 1844 there came into the surgical ward of the University College Hospital only one case each of ovarian tumor, of aneurism and vesico-vaginal fistula. Jones records¹⁶ that from 1830 to 1850 he found no recorded case of excision of the knee; but in 1850 to 1854 there were 21 cases. With the increase in surgical work came a great increase in the relative cost of hospital maintenance. In the University College Hospital the expenses for surgical supplies in 1844 was £206, and in 1883 £1,765, of which £1,275 went for modern surgical dressings. The cost of instruments in 1883 was more than doubled.

The following table, taken from the record-books of the Massachusetts General Hospital, enables one to compare the work done after the advent of anesthesia with the period immediately preceding it.

Operations.	For Five Years Before Anesthesia.		For Five Years After Anesthesia.	
	Number	Mortality, Per cent.	Number	Mortality, Per cent.
Total operations	184	6½	487	9
Tumors (excluding breasts) . .	39	5	122	3
Amputation of breast . . .	13	8	30	10
Plastic operations	6	..	33	3
Amputations (hand, foot, arm, leg)	13	15	65	23
Hernia. Strangulated-gut freed by incision	5	60	1	..
Hernia. Reduced by taxis under ether . . . .	..	..	2	..
Hernia. Radical cure, plas- tic . . . .	..	..	..	..
Hernia. Radical cure, in- jection iodine . . . .	..	..	11	..
Cystotomy . . . .	..	..	4	75

had no preliminary experience. The revelation upon the medical profession as well as the community, virtually in the fulness of perfection,⁸ yet a retrospective glance at the history of the previous half-century will show that the idea was working in men's minds more powerfully than before, and that, as Paget says, a great truth lay unobserved, though it

⁷ As the Journal has recently published a number of papers upon the discovery and practical application of anesthesia, an abstract of this section of Dr. Warren's excellent address is given.

⁸ Hodges: The Introduction of Surgical Anesthesia.

duction of ether was over two and one-half times as great as that in the five preceding years.

The question whether anesthetics increased mortality or not was one which was much discussed formerly. Simpson believed that they did not. Arnott brought forward figures to show that the mortality had been increased 12 per cent. in amputation and 28 per cent. in lithotomy. Erichsen also believed the mortality-rate had increased since the use of anesthetics in operative surgery. Curling gives the mortality of amputations of thigh and leg in the London hospitals for 1837 to 1843 at 41 per cent. During 1847, in 73 cases in which an anesthetic was given, the mortality was 19 per cent. At the Pennsylvania Hospital the mortality of amputation from 1835 to 1840 was 36 per cent.; from 1840 to 1845 it was 20 per cent. From 1850 to 1855 it was 23 per cent.; and from 1855 to 1860 it was 31 per cent. At the Massachusetts General Hospital the death-rate was, as a rule, increased in the different classes of operations. The rapidity with which certain operations were performed undoubtedly favored asepsis particularly in all aseptic cases, and probably in any operation which could be done quickly and thoroughly.

In many cases of spreading sepsis rapidity was a bar to thoroughness, and results were correspondingly unsatisfactory.

A young man presented himself at the Hôtel Dieu in 1845, with palmar abscess; but as no opening was made, the arm became involved the following day, pus having found its way under the annular ligament. The bistoury was produced, plunged deeply between the pronators and supinators of the forearm, and carried up rapidly from the wrist to the bend of the elbow: the arm fell open and a pint of matter instantly escaped, but with it jets of florid blood from the brachial end of the wound. The brachial artery had to be tied; and when the reporter left Paris, the surgeons were contemplating amputation at the shoulder joint.¹⁷

The contrast of anesthesia in such cases is a strong one. The days of anxiety which visited patients and their medical advisers previous to an operation were, with the discovery of anesthesia immediately swept away, and the problem of the relief of disease by surgery became vastly simplified. Surgeons could now operate promptly but with deliberation and thoroughness.

The enormous increase in the number of surgical cases brought about conditions for which hospitals and surgeons were alike unprepared.

When we reflect how few of the aids to surgical diagnosis were possessed by surgeons in 1846, the amount of work which they accomplished presents all the stronger contrast. They had no endoscope, no ophthalmoscope, no modern aspirating-needle, no clinical thermometer, and no laryngoscope. The stethoscopes were far from perfect. Examination of the blood and the quantitative analysis of the excretions were unknown. The microscope was just coming

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We also experimented upon rats in a glass globe until they were entirely motionless, and often wondered that the treatment did them no harm. But with all our experiments we never thought of trying the sensibility under ether, even by pricking with a pin.

It was a great oversight.

As ever, sincerely yours,
MORRILL WYMAN.

But with this great increase in hospital activity came a corresponding increase in hospital pests; and it seems highly probable that during the twenty years following the introduction of anesthesia the opportunity to study septic diseases was greater than it ever had been. Mason Warren, writing in 1864, says: "I remember the time when, after an amputation or the excision of a breast or a large tumor, it was the universal rule to bring the edges of the cut integuments together nicely with straps, compress and a bandage with the full assurance of finding the wound nearly healed at the removal of the dressing. At the present day, however, such a result is seldom attained in city practice, union by first intention being for the past twenty years the rare exception, suppuration almost always ensuing in the deeper parts."

In about 1860 septic processes ran rife at the Massachusetts General Hospital, and the writer well remembers a virulent epidemic of hospital gangrene which got quite beyond the control of the surgeon. In the winter of 1867-68, in Vienna, Billroth's wounds were full of pyemia, erysipelas, and hospital gangrene, as the autopsy table but too frequently showed. Students and many practitioners of to-day have but a faint conception of the appearances of wounds and ravages of sepsis with which the surgeon of that time had to contend. As a house-officer at the Massachusetts General Hospital, I can well remember the tone of despair with which my father remarked, on learning from me of a fatal result following one of his operations, "I am often nearly disgusted with surgery!"

It would be beyond the scope of this article to undertake to show how the speculation of Liebig¹⁰ and others became tremendous truths in the hands of Pasteur and Lister, and the beneficent influences which the next great discovery of the century exerted upon human suffering.

It is interesting to note, however, the strangely appropriate order in which the great facts of medicine and surgery were given to the world in this progressive century. Hunter had already roused the thirst for knowledge which led others to rush forward and immortalize themselves as pioneers in anatomy, like Bichat, or modern surgery, like Cooper. Then came the work of the pathologists, such as Cruveilhier and the host of German pioneers. Just as the surgeon had brought his operative technique to a high degree of perfection, and science had made a practical instrument of the microscope, and preparation had been made for another advance all along the line, then came anesthesia, which widened the field of research sufficiently to occupy the world busily for another quarter of a century. It gave to surgery a more powerful impetus than it did to experimental medicine. At a moment when surgery seemed rushing wildly onward to its own destruction, with science lagging far behind, Lister came to the rescue, and scientific equilibrium was again restored.

Gentle ether, the Old Man, produces an agreeable sleep. He advises its use also in puerperal eclampsia, in hysterical and epileptiform attacks and in trismus. Virchow also states that in Berlin in 1846 he had made independent investigations on "Aether Narkose."¹⁴

erating-theatres which surround it, but it will never be torn down. It will always remain as one of the conspicuous landmarks of this wonderful century — as a shrine of surgery sacred to that moment "when the fiercest extremity of suffering was steeped in the waters of forgetfulness and the deepest furrow in the knotted brow of agony was smoothed away forever."

AN HISTORICAL SKETCH OF ABDOMINAL SURGERY.¹

BY JAMES R. CHADWICK, M.D.,
President of the American Gynecological Society.

Two events have occurred during the past year of vital significance in the development of abdominal surgery. The death, on January 31, 1897, of the most active promoter of this branch of surgery — I allude, of course, to Sir Spencer Wells; and the semi-centennial celebration of the discovery of surgical anesthesia on October 26, 1896, without which discovery abdominal surgery could never have been extensively practised.

I propose to sketch briefly the steps by which abdominal surgery has been so marvellously extended during the lifetime of one man, laying special stress upon what might otherwise be inadequately remembered, his influence on the progress of this branch of surgery.

Abdominal surgery in general is all the outcome of ovariectomy, so that in its early days the history of the former is included in the history of the latter. For this reason we Americans have an additional incentive in reiterating the indisputable fact that the first operation was done on our soil by one of our own countrymen.

On the 13th day of December, 1809, in a frontier town of Kentucky, Dr. Ephraim McDowell successfully removed from Mrs. Crawford an ovarian tumor weighing twenty-two pounds. This was not a haphazard operation undertaken by a rash or ignorant surgeon. Dr. McDowell was a man of great natural intelligence, of dogged determination, of striking conscientiousness, of unfailing piety, whose early professional education in Virginia had been supplemented by two years' (1793 and 1794) study in Edinburgh under some of the most famous surgical teachers of his time. He had undoubtedly been inspired by the enthusiastic prediction of one of his preceptors, Mr. John Bell, that ovarian tumors might some day be successfully removed, so that, fourteen years later, when Mrs. Crawford, whose malady was hastening rapidly to a fatal termination, consulted him, he dared to advise the removal of the tumor, and to do it, in spite of the howling mob before his house, threatening his death in case of failure. Before operating he wrote out and put in his pocket a prayer, which was answered in the most successful manner. "O God! in performing this operation in the London hospitals that number of operations had more than doubled."

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¹⁴ Boston Medical and Surgical Journal, October 15, 1896.

a case of attempted ovariectomy published in the October number of the *Edinburgh Medical and Surgical Journal*, 1824. In 1825 Mr. Lizars further attempted ovariectomy three times, with so unsatisfactory results that the operation was discontinued in Scotland, and was not repeated for twenty years. He was, however, the first to do the operation in Great Britain. Meanwhile Dr. A. G. Smith, of Danville, Ky., did the operation unsuccessfully in 1818, and successfully in 1823; Dr. Nathan Smith, of Yale College, successfully in 1820 at Norwich, Vt.; Dr. J. A. Gallup unsuccessfully in 1824 at Woodstock, Vt.; Dr. D. L. Rogers, of New York, successfully in 1829; Dr. J. C. Warren, of Boston, unsuccessfully in 1830.

Meanwhile, before his death on June 20, 1830, McDowell had operated thirteen times, with at least eight recoveries.

On the continent of Europe the operation had found but little favor. In Germany the first operation was performed by Chrysmar, of Isny, Würtemberg, in May, 1819; but from that year till 1850 but 23 operations were done with only seven recoveries.

In France there was no operation until that by Dr. Woyerkowsky in 1844, and but three (with two successes) up to 1850.

From the "Table of Ovariectomies" published by Dr. W. L. Atlee in 1851, I obtain the fact that up to January 1, 1847, but about 150 operations had been performed in the world.

Just before this date the world had been electrified by the announcement of a discovery of more transcendent importance for the welfare of humanity than any that had preceded it in the history of the world. On October 26, 1846, Dr. W. T. G. Morton demonstrated the fact, that the fumes of sulphuric ether would render a human being insensible to pain, by administering it to a patient at the Massachusetts General Hospital in Boston, U. S. A., while Dr. John C. Warren excised a tumor from his neck without his experiencing the slightest sensation.

Luckily for the rapid dissemination of this announcement and its prompt adoption throughout Christendom, it came vouched for by surgeons of eminent standing and unquestioned integrity.

This event gave an immense impulse to surgery in general, not only for the reason that patients would submit willingly to the knife from the knowledge that the procedure that promised a chance of life or escape from protracted suffering, was absolutely free from the intense anguish which had previously attended all operations; but also for the reason that the time consumed in the operation had ceased to be an important matter, so that surgeons could dissect leisurely and carefully where they had formerly had to hurry through their task for fear that the patient would die of shock upon the table.

If this was true of surgery in general, how much more must it have influenced the performance of ovariectomy where the thought that their vitals were to be invaded by the knife of the surgeon must have appeared more terrible to the suffering women than the slow death to which they knew themselves to be doomed by the progress of the disease. While there may have been other women whose fortitude was as great as that of Mrs. Crawford, who, with a full understanding of the nature and hazard of the operation, and of its never having been performed before, accepted the risk and endured the torture, yet the majority

must have shrunk from the ordeal. The operator, too, must have needed all his nerve and skill to conduct an operation to a successful issue with the patient shrieking and writhing in agony. While I have been unable to discover that the ovariectomists of the day, in their reports, laid any stress on this new procedure as an important factor in facilitating their work, a notable spread of the operation is apparent in the ten years following this discovery.

Between 1847 and 1857 the number of operations increased rapidly but still in the hands of comparatively few operators. These were still chiefly in America and England. In the former the most determined operators were Drs. John L. and Washington L. Atlee, Peaslee, Burnham, Kimball and Dunlap; in England Drs. Clay, Bird and Baker-Brown. Up to the end of 1856 there had been only 97 operations in America, with 54 successes; in England 123 operations, with 76 successes; in Germany 47 operations, with only 13 successes. In 1850 there was a discussion of ovariectomy at a meeting of the Royal Medical and Chirurgical Society on November 12th, in which there was general complaint that the incomplete and unsuccessful cases had not been reported. The consensus of opinion was strongly condemnatory of the operation.

The years 1856 and 1857 were made famous in the annals of ovariectomy by the renowned discussion in the Academy of Medicine of Paris. Up to this time ovariectomy had been completed but four times in France, twice successfully. All the disputants but one—Cazeaux—condemned ovariectomy as a rash, unjustifiable procedure.

We now come to the "Revival of Ovariectomy" as it was called by Spencer Wells in the title of one of his introspective papers, his participation in which earned for him the name of the "Greatest of Ovariectomists." Before setting forth his share in this movement, I should feel called upon to dilate upon his early training where these data not to be set forth more fully elsewhere in this volume. Suffice it to say that when he settled in London in 1863 he had never seen a case of ovarian disease. His first incomplete attempt to remove an ovarian tumor was in December, 1857; his first complete operation in February, 1858; before the year closed he had done two more operations, both successfully; in 1859, 11 cases; in 1860, six cases; in 1861, 11 cases; after which the number increased at a rapid rate. The secret of his success did not consist in any special procedure, but by attention to a multiplicity of details which in the aggregate did a great deal to ensure recovery. Simple bandages for keeping the patient quiet supplied the place of an objectionable crowd of assistants. Every spectator had to declare that he had not made a post-mortem examination or been in a dissecting-room, or attended any case of infectious disease within a week. The room, bedding, clothing, sponges and instruments received the utmost attainable purification. The incision in the abdominal wound was shortened; the cyst was emptied before it was drawn out; extreme care was taken to prevent the entrance of ovarian fluid into the peritoneal cavity; and likewise to cleanse the cavity of all blood or fluid which had entered it.

The favorable results which he achieved by these details had far less effect in reversing the verdict of the profession, than the absolute openness with which he

operated in the presence of authorities, and the perfect honesty with which he published every case, successful or otherwise, doing his full duty by stating "operated in the presence of A, B and C," and the exact time and the conditions under which every fatal case terminated. Every result could be corroborated by unimpeachable witnesses and records. By this means he silenced the criticisms passed upon previous operators, with more or less justice, of concealing their unfavorable results. Under these conditions public opinion rapidly changed in England. In February, 1859, he reported his first five operations to the Royal Medical and Chirurgical Society, and by 1860 the verdict of the profession was reversed. In 1862 he reported to the same Society his first 50 cases of ovariectomy. From this date his publications were numerous. In 1865 he published his first book "Diseases of the Ovaries: Their Diagnosis and Treatment," being a full clinical report of his first 114 ovariectomies. In 1872 he published a new book under the same title, being a full summary of the subject with tables of 500 cases: in 1882 another, entitled "Ovarian and Uterine Tumors; their Diagnosis and Treatment," and lastly, in 1885, another, entitled "The Diagnosis and Surgical Treatment of Abdominal Tumors."

Of course, during the early years of this period other operators did not fail to follow his lead, notably Thomas Keith of Edinburgh, who vied with his acknowledged master in painstaking attention to the details of the operation and absolute honesty. The relations of these two great men was admirable in their appreciation of each other. Writing in 1863, Keith says: "No one has done more than Mr. Wells to improve the operation, and simplify its after-treatment; and it gives me pleasure to acknowledge that when I commenced these operations I took him for my guide." In 1884 Wells says: "Keith was one of the first to follow me, and did more than any one else at that time to assist in the revival of ovariectomy. I had done eight cases when he began, and ever since we have gone on, side by side, very friendly rivals, assisting each other, comparing notes, not always running on the same track, but always equally anxious to perfect the operation. You all know how wonderful his success has been. Some of his later cases of the removal of uterine tumors are unsurpassed as surgical achievements."

It was my fortune to witness many of Mr. Wells's operations in the spring of 1873, and in some instances to assist him. I shall never forget the impression his strong personality made upon me, and the admiration his honesty and skill inspired. As an instance I especially recall being his sole assistant in an operation in Birmingham, when, the moment his first incision laid bare the surface of the tumor, he stopped and said in a low tone through lips which never seemed to move, hardly to open, "Hullo! what's that?" With two fingers he explored the tumor and the abdominal cavity, then, turning to the patient's physician who had maintained from the outset, contrary to Mr. Wells's opinion, that the tumor was an enlarged spleen: "Doctor, you were right, it's the spleen." After a moment's consideration he said, "I think I'll take it out," enlarged the incision and took it out. Unfortunately the woman died on the fourth day. Two weeks later when I presented a letter of introduction from Wells to Keith in Edin-

burgh, the latter had hardly glanced at my card when he said "I have been waiting to see you; now sit right down and tell me all about the removal of that spleen." I make no apology for introducing this personal episode, because it illustrates better than words the character of these two great ovariectomists, and discloses the secret of their successes and of the confidence which they inspired.

The influence of Spencer Wells's work and publications was not long in being felt on the continent of Europe. In France only three operations, all fatal, were performed between 1857 and 1862. In the autumn of 1861 Nélaton visited London purposely to witness the operation of Wells and Baker-Brown; returning full of enthusiasm, he lectured at the Hôpital des Cliniques on October 25th upon the five operations that he had seen, and appealed energetically to the surgeons present to lay aside their exaggerated fear of this operation. His influence, together with the appearance of several publications, led to the performance of 14 operations in 1862. Koeberlé, of Strassbourg, did his first operation on June 2, 1862. Péan did his first in November, 1864. Up to April 1, 1867, there had been 116 reported cases, with only 47 recoveries.

In Germany there had been only 55 operations, with 40 fatal results, up to 1863. From 1864 to 1867 there were 125 operations with 65 deaths.

In Austria the first operation was in 1866; and there were only 12 operations with 11 deaths up to 1871.

Meanwhile, in America the operators were as active as in Europe, but their work had not the influence upon the rest of the world as was its due, probably for the reason that the operators were to a great extent country surgeons who were not as ready with the pen as with the scalpel, so that the work of each was but little known beyond his immediate field of practice. A notable exception was Dr. Washington L. Atlee, of Philadelphia, who bore the brunt of the contest to overcome the prejudice against the operation. Up to 1855 Dr. Atlee had done 31, and before his death in 1878, 387 ovariectomies. He was ably seconded by Dr. E. R. Peaslee, of New York, who did his first operation in 1850.

Spencer Wells performed ovariectomy over 1,200 times, reducing his mortality with every successive hundred cases. He lived to see the old dread of opening the peritoneal cavity banished from surgery, to see the operation of ovariectomy accepted all over the world; and he must have taken intense delight and pride in the thought that to his labors, more than to any other man, was this revolution attributable. He died of apoplexy in France on January 31, 1897, three days before his seventy-ninth birthday. With characteristic independence his body was, by his request, cremated at Woking, England.

Before alluding to the final great innovation that has stimulated the practice of all surgery, but more especially that of abdominal surgery, I must ask you to glance with me for a moment at the studies which led to this great step.

Louis Pasteur, born on December 27, 1822, was in 1854 nominated to be Dean of the Faculté des Sciences at Lille, France, and desiring to be of use to one of the principal industries of that Department, which was the fabrication of alcohol from beet root and from corn, resolved to devote a part of his time to the study

of fermentation. To make clear the profound significance of this word I venture to transcribe a paragraph from the life of Pasteur by his son-in-law:

"All that has lived must die, and all that is dead must be disintegrated, dissolved or gasified; the elements which are the substratum of life must enter into new cycles of life. If things were otherwise, the matter of organized beings would encumber the surface of the earth, and the law of the perpetuity of life would be compromised by the gradual exhaustion of its materials. One grand phenomenon presides over this vast work, the phenomenon of fermentation. But this is only a word, and it suggests to the mind simply the internal movements which all organized matter manifests spontaneously after death, without the intervention of the hand of man. What is, then, the cause of the processes of fermentation, of putrefaction, and of slow combustion? How is the disappearance of the dead body, or of the fallen plant to be accounted for? What is the explanation of the foaming of the mush in the vintage cask? Of dough, which abandoned to itself, rises and becomes sour? Of milk which curdles? Of blood which putrifies? Of the heap of straw which becomes manure? Of dead leaves and plants, embedded in the earth, which transform themselves into soil?"

The ancient theory to account for this mystery received the endorsement of Liebig and was enunciated by him as follows: "The ferments are all nitrogenous substances—albumin, fibrin, caseine; or the liquids which embrace them, milk, blood, urine—in a state of alteration which they undergo in contact with the air.

"The oxygen of the air is, according to this system, the first cause of the molecular breaking up of the nitrogenous substances. The molecular motions are gradually communicated from particle to particle in the interior of the fermentable matter, which is thus resolved into new substances." Living organisms had been observed by a few investigators in certain fermentations, but their presence was regarded as a purely accidental fact, which, instead of favoring the phenomenon, was injurious to it. Without going into the details of his experiments it suffices to say that from his first investigation of the lactic fermentation Pasteur was led to take an entirely different view. In this fermentation he recognized the presence and the actions of a living organism, which was the ferment. By ingenious experiments he established these facts beyond question and presented them in a memoir to the Academy of Sciences in 1857. The question of spontaneous generation next engaged his attention, and in 1860 he won the prize offered by the Academy of Sciences for the best essay on this question, his conclusion being, "spontaneous generation is a chimera."

In 1861 he discovered that the agent of butyric fermentation consisted of little, moving, thread-like bodies; also that a microscopic organism was the cause of ammoniacal decomposition of the urine; in 1863 he established the fact that the bodies of animals in full health are sealed against the introduction of the germs of microscopic organisms; in 1863 he discovered the vibrio of putrefaction.

The publication of these facts brought the attention of Davaine back to observations which he had made in 1850 without appreciating their significance, when he was investigating splenic fever with Rayer: "That in the blood of splenic fever patients, are found little thread-like bodies about twice the length of a blood-

vessel." These observations, when repeated by Davaine in 1863, were vigorously assailed, and the doubts thus raised were not finally refuted until Pasteur demonstrated the correctness of Davaine's assertions in an unanswerable manner. It is manifest that Pasteur's researches on the part played by microscopic organisms in fermentation had changed all the preconceived ideas about viruses and processes of disease. A great scientific fact had been established that a virus might consist of microscopic beings. The virulence was due to their life.

In 1865, an apothecary, Lemaire, published the researches that he had been conducting for many years on coal-tar and its most important ingredient, carbolic acid. By extensive experiments on higher and lower animals and plants, he established the fact that this chemical material destroyed all organic life in a very short time. He asserted that the changes which were observed in wounds were likewise produced by living organisms; that suppuration was produced by germs that entered wounds from the air and then multiplied. "If this theory is correct," says Lemaire, "it must be possible to prevent suppuration by treating fresh wounds with an emulsion of coal-tar or with carbolic acid."

Joseph Lister, in Edinburgh, Scotland, first made a practical application of these discoveries of Pasteur and probably of those of Lemaire. His indebtedness to the former he acknowledged. In 1867 he published a paper in the *Lancet* setting forth his first crude methods of excluding germs from wounds. "If," as he said correctly, "all decompositions are caused by external germs, those changes, so often observed in wounds, with their harmful effects, must be produced by germs entering the wounds from without. By exclusion of these germs all decomposition in wounds must be capable of prevention. As these germs are everywhere present, in the air, in water, on the instruments, on the dressings, care must be exercised to destroy them by some suitable germicidal means, such as carbolic acid, before the materials come in contact with the wounds." On the basis of these theories he worked out a method of treating wounds into the minutest details, tested them in the Edinburgh Infirmary, and, after proving the correctness of his views by practical demonstration, he presented them for the verdict of the medical world. Despite the force of his evidence and the enthusiasm of his advocacy, it took many years to obtain a recognition of so profound a reversal of all antecedent principles on which surgery had been based. In 1873 I saw Lister operate, but swayed by the scoffings of all my preceptors whose views I accepted unquestioningly, I failed to grasp their significance. Notwithstanding the success of Lister's claims and methods it must be remembered that the actual germ was not recognized and described until 1878 when Pasteur discovered that the vibrios of acute septicemia reproduced themselves by spores.

Of course, it was at once seen by ovariotomists how vital this innovation of Lister's, if correct, would be in affecting the results of their work. Among the earliest to study Lister's methods was his fellow-townsmen and friend, Thomas Keith, who from 1869 to 1871 used a two-per-cent. solution of carbolic acid in sponging out the peritoneal cavity, antiseptic ligatures, and had all his instruments rubbed with carbolic acid, etc., without any improvement, however, in his results, but rather the reverse. He consequently gave

up the method in ovarian work, trusting entirely to care and cleanliness. After the technique was improved by the addition of the spray, he returned to the antiseptic method in 1876. Before this his mortality in the last 100 cases was under ten per cent.; in the 50 operations performed subsequently under the spray he lost but two patients, only four per cent. More striking results were gradually announced by other surgeons, but the Germans presented the most conclusive argument in favor of Listerism in a letter to Mr. Wells from Olshausen, in 1878, giving his results and those of Esmarch, Hegar and Schroeder: without spray a mortality of 50 cent. in 65 cases; with spray a mortality of 20 per cent. in 155 cases.

By 1880 the antiseptic method was pretty generally adopted, the world over, for abdominal operations, with a reduction of the rate of mortality, from the outset, of more than fifty per cent.

All honor to Sir Joseph Lister for introducing the most important modifications of our surgical methods since the world began.

I have thus far confined my story entirely to a consideration of abdominal surgery for the purpose of the removal of ovarian tumors, because the whole development of abdominal surgery originated in ovariectomy. It now behooves me to call your attention to the other purposes for which the abdominal cavity is invaded. First among these is for the removal of fibroid tumors of the uterus. The earlier operations for this purpose were done when fibroids had been erroneously taken for ovarian tumors. In 1885 Dr. Thomas Keith dedicated his monograph on "Hysterectomy" to our fellow, Dr. A. J. C. Skene of Brooklyn, in the course of which he says: "I offer you something that is not mine but is of American origin; for though hysterectomy may have been performed by others by misadventure, if I greatly mistake not, the first case of uterine fibroid, diagnosed before operation, was removed by my old friend Dr. Kimball, of Lowell." This is true.

It is not my purpose to follow the development of hysterectomy for fibroids; for though it presented special difficulties in its earlier days, it followed ovariectomy and was the first harvest from the knowledge acquired through the latter operations. Its history is very similar to that of ovariectomy and is largely written by the same hands: Kimball, Burnham, the two Atlees, Peaslee and Thomas in America; Brown, Bantock, Keith, Savage, Wells and Thornton in England; Hegar, Billroth, Kaltenbach, Schroeder in Germany; Koeberlé and Péan in France.

The fact established by ovariectomy, with the aid of antiseptics, that the peritoneal cavity could be opened with impunity, has since led to operations upon all the other organs contained therein. During ovariectomies the intestines were accidentally wounded, the rents were sewed together with perfect restoration of function, thereupon the abdomen was opened for the cure of fecal fistulæ, for the removal of the inflamed appendix, for the relief of strictures of the intestines whether by peritoneal bands or cancerous invasion of its canal, for the removal of gangrenous portions of intestines in inguinal or umbilical herniæ, to repair perforations by gunshots or by stabs, etc. Other organs in the abdominal cavity, enlarged by new growths or inflammations, were removed, such as the spleen, the kidneys, etc.; cancers of, or foreign bodies in, the stomach, gall-stones, calculi in the kid-

neys and ureters were excised; floating kidneys were anchored; tumors of the liver were cut out; diseased Fallopian tubes were tied off; tubercular peritonitis was found to be curable by simple abdominal incision; Cæsarean section and Porro's operation were performed with marvellous success; the cancerous uterus was excised; the adhesions fixing a retroverted uterus were torn asunder and the displacement corrected by stitching the fundus to the abdominal wall, etc. The field of the surgeon was thus immensely extended; previously his work had been confined chiefly to the outside of the body, then he did not hesitate to explore every recess of the abdominal cavity and its contents. He did not stop there, when he had learned that he had means to enable him to enter with impunity one of the great cavities of the body, he applied the knowledge and skill thus acquired, to devising means of attacking the other cavities. He found that he could open the great joints without danger of entailing subsequent immobility; to reach the thoracic cavity he did not hesitate to excise segments of the ribs; and finally, most miraculous of all, after locating the diverse functions of different parts of the brain, he bored through the cranium and lifted depressed fragments of bone that caused epilepsy. He evacuated collections of blood or pus, or removed new growths or foreign bodies that by pressure upon the nerve centres were producing paralysis of distant limbs or impairment of intellectual processes. All this and much more is the outcome of ovariectomy.

So we find ourselves at the end of the nineteenth century with less reason to dread the opening of the abdominal cavity than our immediate predecessors had to dread even minor operations upon the body and limbs. The benefit of this advance to the individual and to the race is manifest; but I would beg you to pause a moment and consider with me if this *furia operativa* has not gone too far — whether the time has not come when we must take an account of stock and differentiate more closely, in the individual cases, whether a removal of the whole or a part of the generative organs of a woman is the only method available for the cure of the diseases or injuries to which these organs are liable, and, furthermore, whether such removal, while attended with but trifling immediate risk to her life, is to be regarded as the only resource which nature, supplemented by art, has of restoring a suffering woman to comfort and health. We have been told abundantly of the millions of operations done; we have had spread out before us long series of cases in which the uterine appendages have been removed, or the uterus itself extirpated; but have we learned what the future fate of these women has been. We know that fame and fortune have come to those among us who have been most successful in our ratios of mortality after operations; we do not know how many of the surviving patients have cause to bless us for our technical skill. No one can deny that for the race it is an unmixed evil to have a large percentage of our women, still in the childbearing age, rendered suddenly sterile beyond recall. No one can deny that it is an opprobrium on the healing art that we must remove organs, even though unessential to life, because we cannot cure them. Is not our suddenly acquired ability to do these operations leading us too far and too fast in sacrificing organs and functions that might be preserved with benefit to the race, and without detriment to the individual? A paragraph from the

posthumous work of Léon Lefort, as published by Dr. T. C. Minor in the *Cincinnati Lancet Clinic* is much to the point:

"What are the causes of the *furia operativa*, that more cruelly overwhelms foreign than modern French surgery? The first and most legitimate is the absolute and firm confidence—let us add, even blind confidence—that all surgeons seem to have who believe in antiseptic precautions. The general condition, diathesis, psychical or moral influence peculiar to the patient, count for nothing; all the danger is from atmospheric germs; and providing they can prevent the entrance of such, it is believed that any one may open a belly or an articulation without the slightest danger. What good is it to waste time by a long and tiresome course of medical treatment, when by an operation, whose evident dangers are refused recognition, one can cure quickly? What good is it to worry over such a trivial thing as a diagnosis, when by merely cutting a patient open one can determine whether a suspected disease exists or does not exist?

"A so-called surgeon recently expressed himself as follows: 'My patient was aged nineteen years; she suffered from her bowels, and I could only establish my diagnosis by the touch; and, as she was a virgin I feared to deflower her by making a vaginal examination. I thought it much preferable to make an exploratory incision in the abdomen, and found she had no disease.' Think of it. To prefer opening the abdomen to the vaginal touch, when by very little precaution the touch may be practised, while wholly respecting the hymen. This is modern gynecology with a vengeance!"

It daily falls to my lot, as one who has not been carried away by the present *prurigo secandi*, to see those women who have been operated upon by my more venturesome colleagues, and to find that results are by no means as uniformly successful in relieving symptoms as the operators are wont to report.

The cessation of function in the generative organs of woman has always been rightly regarded as a period fraught with serious and protracted disturbances of the general system. It is contrary to reason to suppose that the artificial arrest of these functions by the removal of a part of the system can be practised without even greater peril than when nature effects this end. The natural menopause is attended with a profound derangement of the nervous system, not infrequently with impairment of the mental faculties; it is followed commonly by an excessive accumulation of adipose tissue; it is uniformly followed by an atrophy of the whole genital tract, with diminution in the calibre of the vagina, which renders the woman incapable of fulfilling her marital duties. All these sequelæ of the natural menopause are likely to occur, and have, in my experience, occurred, as a result of the operations which we are now considering. How much more pronounced are these ultimate effects likely to be in a woman in whom the change of life is artificially produced in the early years of her genital life when the nutrition and other functions are in full vigor. Of course, if the mishaps attendant upon childbearing and the diseases invading the sexual organs are incurable by other means than the surgeon's knife, exposure to these sequelæ of the menopause may be the lesser of the two evils; but let us not operate without an eye to the future as well as the present. We are all aware that the great dread of all women, cancer, is likely to

occur during the climacteric years; we do not know whether the cessation of that function is the determining cause of this greater prevalence, and whether we may expect a like effect to attend, or follow a menopause brought about artificially at an earlier age.

The time has come when another almost untrodden field is spread out before us. I mean investigation and experiment to see if methods cannot be devised for treating diseased tubes and ovaries, after the abdominal cavity is opened, without complete extirpation. A slight attempt in that direction was reported to this Society in 1893, by Dr. Polk, when he described operations in which only portions of the ovaries were removed. This is looking in the right direction. Should we not be experimenting to see if we cannot evacuate serum or pus from an occluded Fallopian tube without sacrificing it and its corresponding ovary, as is the custom? Should we not familiarize ourselves with nature's method of cure of an inflamed tube. I recall a case in which I opened the abdomen two years ago for the relief of retroversion with adhesions of the fundus to the rectum. I found both tubes occluded at their fimbriated extremities and containing a slight amount of fluid, which I assumed to be serum, not pus. Against the protests of my two assistants, I left the tubes untouched on the ground that they had been healed by a process of nature, and contented myself with stitching the fundus to the abdominal peritoneum. The woman has been perfectly well ever since, and has, I believe, a much better chance of a comfortable existence than she would have had, if I had removed both tubes and ovaries, as I should have done had I been of a less conservative temperament.

I do not expect the above remarks to carry conviction to those who are elated with their surgical achievements; but they are conclusions that I have reached and speculations in which I have ventured to indulge, after twenty-four years of special practice in which I have done my fair share of operating, and I trust they will be deemed worthy of your consideration.

PRESIDENT'S ADDRESS.

DELIVERED BEFORE THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, WASHINGTON, MAY 1, 1897.

BY FRANCIS SEDGWICK WATSON, M.D., BOSTON.

GENTLEMEN:—Last year I lost, through a misunderstanding on my part, the opportunity to thank you for the privilege you then gave me of being your presiding officer at this meeting.

I beg to offer you my excuses for the mistake, and to ask you to accept my thanks now, which, believe me, are not the less warm because of their being delayed.

The programme promises so much that is important and valuable, that I am reluctant to occupy even a few moments in speaking of other matters.

I will ask your permission, however, to say just a few words.

I think it must have been a matter of surprise to some of the least conservative of us even, to have seen the large amount of new material annually contributed by our members to this branch of surgery—a field thought to be already pretty thoroughly explored and cultivated before this Association was formed.

I forget which notable surgeon of Europe it was that made the rash assertion, some ten or fifteen years ago, that the limits of operative surgery had been reached, and that in the future we must look for advance along the lines of perfected technique and the appropriate selection of cases only. In the overwhelming refutation that overtook this dictum, the workers in our special branch of surgery have taken their full share, and we have only to look at the record of the work of the members of this Association during the last ten years, to feel that we have well sustained our part in the general progress.

This leads me to speak once more of the loss I think we sustain in not having the Transactions of the Association published.

I remember a remark of Mr. Treeves to the effect that he had derived more benefit from records of well-reported cases than from any medical essays that he had ever read. In the main I agree with this view, which of course was not intended to minimize the importance of purely scientific work, and believe that the clinical experiences of such observers as those constituting this Society, would, if collected into volumes of Annual Transactions, be the best books of reference on the subject to the profession at large, as well as a source of satisfaction to ourselves. I earnestly hope that the Association may see its way to doing this in the future.

There is another suggestion I would like to make, which, if adopted, would, I think, give an additional interest to our meetings, and this is, that each year we shall take some special subject for individual investigation, and report upon it at our next annual meeting.

Each year I look forward to meeting my *confrères* here with the certainty born of repeated experience, that I shall hear the results of work that is earnest, thorough, and very often original; and not the least among the attractions which I anticipate, and which have drawn us so strongly together, and maintained the vitality of the Association, and given us so much pleasure in its meetings, has been the absence of all disagreeable controversy, and the high standard of professional courtesy which has characterized our relations and debates, which I trust will never change.

Permit me to welcome most cordially each and all of you, and to proceed without further preface to the work before us.

TENDENCIES IN MEDICINE.¹

BY J. M. DA COSTA, M.D., LL.D.

It is expected of the President of your Association that he offer some remarks as introductory to the scientific papers that are to occupy your attention, and every presiding officer has done so, expressing himself on subjects for some time in his mind or to which he has been recently giving heed. Thus, diversified and excellent addresses have been made, some treating of medicine and its aims in a broad, philosophical spirit; some reviewing its achievements; others giving most erudite and valuable historical information. In my turn I ask that you will indulge me if I present a few thoughts on what seem to me in our science the best tendencies of the day, as well as on certain causes that, with all the wonderful work being done, and

with the immense energy and industry of the devoted laborers in four continents, retard its still broader and steadier development.

The greatest advance of our time—it seems trite to mention it to such an assembly—is the ardent study of the causation of disease. Students have speculated in all ages on the causes of disease; but these have been, for the most part, half-hearted speculations, made so by the feeling of impossibility of reaching a conclusion, or dogmatic assertions that, believed in for a time, soon became of interest only to the curious searchers for fragments on the shelving beach of science. Now, the recognition of minute organisms, their study, their artificial culture and modes of growth, their secretions, their chemical characters, their likes, their antagonisms, have let us into the secrets of another world and are showing us the way in which infective maladies originate and the laws they obey. We are looking for infection in every disease; we are often keenly pursuing it where it probably does not exist; at all events, not in the shape of bacteria, which in our day we accept as a term almost synonymous with infection. A sense of causation, formerly deficient, has been replaced by a most acute sense, and by a desire for unremitting search. What is still greatly needed is, I think, an appreciation of how infection may light up slow processes and lead to structural complications, such as are found, for instance, in the exanthemata. We have also much to learn of bacteria that exist normally becoming abnormal in certain perverted conditions, either in manifold growth, as happens with the bacillus coli communis, or in character. What we consider the cause may thus be only the consequence of disease. The soil and its forces, too, are to be studied and critically examined.

But the power of this little, invisible world is mighty. It is told of Napoleon that he could never understand the fame of Cuvier. He spoke of him, with something like contempt, as only occupied with small things. Yet smaller things conquered even him, the great conqueror. It was the plague bacillus, not Sir Sidney Smith, that compelled him finally to leave Syria and give up his dream of subduing the East, like another Alexander.

Other than mere bacteriological work forms a most valuable part of the contribution of the laboratory to the investigation of disease, and in the last decade has placed this investigation on a much higher plane. The microscopical and chemical examinations of the secretions and excretions and of the blood have become our daily duty. The chemical examinations, which, dealing, as they may be made to do, with the constantly varying problems of life in disease, have been temporarily overshadowed by the ardor of bacteriological research, will, with widening fields, resume their former prominence. The time is indeed at hand in which, without the ready access to a laboratory manned by experts in all these lines, or the association with a trained laboratory assistant, no physician can do his patients, himself, or his science justice.

Closely connected with the laboratory investigation of disease, especially with its chemical investigation, is the study of the effects of the products generated by decomposition of albuminous matter, producing, when developed in the dead body, the substances known as ptomaines, when in the living body, as leucomaines. The recognition of these agents, so fre-

¹ President's Address delivered before the Association of American Physicians in Washington, D. C., May, 1897.

quently poisonous, is explaining many obscure processes, is leading to new and close scrutiny of others and to search after means of neutralizing their toxic influence. It is with pride that this Association can view the history of this branch of research, for the fruits it has yielded have been largely gathered by the efforts of some of its own members.

Another of the best results of the achievements of our time is seen in the effacement of the strict division between medicine and surgery, or rather in the recognition that there are no lines separating them, but lines becoming continuous, on which joint action proceeds. We see this in the whole clinical history of appendicitis and its progressive unfolding; the more the medical part is studied and rendered precise, the more exact become the indications for operation and the appreciation of the chances of this. The same may be said of abscess and of tubercle of the kidney; of the investigations of the character of effusions into pleural, or pericardial, or peritoneal cavity; and of many other well-known conditions that surgeons and physicians are now studying together. This new tendency is sure to counteract not only the excessive specialism of our day, but to give us once more broader physicians and surgeons, taking the keenest interest in each other's work.

One of the greatest improvements in our generation is in the much better appreciation and larger use of hygienic means, of systematic exercise, of baths, of regulated rest, of out-door life. Then, too, when medicines are given they are much more generally used singly, with a view to their direct effect, and not in excessive combination. Moreover, the substitution of extracts and of active principles for many of the nauseous drugs has taken away the terror and disgust with which medicines were regarded. It is, from a pharmaceutical point of view, at least, no longer a punishment to be ill. The satire of Molière is lost to the playgoers of our generation. The highly appreciated answer of the Bachelor of Medicine, when examined for his doctor's degree, that the remedies are always "*Clysterium donare, postea seignare, ensuite purgare,*" would fall at present on totally unsympathetic ears; for now there are delightful capsules, and triturates, and pills of esthetic colors—"dear little pink pills," as I have heard them called, though the dear little pills happened to contain strychnine. And the boy of the period is not tempted to view an open window as the only means of getting rid of the hated bottle; he may, indeed, want to take too much of it, because, with all its potency, it is sweet and pleasant.

The tendency of our time is to endeavor to overcome disease, and not merely to observe and palliate its ravages. We are going back to the doctrines of our forefathers, abandoned for a time, because, with an expanding knowledge from the study of pathology, the means they possessed were found to be, for the most part, totally inadequate. Thus there was a period of nihilism and expectancy in therapeutics. But so-called rational expectancy is but a confession of impotency. Now, the tendency is once more aggressive. We are trying directly to choke or to subvert morbid action, and doing this partly through the old, transmitted remedies of former generations, but employed with a better understanding of their real qualities, partly by new agents furnished by chemistry and by constant research in other fields. Of the former, the freer and more scientific administration of digitalis

may be taken as an illustration; and the use of mercury, though in a different manner, is infinitely more prevalent than it was some years ago. To bleeding, too, I, for one, believe that we shall return; only it will be not the mere abstraction of blood perverted by disease, but there will be, with this, immediate attempts at the reconstruction of the blood by supplying it with the proper saline fluid and other ingredients. In the second class, the bromides, chloral, the nitrites and nitroglycerin are prominent, as is a whole group of antiseptic agents. Many of these—it is especially true of the nitrites—have come to us from the physiological laboratory. One of the most interesting attempts at radical therapeutics is the endeavor to counteract the bacteria of disease by substances that form in the body which neutralize their toxic products. This antitoxin treatment is brilliant and hopeful, and is being tried in many affections, pre-eminently in diphtheria, in tetanus and in erysipelas. It cannot be said that as yet it has led to any great results, though the evidence is decidedly in its favor in diphtheria. It seems scarcely worth while to push it in erysipelas—at least in erysipelas that the physician sees—for the mortality in this is, under any treatment, but very slight. How valuable the antitoxins will prove as preventives remains also to be solved. More productive thus far has been the use of attenuated virus, as for instance, in Pasteur's treatment of hydrophobia; the influence in cholera, in yellow fever, in bubonic plague, is now under keen observation. The effects on tuberculosis must be taken thus far as the expression of hope rather than of fact. The next decade will prove whether the x-rays, which are making such wonderful additions to diagnosis, will also have their therapeutic triumphs. In it, too, we may look for some striking developments of suggestion, not only as explaining mental and morbid processes—what more extraordinary and thought-starting, for instance, than the recently tested production of special cutaneous affections by it?—but also as a harnessed therapeutic force. All this is in the line of present investigation; and there will be much disappointment and wasted labor in particular points, but it is not too sanguine to believe that there will be also a solid outcome which will immensely advance scientific medicine.

There are, with all these tendencies of our day that work for good, some which, whether growing out of them or whether the exaggeration of old hindrances, have to be, in the interest of true science, strenuously guarded against. One that is very evident is the tendency to immediate generalization. The discovery of every new bacterium is supposed to instantly revolutionize the science of medicine, and is announced with all the air of the unexpectedness of genius. Fortunately or unfortunately, one may be discovered every day, and a man may thus find himself with three hundred and sixty-five opinions on the tenets of his art in the course of the year; but this would not daunt the enthusiasm of the insatiate generalizer:

"Ten thousand great ideas filled his mind,
But with the clouds they fled, and left no trace behind."

Fixity of opinion in medicine is a virtue, if the mind remain open to proof and is in sympathy with advance; and it is this freshness of mind, joined to a good judgment, through which is best estimated the true value of the many facts constantly discovered in

an advancing science like ours. Clinical medicine, indeed, must remain the final court of appeal for the purposes of the practitioner of medicine. Before that court will come and be listened to with sympathetic interest, as eloquent advocates, those who are presenting the claims of special studies. But these must be well supported and judged in their bearing on the whole before new laws are laid down. And we see that the more we investigate and the more we know, the more will old questions assume different aspects, the more they will have to be retested; there is no finality—there can be none—in medicine. When the last word is spoken we shall have a perfect science; until then there must remain for us a certain amount of empiricism, especially in treatment.

There is no doubt that, considering the amount of work done and recorded, medicine—especially clinical medicine—would be much more advanced if the records were differently made, and were not so vague as they often are. What is more provoking than to see constantly such loose statements as this: "The examination was negative." Negative as to what? If applied to the action of an organ, as to what part of its action? If to secretions, to what part of their constituents? How much easier to say, even if it have been an incomplete examination, for what exactly they were investigated, and how much more certain to be of use for comparison in similar cases. Worse still is it with the records of treatment. This is an ever-recurring expression: "The usual treatment was employed." I saw this in a recent volume of *Transactions* with reference to the congestion of the lungs in typhoid fever. What is meant? Is there such a thing as a fixed treatment for it the world over? It might mean dry cups to some; ammonia, turpentine, digitalis, or yet different things to others. Then the utter absence of mention of doses makes it impossible to say whether any remedy was fully tested, or to compare its action when given in small or in large quantities.

For very many purposes records, as published, are valueless; in truth, they impede progress, and a little care would make it otherwise.

Then there are records which, made even to the full limit of industrious exhaustion, are so badly and confusedly presented that they bury themselves from the start. A little more time spent on their expression might make them absolute and convincing. It would be indeed well if in all our professional literature there were something more of the learning of the scholar and the clearness of the literary artist; men who followed the master, Harvey, in other points besides profound and productive research. A few more Watsons and Pagets, Trousseaus and Hyrtls would make knowledge easier to obtain, more constantly with us, forming much more a part of our daily life and application. It is true that if, in our science, we must choose between profound inquiry and its clear enunciation, we shall choose the former. It is a pity, and it is unnecessary, that there should be any occasion for a choice. The French with their lucidness in scientific matters, set all other nations an example. The countrymen of Goethe, foremost in investigation, following his avowed contemptuous indifference to style, are the greatest sinners against clearness and vivid expression. They evidently believe in the reverse of the thought with which Johnson excused the inaccuracies in Goldsmith's "Animated Nature," that, if he once began to make

experiments, life would be too short for him to get his book written.

One more tendency of the day let me notice, which is not for good, and undoubtedly retards progress. It is the excessive publication of half-knowledge, of doubtful fact, and of loose inquiry. The propensity of authorship is an old disease, but it has assumed a development commensurate with the prodigious development of everything else in the age in which we live. It is harmless in journalism, less so in literature, but positively dangerous in science; for it fills this with immature or false observation, and takes the time of others to remove the obstructions placed in the stream of knowledge. With some, want of sufficient training leads to it and absence of inquiry into what has been already ascertained; in others, it proceeds from a girl-like genius that, in place of letter-writing, pours itself out in medical periodicals, fascinated by penning sentences full of pseudo-scientific commonplace. It is far from being a disease only of the untried or ignorant; famed workers, too, may succumb to it, listening, perhaps, to the entreaties of friendly and sleepless editors. Who knows that it is not, after all, a physiological function, giving full play to brain-centres in very rare use—centres situated in what Oliver Wendell Holmes has called the idiotic area of the brain?

But whatever the retarding influences, they are not to any extent checking the onward course of medicine. The numerous inquiries, the keen experimentation and close research, the general thoughtfulness, are developing a resistless scientific method; resistless because it is true. Medicine is no longer an art founded only upon empirical observation, no longer a purely deductive science; it is also becoming an inductive one. The great body of the community is touched with friendly interest in watching its growth. With the advance of the scientific method special systems are crumbling; future ones are impossible. There can be no more pathies; the general intelligence will prevent it, for educated men are recognizing the broad base on which medicine is resting, and that truth is sought in it by the same means that are used in physics and in the highest development of other sciences. In our midst with all this, conviction is becoming clearer, purpose waxing more resolute. We see, without pang, castles which have crowned rocks being turned into dismantled memories, because we know that something stronger, that will defy all time, will stand ultimately on the old commanding sites. Every one of us must work until he discovers in his work his true self, and then aid with what he finds he can do best in helping all. With every one of us there is a mission to assist the general advance.

MEDICAL BADGES. — Russian doctors, according to the *New York Sun*, are hereafter to wear as a sign that they are legally qualified to practise, a silver oval plate an inch and a half long by an inch wide, on which is a design of two intertwined serpents. The object is to increase the safety of the wearer in the less civilized parts of the country. Russia borrowed the idea from Chicago, according to the *Journal of the American Medical Association*; as badges indicating their calling have been worn by physicians in that city for over a year.

Original Articles.

PURULENT PERICARDITIS FOLLOWING PNEUMONIA.

PERICARDOTOMY; DRAINAGE; SUBSEQUENT EMPYEMA; OPERATION FOLLOWED BY ERYSIPELAS AND AXILARY ABSCESS; RECOVERY.

BY F. C. SHATTUCK, M.D.,

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E. W. C., twenty-six years old—of good habits, family and previous history, and of rather slight build—came down suddenly October 22, 1895, with general malaise. Physical examination was negative, and everything pointed to the diagnosis of influenza except a white-cell count of 17,900. There was no rigor, only chilly sensations.

October 25th. The diagnosis was established by the development of consolidation at the right lower back, extending forward through the axilla into the right front in the next few days.

October 28th. A loud friction râle, accompanied with pain, appeared over the whole cardiac area. White cells 26,400.

October 31st. Pericardial friction very faint, but no effusion could be detected.

November 2d. The pneumonia seemed to be clearing in a measure; pleural friction was heard in the left axilla; pericardial friction had disappeared.

November 6th. For the first time signs of notable pericardial effusion were detected, the heart sounds being faint and dullness extending half an inch to the left of the left nipple.

November 9th. Signs indicate a diminution in the amount of pericardial effusion. Fine crackling râles in left axilla.

November 14th. Pericardial effusion has increased again. Dullness one and one-half to two inches beyond left nipple.

November 18th. Nausea and vomiting rendered rectal feeding necessary. Paradoxical pulse. White count 12,950.

November 22d. Paradoxical pulse very marked. Condition critical. On consultation with Dr. E. G. Cutler, the pericardium was aspirated in the fifth intercostal space, about one and one-half inches to the left of the left nipple, and 16 ounces of sero-purulent fluid were removed—specific gravity 1.021, albumin one-fourth per cent., cultures show pneumococci. The pulse and stomach showed marked improvement after the aspiration. The reason for tapping in the above place will be set forth in a paper soon to be published.

November 23d. Pulse irregular and weak; temperature steadily rising the last few days; respiration irregular, with a suggestion of the Cheyne-Stokes type; dyspnea in irregular attacks; slightly delirious.

November 24th. The pericardial effusion was again fully as large as before the aspiration, and it was evident that nothing but incision and free discharge of the sac could save the patient; and, upon consultation with Dr. C. B. Porter, operation was decided upon and immediately performed.

At the consultation it was decided to approach the pericardium at the point where aspiration had

previously been done. A curved incision was made, exposing the fifth interspace at the left of sternum. Incision carried down between ribs, and pleura was opened one and one-half inches to the left of the sternum, in the fifth interspace. The aspirating needle was introduced through the first opening, and purulent serum escaped under considerable tension. Pericardium seized with forceps and opened. A stream of purulent fluid gushed out, spurting 12 to 18 inches above patient, especially on any expiratory effort. The effect on the pulse was a striking improvement (observed by Dr. M. H. Richardson) in quality, tension and volume. Amount of fluid estimated at about one quart. Pericardium douched out with sterile salt solution, and two soft rubber tubes put into pericardium, which was first secured by four silkworm-gut sutures that passed through muscles, and two carried through the skin. Absorbent dressing. Enema: brandy, one ounce; coffee, three ounces; digitalis, twenty minims. Pulse greatly improved after operation, but no immediate effect on respiration was noted. Dressing changed after eight hours, a large amount of discharge soaking dressing (not foul). Fluid from pericardium contains fibrin flakes. Cultures show pneumococci. Pulse after coming out of ether 130. Sleeps four to five hours, with one-eighth of a grain of morphia. Breathing easier. Pneumothorax present. Tympany at top of left chest, with absence of respiration. Supplementary respiration right lung. Liquids, two ounces every hour; oxygen, every twenty minutes for three hours.

November 25th. Large amount of discharge during night saturating a large dressing. Siphon tubes arranged to collect discharge. The two-and-fro suction of air, apparently into pleura, has ceased, and tissue is close around tubes.

November 26th. Tubes work well. Amount of thick pus collected from them eight ounces. Pericardium washed out with normal salt solution. The tube out of which the pus does not drain was selected as the one through which to put the salt solution. The outflow was immediate through the other tube. The amount injected was measured and compared with the amount coming out, thus any danger of distending the pericardium was obviated. Washings very thick. Does not disturb patient.

November 27th. Washed out this morning, condition better. Not as stupid. Pulse better. Taking liquids, 40 to 60 ounces daily. Brandy, 12 to 15 ounces. Somnolent. Perspiring freely about face and neck. Vomited twice. Wound about tubes tight. Pneumothorax less. Respiration heard fairly over left apex, with some râles. Loud pericardial friction. Respiration easier, 40. Pulse 140, fair, irregular.

November 28th. Washed out this morning at 10 A. M., 8 P. M. and 12 P. M. An attack of dyspnea in the afternoon. Amount of pus collected in last twenty-four hours, two ounces and one drachm. Washings contain many shreds and are rather thick, although they clear much more quickly than when washings were started. Nutritives omitted. Strychnia, one-fortieth of a grain every four hours.

November 29th. Air leaks in around tubes and destroys siphonage. Washed out at 9 A. M. and 3 P. M. A large number of flakes washed out. Washed in through both tubes to-day. Washings come clear very quickly. Has drained very little since morning.

November 30th. Washed out three times. Wash-

ings quite clear, few flakes. Tubes removed, and larger one shortened one-third and replaced. Heart's impulse can be felt with tube. Slight discharge on dressing. General condition of patient much better. Respiration irregular. Dyspnea, with tossing about of head. Sleeps in naps. Delirious at times. Takes liquids, 60 to 80 ounces, and brandy 15 ounces in 24 hours. Pneumothorax increasing, no respiration at left apex. Heart dulness not distinguishable. Some abdominal distention relieved by enema.

December 1st. Tube shortened. Discharge slight. Pericardium washed out t. i. d. with salt solution at 110° F. Feels better after dressing.

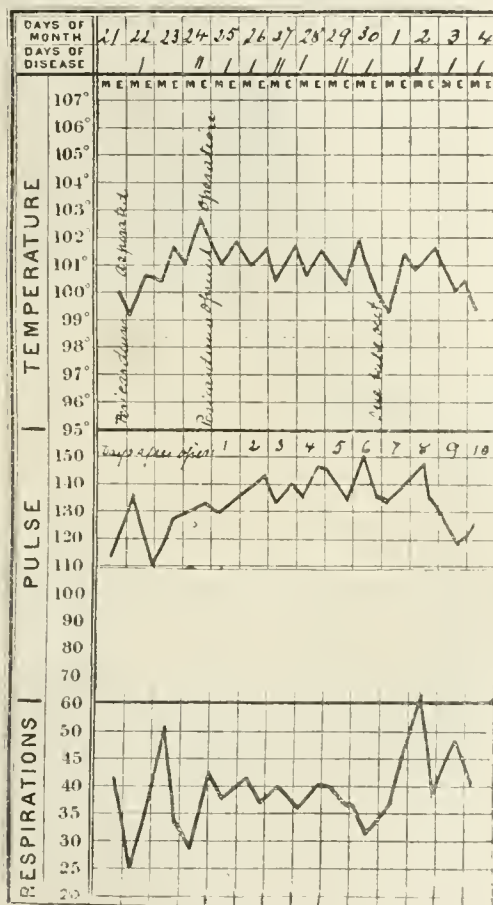


CHART I.—Pericarditis.

December 2d. Respiration and pulse the same. Restless, muttering delirium. Sleeps poorly in naps. Liquids fifty ounces in twenty-four hours, with toast and eggs. Brandy, ten ounces. Lungs almost flat over whole left back. Respiration relatively diminished, also fremitus. Right lung, supplementary respiration, some bronchitis. Pericardial friction over heart area. Metallic tinkling heard at left apex. Air sucked in and out of chest through wound.

December 3d. Washings clearer. Slight discharge.

December 4th. More delirious. Occasional Cheyne-Stokes respiration. Semi-comatose at times. At 2 A. M., one-eighth of a grain of morphia. This morning had an attack of acute collapse. Pulse weak, irregular, hardly perceptible. Patient cyanosed, skin

clammy. One ounce of brandy subcutaneously. Digitalis, twenty minims. Oxygen, beaters. Slowly rallied. At 10 A. M., fifteen minims of digitalis subcutaneously. Chest: left side flat, with diminished fremitus and respiratory sounds. Aspirated in fifth and seventh spaces in back. Six ounces of yellow serum obtained with a specific gravity of 1.020, albumin one-half per cent. Considerable pus in serum, but less than in pericardial fluid. Respiration a little easier since tapping. Stitches all out of wound. Small blind sinus sealed with rubber protective.

December 5th. Tube omitted. Opening into pericardium closed with gauze. Removed t. i. d., and

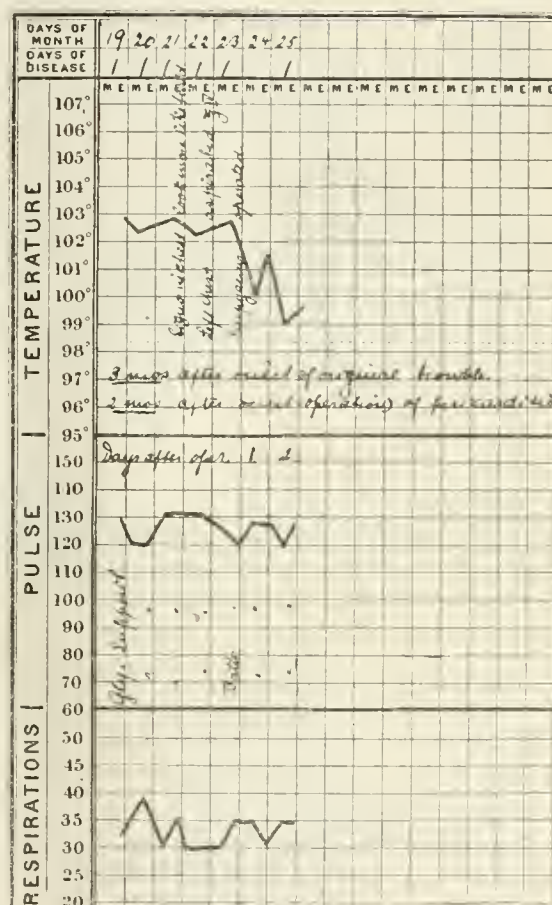


CHART II.—Empyema.

cavity washed out. Sleeps quietly. Less delirium. Easier respiration. Pulse better. Looks better. Chest: pneumothorax, metallic tinkling, resonance fair, few râles at left apex. Left lung seems to be slowly expanding. Liquids, 70 ounces; brandy, 10 ounces; toast, eggs, oysters.

December 6th. Breathing easier. Pulse fair, paradoxical. No abdominal distention. Sleeps six to seven hours. Blood: whites, 22,400. Chest: respiration at left apex fair; metallic tinkling and pericardial friction.

December 8th. Very dull over whole left back. Fair respiration. Few râles. Slight bronchial respiration with increase of fremitus and vocal resonance. Respiration deficient at right apex.

Condition varying from time to time; but gradual

improvement was noted up to December 20th, when the pericardium had closed. Only a superficial granulating wound on the 26th day after the operation. Much Cheyne-Stokes respiration when asleep. Twitching of legs and face at times (strychnia?). Movable flatness in left chest and the presence of fluid was suspected.

On December 30th the wound was entirely healed, and he was transferred to the medical side, to the care of Dr. F. C. Shattuck. For the next three weeks the temperature was irregular; and on January 23, 1896, the presence of pus in the left chest was demonstrated. Dr. Porter again operated, making an in-

On February 19th, twelve days after the resection, the erysipelatous eruption had disappeared.

One week later an inflamed gland appeared in the left axilla.

The sputum was examined and no tubercle bacilli found.

On March 10th the axillary gland, which had suppurated, was opened and pus evacuated.

Gradual improvement took place in all respects until on March 25th, seven and one-half weeks after the resection, he was dressed and up for half an hour.

Constant and steady improvement; healing of the axillary wound. The empyema opening remained as a long, narrow sinus for many weeks, and finally closed seven months and three weeks after the operation for empyema.

A year after convalescence was established the patient was in excellent health and able to ride a bicycle a considerable distance without fatigue.

In considering the literature of purulent pericarditis, treated by incision and drainage, we find that the first recovery was a case of Rosenstein's in 1881. Since then 23 more cases have been reported; of this number nine have recovered, 15 died, and in one the result is unknown. The etiology of these cases is as follows:

	Rec.	Died.	Total.
Anterior Mediastinitis . . . . .	..	1	1
Primary	1	2	3
Empyema	1	3	4
Trauma of chest wall	1	..	1
Stab in pericardium	1	..	1
Pneumonia	1	1	2
Osteo-myelitis	1	4	5
Pyemia (following abscess)	1	1	2
Tubercular . . . . .	..	1	1
Unknown	1	3	4
	8	16	24

As will be seen by the table, osteo-myelitis appears as an important cause. One case followed a blow on the chest.

In one case pericarditis developed one month after a wound. Many of the cases were complicated with left empyema, and twice the pericarditis was discovered at operation while draining the empyema. Of the fatal cases, two died at operation; one lived two days; one (Delorme's case) lived eight weeks after the operation.

The organisms found in exudate were the staphylococcus aureus and streptococcus pyogenes, pneumococcus, and colon bacillus (in case of stab wound).

The amount of pus evacuated varied from ten ounces to two quarts. In one (Dickinson's case), it was brownish and thin with arterial blood; in two (Körte's and Eiselsberg's cases), foul and thick; in two (Newman's and Delorme's), thin. In the majority it was thick, creamy, without odor. In a number of cases, large fibrinous masses were found, the pericardium being covered with thick layers of lymph. At autopsy in one fatal case (Pepper's), the whole sac was full of a thick mass of fibrin as large as the fist; the drainage had been good, and the heart probably failed from pressure of these fibrinous clots. The shortest case of healing of the sinus after drainage was nineteen days, the longest two months.

Preliminary aspiration was done in all cases before opening the pericardium. In a number of cases paracentesis was done more than once, with and without injection of carbolic acid; and incision was finally resorted to owing to the rapidity of the reaccumulation.

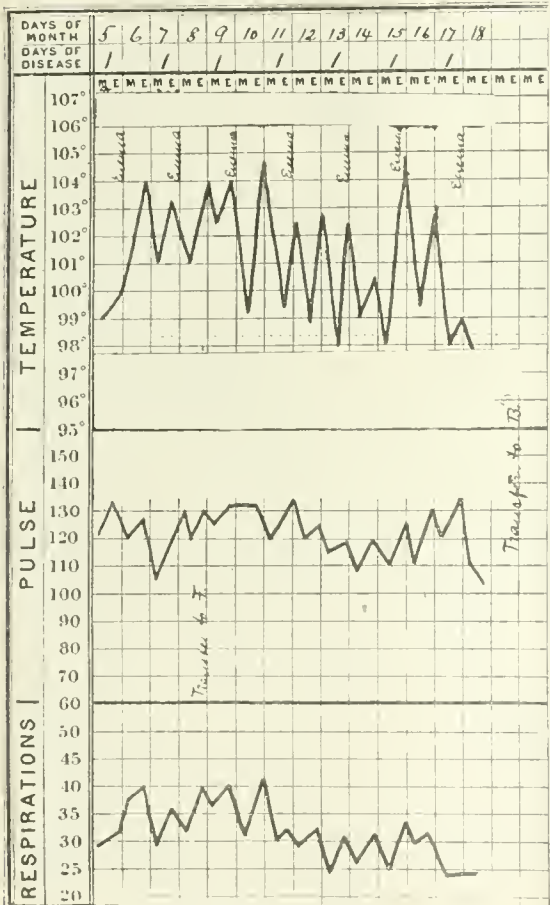


CHART III.—Erysipelas.

cision in the mid-axillary line in the sixth interspace. About a quart of pus escaped. The cavity was washed out with diluted liq. sod. chlorinat. and boiled water, and rubber drainage-tubes introduced.

Six days later a resection of the fifth rib was found necessary to afford better drainage.

On February 7th, the eighth day after the resection, at the upper and outer edge of the incision a small area, raised, congested, indurated and slightly tender, appeared, which was pronounced by Dr. White to be erysipelas, and which gradually extended over the whole back of the neck and shoulder.

On February 13th the blood-count showed — reds, 3,500,000; whites, 19,500; hemoglobin, 40 per cent. The pus from the chest showed few pneumococci and no streptococci.

The immediate relief to pulse and respiration was almost always striking.

With regard to the indications for the operation, we may affirm with confidence that the percentage of recovery after its performance warrants the statement that it is indicated in all cases of purulent pericarditis, and perhaps in serous pericarditis in cases where aspiration once or twice repeated is followed by reaccumulation of the fluid.

THE SURGICAL ANATOMY OF THE PERICARDIUM.

All authorities agree as to the great variations in the line of reflection of the pleura and pericardium.

Sick found that in the adult, out of 23 cases the

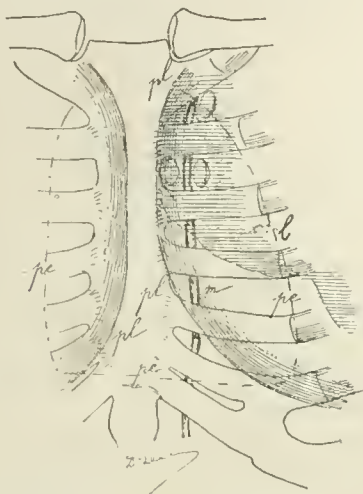


FIG. I.—Normal Contour of Pleura and Pericardium (Delorme and Mignon). pl, pleura; pe, pericardium; l, border of lung.

pleural reflection at the level of the fifth rib cartilage lay either at or within the left border of the sternum in 17; at the level of the sixth cartilage the pleural border had not gone beyond the sternal border in 10; at the level of the sternal articulation of the seventh cartilage it was in nine cases at the sternal border, or this cartilage was below its lower border. Twice it was less than one centimetre from the sternal border.

In 12 children Sick found at the level of the fifth rib cartilage the pleura was either within or just at the sternal border in 11. At the level of the sixth cartilage the pleura had not left the sternal border eight times.

It will thus be seen that, according to Sick's careful observations, even at the fifth space the reflection of the pleura will often be behind the sternal border. Brooks (quoted by Quain) in four out of seven quite healthy cases, found the left pleural reflection entirely behind the sternum, and in one at the sternal border.

According to Luschka (quoted by Quain) the pleura normally diverges from the median line at the upper border of the fifth costal cartilage, so that at the level of the fifth cartilage it is one-fifth centimetre, at the sixth, two centimetres, and at the seventh, 3.5 centimetres, external to the left border of the sternum.

Delorme and Mignon found in 32 adults that in the fourth interspace the left pleural border was within the border of the sternum in 17. At the level of the fifth cartilage it lay 15 times internal to the sternal border, and 17 times outside. In 12 cases at the fifth interspace the pleural border was at, or inside,

the sternal; and in the sixth space the pleural border was outside the sternum in 26 cases, and at or within it in eight.

Dr. Thomas Dwight, Professor of Anatomy at Harvard University, agrees in the main with Sick's observations, but states that there are many variations, and that frequently it is possible to reach the pericardium through the fifth intercostal space and frequently not. Owing to the fact that the sixth intercostal space is small and narrow, and that even here the pleura often reaches the sternal border, he concurs with the writer in advising resection of the fifth costal cartilage, and if necessary the excision of a piece of the sternum opposite this cartilage.

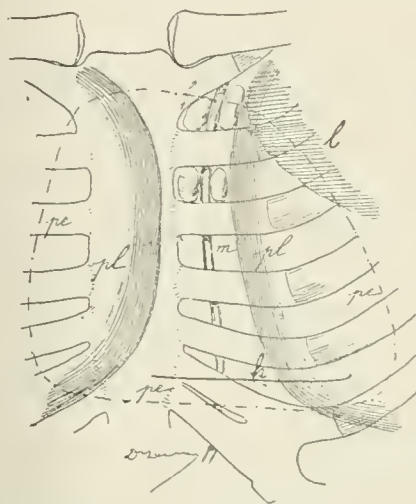


FIG. II.—Line of Pleura, abnormally to left of sternum (Delorme and Mignon). pl, pleura; pe, pericardium; l, border of lung; h, base of heart.

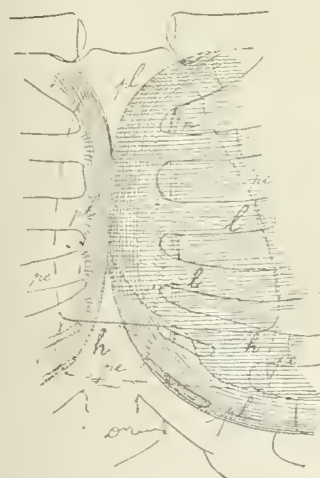


FIG. III.—Left Pleura, behind Sternum, reaching beyond middle line (Delorme and Mignon). pl, pleura; pe, pericardium; l, border of lung; h, base of heart.

The internal mammary artery, according to Quain, runs parallel to the sternum at a distance from it of one centimetre. Delorme and Mignon, in 30 cases, found it a distance from the sternum of from one-half to two centimetres, the distance averaging about the same in the first six interspaces.

In looking over the arrangement of the left pleura by Dwight, Delorme, Sick, Quain and Testut, all agree that there is a varied arrangement. Below the fourth

intercostal space in the majority, there is a slight interspace close to the border of the sternum which is free from pleura. In 22 operations on the cadaver by myself it was found that the removal of the fifth intercostal cartilage, and the removal of half an inch of the sternum opposite the sterno-costal joint, gave free access to the normal pericardium near its lowest level.

Three of the methods of operation which have been proposed and practised, namely, trephining the sternum (Riolan), approach through an intercostal space, and epigastric incision (Larrey), should all be discarded, as it will be evident from the above account of the anatomy that in all of them there is danger of wounding the pleura or diaphragm.

IDEAL OPERATION.

The following operation has been planned after careful consideration and experiment on the cadaver, in order as far as possible to meet the following indications:

(1) To avoid opening the pleural cavity. This may be made more easy by adhesions as a result of tapping or inflammation.

(2) To open the pericardium opposite the point where drainage will remain good after the sac has contracted.

(3) To secure permanent and free drainage.

The steps of the operation are:

(1) An incision from the middle of the sternum outward over the fifth costal cartilage to its junction with the rib.

The soft parts are cleaned from the cartilage with periosteum elevator, care being taken not to wound the pleura on the under surface. The cartilage is divided with bone forceps from the rib and the sternum. The internal mammary artery and vein are thus exposed, ligated in two places, and divided between. The triangularis sterni is separated from the sternum and pushed to the left.

A little careful dissection with the director in case fat is encountered, exposes the pericardium, which is normally much thicker than the pleura. An aspirating needle should now be introduced, if this has not been previously done, in order to corroborate the diagnosis. If confirmed, the knife should follow the needle. The incision in the pericardium is best made obliquely downward and outward, beginning close to the excised border of the sternum. The edges of the pericardium should be stitched to the soft parts.

Irrigation should always be employed, with the object of removing any masses of fibrin which may lie at the bottom of the cavity; and if there are many such masses, it should be continued until the fluid returns clear.¹ The fluid may be weak sublimate or carbolic solution, or salt solution, according to the preference of the operator. The fluid must be warm, and must have free exit.² With this exception no harm has resulted from irrigation, which has been practised in more than half the cases.

Drainage is best provided by two rubber tubes, one long and reaching to the bottom of the sac for the inflow, and a short tube just entering the sac for the outflow. As the discharge diminishes, one tube may be removed, and finally gauze drainage inserted. Gauze drainage has proved adequate from the first, but where

the fluid is thick or flocculent, tubes give the only adequate facilities for the subsequent daily irrigation.

The after-treatment must, of course, be directed to two ends: first, systemic treatment, consisting of forced feeding and free stimulation, to maintain the patient's strength; and second, the care of the wound and the maintenance of drainage. The wound should be irrigated daily and the patient, if his strength is sufficient to allow it, turned on his stomach to afford drainage.

The following cases have been reported of recovery from purulent pericarditis treated by incision and drainage:

Rosenstein, in 1881, had the first reported case of recovery. A boy of ten had been sick at home for two weeks, with pain in epigastrium, dyspnea and fever. On entrance there were signs of pericardial effusion. Aspirated twice in left fourth interspace, and a half-pint of pus evacuated. Finally, an incision was made over fourth space close to sternum: careful dissection to pericardium; pleural cavity adherent; large amount of pus evacuated; two rubber drainage-tubes inserted. Closure of sinus in nineteen days, and ultimate perfect recovery.

Gussenbauer. Boy of thirteen, osteo-myelitis of humerus, and pleurisy. Dulness of precordium not noted. Opened in fifth interspace in anterior axillary line, expecting to evacuate an empyema. Found effusion in pleura, and after resecting rib discovered enlarged pericardium. This was opened after aspiration, and pus evacuated. Rubber drainage, irrigation with thymol, recovery.

Davidson. Boy of six. Left empyema. Incision, evacuation of 10 ounces of pus. Ten days later high temperature, with increased cardiac dulness. Incision in fourth left interspace, one inch from sternum. Several ounces of creamy pus, drainage. Perfect recovery in five weeks.

Dickinson. Boy, aged ten. Pyemia from gluteal abscess. Left effusion into pleura and pyo-pericardium. Pleura aspirated nine times, and pericardium three times; finally, drainage in fifth interspace on right of sternum.

The operation was performed under ether with a narrow-bladed knife thrust along a trocar to right of sternum. Pus, blood and air escaped. Air probably sucked into pericardium by contraction of heart. Boy much better. No right pneumothorax; much discharge from the rubber tube; again in dyspnea; tube stopped up; exchanged for a larger one, and under good drainage immediate improvement. Air always bubbling through the tube with action of heart. Boy on his face three times a day to better drain the back of sac.

In three weeks two to three ounces of pus daily were draining from pericardium. The pus was still sweet. Tube in. In one week more the tube was removed and an oiled-silk wick inserted. In another week all healed. No mention of irrigation.

West's case, 1883. Boy, aged sixteen. Two months after an injury to chest there were signs and symptoms of effusion into pericardium.

Operation, September 14th. Paracentesis, fourth left intercostal space, just under nipple. Thirteen ounces of pus were obtained by aspiration, creamy and without flocculi. One-per-cent. carbolic-acid solution was injected, and allowed to flow out.

September 17th. Again worse. Paracentesis in fifth interspace, left nipple line. Needle passed into

¹ Cf. Delorme's case in which at the autopsy two handfuls of fibrin were found in the pericardium.

² Cf. Parker's case of death on the table from distention of the sac by irrigating fluid, which did not have free outflow.

enormous cavity, four and one-half inches without touching anything. Pus more flaky, and did not flow well.

Operation under chloroform. Narrow knife thrust along canula as a guide. Two quarts of pus washed out with warm one-per-cent. carbolic solution. Rubber drainage-tube, one-half inch in diameter, inserted. Two ounces of 1-40 carbolic solution left in cavity. Very free discharge of sweet pus. Next day a soft catheter was inserted instead of tube. Irrigation with weak carbolic solution.

September 19th to 21st. Finger inserted, could just reach pericardial sac. Tube meanwhile washed with carbolic solution, 1-40.

September 25th. Tube removed, cleaned and replaced after washing cavity with carbolic. Cavity holds one ounce.

September 27th. Cavity closing. Very little discharge.

October 13th. Tube shortened. On the 14th it was removed; and on the 17th the incision was closed.

The operation was done September 14th, and the wound closed October 17th. Ultimate perfect recovery in one month.

Eiselsberg. October, 1893. The patient was stabbed with a knife over the heart. The wound healed a month afterwards. Fever, signs and symptoms of pericardial effusion.

January 20th. Trocar inserted in fourth interspace, and a quart of brownish, purulent fluid evacuated with great relief to symptoms.

February 2d. Thirteen days later. Evacuation in same manner of 900 grammes purulent fluid, with much less relief.

February 9th. Again, 1,000 grammes pus.

February 20th. Incision made over fourth left rib cartilage; and after resection of rib the healthy pleura, with lungs moving in it, could be seen. This was pushed aside and held off with iodoform gauze; then came onto a thick, white membrane, which was aspirated and found to contain pus. An incision, four centimetres long, was made, evacuating two quarts of pus. This sac was then irrigated with warm salicylic-acid solution. The pericardium was sewed to the muscles and two drainage-tubes inserted. The pus contained large fibrin masses. The heart could be easily felt with the finger, beating powerfully.

During the first eight days daily dressing was necessary and irrigation was attended by escape of flocculi of fibrin. On the second day iodoform injections were made through drainage-tubes.

On the 17th day both tubes were removed; they had already been shortened. In four weeks more the wound entirely healed.

The colon bacillus was found in the fluid. It is a question whether it was on the original knife, got in later, or came through the blood. Eiselsberg believes in drainage if rapid reaccumulations occur after tapping, and speaks of the advantages of seeing where puncture goes, and thus avoiding injury to the heart.

Mr. H. Betham Robinson. Male, age sixteen. Complained of sore throat, and on the following day developed diaphragmatic pleurisy on the right side. Six days later an unmistakable pericardial rub. The area of cardiac dulness increased much upwards and to the mid-axillary line laterally. About two weeks from date of pericardial involvement the aspirator

was introduced in sixth interspace just behind anterior axillary line. A small amount of pus obtained. Next day a piece of the sixth rib was resected, and left pleura opened. Lung fixed by recent adhesions. Pericardium incised, and pus washed out freely — over two quarts. No irrigation, owing to patient's feeble condition. Drainage-tube introduced, stitched to margin of wound. Tube removed on the sixty-first day after operation, and wound soon healed. At no time was there pus in the left pleura. Patient recovered fair strength. Can walk ten miles, but not equal to active exercise.

The following fatal cases have been collected:

Parker. Case of osteomyelitis of both tibiae, later development of pericardial effusion, fever. Aspiration in fourth left intercostal space. Eight ounces sweet, flocculent pus. Marked improvement. In four days return of effusion. A. C. E. mixture. Incision, two inches long, by left sternal border, centre opposite fourth interspace. One inch of fifth cartilage removed. On cutting through perichondrium, distended pericardium presented; this was sewed to chest wall and opened; much membranous pus and large flocculi of fibrin escaped. Irrigation with warm carbolic. Suddenly heart stopped beating, and patient died. Examination showed the sac distended with irrigation fluid, which had no proper escape.

Post-mortem. Lungs not collapsed. Pericardium much thickened, covered with large curds of pus, and layers of lymph.

Brouner. Girl of eleven. During an influenza epidemic, had first pneumonia of right base followed by another consolidation in left apex. In two weeks right empyema developed. A pint and a half of sweet pus was evacuated by incision. Pulse and respiration still remained high, though temperature was normal — pulse 145, respiration 45. Finally, signs of pericardial effusion appeared. Aspiration in fourth left intercostal space, one inch from sternum; pus appeared; incision carried down to pericardium. A quart of pus evacuated; rubber drainage inserted. Great relief after operation.

Temperature and respiration soon rose, in spite of free drainage and daily irrigations with boric acid. No harm resulted at all from these irrigations. Child gradually lost strength, and finally died, three weeks after operation. No autopsy allowed. Pericardial sac was felt to be full of granulations and not obliterated.

W. A. Edwards. In a child of six, symptoms of anterior mediastinitis, later of pericarditis. Aspiration of pericardium showed presence of pus. Drainage with rubber tube after incision in fifth interspace and evacuation of eight ounces of pus. Later, left empyema. Sixteen ounces of pus evacuated. Finally, resection of ribs was done and death followed. At the autopsy it was found that the pericardium was almost universally adherent to the heart, with here and there the intervention of fibrinous masses.

F. J. Newman. Man, age thirty-two, having been sick for three weeks. Symptoms were typhoidal until the week after admission to hospital, when signs of symptoms of purulent pericarditis developed. Aspiration in sixth interspace withdrew eight ounces of thin pus. Marked relief from profound collapse. In two days aspiration again in fourth right interspace, and 46 ounces of pus obtained. Three more times about the same amount was withdrawn at intervals of a few

days. Finally, a silver canula was thrust into the pericardial sac. Permanent drainage for two days, with irrigation with carbolic, 1-40. Then incision of sac with bistoury, and large drainage-tube inserted. Profuse discharge. Gradual and steady improvement to convalescence, when chills and bloody expectoration began, and in a few days death occurred. At autopsy there was found empyema on one side, pleurisy on the other; the pericardium, much thickened (not ulcerated); some fibrin; sinus from pericardium was found advancing towards the second intercostal space; much inflammation of anterior mediastinum.

Savory. Boy with pyemia, after large abscess of the shoulder. Left empyema developed later. Twice aspirated. Finally an incision in the mammary line, fifth left interspace drained pus from localized empyema and revealed a much distended pericardium. This was opened and 24 ounces of creamy pus evacuated. Drainage and irrigation through catheter; profuse discharge. Child died at end of fifteen days. At autopsy lymph and adhesions were found walling off pleural cavity; parietal pericardium much thickened; good drainage of sac.

William Pepper. Young man of nineteen. Influenza; joint pains; temperature 104.2°; enlarged pericardium. After aspiration drainage by rubber tube in fifth left space; profuse discharge of pus. Lived two days. At autopsy a little pus was found in pericardium, but the whole sac was greatly distended with very large masses of fibrin. Regrets not making much larger incision.

Osler-Halsted. Purulent pericarditis after acute necrosis of bones of nose. Incision in fifth space. Drainage with gauze wick. Excellent drainage up to death in sixteen days.

Mr. Howard Marsh recorded a case of suppurative pericarditis. Male, age fourteen. Admitted to hospital in very exhausted condition. Incision made just below nipple, through an intercostal space. Pericardium bulged forward. Patient died on fourth day. No drainage-tube. Amount of fluid in sac not stated. No irrigation.

Körte. Child of seven. Osteo-myelitis of tibia, pyemia, with staphylococcus aureus. Large area of pericardial dullness; pulse 160; cyanosis. Aspiration in fifth left intercostal space; purulent fluid containing aureus. Resection of fifth rib for two inches from sternum. On opening pericardium a quart of offensive pus was evacuated. Pericardium was covered with an abundant coating of lymph. Irrigation had no bad effect on the heart, which improved after drainage. Abundant discharge for a number of days. Child died on twelfth day. At autopsy the pericardium contained considerable pus posteriorly, with purulent infiltration of myocardium and posterior papillary muscle. As there were also purulent foci in kidneys, an abscess of the heart wall was thought to have ruptured into the pericardium.

Davidson. Boy of six. Pyemia, after necrosis of third metatarsal bone; pleurisy; wandering pneumonia. Signs of enlarged pericardium, which was aspirated and opened in fifth interspace. Eight ounces of sweet pus were evacuated. A rubber tube, three and a half inches long, was inserted. No irrigation. Patient gradually failed and died on seventh day. At autopsy a small amount of sero-purulent fluid in each pleura; heart covered with lymph; drainage good.

Dr. O'Carroll, gives an account of a case of sup-

purative pericarditis secondary to pneumonia, which had been treated by free and constant drainage. The pericardial cavity contained less and less pus, but the patient died from asthenia two months afterward. The walls of the pericardial cavity were found to be adherent everywhere but in front, where there was about a drachm of pus. The puncture was made in the fourth space, a thumb's breadth internal to the line of the nipple.

Partzensky. Case of serous pericarditis of unknown etiology in a male twenty-three years of age. At the end of the third month of the disease paracentesis was performed and a litre of brownish serous fluid withdrawn. Eleven days later it was necessary to perform paracentesis again, and 100 grammes of pus were evacuated. On the following day an incision into the pericardium was made through the fourth intercostal space, much pus evacuated, and two drainage-tubes introduced. Lavage with a three-per-cent. solution of salicylic acid. Death thirty hours after the operation. Autopsy: 100 grammes of pus in pericardium, fatty degeneration of myocardium, double adhesive pleurisy, and hypertrophy of the right side of the heart.

Klefberg. A sailor, aged nineteen years, had an enormous purulent pericardial effusion following influenza. Puncture and aspiration of 150 grammes of pus. Great cyanosis. Pulse could not be counted. Incision in fourth intercostal space under local anesthesia. More than one litre of pus evacuated. Death on the sixth day. Autopsy: pericardium empty, but pus in right ankle-joint and right sterno-clavicular joint.

Sievers. A woman, twenty-two years old, had purulent pericarditis following a right-sided empyema. Paracentesis showed a sero-purulent fluid; and two days later an incision in the third intercostal space opened the pleura and then the pericardium. Sero-purulent fluid, drainage. Improvement in pulse and general condition. Four days later empyema developed on the left, and pleurotomy was performed. Death occurred six days after opening the pericardium, and a not inconsiderable amount of purulent fluid was found in the pericardial sac. Double purulent pleurisy was also found.

Delorme and Mignon. Two cases.

The first was a male, nineteen years old. A case of empyema following influenza, operated on by Delorme, was followed by pericarditis three days after the operation. The pericardium was opened in the fourth intercostal space by the same operator after a superficial examination, which was all that the moribund condition of the patient would allow. Only a few drops of fluid escaped, and the patient died in a few minutes. The autopsy showed the heart adherent to the whole anterior surface of the pericardium, except at its lower part; 500 grammes of sero-purulent fluid were collected in the lower and back part of the pericardium, together with a double handful of flakes of fibrin. If the incision had been carried further downward and to the left, this fluid would have been reached. Paracentesis, as ordinarily performed would have wounded the adherent heart.

The second case was a male, twenty-two years old. Tubercular pericarditis and left pleurisy. Incision in the fourth intercostal space. Pleura was opened, and 250 grammes of serous fluid escaped. An incision being made through what was supposed to be

the pericardium, and no fluid escaping, the latter was thought to be adherent to the heart, and operation was suspended. Death, eight weeks later, of tubercular meningitis. Autopsy showed heart adherent to anterior surface of pericardium, and a large amount of fluid distending the sac below and behind.

The following case is added to the list, although it is one of serous and not purulent pericarditis, as showing that incision may be of benefit where puncture has failed to permanently relieve.

Rullier. Serous pericarditis. Tapped four times and then injected with iodine, but the effusion returned. The pericardium was incised in the fourth left intercostal space. Recovery was delayed by left broucho-pneumonia, but was finally complete.

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AN EXHIBITION "FOR THE HYGIENE OF CHILDHOOD."—A national German exhibition "For the Hygiene of Childhood at Home and at School" is to be held in Breslau at the end of May.

ASEPSIS AND GALLANTRY.—The Hungarian Government permits women to study medicine if they so desire, but one of the professors at the University of Budapest has recently proclaimed that he has something to say in the matter. Of the five women now studying medicine there, one has a remarkably fine head of hair, which the professor of surgery says must come off before she can be permitted to attend his clinics. The reason he gives for his prohibition is that "wool carries infection."—*Medical Review*.

THE MORTALITY RATE IN NEW YORK CITY.—The effect of the sudden change in the weather from balmy spring to the blasts of winter which occurred in the early part of last week is reflected in the increased mortality of the week, the number of deaths reported being 815, against 749 in the week ending April 24th. Much illness and a large number of deaths have been directly attributable to the exposure of the people to the northerly gale, with its attendant clouds of dust, during the long hours of the Grant Monument celebration. Four deaths from small-pox were reported during the week.

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THE TREATMENT OF PNEUMONIA AND OF INFLUENZA BY LARGE DOSES OF DIGITALIS OR DIGITALIN.

PETRESCO, of Budapest, is known to have been the most earnest advocate of the treatment of pneumonia by digitalis. His contributions have been numerous since 1880, when he first set forth the claims of this method of treatment. As these views have already been fully stated in this JOURNAL, we shall very briefly sum up his conclusions preparatory to indicating the results of the recent clinical experimentation of Gingeot and Deguy.

It will be remembered that the doses which Petresco recommends are enormous as contrasted with what has ordinarily been regarded as the safe dose of digitalis, Petresco stating that he does not hesitate in single doses to give as much as three drachms (180 grains) of digitalis leaves in twenty-four hours. He prefers the infusion made with five parts of digitalis leaves in two hundred of water, and then adding forty parts of syrup of orange-peel, the dose then being a tablespoonful every half-hour. He affirms that in general this dose is well borne, and that he has never met with a single case of poisoning. He says that he has had the best results in genuine fibrinous pneumonia, though he has obtained satisfactory results in broncho-pneumonia and in pleurisy. He claims in the most positive manner to have cut short cases of croupous pneumonia, so that within twenty-four to forty-eight hours he has succeeded in obtaining sudden and almost absolute reduction of the temperature to the normal with strengthening of the pulse and general improvement in the patient's condition. The most evident effect is the marked slowing of the pulse with increased tension; at the same time disappearance of all the local symptoms of pneumonia can be noted. He enforces the value of this method of treatment by statistics, the mortality of cases so treated with large doses of digitalis being much less than that observable when any other method is employed.

It must be admitted that the medical profession has been slow to adopt this new mode of treatment, and few have had such brilliant results as Petresco claims. Lowenthal's trials in the Vienna hospital were unsatisfactory, the patients (twelve in number) indeed recovering, but with depression and exhaustion increased rather than diminished, and a somewhat lengthened convalescence. Renier's experience in twenty-five cases is very similar to that of Lowenthal. In one of Renier's cases alarming symptoms of collapse lasting for six days came on. He attributed this collapse, which was characterized by cyanosis, sunken face, vomiting, small and intermittent pulse, cold sweat, hiccough and stupor — to the digitalis.

Gingeot and Deguy have published their trials with digitalis in pneumonia and *la grippe* in the *Revue de Médecine* for March, 1897.¹ They do not give the digitalis in the form of infusion, but they use the crystallized digitalin, in a one-per-cent. solution. Fifty drops of this solution contain one milligramme of the alkaloid. To obtain certain and rapid effects, they administer, early in the disease, one massive dose of a milligramme, and give no more medicine of any kind for five or six days. In proceeding thus, they have never observed any untoward accidents. At other times they give smaller doses of digitalin, and repeat them till the desired effect is obtained: thus, instead of the one full dose of fifty drops, they give twenty drops per day for two days, and then stop. But whatever may be the mode of administration of the medicament, it is not desirable to exceed the quantity of sixty drops of the centesimal solution in seven days.

They affirm that the digitalin is particularly efficacious when the pneumonia of influenza is not accompanied with digestive troubles.

In a dozen cases of pneumonia treated by this method, these authors have not had a single case of death, and they have obtained recovery in two desperate cases of double pneumonia. Under the digitalin treatment, the patient generally feels decidedly better the second day after the full dose has been administered; the delirium ceases, the albumin diminishes to soon disappear altogether; the temperature falls and the pulse becomes less frequent but more energetic; the diuresis augments; the congestions are dissipated, and the pneumonic exudate is absorbed more rapidly than in cases when the digitalin is not employed. In short, the digitalin accelerates the normal evolution of the malady.

What has been said of frank pneumonia applies also, according to these writers, to the broncho-pulmonic determinations of *la grippe*, and the same treatment is also useful in grave or complicated gastro-intestinal forms, especially when the pulse is feeble, small and rapid.

In cases of *la grippe* simulating tuberculosis the digitalin has given better results than any other treatment (quinine, cold baths, antipyrin, etc.). Another fact has been noted by MM. Gingeot and Deguy —

the employment of digitalin may render service from the point of view of differential diagnosis. They affirm that they have never been able by means of digitalin to obtain an antithermic effect in acute tuberculosis or typhoid fever. On the other hand, in cases of the grip simulating miliary tuberculosis or typhoid fever, the administration of digitalin has always brought on rapid defervescence, while ameliorating the other symptoms.

One of the observations related by Gingeot and Deguy well illustrates the help which this treatment gives towards the differential diagnosis of certain doubtful affections. A patient presented himself for treatment with intense dyspnea, a decidedly pneumonic aspect and a focus of subcrepitant râles in the right infra-axillary space. The diagnosis of pneumonia in the first stage was made, and 30 drops of the solution of digitalin administered. The next day the condition of the patient was worse, and 20 drops more of the solution were given, but without any improvement in the pulse or general state. The day following, the patient succumbed in coma. The autopsy showed that this was not a case of pneumonia, but of typhoid fever with all the characteristic lesions of Peyer's patches.

The conclusion drawn from the study of this and like facts is that when the administration of digitalin to a person supposed to be affected with pneumonia or influenza does not slow the pulse and ameliorate the condition, there is reason to believe that an error in diagnosis has been committed.

TWENTY-EIGHTH REGISTRATION REPORT OF MICHIGAN, FOR THE YEAR 1894.

In one respect the course taken by the State of Michigan in the treatment of the vital statistics of the State is highly commendable, and that is in its appointment of a medical man, previously well-trained in statistical methods to take the entire charge of this important department. In another direction, however, the action of the State is seriously defective, since it has never succeeded in securing a complete registration of the births and deaths, the returns, in the words of this report, being deficient to "such a degree that they would require to be increased by at least sixty per cent., to correctly represent the actual numbers of births and deaths that occurred."

Legislation is now proposed, and endorsed heartily by the medical profession of Michigan to remedy this defect. With these deficiencies in view, the compiler of this report is to be congratulated upon the fact that this document for the year 1894 is the best of any of the State Registration Reports of that year, notwithstanding the difficulties due to the deficiencies which have been mentioned.

The report begins with a full statement of the population by sex, nativity and ages; and in this portion a full table is presented giving the vital statistics of other States and Countries. In the section which

¹ See also *Semaine Médicale*, March 15, 1897.

relates to births it appears that the actual births in 1894 were equivalent to a birth-rate of 19.4 per 1,000 of the population; but, estimating the deficiency of returns, the probable birth-rate was 31.8 per 1,000.

A new feature in this report, not to be found in any other American reports of recent date, is the subject of "Fecundity of Marriage." The compiler, Dr. Wilbur, makes the following distinction in the terms fecundity and fertility, defining the former as the fruitfulness of marriage, and the latter, as the fruitfulness of women of child-bearing age. A table is presented in which the author, after correcting the figures for omissions, estimates the number of children born to each marriage to be 2.9 for the native population in the period 1890-94, and 6.6 for the foreign population in the same time.

The registration of marriages is believed to have been fairly complete, and the marriage-rate was 16.3 per 1,000 in 1894 (persons married).

The death-rate estimated from the actual returns was 9.3 per 1,000; but, allowing for deficiencies, the true death-rate is believed to have been 15.0 per 1,000 of the living population. The compiler states that the deficiency in the returns is largely due to the fact "that births and deaths are not registered immediately upon their occurrence, but are supposed to be collected at the close of a registration year, or some time afterward."

In that portion of the report which treats of the causes of death, Dr. Wilbur makes a bold departure from the old and time-worn conventionalities of classification which have served their time and generation since the days of Dr. Farr. Under the light of modern discoveries as to the intimate causes of disease, the old classification into five groups (zymotic, constitutional, local, developmental and violent deaths) begins to appear strangely incongruous. In the Michigan report, therefore, a provisional classification is adopted, which, as the author says, "was designed merely for use until a satisfactory nomenclature shall be authoritatively introduced and adopted by American registrars."

In this classification all the dangerous communicable diseases, including consumption and other tubercular diseases are grouped together. It appears from the table that this class of diseases has diminished from 363 in each 1,000 of the total mortality in the five-year period 1870-74, to 282 in each 1,000 in the period 1890-94, and still further to 258 in the year 1894. Consumption also diminished in the same time from 142 to 121 in each 1,000 deaths from all specified causes. The same may be said of typhoid and scarlet fever, measles, small-pox and whooping-cough. On the other hand, cancer, heart diseases, kidney and lung diseases have increased; wherein Michigan resembles in its vital statistics the condition of other States and countries having registration.

Considerable space is given to the subject of "Diphtheria and Croup," the compiler preferring the method of considering these separately instead of

combining them as is usually done. It is shown that the mortality from diphtheria in 1881 in Michigan exceeded even that from consumption and was relatively greater than that of the Eastern States from the same cause.

MEDICAL NOTES.

THE FRENCH CONGRESS OF ALIENISTS AND NEUROLOGISTS will be held in August at Toulon. Questions to be discussed: "Diagnosis of General Paralysis," "Infantile Hysteria," "Medical Service in Insane Asylums."

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 5, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 95, scarlet fever 84, measles 134, typhoid fever 10.

Correspondence.

WILLIAM G. WHEELER.

EVERETT, MASS., April 30, 1897.

MR. EDITOR: — Dr. William Goodnough Wheeler, one of Chelsea's best known and most beloved physicians was called to the higher life on Saturday, April 17, 1897, after a patient endurance of severe and prolonged illness.

In Chelsea for half a century he had given strict and devoted attention to his much loved profession. His natural ability, developed by careful training, intelligent grasp of difficult problems, and his abundant supply of good common-sense were quickly recognized by a discerning public and brought to him many calls to positions of honor and laborious service, not only in his own city, but beyond.

Dr. Wheeler was ever abreast of the times, and kept in touch with the latest developments of medical science. He not only held a membership in the different medical societies of Massachusetts but was held in high esteem by his brethren.

Dr. Wheeler, while following the general practice of medicine, was also prominent and successful as a surgeon, and that when surgery had no such safeguards as are possessed to-day.

Dr. Wheeler was a scholar of refined taste, a great student and lover of Shakespeare, and a discriminating reader of the best books.

In person he was of commanding figure, regular and attractive features, manly and engaging presence. His manners were those of a refined and cultured gentleman; he was ever cheerful and kindly, but never frivolous.

He despised mean things and loved those things that were noble and pure. In his home, as by the bedside of his patients, he was ever agreeable; his hopeful spirit was so contagious as to make his presence a benediction, and his smile better than medicine.

In religion Dr. Wheeler was an Episcopalian, being a member of St. Luke's Church from the time of its organization in 1847 until he was called home. He was never ostentatious in his religious life, but was profoundly moved by the truths of God's Word to a practical piety and a benevolent sympathy. Scorning all cant and mere pretence in sacred things, he believed God and loved his fellowmen.

Yours very truly,

A. A. JACKSON, M.D.

METEOROLOGICAL RECORD

For the week ending April 24th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...18	30.06	51	62	40	58	41	50	W. S.	W.	13	11	C. C.
M...19	30.06	50	66	34	57	52	54	S. N.W.	N.W.	18	12	C. C.
T...20	30.15	30	39	21	48	46	47	N.W. N.W.	N.W.	23	10	C. C.
W...21	30.55	43	57	29	46	53	56	W. W.	S.	9	10	C. C.
T...22	30.48	54	68	40	58	62	55	S.W. S.	S.	8	16	F. F.
F...23	30.25	63	78	48	38	59	48	S.W. S.W.	S.W.	12	14	C. C.
S...24	30.11	66	79	52	62	56	59	S.W. S.W.	S.W.	12	7	F. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 24, 1897.

Cities.	Estimated popo- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York . . .	1,868,000	749	286	13.65	16.12	1.30	5.72	1.49	
Chicago . . .	1,619,226	425	139	12.48	17.52	5.28	3.36	.72	
Philadelphia . .	1,164,000	324	169	12.54	12.16	.57	5.13	2.28	
Brooklyn . . .	1,100,000	364	115	9.80	15.40	1.12	5.32	1.12	
St. Louis . . .	560,000	177	37	3.92	26.88	—	2.24	—	
Boston . . .	517,732	248	86	12.40	18.00	—	3.60	1.20	
Baltimore . . .	550,000	147	46	10.88	14.36	5.44	2.04	1.36	
Cincinnati . . .	356,000	126	—	4.74	13.43	—	2.37	—	
Cleveland . . .	350,000	79	36	4.04	13.13	1.01	—	—	
Washington . . .	275,500	85	21	7.08	15.34	—	5.90	—	
Pittsburg . . .	238,617	—	—	—	—	—	—	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	87,754	23	5	4.35	13.05	—	—	—	
Charleston . . .	65,165	27	8	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Worcester . . .	105,050	31	10	9.69	6.46	—	3.23	—	
Fall River . . .	95,919	39	19	7.68	28.16	7.68	—	—	
Lowell . . .	87,133	21	8	14.28	9.52	—	—	—	
Cambridge . . .	86,812	35	11	14.50	2.86	5.72	2.86	—	
Lynn . . .	65,220	16	2	12.59	25.00	6.25	—	—	
New Bedford . .	62,416	16	4	6.25	12.50	6.25	—	—	
Springfield . . .	54,790	15	5	—	26.66	—	—	—	
Lawrence . . .	55,510	15	3	13.33	6.66	6.66	—	6.66	
Holyoke . . .	42,361	—	—	—	—	—	—	—	
Salem . . .	36,062	12	2	16.66	8.33	—	8.33	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Haverhill . . .	31,406	14	5	7.14	28.56	—	—	—	
Malden . . .	32,884	12	5	—	41.65	—	—	—	
Chelsea . . .	32,746	10	2	—	30.00	—	—	—	
Fitchburg . . .	28,392	6	1	—	16.66	—	—	—	
Newton . . .	28,990	10	2	10.00	30.00	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Taunton . . .	27,812	12	6	16.66	25.00	—	8.33	8.33	
Waltham . . .	21,812	5	2	20.00	20.00	—	20.00	—	
Quincy . . .	22,562	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Everett . . .	21,575	9	3	22.22	11.11	—	11.11	—	
Northampton . .	17,448	—	—	—	—	—	—	—	
Newburyport . .	14,794	5	1	—	40.00	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,372: under five years of age 1,089; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fever) 367, acute lung diseases 539, consumption 421, diphtheria and croup 127, diarrheal diseases 59, scarlet fever 42, cerebro-spinal meningitis 36, whooping-cough 32, typhoid fever 30, measles 23, erysipelas 12, malarial fever 3, small-pox 3.

From cerebro-spinal meningitis Boston 11, New York 7, Washington 3, Hyde Park 2, Baltimore, Cleveland, Worcester, Cambridge, Lynn, Somerville, Newton and Taunton 1 each. From whooping-cough New York 10, Philadelphia 7, Chicago 6, Brooklyn 3, Boston and Cleveland 2 each, Washington, Lowell, Cambridge and Everett 1 each. From typhoid fever Philadelphia 11, New York 4, Chicago, St. Louis, Cincinnati and Cleveland 2 each, Brooklyn, Baltimore, Boston, Lowell, Somerville, Salem and Haverhill 1 each. From measles New York 6, Chicago 5,

Brooklyn 4, Philadelphia 3, Boston, Cincinnati, Providence, Lowell and Taunton 1 each. From erysipelas New York 6, Philadelphia 3, St. Louis, Baltimore and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending April 17th, the death-rate was 17.9. Deaths reported 3,764; acute diseases of the respiratory organs (London) 273, measles 105, whooping-cough 100, diphtheria 51, scarlet fever 33, diarrhoea 30, fever 16.

The death-rates ranged from 9.5 in Croydon to 28.1 in Salford; Birmingham 18.5, Bradford 13.8, Cardiff 16.9, Gateshead 19.1, Hull 16.5, Leeds 22.3, Leicester 17.4, Liverpool 22.6, London 16.6, Manchester 23.3, Newcastle-on-Tyne 15.7, Nottingham 11.9, Portsmouth 16.8, Sheffield 15.7, Sunderland 17.2, West Ham 13.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 24, 1897, TO APRIL 30, 1897.

Leave of absence for four months and fifteen days, to take effect on or about May 27, 1897, with permission to go beyond sea, is granted CAPTAIN FRANK R. KEEFER, assistant surgeon, U. S. Army, Washington Barracks, D. C.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING MAY 1, 1897.

A. G. CABELL, surgeon, ordered to the "Monongahela," May 15th.

D. H. MORGAN, surgeon, has been detached from the Naval Academy and ordered to the "Monongahela," May 15th.

R. G. BRODRICK, assistant surgeon, ordered to examination for promotion, May 3d.

F. C. COOK, assistant surgeon, detached from the "Vermont," May 8th, and ordered to the "Wilmington," May 10th.

SOCIETY NOTICES.

NEW HAMPSHIRE MEDICAL SOCIETY. — The one hundred and sixth anniversary meeting of this Society will be held at Concord, Monday and Tuesday, May 24 and 25, 1897.

The annual meeting of the Alumni of Dartmouth Medical College will be held at the Eagle Hotel, May 24th, at 6 o'clock P. M., and will be followed by a banquet.

ABEL P. RICHARDSON, M.D., *President*.
GRANVILLE P. CONN, M.D., *Secretary*.

NORFOLK DISTRICT MEDICAL SOCIETY. — The annual meeting and dinner of this Society will be held at the Old Dorchester Club House, Tuesday, May 11, 1897, at 12 M.

The Annual Address will be given by J. A. Tanner, M.D.

The Board of Censors will meet for the examination of candidates on Thursday, May 13th, at 2 P. M., at the office of the Supervisor, 1 Elm Hill Avenue, Roxbury. The written examination will begin at 2 P. M., the oral at 4 P. M.

J. C. D. PIGEON, M.D., *Secretary*, 130 Warren Street.

BOOKS AND PAMPHLETS RECEIVED.

Proceedings of the American Medico-Psychological Association at the Fifty-second Annual Meeting, held in Boston, May 26-29, 1896.

Fourteenth Report (First Biennial) of the State Board of Health of the State of New Hampshire, from July 1, 1895, to November 1, 1896.

Transactions of the American Association of Obstetricians and Gynecologists, Vol. IX, for the year 1896. Philadelphia: Wm. J. Dornan. 1897.

Vita Medica: Chapters of Medical Life and Work. By Sir Benjamin Ward Richardson, M.D., LL.D., F.R.S. London: Longmans, Green, & Co. 1897.

Atlas of Clinical Medicine. By Byron Bramwell, M.D., F.R.C.P. Edin., F.R.S. Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III, Part III. Edinburgh: T. & A. Constable, University Press. 1897.

Chirurgie des Voies Urinaires. Etudes Cliniques par le Dr. E. Loumeau, Professeur Libre de Clinique des Maladies des Voies Urinaires. 2me volume. Avec Planches hors texte. Bordeaux: Feret et Fils, Libraires-Editeurs. 1897.

Digest of Criticisms on the United States Pharmacopœia: Seventh Decennial Revision (1890). 1890-1900. Part I. New York: Published by the Committee of Revision and Publication of the Pharmacopœia of the United States of America. 1897.

Original Articles.

GALL-BLADDER INFECTION IN TYPHOID FEVER,

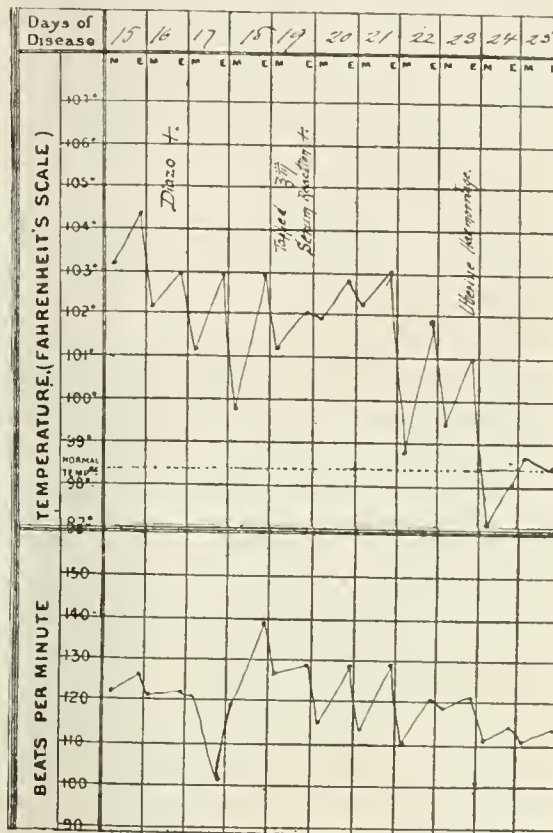
WITH THE REPORT OF A CASE IN WHICH TAPPING THE GALL-BLADDER RESULTED IN CURE.¹

BY A. LAWRENCE MASON, M.D., BOSTON.

INFLAMMATION of the gall-bladder, sometimes resulting in ulcerative perforation or in rupture from distention with consecutive peritonitis, has long been noted as an occasional complication in fatal cases of typhoid fever. The clinical evidences of this condition have usually been masked by the general abdominal symptoms of the disease so that the localization of pain or tumor in the region of the gall-bladder and the recognition of this appendage as the immediate source of danger have not been practicable. Therefore, most of the recorded cases, some forty in number, have been post-mortem discoveries; or, if the state in question has oftener been surmised at the bedside, it has seldom been the subject of accurate observation or of surgical interference. There are a few instances, however, in which this localized inflammation presents such striking symptoms that its seat and nature can be determined and thus impending danger may be averted. Such an instance affords the basis for this paper, in which I will relate the history of a case of typhoidal cholecystitis and then refer to the literature bearing upon this subject and the deductions to be drawn therefrom.

A woman, aged thirty, entered the Boston City Hospital in the third week of typhoid fever, with dry, brown tongue, palpable spleen, rose-spots and distended abdomen. Anorexia, vomiting and constipation had been prominent symptoms. Widal's serum test was positive, but not immediate; clumping of bacilli and loss of motility in fifteen minutes. Leucocytes, 9,600. Typhoid deafness. Toward the end of the third week she complained of increasing abdominal pain that became localized in the right hypochondrium, where a tumor four inches in diameter developed, extending from the costal border toward the umbilicus. This tumor caused a visible swelling, was very tender, absolutely dull on percussion, and descended on full inspiration. At the time of admission, a week earlier, the liver dulness had been normal, and there was no special pain in this region. Now the patient's condition showed partial collapse, and as suppurative distention of the gall-bladder was thought to be present, my surgical colleague, Dr. George W. Gay, saw her in reference to an early laparotomy because rupture of the gall-bladder seemed imminent. Her state was regarded as unfavorable to the success of a capital operation, therefore I at once tapped the gall-bladder at a point one inch below the costal margin and four and a half inches from the umbilicus. Three and a half ounces of sero-purulent fluid were withdrawn, pale in color, looking more like urine than bile. The aspirating needle moved up and down with the action of the diaphragm. No gall-stones could be felt with the point of the needle. After its withdrawal a pad and swathe were applied to prevent the escape of septic fluid into the peritoneal cavity. The relief to pain was immediate. The next day all urgent symptoms had disappeared, and they did not return. The pulse

fell from 140 to 120, and defervescence followed in five days. The gall-bladder gradually retracted; convalescence ensued; and when the patient returned for observation a month later, nothing abnormal was found in this region. (A photograph and chart were presented, together with a specimen of the fluid withdrawn. The chart is herewith produced.)



The following report was made by Dr. R. M. Pearce, assistant to Dr. Councilman in the Pathological Laboratory of the City Hospital:

The fluid is of a pale yellowish color, watery consistency and fecal odor, with considerable fine, yellowish sediment, in which fine reddish-yellow granules could be seen. Specific gravity, 1.016; albumin, one per cent.

Fresh examination, microscopically, shows much bile pigment, numerous cholesterol crystals, pus cells and epithelial cells, most of the latter being granular and some fatty.

Sediment stained with Löffler's methylene blue shows pus cells, epithelial cells, and numerous short, thick bacilli with rounded ends, occurring singly and in pairs, and usually in the pus cells, arranged in clumps around the nucleus.

Cultures show round, flat colonies with elevated centres, of pale white color, almost transparent; microscopically, short, thick bacilli with rounded ends and very motile. No other bacilli.

Cultures from dilutions, planted on potato, produced invisible growth; in litmus milk no reddening or coagulation; in sugar gelatin no gas production. Flagella stained.

With serum from a known typhoid case characteristic clumps, with loss of motility, were produced. The same reaction was produced with the patient's own serum.

Diagnosis: Typhoid bacillus.

December 7th, 3 P. M. A guinea-pig was inoculated subcutaneously with one cubic centimetre, and one cubic centimetre intra-peritoneally of forty-eight-hour bouillon culture.

¹ Read before the Association of American Physicians, May 4, 1897.

A large, subcutaneous abdominal abscess developed, which burst and discharged.

December 20th, 1 P. M. Pig killed. Autopsy showed general edema of abdominal tissues; marked enlargement of inguinal and axillary glands; large slough, two centimetres in diameter, at seat of inoculation; fluid in abdominal and pleural cavities; marked enlargement of mesenteric and retro-peritoneal glands; spleen enlarged, reddened, follicles distinct; Peyer's patches enlarged; intestinal tract otherwise normal. No changes apparent in other organs.

Dr. S. W. Ellsworth, house physician, used pure cultures of the bacilli found in this fluid in further clinical tests for Widal's reaction, as follows:

With the serum from eight cases of typhoid fever the characteristic clumping and loss of motility were quickly obtained.

With serum from one case each of malaria, pneumonia, phthisis and rheumatic fever the results were negative, as they also were in further testings of the serum from these cases with a pure culture of typhoid bacilli from a spleen.

The records of the Boston City Hospital, so far as I am aware, contain but three other cases of this complication in typhoid fever, and these occurred in the same family, as reported by Dr. C. Ellery Stedman in the third Series of City Hospital Reports, 1882.¹

They are, briefly, as follows:

CASE I. A girl, aged thirteen, died on the 24th day with symptoms of peritonitis. At the autopsy the usual lesions of typhoid fever were found, and in addition adhesive inflammation in the region of the gall-bladder, which was glued to the colon at the junction of the ascending and transverse portions. The fundus of the gall-bladder was ulcerated and ruptured, and there was a pint and a half of yellowish serum in the abdominal cavity. No gall-stones.

CASE II. A girl, aged six, sister of the above, died of typhoid fever on the 28th day, and the post-mortem examination showed extensive peritonitis, with a pint of sero-purulent fluid in the abdominal cavity. There were three perforations of the gall-bladder and extensive ulceration of its inner surface.

CASE III. Male, aged sixteen, brother of the above, developed a tender, rounded tumor in the region of his gall-bladder in the second week of typhoid. This gradually subsided, and the patient made a good recovery.

LITERATURE.

In examining the history of this subject during the past sixty years we find some forty cases recorded in which destructive inflammation of the gall-bladder during typhoid fever has attracted attention as a matter of special interest, usually after death. Few of the earlier, and almost none of the later, works on medicine give it more than a passing mention, and the unusual localization of the lesion so *bizarre*, as it was termed by a French writer, has until recently found no satisfactory pathological explanation.

Louis in his work on "Typhoid Fever"² states that "changes in the bile and gall-bladder are much more frequent in the course of the typhoid affection than in that of other acute diseases." He cites three fatal cases in which cholecystitis, unrecognized during life, had supervened. In two the gall-bladder was filled with a "transparent, aqueous, diaphanous or urinous liquid" and in one case the cystic duct was obliterated.

Similar cases are mentioned by Audral, Grissolle, and

by other writers in the French journals since 1835, to which reference is made at the end of this article.

In the German writings before 1890 are several communications based upon the discovery of post-mortem typhoidal lesions of the gall-bladder, but I will mention only the observations of Rokitsansky and Frerichs and Hölischer's autopsy records.

Rokitansky³ speaks of fibrinous exudations of a "diphtheritic" character as occurring within the gall-bladder and ducts in typhoid fever, cholera and pyemia, their existence being indicated by no symptoms during life and only determined by post-mortem examinations. This is not an adequate description of the process under discussion.

Frerichs⁴ on the other hand, found the gall-bladder filled with a turbid, ash-colored, albuminous fluid, of neutral or feebly alkaline reaction, in three cases of typhoid fever and one of typhus. In two cases bile-pigment and biliary acids were entirely absent; in the other two small quantities of these substances and some leucine were found. The lining membrane of the gall-bladder and ducts was softened and pale. There were no gall-stones, and no jaundice or other hepatic affection was present.

Frerichs also gives the following description of a case that recovered:

A female, aged twenty-six, on the 13th day of a typhoid fever had attacks of vomiting, and two days later a very painful, pear-shaped tumor was found in the right hypochondrium in immediate connection with the liver above. It gave a muffled, tympanitic percussion tone. There were no signs of biliary obstruction. Leeches and cataplasms were applied. The vomiting ceased altogether; nausea continued for many days. Pain and tension diminished, and the boundaries of the tumor contracted until, in the fourth week, convalescence ensued, although the gall-bladder could be felt for a long time.

There is a noticeable similarity between this history and that of my case, except that the withdrawal of the fluid enabled us to determine both its source and cause by methods that were not formerly available.

In Hölischer's⁵ 2,000 typhoid autopsies marked hepatic degeneration was found in more than ten per cent. of the cases. In 22 only jaundice was present, and in but five was purulent inflammation of the gall-bladder discovered. In a single case there was perforation with circumscribed peritonitis.

Courvoisier,⁶ in his elaborate work on "The Pathology and Surgery of the Biliary Passages," records 10 fatal cases of typhoid cholecystitis, two with gall-stones and phlegmogenous infiltration of the gall-bladder walls, and seven with sero-purulent exudate, occasional ulcers and necrotic areas. In four cases of perforation no gall-stones were present.

Among English authorities Budd⁷ relates a case which came under his care in 1849:

CASE. A female, aged eighteen, entered King's College Hospital in the second week of typhoid fever. During the third week she lay delirious, on her back, with legs drawn up, and gave signs of pain when the region of the liver was pressed upon. "On the 19th day," says Dr. Budd, "when I made pressure on the belly to the right of the epigastrium she uttered a loud shriek. I now discovered a fulness in that part of the belly, and inferred that there was inflammation of the gall-bladder or that an abscess existed in the liver." Chills and vomiting followed, but the patient

lived two weeks longer. There was no jaundice. Autopsy showed a distended gall-bladder, an inch and a half below the liver-margin, with recent peritoneal adhesions to the surrounding parts. It contained considerable puriform fluid and fourteen gall-stones, one of which completely blocked the cystic duct. They consisted of a cholesterine with nuclei of inspissated bile. The liver itself presented no unhealthy appearance. Extensive ulceration of Peyer's patches.

Budd remarks that "suppurative inflammation of the gall-bladder seems especially liable to occur when by any cause the cystic duct is permanently closed."

He regards the purulent and ulcerative inflammations of the gall-bladder in typhoid as similar to the appearances observed in the violent remittent fever that prevailed with great fatality among the British troops on the Island of Walcheren in 1809, in the fever of Sierra Leone and in yellow fever.⁸

Murchison, Harley and Hale White make special reference to the cholangitis and cholecystitis that may attend typhoid fever.

Murchison⁹ states that in this disease "fatal peritonitis may result from ulcerations of the gall-bladder proceeding to perforation." He cites the case of a youth who on the 15th day was seized with symptoms of peritonitis and died within twenty-six hours. The cause of death was perforating ulcer of the gall-bladder which had allowed bile to flow into the peritoneum.

This author further says: "The lining membrane of the gall-bladder is very liable to become inflamed in enteric fever without producing any marked symptoms during life. This inflammation is sometimes catarrhal, with pus formation; at other times, according to Rokitsky, it is diphtheritic. Thirdly, it may take the form of ulceration, as in cases recorded by Andral, Jenner and Trousseau, and the process may end in perforation and fatal peritonitis. In a large proportion of cases when the disease has lasted three or four weeks the bile is thin, watery, almost colorless, of low specific gravity, 1.010 to 1.016 instead of 1.026 to 1.030."

Murchison mentions several other cases by different authors as well as in his own practice.

Harley,¹⁰ after commenting upon the usual hepatic degeneration in typhoid, says that he constantly found the bile thin, watery and of low specific gravity, giving slowly and faintly the characteristic reactions when tested with the mineral acids or by Pettenkoffer's test. It was sometimes excessively acid, and in one case, examined twelve hours after death, had a strong smell of sulphuretted hydrogen. Harley's view of these biliary changes is that the hepatic secretion becomes vitiated either by prolonged vascular congestion or through "the effect of some morbid agent carried by the portal vein from the intestinal surface into the liver," which may, at an early period in the disease, cause torpidity of that organ and more or less complete cessation of its functions.

Although our own authors have not made such extensive reference to the biliary complications of typhoid fever as the writers to whom I have referred, they mention the danger to life that may arise from suppuration within the gall-bladder; and beside the cases of Dr. Stedman previously quoted, I have found a few others.

Dr. Daniel Ayres¹¹ in 1846, described "A Case of Perforating Ulcer of the Gall-Bladder complicating Continued Fever."

CASE. A young hospital interne, during convalescence from typhoid fever, was taken with acute pain in the right hypochondrium and died of peritonitis. At the autopsy a perforating ulcer at the fundus of the gall-bladder was found and the abdominal cavity contained ten ounces of biliary fluid, serous in character. The ducts were patent and there were no gall-stones.

Ayres mentions the cases of Budd and Louis, which were then recent, and, after alluding to their analogy in this respect with yellow fever and other diseases of tropical climates in which inflammation and ulceration of the gall-bladder may occur as a sequence to biliary derangements, he concludes that "perforation generally supervenes upon a previously diseased state of the gall-bladder and very rarely appears in the course of acute diseases without such a cause."

An interesting case is reported by Dr. William Pepper,¹² and is quoted by Frerichs as bearing upon this subject:

CASE. A man, twenty-six years old, had a prolonged bilious fever, and came under the care of Dr. Pepper six months later with severe pain and a tumor in the right hypochondrium which gradually extended as far as the crest of the ilium. It was tapped, and a few ounces of muco-purulent fluid were withdrawn. After death the gall-bladder was found enormously distended by two quarts of semi-purulent fluid. The walls were ulcerated, and the cystic duct was completely closed by exudate. No gall-stones were present. There were two small abscesses in the right lobe of the liver.

The most comprehensive study that had then appeared (in 1876) is contained in the Paris Thesis on "Cholecystitis in Typhoid Fever," by Hagenmüller.¹³ Eighteen cases from French and German reports are collected. In four cases there was slow recovery; in the others, death from peritonitis, the affection of the gall-bladder having been unrecognized during life. Hagenmüller's conclusions were that typhoidal cholecystitis, apparently so rare, will be more frequently observed when attention is awakened to the subject; that it results from the propagation of the intestinal inflammation to the gall-bladder, owing to low systemic conditions; that the diagnosis must be based upon the localization of pain in the right hypochondrium or in some cases upon intumescence of the gall-bladder; and that fatal peritonitis may result from perforation or from simple extension of the inflammation to the peritoneum by contiguity. In but two cases were gall-stones found, and rarely did the inflammation involve the liver substance.

During the past decade only has it been possible to apply the methods of bacteriological research to these obscure lesions and to trace the gall-bladder infection directly to the typhoid bacillus.

In 1890 Gilbert and Girode¹⁴ reported the first case of suppurative cholecystitis caused by the invasion of typhoid bacilli, as demonstrated microscopically and by cultures. In 1893 the same authors presented a further communication relating to the same subject.¹⁵

CASE. A woman, aged forty-five, during a moderately severe typhoid fever had symptoms referable to the gall-bladder, pains and a swelling in that region. With convalescence the swelling diminished, but after a considerable interval the symptoms returned, and on re-admission to the hospital, five months after the termination of the typhoid attack, cholecystotomy was performed. The gall-bladder contained pus which

gave a pure culture of typhoid bacilli, and there was also a small calculus.

E. Dupré in a comprehensive thesis on "The Biliary Infections"¹⁶ gives two cases (Observations VII and IX) in which he had made pure cultures of the typhoid bacillus from the gall-bladder. The first was that of a man, forty-six years old, who died on the 16th day of his fever. Although the gall-bladder presented no apparent pathological changes, pure cultures of Eberth's bacillus were obtained. The second observation relates to a woman, forty-five years old, who died from an operation for gall-stones, performed six months after recovery from typhoid fever. The discovery of typhoid bacilli in both gall-bladders led the author to think that this infection was more common than was supposed.

In 1892 Guarnieri¹⁷ found an infection of the biliary passages, liver and spleen by the typhoid bacillus in a case that presented no intestinal lesions.

Chiari's¹⁸ report of a case of destructive cholecystitis, in which the pathogenic organisms of typhoid fever were found, was one of the first on this subject.

CASE. A boy, twelve years old, after six weeks' illness with typhoid fever, died, apparently of a terminal pneumonia. At the autopsy the classic intestinal lesions of typhoid fever in a convalescent state were found, also broncho-pneumonia. The gall-bladder was full of pus and had several necrotic patches on the walls. Externally was a fibrinous exudate with adjacent peritonitis. The biliary ducts and duodenum were normal. The cause of death was cholecystitis, which had provoked peritonitis. Typhoid bacilli in pure culture were found in the pus and in the gall-bladder walls.

The author regarded his case as second to the one reported by Gilbert and Girode.

Chiari¹⁹ made a further report to the International Medical Congress in Rome, giving the results of his examinations of 22 patients who died of typhoid fever. In three only were the typhoid bacilli absent from the gall-bladder. In 15 they were the only kind, and the number was often very great. Inflammation of the gall-bladder had occurred in 13 cases, in 12 involving only the mucous lining, in one the whole wall and causing a secondary peritonitis by extension. Chiari concludes that the occurrence of typhoid bacilli in the gall-bladder is the rule in typhoid fever, and that they increase and may remain there a long time; finally that they may cause gall-stones and relapse.

There are several questions of interest that suggest themselves in connection with these various reports, clinical and pathological:

- (1) How do the germs reach the gall-bladder?
- (2) Have they a special predilection for previously damaged gall-bladders or those containing gall-stones?
- (3) Is it probable that typhoid fever may cause gall-stones?
- (4) What are the means available for diagnosis and treatment?

CHANNEL OF INFECTION.

The sterility of normal bile is not questioned so long as the ducts are pervious and the flow is free, but when there is disease of the biliary passages by which the bile current is checked, micro-organisms from the duodenum find easy access to the gall-bladder. Charcot and Gombault after tying the common duct in

animals found that the bile above the ligature was infected by bacteria within a short time. Numerous other observations have confirmed this, and Létienne²⁰ examined the bile immediately after death in forty-two patients who died of various diseases finding micro-organisms in twenty-four, or more than half. The bacterium coli commune was often observed, but there seems to be no reason why this germ should not always invade the gall-bladder after death. Naunyn²¹ found it in the fluid removed during life in several cases of recent cholecystitis.

Whether in typhoid fever and in other infectious diseases there may be a stagnation in the bile-current and a vitiation in quality, as suggested by Harley, that allow the ready invasion of intestinal germs, or whether this may be preceded by a catarrhal cholecystitis engendered by the passage of the typhoid bacilli through the portal circulation, cannot be easily determined. Both channels are open. It has been shown experimentally by Pisenti²² that the amount of bile secreted is diminished from one-half to two-thirds during septic fever in animals, and the same tendency may be assumed to be present in some degree during typhoid fever.

As to infection through the blood-stream, it is held by Sherrington²³ that "though the blood be teeming with micro-organisms none can escape through the normal hepatic tissues, and it is only when the latter have been damaged by toxins in the blood, formed by the life of the bacteria, that the tissues allow the germs to pass through them." Experiments by Blachstein²⁴ and others showed that after the intravenous inoculation of animals with the typhoid bacillus the gall-bladder in numerous instances was infected ten or twelve days later. In two rabbits these organisms were found to be very active in the bile after very long periods, from three to four months.

It is a matter of common observation that the bacilli of typhoid are voided with the urine, which they must reach, according to the observations of Flexner,²⁵ through the glomerular capillaries, and there appears to be sufficient proof that the hepatic secretion is contaminated in a similar manner through the portal circulation. The suggestion of Chiari that germs may pass directly through the intestinal wall to the gall-bladder cannot be substantiated although the fecal odor is probably thus imparted.

Therefore we must conclude that infection of the gall-bladder takes place by the passage of micro-organisms through the biliary ducts with the supplementary agency of a contaminated blood-current.

RELATION OF GALL-STONES TO ETIOLOGY.

Recent studies (Naunyn,²¹ Courvoisier,⁶ Brockbank,²² Mayo Robson²⁶) leave no doubt that gall-stones render the biliary ducts and gall-bladder more receptive to infecting microbes, especially if either the common or the cystic duct is obstructed. The presence of calculi in a typhoid-fever patient would undoubtedly favor the occurrence of accidents from severe gall-bladder infection, and this is substantiated by the post-mortem evidence in some of the cases previously cited, since about one-fourth of the patients who died with typhoidal cholecystitis were found to have gall-stones. But in the great majority of cases no calculi were present and no evidences of previous local lesions. Moreover, several were in childhood, more in the adolescent period of life, when gall-stones

are comparatively rare. Therefore it may be assumed, in view of Chiari's discovery of Eberth's bacillus in the gall-bladder at nearly all his typhoid autopsies, that the pre-existence of gall-stones is not an essential feature in the infective process.

TYPHOID INFECTION AS A CAUSE OF GALL-STONES.

There is more ground for the supposition that typhoid fever, through gall-bladder infection, may be an important factor in the etiology of gall-stones.

Bernheim²⁷ suggested this sequence, stating that he had seen three or four times veritable accessions of biliary colic in the course of typhoid fever in subjects who had never had such attacks before. "May not typhoid fever," he asks, "produce alteration or stagnation of bile and thus determine the formation of gall-stones?"

The prolonged vitality of the typhoid bacillus within the body is well known and is instanced by the two cases previously cited, in which pure cultures were obtained from the gall-bladder in patients who came to operation for calculous cholecystitis five and eight months respectively after the termination of the fever.

A similar report by Chautemesse²⁸ relates to a case of grave typhoid with slow convalescence. Six months later, after an interval of perfect health, biliary colic appeared for the first time with icterus from obstruction. Surgical operation. Gall-stones. Pure culture of typhoid bacilli from the gall-bladder.

Especially interesting as bearing upon this point is the communication of Dr. Dufourt, of Vichy,²⁹ on "The Rôle of Typhoid Fever in the Etiology of Biliary Lithiasis." Nineteen patients with gall-stones had their first attacks of colic after severe typhoid fever. These attacks came on as early as the second month after the fever in two cases; in the third month in six cases; in the fourth month in three; and in the fifth month in one; while the remaining five dated their first symptoms at ten months or later after recovery from the fever. Such cases may be classed with the so-called "hepatic typhus" of French writers.³⁰

Whether the micro-organisms may cause a chemical precipitate in the gall-bladder from which cholesterine calculi are formed, or whether the bacilli themselves act as nuclei, is a matter for further study, but stagnation of bile, an important factor in stone formation, may be assumed to be present in typhoid fever. Naunyn states that he has found micro-organisms in the centre of a few bilirubin-calcium calculi, but this is very exceptional.

REINFECTION AND RELAPSE.

Chiari thinks that the possibility of re-infection through the intestine by bacilli from the gall-bladder should be considered. The occurrence of relapse in typhoid is an arbitrary matter and inexplicable. The belief that it is caused by the resumption of solid food *per se* is untenable. In certain cases the gall-bladder becomes a stagnant reservoir of typhoid bacilli, so to speak, under conditions favorable to prolonged and virulent activity. Therefore it is by no means impossible that an increase of food, by exciting a stronger flow of bile, may send back to the intestine a new growth of organisms which in turn cause those exacerbations and relapses that are often attributed to errors of diet.

PATHOLOGICAL CHANGES.

The pathological changes that have been noted involve the gall-bladder, the ducts and the peritoneum. The cholecystitis may be catarrhal with an exudate which at first is mostly serous. In other cases it is entirely purulent. Ulcers, often multiple, are found chiefly at the fundus, but they may cause perforation at the neck or elsewhere. Abscess involving the wall alone has been observed and in some instances the gall-bladder is destroyed by gangrenous inflammation.

In many cases the ducts have been free, with little evidence of cholangitis. In others impacted gall-stones were found, and jaundice is mentioned not infrequently. It cannot be supposed that great distention of the gall-bladder occurs without obstruction, although this may not be apparent after death if rupture has taken place. Brockbank³¹ states that "the cystic duct is curved like the letter S in its course between the neck of the gall-bladder and its junction with the hepatic duct, and pressure on it from a full gall-bladder, whether the fulness be caused by calculi or fluid only, will, at times, obliterate its lumen and induce further collection of the secretion of the wall of the gall-bladder with consequent dilatation of the latter."

When this obstruction is the result of pressure or of inflammatory thickening, the cystic duct may again become patent. But when the duct becomes impervious and takes "the appearance of a fibrous cord," the lumen is entirely obliterated by adhesive inflammation.

In many of the cases cited it has been noted that the fluid confined within the gall-bladder was pale, semi-serous, of low specific gravity, and lacking the usual appearances and chemical constituents of bile. This change, by which the gall-bladder secretion replaces the bile, goes on somewhat rapidly after the stoppage of the cystic duct.

A localized peritonitis may be induced by contiguity even when there is no perforation, and if rupture occurs later the escaping fluid may be limited to the right hypochondrium by adhesions between the liver, abdominal wall and transverse colon.

CLINICAL AND DIAGNOSTIC FEATURES.

In turning to the clinical aspect of gall-bladder infection it is apparent that, although we must believe that many or most cases of typhoid fever present bacteriological evidence of such infection, the symptoms caused thereby are seldom of importance; but on the other hand, the inflammation may reach such a degree of severity that life is cut off without warning of the local danger. In more than half the cases recorded, either through the latency of the symptoms, or on account of typhoidal stupor, nothing unusual was observed. Thus the gall bladder may become distended or perforation may occur without detection.

The subjects are mostly young, and childhood is not exempt from this complication. Several cases under ten years of age have been reported.

Those instances in which this condition can be determined during life present fairly diagnostic symptoms. They are: pain in the region of the gall bladder and under the scapula; a palpable, very tender swelling that is dull on percussion, sometimes pear-shaped and visible, giving a doubtful fluctuation, described in one instance, as like that of a tense hydrocele. "In gall-bladder inflammation," says Mr. Mayo Robson,³² "there is almost invariably a tender spot a little above

and to the right of the umbilicus, or, to be more exact, at the junction of the upper two-thirds with the lower third of a line drawn from the ninth rib to the umbilicus."

If perforation occurs, these symptoms are merged into those of collapse and general or local peritonitis, of which the source can only be inferred from its manner of development and the previous history.

The conditions to be excluded in diagnosis, in the more latent stages, are impacted feces, hydronephrosis, cyst, displaced kidney and appendicitis; and, when rupture of the gall-bladder has occurred, intestinal perforation. The distended gall-bladder gives more pain than either of the first three affections. A displaced kidney is movable, and the appendix is seldom found in the right hypochondrium. Collapse and peritonitis from rupture of the gall-bladder, as before mentioned and as observed in numerous cases, may be indistinguishable from these conditions when due to intestinal perforation. Marked leucocytosis would be suggestive.

PROGNOSIS.

The prognosis is unfavorable if the gall-bladder has become much distended or if deep ulceration has taken place, unless the symptoms can be promptly relieved. The local dangers in addition to those from the fever itself are very great. Among the cases that I have found reported one-quarter only got well, including those of post-typhoid cholecystotomy in which Eberth's bacilli were discovered at operation. Without doubt many cases of typhoid cholecystitis recover spontaneously and go unobserved or unrecorded. But it is equally probable that others die in whom this state is unsuspected.

TREATMENT.

The indications are to relieve pain by opiates and local applications, hot or cold, to avert perforation if possible by absolute quietude or tapping the gall-bladder, and if rupture occurs or appears inevitable to resort to the promptest surgery.

I know of no case similar to mine in which typhoid cholecystitis, as determined both clinically and bacteriologically at the height of the fever, has required immediate intervention. There may be others. Fortunately a simple tapping relieved pressure, opened the cystic duct and allowed escape for the sero-purulent fluid.

Had re-accumulation occurred, in the absence of peritonitis, expectant measures or tapping again would have been indicated, as the acute typhoid state is a very unfavorable one for radical surgery.

In case of perforation and septic peritonitis, however, laparotomy should be performed as affording almost the only chance, but probably a better one than after intestinal perforation at the same stage of typhoid fever, because the inflammatory processes may be limited to the right hypochondrium, and the gall-bladder is a less vital part.

Such operations will be rare; but if done in the declining stage of the fever or during convalescence, the prospect of success is less unfavorable. A case of this kind, thus far the only one, I believe, was reported in the *Lancet* two years ago by Mr. Monier-Williams and Mr. Sheild.⁸³

CASE. A female, thirty-one years old, on the eleventh day of typhoid fever had sudden, severe abdominal pain with semi-collapse. The pain was

limited to the upper half of the abdomen, and was thought to be due to an intestinal perforation. The patient recovered from this complication, and became convalescent in the fourth week. The temperature was normal for a fortnight, when, at the end of the sixth week, there was another sudden, severe accession of pain and tenderness in the right hypochondrium at the hepatic flexure of the colon. Here a dull tumor appeared, the size of an orange. Again a diagnosis of probable intestinal perforation was made, and the condition was regarded as nearly hopeless. The next day there was slight rallying from collapse and a worse abdominal condition. Operation was decided upon. Median incision, extending later to the right, showed turbid fluid in the right hypochondriac region chiefly, but no perforation of the intestine. The gall-bladder was deeply inflamed, of a dark plum color, thickened, adherent and tightly distended. Near the neck was an ulcer the size of a three-penny piece, with a small perforation through which oozed the contents. The gall-bladder was opened and emptied of an ounce and a half of thick, offensive pus. There were no calculi. The patient made a good recovery. No satisfactory bacteriological examination was made.

From this study the following conclusions are drawn:

(1) The gall-bladder in typhoid fever is often infected by Eberth's bacillus, seldom by other organisms (streptococcus, bacillus coli communis).⁸⁴

(2) Fatal cholecystitis may result, the inflammation often involving the ducts (cholangitis), less frequently the hepatic parenchyma (abscess).

(3) Gall-stones predispose to this complication, and on the other hand there is ground for thinking that typhoid fever may determine the formation of calculi in predisposed subjects.

(4) The gall-bladder may be a focus for systemic re-infection.

(5) Diagnostic symptoms sometimes indicate the necessity for evacuating the gall-bladder by tapping or cholecystotomy.

ILLUSTRATIVE CASES.

1. Recovery. Lendet (Hagenmüller, *op. cit.*).

Female, thirty-six years. Fourth week, pyriform tumor in right hypochondrium, disappearing in ten days, reappearing at intervals during seven weeks. No jaundice.

2. Recovery. Griesinger (Hagenmüller, *op. cit.*).

Female, age twenty. Sixth week, peritonitis, slight inflammation. Painful tumor to right of umbilicus. Swelling of liver. Collapse. Convalescence. In eighth week sudden return of tumor, with chills, icterus, vomiting. Later, two more relapses. Recovery fifth month.

3. Recovery. Laveran (Hagenmüller, *op. cit.*).

Man, age twenty-three. Painful symptoms and tumor in region of gall-bladder in sixth week.

4. Martin-Solon (*Bull. Fac. de Méd. de Paris*, 1820-21, VII, p. 370-375).

Patient died of peritonitis, and twenty-five ulcers of gall-bladder were found. Previous illness not clearly typhoid fever. *Enterite* (?).

5. Husson (*Bull. de la Soc. Anat.*, 1835, p. 104).

Child, eight years. Died at end of third week. Perforated gall-bladder. Cystic duct obliterated and converted into fibrous cord.

6. Dumoulin (*Gaz. Méd. de Paris*, Third Series, Tome II, 1848, p. 551).

Man, age nineteen. Third week, constant nausea and vomiting. Enormous tumor in right hypochondrium, extending to left of umbilicus and into right iliac fossa. Resistance like tense hydrocele. Liver raised. Upper limit line of right nipple. Diagnosis: distended gall-bladder.

Repeated chills suggestive of hepatic abscess. Coma. Death on 16th day. Autopsy: Typical intestinal lesions of typhoid; tumor, size of head, containing two litres of greenish bile; no gall-stones; adhesions with liver, transverse colon, etc.

7. Archambault (*Bull. de la Soc. Anat.*, 1852, p. 90).

Infant. On 30th day, signs of intestinal perforation. Death 12 days later. Perforation of gall-bladder. Localized peritonitis.

8. Barthez and Rilliet (*Maladies des Enfants*, Vol. 11, second edition, 1853, pp. 5, 701).

Girl, age twelve. On 16th day, tumor in right hypochondrium that gradually disappeared. Death on 52d day. Autopsy: Perforated gall-bladder; circumscribed pus cavity between liver, stomach, gall-bladder and colon.

9. Ranvier (*Bull. de la Soc. Anat. de Paris*, 2 S., Tome VIII, 1863, p. 432).

Man, age twenty-eight. Died during convalescence in the fifth week. Autopsy: Limited peritonitis; perforated gall-bladder; right side of abdomen filled with yellowish, opaque liquid; walls of gall-bladder two or three millimetres thick and infiltrated with pus; a small calculus; Peyer's patches in stage of cicatrization. Author says he cannot explain this point of suppurative election, "si bizarre."

10. L. Colin (*Études clin. de méd. militaire*, p. 197, Paris, 1864).

Soldier. End of third week of rather mild attack; jaundice, gastro-abdominal pain. Death 11 days later. Autopsy: Peritonitis limited by transverse colon, liver and abdominal wall; gall-bladder size of goose-egg, perforated; no gall-stones; ducts pervious; typical intestinal lesions.

11. C. E. E. Hoffmann (Zerstörung der Gallenblase bei Typhus, *Virchow's Archiv*, 1868, XLII, 219-222).

Female, age twenty-five. Sixth week, jaundice. Eighth week, sinuses discharging through abdominal wall. Twelfth week, death. Autopsy: Destruction of gall-bladder; abscess beneath liver, containing 12 gall-stones; lesions of typhoid.

12. O. W. Foot (Enteric Fever, Abscess in Walls of Gall-bladder, *Irish Hosp. Gaz.*, Dublin, 1874, II).

Female, age thirty-two. Died in eighth week. Small abscess between coats of gall-bladder, communicating by a narrow orifice with interior. Extensive adhesions of abdominal wall. One cholesterol calculus, 23 grains.

13. Burger (Typhus abdom. mit Perforat. der Gallenblase in die Bursa Omentalis, *Deutsches Archiv. für klin. Med.*, Leipzig, 1873-4, XII S., 623-630).

Man, age forty-one. Twelfth day, pain and tumor size of apple in region of gall-bladder. Gradual increase in size. Chills. No jaundice. Death from peritonitis in fifth week. Perforation of gall-bladder. Adhesions forming cavity filled with pus. No gall-stones. No abscess of liver.

14. P. L. Legendre (*Bull. de la Soc. Anat. de Paris*, Fourth Series, Tome VI, 1881, p. 193).

Female, age thirty. In second week peritonitis in right upper abdomen. Death 12 days later. Autopsy: Perforation of gall-bladder; pus in peritoneal cavity; three gall-stones.

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EMPHYEMA OF THE ANTRUM OF HIGHMORE.

A NEW OPERATION FOR THE CURE OF OBSTINATE CASES.¹

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In order to understand the conditions involved in these cases, we must, first of all, give our attention to the necessary anatomical details connected with this region, and then note the pathological changes which may arise, for such an understanding is of indispensable value in the treatment of antral empyema.

ANATOMY.

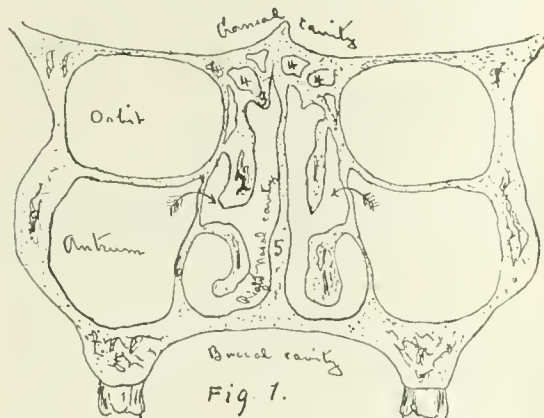
The Antrum of Highmore is a nearly closed cavity, occupying the whole of the body of the superior maxillary bone, pyramidal in shape, and presents three surfaces, an apex and a base. The apex is directed toward the malar process of this bone, its base corresponds to a large portion of the outer wall of the nasal cavity, and of the three surfaces, the superior forms the floor of the orbit, the anterior presents towards the face, and the posterior presents towards the zygomatic fossa. The posterior surface is the thickest, the base is the thinnest. Of the borders of the pyra-

¹ Read before the Boston Society for Medical Improvement, February 8, 1897.

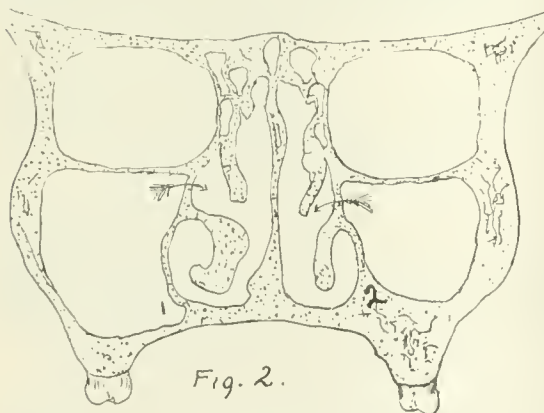
mid, that formed by the junction of the base and facial surface is broadest and most important; it corresponds to the alveolar process of the superior maxillary bone.

When the soft parts are in place, the antrum is easily accessible through the canine fossa, which is external to the canine ridge, and is a common site for entrance in operative cases, but if the opening is made well to the outer edge of this fossa towards the ridge which descends from the malar process, exploration is even more satisfactory. The orbital and zygomatic

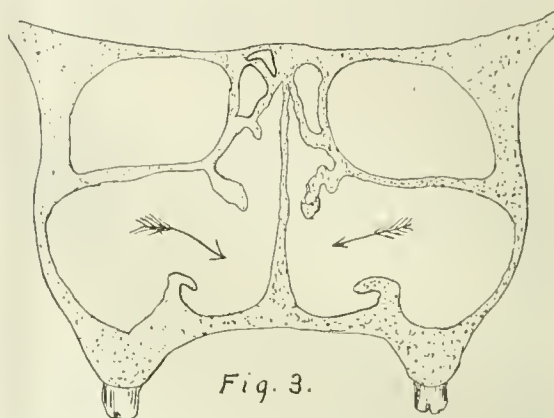
which is high up anteriorly under the inferior turbinate bone. When the soft parts are added it opens a little lower, but it is well protected from injury. The line of attachment of the inferior turbinate bone is roughly horizontal with a marked convexity upwards in the centre, while the partition below it, corresponding to the inferior meatus, is always more or less convex toward the antrum. This partition below the inferior turbinate is roughly oval in shape, as seen in Figs. 4 and 5. The size and shape of the antrum vary accord-



surfaces do not concern us particularly in the present consideration. The base or nasal surface must be considered in detail. The nasal bony wall of the superior maxilla is perforated by a large opening divided horizontally by the inferior turbinate bone, above which is the middle meatus, and below is the inferior meatus of the nasal cavity. The opening into the middle meatus is made smaller by the palate bone posteriorly and divided vertically by the uncinat process of the ethmoid, thereby leaving two bony framia



between the nasal cavity and the antrum. Below the inferior turbinate, the bony partition is made complete by the superior maxillary and palate bones and the maxillary process of the inferior turbinate bone. This partition is generally very thin and can be readily broken by a strong knife, but inferiorly it becomes thicker where it joins and separates the floor of the nasal cavity and antrum, so that here a small chisel may be needed to remove it. A groove on the inner surface of the superior maxillary bone is made into a canal by the lachrymal and inferior turbinate bones, so as to form the lachrymal duct, the bony opening of



ing to the concavities, convexities and thickness of its walls, and, although no two antra are exactly alike, it is unusual to find an abnormality which interferes seriously with most of the operative procedures undertaken for the relief of empyema of the superior maxillary sinus. The alveolar process is most marked in adults, but, in the aged after the loss of the teeth, it atrophies and may almost entirely disappear. All the walls of the antrum become much thinner and more brittle in advanced life.

The inner surface of the antrum is smooth for the most part, but along the borders, particularly the alveolar border (often called the inferior surface on account of its breadth), there are elevations and septa of greater or less prominence. The roots of the molar and bicuspid teeth, particularly the first and second molars, are commonly represented by bony elevations. The septa strengthen the bone and occasionally form separate compartments.

A mucous membrane with ciliated columnar epithelium lines the entire cavity, except at the ostium maxillare where it is continuous with the nasal mucous membrane. It frequently forms folds and pockets. Compared with that of the nose, it is much thinner, provided with fewer glands, and consequently much less able to absorb products of exudation retained within the cavity. Normally the ratio of secretion on the one hand, and absorption and evaporation on the other are nicely balanced, so that fluid does not collect within the antrum. Periosteum separates this lining from the bone. The blood-supply is derived from the sphenopalatine artery and numerous anastomosing branches on all sides of the antrum, but all of these arteries are of small diameter from which hemorrhage can be easily controlled by gauze packing.

The dental nerves are derived from the second division of the great trigeminal nerve, and pass along bony canals or semi-canals to reach the teeth. In the posterior wall are the nerves for the molar teeth, those for the bicuspid and incisor teeth are on the facial

surface anterior and laterally. Along the orbital surface is the infraorbital nerve, and also on account of the thinness of this plate of bone and the proximity of the orbit, this surface should be curetted with the greatest care. There are no nerves to be avoided on the nasal wall of the antrum.

The natural opening of the antrum, the ostium maxillare (looking from the antrum towards the nose), is seen to be on the nasal surface generally close up to the orbital surface and is usually of sufficient size to admit a large probe (Figs. 1, 2, and 4). The antrum, therefore, is a comparatively large cavity with a small outlet almost at its highest point. Before considering the nasal aspect of this opening, a word will be necessary concerning the other sinuses accessory to the nasal cavity.

The frontal sinus is so situated that its opening

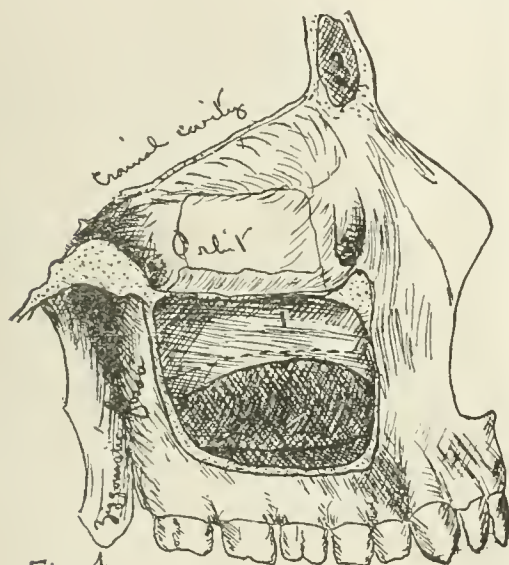


Fig. 4.

leads from its lowest point into a canal called the infundibulum, thence into a groove called the hiatus semilunaris. The infundibulum and ostium frontale are of sufficient size to drain the frontal sinus readily, and inflammatory products are retained only when the passage is obstructed. The ostium maxillare opens into the hiatus semilunaris. The ethmoid sinuses are made up of numerous small cells located along the junction of the ethmoid and frontal bones, and are divided into anterior, middle and posterior sinuses. The anterior cells open near the bulla ethmoidalis above and in close proximity to the hiatus semilunaris. All of these openings, therefore, are close together, and are concealed more or less under the middle turbinate bone. The openings of the other ethmoid cells and the sphenoidal sinus are more distant and do not concern us at present. Such is the usual mode of opening of these sinuses.

The researches of Zuckerkandl and other anatomists and an examination of about fifty antra, with the kind permission of Professor Dwight of the Harvard Medical School, show that variations from the so-called normal type are common. As shown by the probe, the antrum and frontal sinus are frequently in direct communication through the infundibulum; again, the ostium frontale may have no connection with the

infundibulum, and open anterior to the hiatus semilunaris. The opening of the anterior ethmoid cells is at a variable distance from the ostium maxillare, and the latter may be supplemented by an accessory opening. The ostium maxillare is very constantly of small size, but Zuckerkandl pictures a case (Fig. 3) where the greater part of the nasal walls corresponding to the middle meatus were deficient, thus making the antra large recesses of the nasal cavity. Occasionally the ostium maxillare is the size of an ordinary lead pencil. These common anatomical variations go to show that these accessory nasal cavities are more or less in intimate relationship, which is of great importance in the consideration of the pathology of these sinuses. Experiments by Dr. F. C. Cobb show that fluids injected into the frontal sinus very frequently drain into the antrum and Dr. Fillebrown

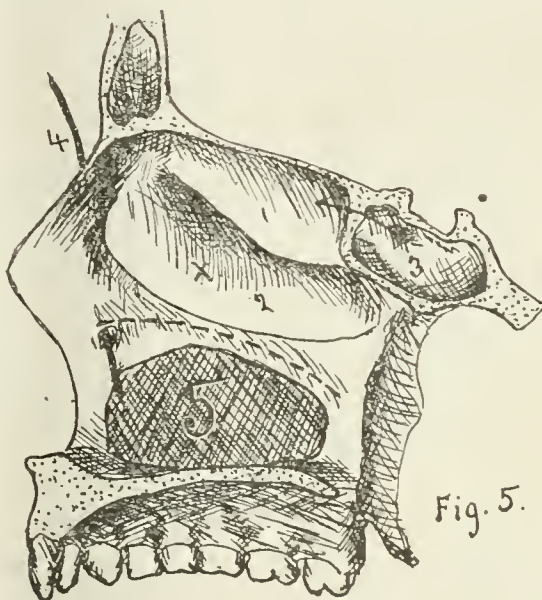


Fig. 5.

has demonstrated this association by means of the probe, and, on the other hand, numerous antra have been examined by the writer where fluid can be made to gravitate into the frontal sinus from the antrum.

The object of this detail is to show that collections of pus may spread from one sinus to the other by the law of gravity, according to the position of the head, which is constantly changing, as in walking, stooping or lying down. In that the antrum is usually the lowest of the sinuses most of the time, it is found most commonly to contain pus, but whether of primary or secondary origin will be considered later.

ETIOLOGY.

Empyema of the antrum may be of primary origin, as the result of fractures of the superior maxilla or as the result of tumors and foreign bodies within the antrum, but these are unusual causes.

As a rule, however, most cases are consequent on the extension of inflammation either from the alveolar process or the nasal cavity, but it is impossible to determine the percentage of each with any degree of accuracy. Most of the cases discovered by the dentist are of alveolar origin because he is visited on account of trouble with the teeth. The nose specialist finds that inflammation extending from the nasal

cavity is more often the cause of empyema of the antrum. As examples, we have the direct *extension* through a patent ostium maxillare consequent on catarrhal nasal conditions, or the inflammation is consequent on *obstruction* of the ostium maxillare by polypi and hypertrophies.

There is but little clinical evidence to show that antral empyema is often secondary to frontal empyema, for the latter is rare, and the former comparatively common. That antral empyema often, if not usually, accompanies frontal empyema (when this latter does occur), is shown by the statement of Zuckerkandl that post-mortem, he has never found a case of frontal empyema uncomplicated by antral empyema. This view is further strengthened by the anatomical variations and experiments just mentioned showing that the antrum may act as a *reservoir* merely. If such is the case, the pathological changes consequent on *retained pus*, and the great chronicity and often danger in treating frontal empyema, demonstrate the uselessness of daily *antral* irrigations, and the value of *obliterating the antrum, as a large pus receptacle*, with its annoying and disagreeable consequences.

Less is known about the relation between ethmoid and antral empyema. There is no direct communication between these sinuses, but undoubtedly pus flowing over the ethmoid bulla in excess, could enter the ostium maxillare or reach the ostium frontale if the head happened to be in the right position. While, on the one hand, the position of the ostium frontale is such that drainage from the frontal sinus is perfect, and there is every reason to believe that this sinus should remain healthy unless its canal is obstructed by hypertrophies or polyps, on the other hand, the drainage from the ethmoid cells is never perfect, hence when once thoroughly involved, it is questionable whether many of these obstinate and even dangerous ethmoid cases, ever recover. Be that as it may, even here as in frontal cases, if the antrum is involved secondarily to an ethmoid empyema, first as a *receptacle* for pus and then, in consequence, generating pus from its own walls, *its cavity as such should be obliterated*.

SYMPTOMS.

Of the symptoms of chronic suppuration of the antrum, suffice it to say at this time, that *subjectively* the patients have but little to complain of provided drainage is free. The ever annoying and intensely disagreeable symptom is the intermittent escape of foul smelling pus in more or less profusion from the anterior or posterior nares, according to the position of the head.

COURSE.

The course taken by cases of empyema of the antrum is generally very chronic. Some few are relieved within a few weeks, some last months or years, and others are never cured. Relapses are very frequent, and amelioration may last only so long as irrigations are continued. Satisfactory statistics of results are difficult to obtain. Of 58 cases treated by Chiari, twenty-seven were cured (hardly 50 per cent.), and the remainder more or less benefited. Hajek says that "it is certain that frequently, in spite of the absence of complications, affections of the antrum are not cured." Acute cases and some of the sub-acute cases undoubtedly resolve spontaneously, and irrigation relieves many chronic cases and benefits others

temporarily, but of the very chronic cases (and they are comparatively numerous) it is questionable whether more than 50 per cent. are permanently cured.

DIAGNOSIS.

Suffice it to say that pus issuing from the middle meatus should lead us to suspect empyema of one of the accessory nasal cavities — antrum, frontal or anterior ethmoid — but differentiation from this sign alone should never be conclusive. Transillumination is often of value, but is frequently deceptive. The surest sign is the aspiration of pus through the inferior meatus, a procedure carried out with but little pain under cocaine anesthesia, and with no attendant risk. The needle should just penetrate the wall of the antrum as near the floor of the nose as possible, and the head tilted laterally with the suspected antrum uppermost.

PATHOLOGY.

When the mucous membrane of the antrum is acutely inflamed, it becomes congested and edematous followed by cell desquamation, and round-cell infiltration in the superficial layers. There is then an accumulation of mucus or muco-pus in the antral cavity. After a certain length of time resolution takes place, or the exudate becomes more turbid and finally purulent, and then the deeper layers become involved. The vessels and lymphatics are no longer able to absorb the exudate, which then overflows into the nasal cavity as pus. Gradually the round cell infiltration travels deeper and deeper, until finally, in very chronic cases, the periosteum is invaded. In consequence, more or less of the lining of the antrum is hypertrophied, its epithelium exfoliated and replaced by granulations, and its glands destroyed. The surface is pigmented and ecchymosed, and may be studded here and there with small retention cysts. In the periosteum, bony plates and spicules are often formed, which eventually may assume considerable proportions.

Such is the catarrhal condition which may be primary, or secondary to one of the following causes:

- (1) Syphilis — commonly accompanied by necrosis.
- (2) Foreign bodies.
- (3) Malignant disease.
- (4) Tuberculosis.
- (5) Polypi.
- (6) Periostitis — from caries of teeth or alveolar process.
- (7) Dentigerous cyst.

The longer the suppuration exists, the greater and more permanent are the lesions to the lining membranes of the antrum. The constant irritation of retained pus prevents spontaneous resolution and hinders or may even preclude eventual recovery under most careful and frequent irrigation. The granulations become very exuberant and must be removed mechanically, and be replaced by scar tissue.

TREATMENT.

Our attention will be directed to the treatment of chronic cases, and, before attempting to seek for the causes of prolonged treatment or frequent relapses and failures, let us consider briefly the present methods adopted for the relief of empyema of the antrum. It is taken for granted that, as far as possible, all probable causes have been removed, namely: that the nasal cavity has been carefully examined, polypi and

hypertrophies removed, particularly from the vicinity of the ostium maxillare, and the catarrhal conditions ameliorated; that the question of empyema of the other sinuses has been considered; that the alveolar process has been thoroughly examined with reference to carious teeth or diseased alveolus; and finally that the question of syphilis has been eliminated.

After the removal of possible causes, one of the following modes of irrigation is usually resorted to:

(1) Through the ostium maxillare.

(2) Through the artificial opening in the (a) alveolar process, (b) canine fossa, (c) inferior meatus.

Most of the literature devoted to the treatment of chronic antra is made up of the consideration of which of these methods is the most rational and gives the best results. Every operator has his favorite site for entrance to the antrum, and he is naturally inclined to believe that the best results are to be obtained by the method which he has chosen. However, when one compares a large number of statistics reported by different observers, the results from these different methods are not at great variance. All have rapid and brilliant cures, all have cases which yield only after months of regular and patient irrigation, and all meet with nearly an equal number of cases which are only ameliorated temporarily or fail to improve. Now there must be some underlying cause for this unanimity of results which seems to be explained as follows:

To repeat, the antrum is a comparatively large bony cavity with a small opening near its upper surface, which always remains more or less patent in chronic cases, otherwise acute symptoms arise. In perhaps fifty per cent. of all cases it is possible to irrigate through the natural opening, other cases may be made accessible by removing various obstructions. By this route the walls of the antrum remain intact. The other modes of irrigation require that an artificial opening shall be made, namely, through the alveolus, the canine fossa or the inferior meatus. These openings are comparatively small, or if made large, they contract rapidly, and consequently, in order to keep them open any length of time, they must be tamponed. Hence, directly after each irrigation, the artificial opening is closed and remains so until the next irrigation, so that it makes no practical difference from a *therapeutic* standpoint where the canula is introduced for irrigation. From the standpoint of ease and convenience of access there is an undisputed choice of procedure, but this question need not be considered here.

Irrigation, therefore, under these apparently different methods, is practically one and the same process, and, on account of the anatomical structures of the antrum, more or less of the irrigating solution remains behind after each washing, the artificial opening is closed, and pus begins to re-accumulate at once. The retained solution soon loses its antiseptic power, becomes warm and forms a nidus for the growth of micro-organisms, and the antral mucous membrane is subjected to the irritation of pus and organisms for many hours. *Nevertheless* many cases recover under this treatment which is sufficient to help Nature restore the parts to their normal condition. These are the cases where the inflammation is of comparatively short duration or the pathological lesions superficial.

Then follow more radical measures. The canine opening is enlarged even to admit one or two examin-

ing fingers and the antral wall curetted, and the cavity packed with medicated gauze. This method is successful in many of the obstinate cases, but, as a rule, the opening becomes small and then tampons must be resorted to if the disease is not already cured, and at once free drainage no longer exists, and the frequent relapse occurs. Many operators favor this method which undoubtedly yields good results, but the objections are the constant drainage into the mouth, the occasional persistence of an antral fistula, and injury to the anterior dental nerves.

Spicer, of London, is still more radical and combines this extensive opening in the canine fossa, together with a deep groove down the alveolus, with the method of Krause, that is, he makes one or two perforations into the antrum from the inferior meatus by means of the Krause trocar, the finger introduced through the canine opening to serve as a guide. This latter is to serve as an accessory opening and he strives to maintain a permanent opening in the canine fossa. No artificial measures for drainage are used and the patients are directed to irrigate the antrum thrice daily, and force air through from the nose to the mouth. This procedure is made use of in obstinate cases, many of which are cured where the milder methods have failed. He states that many of the most obstinate cases have been cured in from four to six weeks. Other operators have been able to cure cases which have remained obstinate for a long time under alveolar irrigation, as soon as they have combined with it a counter opening made by the Krause trocar through the inferior meatus. The secret of the success of the more radical operation which has been made use of only as a last resort, is undoubtedly due to the establishment of better drainage. Such is the present status of antral surgery, and results show that there remains much to accomplish.

Now no one will dispute the facts that empyema of the antrum is often a most obstinate affection, that many cases last for months or years, and that, finally, certain cases last a life-time. In considering suppurative conditions in general, there would seem to be no reason why cases should not recover if the part is accessible to the surgeon, if pathological formations are removed, and if thorough or even permanent drainage be established if necessary, provided such causes as tuberculosis and malignant disease are eliminated, both of which are unusual causes of the disease in question. The problem with which we have to deal in these cases is that of a rigid bony cavity which retains the products of exudation under conditions where the activity of the local blood-vessels and lymphatics is insufficient to bring about resolution. In general, cavities containing pus should be opened, pathological products removed, and free drainage established and maintained until a cure is reached.

As examples we may cite the following:

In empyema of the thoracic cavity, we have a resistant bony wall partially surrounding the pus collection, and the rest of the circumference made up of soft parts, as lung or diaphragm. So long as free drainage is maintained the lung slowly expands, the visceral and parietal pleuræ become adherent and the abscess cavity is gradually obliterated; then the case is well.

In the rare cases of suppurative pericarditis, recovery can take place only on obliteration of the pericardial space, which presupposes free drainage.

Ordinary pus collections in soft parts get well after

the pus is evacuated and the collapsed walls become adherent, which again presupposes free drainage, although small collections may be absorbed.

Cavities in the larger bones get well in a somewhat similar way except that the walls are rigid and cannot collapse; hence small cavities are filled with granulations and then healed over, and large cavities leave deep scars or holes into which the epithelium slowly creeps, with marked resultant deformity.

Now how does the antrum differ from the problems just presented? It can be drained, and, indeed, from many different points; it is too large to fill with exuberant granulations with the hope of obliterating a suppurative cavity; its walls are rigid and it must always remain a cavity. It need not, however, in obstinate or apparently incurable cases of empyema, remain a closed cavity, surgically speaking.

The object of this communication is to suggest that, for the cure of these obstinate cases, the nasal cavity and the antrum be made one by the removal of the greater part of the partition below the line of insertion of the inferior turbinate bone, thus making the antrum a recess from the nasal cavity with a large permanent opening, so that the future retention of pus can never occur; also its object is to suggest a technique and instruments for the accomplishment of this procedure.

In the first place it will be asked: Are there any objections, *a priori*, against the removal of so large a portion of the nasal wall of the antrum? It occasionally happens that the ostium maxillare is of large size, so that a very free atmospheric communication is established; Zackerkandl pictures a case (Fig. 3) where there is a deficiency of the whole partition above the inferior turbinate, probably of congenital origin, comprising at least half of the nasal wall, and finally it is no rare occurrence for large openings to follow the destructive lesions of syphilis. None of these cases suffer any consequent discomfort. Fresh air circulates freely, the cavity is not exposed to the direct current of air, and the few particles of dust, etc., need cause no more trouble than in the more sensitive nasal cavity. The inferior turbinate bone serves as an excellent protection from catarrhal products coming from above. It is yet to be decided whether acute inflammations of the nasal cavity would extend more readily to the antrum, but even if they did, the nature of the walls of the antrum and its large outlet would preclude obstruction, allow a prompt resolution, probably without having given rise to any subjective symptoms whatever.

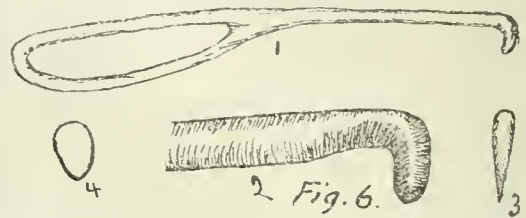
A further argument showing the practicability of this procedure and the unimportance of the antrum as a separate cavity, is the occurrence of the antrum as a very small cavity or its very occasional entire absence. In all of these cases with small antra, the inferior portion of the nasal cavity is proportionally just so much wider, so that deep recesses are formed on either side.

OPERATION.

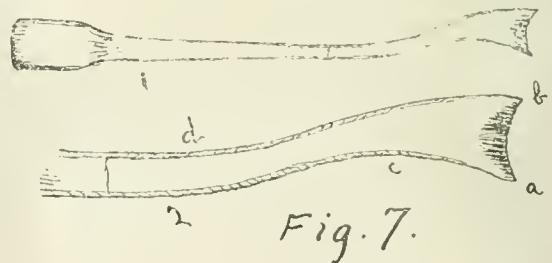
The following technique is based upon observations and operations on about fifty antra. Before operation each individual case must be examined carefully by means of mirrors, probes, palpation, etc., in order to obtain as exact a knowledge of the size and shape of the antrum as possible.

The problem consists in removing the greater part of the partition below the inferior turbinate bone,

which covers most of this partition so as to conceal it from view. The plane of this partition is roughly vertical and parallel to the inferior meatus which makes it more difficult to approach. The Mikulicz and Krause instruments are curved appliances for puncturing a small hole, and their use may be so interfered with by the inferior turbinate that a portion of the latter must be removed. In order to meet all emergencies, two instruments have been devised, whereby this whole partition can be removed without injuring or disturbing the inferior turbinate bone. We are to work through the anterior nares, hence the extent of motion allowed is somewhat limited. These instruments consist of a hooked knife and a curved chisel.

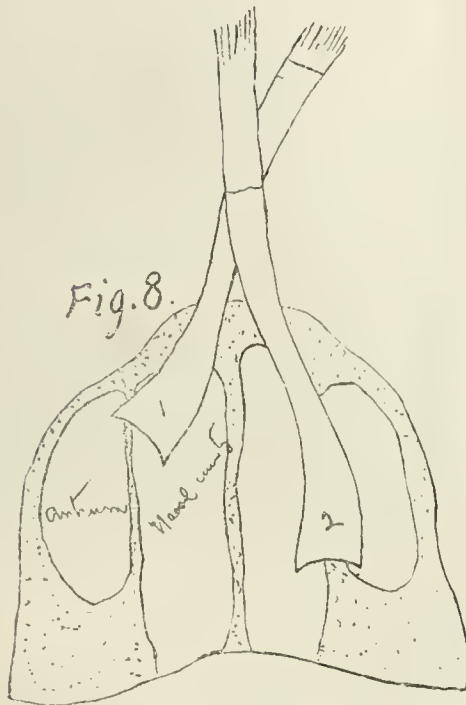


Knife (Fig. 6). The handle is of large size in order to allow a firm grip to be obtained, the shank is oval, strong, and nearly straight, but a slight curvature at the junction of shank and handle, allows an unobstructed view when introducing it into the nares, and adjusting it under the turbinate. The blade is hooked, parallel with the flattened handle and points toward the depressed lower end of the handle so that its precise direction is known at all times. The hook is thick in order to give strength and is made sharp in front so that it will cut when pushed ahead. This sharp edge continues around the blunt point, up the concavity of the hook and about three-quarters of an inch along the lower edge of the shank. In that thin bone is to be cut, the edge must not be very sharp and not be approached by a very acute angle.



Chisel (Fig. 7). In certain instances, the bony partition is too thick to be removed along the lower edge by means of the knife, but this can be quickly accomplished by means of a chisel devised after this pattern. It is flat so that it can be used equally well in either nostril, and has a double curvature as per diagram. The cutting edge is concave, so that it will not slip off the narrow plate of bone, and is at right angles to the long axis of the shaft which is square on section so as to serve as a guide to the direction of the cutting edge. The cutting edge terminates by two sharp points (*a* and *b*) which will readily penetrate a layer of bone. The naso-antral partition is on a deeper vertical plane than the opening of the nares, hence the chisel is curved in order to penetrate this partition quite anteriorly (Fig. 8). The chisel is introduced

parallel to the nasal septum with the point *a* lowest which is then lowered and directed under the inferior turbinate so that the concavity on the side of the chisel *c* fits closely to the outer bony wall of the nares with the point *a* close to the floor of the nose. Of the fifty cases examined, this procedure never failed to give access to the antrum at the desired point. The concavity of the cutting edge now serves to guide the chisel along, which should be advanced about an inch when it will be seen that the concavity *d* directs the handle of the chisel across the line of the nasal septum (Fig. 8). Then withdraw the chisel and re-introduce it in a similar manner with point *b* lowest until the cutting-edge meets the point to which the chiselling had ad-



vanced. The handle is now observed to be parallel with the nasal septum and the chisel can be advanced to any depth (Fig. 8). An examination with the probe suitably bent will quickly determine whether the use of the chisel will be necessary or not. A normal or hypertrophied inferior turbinate bone need not be disturbed, but if it reaches too low it is easily tilted up toward the septum by the various movements of the knife. The operator must be thoroughly familiar with the local anatomy and know what is being done by every movement of the instruments.

STEPS OF OPERATION.

Profound Anesthesia.—Application of cocaine to inferior turbinate will increase the operating space, lessen hemorrhage during operation, which is then controlled by tampon before the influence of the cocaine is gone.

Patient seated upright in a chair with head held horizontally in the natural position.

Posterior nares of affected side plugged by means of Bellocq's sound or a catheter, to prevent escape of blood into pharynx.

Head mirror to be worn by operator, facing a well

lighted window, which is sufficient to guide the introduction of instruments. These are manipulated by the sense of touch, and the general direction of cutting edges as shown by the position of the handles.

Before removing the partition in question, the operator must decide upon the probable condition of the lining membrane of the antrum, whether the duration and symptoms lead him to suspect the presence of exuberant granulations or other pathological formations. Of course conclusions can be only suppositious, but if the antrum is to be curetted, this object is best accomplished by an opening made at the outer edge of the canine fossa well toward the malar process of the superior maxilla. The walls are comparatively thin so that the opening need not be large, and is best made by a conical burr-drill worked by hand. The opening is to be made of just sufficient size to admit the curette, which also allows of exploration of the antrum by the probe. Most of the pathological changes are along the lower half of the antrum which can be curetted with impunity. Great care should be used in curetting the orbital surface.

If called for, the preliminary canine operation is best done first, on account of hemorrhage which is more extensive from the nasal operation. The canine opening is to be closed at once after the operation, or may be used for thirty-six or forty-eight hours as an entrance for tamponing the antrum if necessary.

Introduction of Knife.—This is accomplished by holding the blade parallel to the nasal septum with the point lowest; when well within the nasal cavity the point is guided under the inferior turbinate until it reaches the outer wall of the nose and the blade is now flat on the floor of the nose. Force is then exerted until the point perforates this partition and the shank prevents more than the point from entering the antrum. The knife is then pulled forward horizontally until it meets the bony resistance due to the thickening at the junction of the nasal and facial surfaces, and then pushed backward along this incision, and continued until the general resistance is met at the junction of the nasal and zygomatic surfaces. We now have a horizontal incision along the lower boundary of the inferior meatus at the posterior end of which is the knife-blade in a horizontal position. The handle is now rotated so that the point is directed downward and the knife carefully pushed into the antrum which makes a vertical cut, and breaks this lower posterior angle of the partition into the antrum. Now rotate the handle so that the point of the knife is uppermost and the cutting edge of the concavity fits into this vertical cut. With the knife in this position (point directed up and towards the orbital surface, which is too far distant to be injured) the vertical cut is lengthened a little and then the knife drawn forward just below the curve of the insertion of the inferior turbinate bone for about an inch, then the point is rotated so as to be directed downward, and the cut continued obliquely downward and forward so as to meet the anterior end of the primary horizontal incision (Fig. 5). Before removing the knife, the point (which is directed downward) is rotated in an arc down and out toward the nasal cavity and thus it is often possible to force the severed partition out into the inferior meatus whence it is easily removed by forceps. The knife is not to be used as in cutting soft parts, but is to be drawn or pushed with slow steady pressure aided by slight prying movements, and the bone is felt to crumble as

advance is made. It happens often that no large piece of the partition can be removed at once for many small fragments may result which cling loosely to the circumference of the incision. The opening, however, has been accomplished and these fragments are removed easily by means of forceps and curette. The probe will now determine whether the ridge below need be removed by the chisel or not, and the probe must be constantly used to determine very accurately how much of this partition has been removed. It is always well to enlarge slightly the lower posterior angle with the chisel.

There are no important structures to be injured by this procedure. The edges of the incision are protected behind, in front and below by resistant bony boundaries, and above, the insertion of the body of the inferior turbinate seems to guide the knife along without injury. The nasal duct opens at the upper anterior angle under the oblique surface of the turbinate and is easily avoided. The duration of operation need not exceed fifteen or twenty minutes. The parts should now be thoroughly irrigated, in order to remove clots of blood and fragments of bone and mucous membrane, and packed with iodoform gauze, either through the canine opening or that in the inferior meatus, as the case may require. The gauze is to be removed in thirty-six to forty-eight hours.

CONVALESCENCE.

The antrum is to be irrigated with a warm four-per-cent. boric-acid solution two or three times daily, a procedure which can be carried out by the patient after the first few days. A syringe with the nozzle properly curved is introduced just within the anterior nares and the whole antrum is flooded easily by a properly directed current. After the first few days the patient can continue his business as ever. In some cases the small nasal mirror can be introduced through the large opening and the walls of the antrum inspected. This can be done in almost all cases on removal of a small portion of the inferior turbinate. The whole wall of the antrum is accessible to treatment by applications on a properly curved probe. A view of the nasal wall of the antrum after this operation on the cadaver, obtained through a sagittal opening made by removal of a portion of the orbital and facial surfaces (Fig. 4) will convince the observer that the antrum will never again serve as a reservoir for pus.

CONCLUSIONS.

That the relation of the openings of the accessory nasal cavities is not constant, and that fluid may gravitate from one to another according to the position of the head.

That the antrum is a reservoir for pus, of primary or secondary origin.

That many cases of empyema of the antrum are never cured, therefore further efforts are needed which must be in the line of surgery.

That the more radical operations with the idea of drainage have relieved cases hitherto incurable.

That there are important objections to a large canine or alveolar opening with the idea of establishing permanent drainage.

That permanent nasal drainage is less objectionable than oral drainage.

That the removal of the lower half of the naso-an-

tral wall prevents further pus retention and thereby allows the antral mucous membrane to resume a healthy condition.

That the operation suggested is of short duration and not severe although most radical.

That, by this procedure, the antral cavity is rendered easily accessible to frequent irrigations by the patient and to local applications and occasional inspection by the surgeon.

THE AMERICAN PEDIATRIC SOCIETY'S REPORT ON THE COLLECTIVE INVESTIGATION OF THE ANTITOXIN TREATMENT OF LARYNGEAL DIPHTHERIA IN PRIVATE PRACTICE,

WASHINGTON, MAY 4, 1897.

In this second and supplementary investigation, the aim has been to ascertain: (1) What percentage of cases of laryngeal diphtheria recover without operation under antitoxin treatment; (2) What percentage of operated cases recover. The report now submitted may properly be limited to answering these two inquiries.

Since the beginning of the general use of intubation, no disease has been more thoroughly observed and more fully reported than laryngeal diphtheria. Operative cases, especially, whether ending fatally or favorably, have been fully and promptly put on record. The result has been a collection and tabulation of cases available for control, such as few diseases offer. There are thousands of intubation cases before the days of antitoxin, and thousands since, available for comparison. It is, then, to cases of laryngeal diphtheria, especially those requiring operative interference, that we may apply the crucial test of the value of the antitoxin treatment.

Sixty thousand circulars containing the following questions have been distributed:

Age of patient?

Diagnosis confirmed by:

- (1) Presence of other cases in the family?
- (2) Appearance of membrane elsewhere?
- (3) Bacteriological cultures?

How many days and parts of a day after the first appearance of the disease was antitoxin first administered?

How many doses of antitoxin were administered?

Dose of each injection in antitoxin units?

Whose antitoxin used?

Non-operative cases — evidence of disease:

Hoarseness?

Aphonia?

Stenosis?

Operative cases:

(1) Intubation? On what day?

(2) Tracheotomy? On what day?

How long, in days and fraction of a day, was tube in the larynx or trachea?

Sequelæ (in recoveries):

(1) Broncho-pneumonia?

(2) Paralysis?

(3) Nephritis?

Death, cause of, and on what day?

(1) Broncho-pneumonia?

(2) Extension of membrane to the bronchi?

(3) Sudden heart paralysis?

(4) Nephritis?

(5) Sepsis?

(6) Accidents of operation?

Recovery?

Remarks, especially on fatal cases?

These circulars were distributed throughout the United States and Canada, the following means being employed: contributors to first report, members of the Society acting as agents for their respective localities, boards of health, local medical societies and antitoxin

manufacturers. At the outset, in this connection it is a pleasure to acknowledge that the labors of the Committee have been much lightened by the uniform good-will of all addressed, more aid coming spontaneously than in the previous investigation. It is also a pleasure to especially acknowledge the Society's indebtedness for efficient aid in distributing circulars and securing returns to H. K. Mulford Co., Parke, Davis & Co., Lehn & Fink (Gibier's), the Health Departments of Chicago, St. Louis, New Orleans, Denver, San Francisco, Boston, Washington, Buffalo, Providence, Ann Arbor, Newark, Montreal, Toronto and others.

To the New York Health Department is due the thanks of the Society for every possible courtesy in distributing blanks and, through their inspectors, of securing returns of operative cases.

In order to reduce sources of error it was desirable to bring together a large number of cases, from widely distributed localities, from many different observers and operators, and for a period of time including all seasons of the year. All returns have been examined by the Committee, and only such cases accepted as bore satisfactory evidence that they were first of all diphtheria, and secondly that the lesion had invaded the larynx.

A total of 1,704 cases of laryngeal diphtheria are ours for present study. A few cases (228) had not satisfactory evidence that there was laryngeal involvement; indeed, some were reported through misunderstanding the fact that only laryngeal cases were wanted, and a few were reported in which there was no mention that antitoxin was used. These cases are, of course, not included in the number referred to above. Of the 228 cases, 218 recovered, 10 died.

In a total of 1,704 antitoxin-treated cases of laryngeal diphtheria, there was a mortality of 21.12 per cent. (360 deaths).

TABLE OF ALL CASES SHOWING AGE AND RESULT OF TREATMENT.

	Fatal.	Recov.	Totals.	Mortality.
1 year and under,	25	35	60	41.66%
1 to 2 years,	77	219	296	26.01
2 to 3 years,	81	260	341	23.75
3 to 4 years,	42	216	258	16.27
4 to 5 years,	47	160	207	22.70
5 to 10 years,	72	345	417	17.26
10 to 15 years,	9	64	73	12.32
15 to 20 years,	2	24	26	7.65
Over 20 years,	5	17	22	22.72
Unknown	0	4	4	..
	260	1,344	1,704	21.12%

CASES NOT OPERATED ON.

The first inquiry of the circular was what percentage of cases of laryngeal diphtheria recover without operation under antitoxin treatment.

Of 1,704 total cases, 1,036 were not operated upon (60.79 per cent.). Of these, most did not require operative interference, a few cases were thought to require it, but operation was refused. All cases are included, and it will be noted, there are no eliminations.

Among the 1,036 cases not operated on, there was a mortality of 17.18 per cent. (deaths 178) or, to answer the inquiry of the circular exactly, of 1,036 cases not operated on, 82.82 per cent. recovered (or 858 cases).

As good as is this percentage of recovery in so large a number of cases of diphtheria of the severest type, it is believed it is not as good as it ought to be. Cases of laryngeal diphtheria not requiring operation, according to the testimony of consulting intubationists, are

seldom heard from a second time, and less often find their way into reports. It was formerly estimated that about 10 per cent. of cases of laryngeal diphtheria recovered without operation. The present report shows that in 1,036 cases 82.82 per cent. recovered.

CASES OPERATED UPON.

In analyzing this class of cases, it is believed a more exact conclusion as to the value of the antitoxin treatment can be arrived at than in the non-operative.

There will be entire harmony of opinion as to the severity of laryngeal diphtheria which requires operative interference. In the early days of intubation it was customary to speak of the percentage of recoveries, and 25 per cent. and 27 per cent. were considered good results. In the last report the recoveries had crept up so high in the one hundred cases, that it seemed more natural to speak of the percentage of mortality.

In this connection it is interesting to inquire what were the best reliable statistics of intubation, taking cases as they occurred, without selection, in pre-antitoxin days. In 5,546 intubation cases collected by McNaughton and Maddren in 1892, the mortality was 69.5 per cent., or, to bring the facts into line, 30.5 per cent. recovered.

O'Dwyer's personal experience, in private consultation, brings us more nearly face to face with the old-time experience with diphtheria. Note that the following 500 cases came under the observation and care of one practitioner, a skilled operator, extended over a dozen years of time, and therefore included all types of the disease.

Exclusive of the first 100 cases of intubation, which he (O'Dwyer) regards as experimental, the results stand as follows:

Second 100 intubations,	27 per cent. of recoveries
Third 100 "	30 " "
Fourth 100 "	26 " "
Fifth 100 " (which only reached 70) 27	" "

Total percentage of recovery 27.56 per cent. When he had reached 70 on the fifth hundred something occurred which carried the phraseology up over the divide so that it was appropriate to speak of percentage of mortality. At this point in history, antitoxin arrived and interrupted forever the old series. In O'Dwyer's next 59 cases the mortality was 14 deaths or 23.7 per cent.

In a total of 1,704 laryngeal cases there were 668 cases operated upon. In the 668 there were 182 deaths, or a mortality of 27.24 per cent. In the former report, in 553 intubated cases the mortality was 25.9 per cent. In approximate figures there is a difference between 27½ per cent. and 26 per cent.

SUMMARY.

Sixty thousand circulars were distributed throughout the United States and Canada.

Time allowance, the eleven months ending April 1, 1897.

Whole number of cases in this report, 1,704; mortality, 21.12 per cent. (360 deaths).

The cases occurred in the practice of 422 physicians in the United States and Canada.

Operations employed:

(a) Intubation in 637 cases; mortality 26.05 per cent. (166 deaths).

(b) Tracheotomy in 20 cases; mortality, 45 per cent. (nine deaths).

(c) Intubation and tracheotomy in 11 cases; mortality, 63.63 per cent. (seven deaths).

Number of States represented, 22, the District of Columbia and Canada.

Non-operated cases, 1,036, 60.79 per cent. of all cases; mortality, 17.18 per cent. (178 deaths).

Operated cases, 668, or 39.21 per cent. of all cases; mortality, 27.24 per cent. (182 deaths). Two facts may be recalled in connection with this paragraph. First, that before the use of antitoxin it was estimated that 90 per cent. of laryngeal diphtheria cases required operation, whereas, now, with the use of antitoxin, 39.21 per cent. require it. Second, that the percentage figures have been reversed, formerly 27 per cent. approximately representing the recoveries, while, now, under antitoxin treatment, 27 represents the mortality. To put it in other words, before the use of antitoxin, 27 per cent. recovered, now 73 per cent. recover, and this in the severest type of diphtheria.

The present report will strike many members of the Society as revealing a mortality a little too large in each of the two classes. The mortality is large, larger than the personal experience in private practice of many would expect.

The reasons for this are (1) that antitoxin is still used too late, either from procrastination on the part of the physician, or objection on the part of the friends; or (2) in a half-hearted way which shows itself in doses from one-tenth to one-fourth as large as they should be. In truth, both the physicians and the friends of the patient are timid.

This report, it must be admitted, shows too large a mortality. In the opinion of the Committee it is a larger mortality than will ever be shown again. Antitoxin is gradually being used earlier in the disease, and it will soon be used in sufficient doses.

To the Society, the Committee desire to say that they have sought to carry out their wishes in putting antitoxin on trial, to accept no testimony that did not bear the stamp of reliability, that they have employed the methods approved in the case of the first investigation and report, and that they have confined their work to definitely answering the main questions which the Society and profession now have in mind. Points that were settled in the first report and have since been corroborated by general medical literature, are not again taken up.

If the Committee are asked to put forth the three most valuable points established in this eleven months' work, they are:

First. The mortality of laryngeal diphtheria at present rests at 21.12 per cent.

Second. That 60 per cent. approximately have not required intubation.

Third. That the mortality of operated cases is at present 27.24 per cent.

W. P. NORTHRUP, M.D.
JOSEPH O'DWYER, M.D.
L. EMMETT HOLT, M.D.
SAMUEL S. ADAMS, M.D. } Committee.

THE COMMITTEE RECOMMEND:

ANTITOXIN should be given at the earliest possible moment in all cases of suspected diphtheria.

QUALITY.—Of the products on the market some have, by test, been found to contain one-half to one-third the antitoxin units stated on the label. Select the most concentrated strength of an absolutely reliable preparation.

DOSAGE.—All cases of laryngeal diphtheria, the patient being two years of age or over, should receive as follows:

First dose—2,000 units at the earliest possible moment.

Second dose—2,000 units, twelve to eighteen hours after the first dose, if there is no improvement in symptoms.

Third dose—2,000 units, twenty-four hours after the second dose, if there is still no improvement in symptoms.

Patients under two years of age should receive 1,000 to 1,500 units, the doses to be repeated as above.

Clinical Department.

FRACTURE OF HUMERUS FROM BALL-THROWING, WITH SKIAGRAPH.

BY CHAS. F. WITHINGTON, M.D., BOSTON.

W. R., a healthy, well-developed boy of fifteen years, of rather exceptional muscular development, was in the act of throwing a golf-ball to the farthest possible distance. It was an over-hand throw, and just as the ball was leaving the hand he felt a sharp snap in his arm, which immediately dropped powerless



to his side, and could not be again moved. Examination readily showed crepitation in the upper segment of the right humerus.

For the accompanying skiagraph I am indebted to the courtesy of Dr. Francis H. Williams. It was made just two weeks after the injury, and in taking it

the apparatus was removed so as to allow the arm to rest down to its full extent directly upon the plate. The character of the fracture was thus well brought out, and the case is put on record to illustrate the split fracture which may be produced by over-powerful action of the throwing muscles. It also shows incidentally the as yet ununited epiphysis.

A CASE OF AN ANOMALOUS CONSTRICTING RING ABOUT THE GLANS PENIS.

BY CHARLES F. PAINTER, M.D., BOSTON.

IT has been my fortune during the past year to have under observation a patient about thirty years of age suffering from time to time with extremely painful erections of the penis due to a rather anomalous condition, at least a condition not described in any text-book to which I have had access.

The subject is a man in good general health, with a clean venereal record. His genito-urinary apparatus had never caused him any trouble until about one and one-half years ago, when he became annoyed by painful erections on awakening. In the lax condition of the organ the foreskin retracted perfectly freely, but if erection took place with the glans covered, great pain resulted, with inability to retract, or at least with great difficulty; and if by chance it was retracted, strangulation from paraphimosis was not infrequently threatened. On one or two occasions active measures had to be resorted to in order to avert this catastrophe.

On examination the penis was of normal size, and nothing unusual about its appearance and contour was noted. There are no cicatrices on the glans or on the surface of the prepuce at any point. The organ was not observed in erection, but the patient says that the penis is not bent or twisted in any way in the state of erection as they are sometimes by cicatricial contractures. The prepuce is of normal size covering the glans naturally, and moves easily over it. It is his habit to wear the prepuce forward. When the glans is covered there is to be felt in the subcutaneous tissue over the corona or a trifle posterior to that, not in the glans or the corpora of the penis, a rounded fibrous ring which completely encircles the penis. This ring is one-eighth of an inch in width, and can be picked up in the fingers though adhering more or less closely to the subjacent tissue. The skin of the penis moves freely over it. It is of the same feel throughout its entire extent. In the small triangle on the under surface of the glans formed by the frenum are some quite prominent veins, evidently slightly varicose from the obstruction to the return of the blood by this constricting band. All the pain and difficulty in retracting the prepuce at the time of erection is referred to this triangle. This band evidently acts passively as a constrictor as the penis becomes larger during erection and produces this varicosity.

Not wishing to circumcise if I could avoid it, I made two or three incisions parallel to the ring directly over it and then incised it by transverse incisions. The ring cut like dense fibrous tissue. This gave relief lasting for a period of two months or so, when the old trouble returned. The incisions all uniting firmly and the ring feeling precisely as before. This same proceeding was undertaken September 24,

1896, with a similar result — immunity from troublesome symptoms for two months, with a return at the end of that time.

February 15, 1897, a half-inch of the ring was dissected out on the left side of the penis, beginning at the frenum, and the wound closed with continuous catgut. On the 24th of February the stitch had separated out and a portion of the incision was closing by granulation. As before all painful symptoms had disappeared. The varicosities beside the frenum were not noticed, and it was hoped that enough had been removed so that they would not recur. Unfortunately the tissue removed was not examined microscopically. Grossly, it had the appearance of tough fibrous tissue.

The text-books make no mention of anything at all comparable to this condition. Dennis and Morrow speak of certain gouty conditions in which there are asymmetrical masses in the body of the penis which produce similar symptoms and great distortion of the organ during erection, a condition not at all comparable to this. The other authors referred to are Treves, Keyes, Park and Taylor.

In the catalogue of the Surgeon-General's Library I could find no reference to any such condition except possibly one case reported by Bouissan in the *Gaz. Méd. de Paris*, of 1857, which unfortunately I could not investigate except by title.

Thiery, in 1892, reported in the same journal three cases of what he calls constricting valves of the prepuce, which, however, differ from the above in that they were not continuous, were in the anterior part of the prepuce proper and were congenital. These three cases occurred in several thousand examined for that purpose at the Hôpital du Midi.

Marmot, in 1893, in the *Bulletin of the Anatomical Society of Paris*, reports five cases of the same condition in 10,000 cases examined. The constricting bands due to inflammatory conditions are not uncommon, but present different features from those noted in the case now reported.

A more or less hasty study of the recent volumes of the "Index Medicus" threw no further light on the subject. The case is reported on account of its apparent rarity, which doubtless may not find confirmation in the wider experience of others.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

REGULAR meeting, February 8, 1897, the President, DR. A. L. MASON, in the chair.

DR. HOWARD A. LOTHROP read a paper entitled:

EMPYEMA OF THE ANTRUM OF HIGHMORE: A NEW OPERATION FOR THE CURE OF OBSTINATE CASES.¹

DR. FARLOW: If Dr. Lothrop has devised an operation which will cure some of these very obstinate cases, he is deserving of the greatest credit. On account of its somewhat formidable character and because of the undesirability of having a large cavity in direct communication with the nose, where crusts would form and collect, it is, of course, only to be tried after other and milder measures have failed. If the inferior

¹ See page 455 of the Journal.

meatus is small and the bony wall to be cut somewhat thickened, I should think the procedure might be rather difficult in the living subject. It remains to be seen whether it has advantages over the multiple punctures with breaking down of the intervening bone, a method practised somewhat in severe cases.

DR. COOLIDGE: It will be interesting to watch clinically the results of this very ingenious operation. The kind of case in which it would be applicable* would be one in which other methods had been tried first. I think we should hesitate before throwing into the nasal cavity such a large cavity as the antrum. I cannot agree that where this has happened as a result of syphilis the patient does not suffer. The patient may suffer if the cavity is enlarged by any process. The mechanism of secretion is delicate and if too much air enters the nose we may get scabbing, dryness of the mucous membrane and discomfort.

As a rule, empyema of the antrum gets well under any effective method of washing or drainage after the cause of the empyema is removed and not before. In a case in which there is no hope of removing the cause, and the sinus is acting as a reservoir for pus, this permanent opening would afford relief, especially if it can be made without creating secondary disturbances in the nose.

DR. CLARK: I have been very much interested in Dr. Lothrop's paper. I think he has presented the subject of the treatment of antral disease in a very thorough way. He has certainly shown considerable ingenuity in the invention of instruments so applicable to the anatomical requirements of the operation he describes. In a case of simple antral disease I should be inclined to try first every other well recognized method of treatment before resorting to this as it is an unproved method. I should even be inclined to try first a large temporary opening in the canine fossa and packing with gauze. Of course, there are cases in which this measure fails and a permanent large opening into the nose is preferable to one into the mouth. In cases of disease of the ethmoid cells, which is a region every nasal surgeon knows is a dangerous one to deal with, where all reasonable treatment has failed and where the antrum is evidently a reservoir for the pus coming from that region, it seems to me such an operation as this might be useful in preventing the accumulation of pus in the antrum so that the small amount of pus coming continuously from the ethmoid cells would have no place to accumulate and thus cause little discomfort. In ethmoid disease where the antrum is a reservoir the principal discomfort is caused by the periodical discharges of large amounts of more or less foul-smelling pus. If the pus had no place to accumulate it could not acquire any odor.

DR. COBB: I have very little to add. It seems to me one disadvantage of the operation, possibly, is the inability to see the contents of the antrum as clearly as in the canine fossa operation. Polypi in the antrum or roots of necrosed teeth can be seen by the canine operation very easily and then the origin of the pus is plain. Of course, it is very easy to wash through the canine fossa. Whether leaving a cavity below the turbinate would produce a whistling sound in breathing, I think is a question of some interest. There would be a wall of bone over which the air would draw more or less. The question arises as to whether the physiological swelling of the turbinates which takes place in respiration would be interfered with by remov-

ing the wall in such a way that the air could draw through the diseased antrum all the time. It seems to me that in most intractable antral empyemas we shall probably find that the cause of the trouble is dependent on other cavities and as our knowledge of dealing with these other cavities improves we shall find that the antrum will get well. I have cases operated on by various men which, after as long a time as a year or fourteen months of constant pus in the antrum, have got entirely well without touching the antrum (by simply clearing out the ethmoid region). I think this shows that the changes in the antral wall are not perhaps as chronic as we were led to expect. I think the method the reader has suggested of doing this operation is very ingenious and for empyema due to any local cause ought to be of benefit.

DR. LELAND: I would like to congratulate Dr. Lothrop on the valuable paper which he has presented. It is understood, I suppose, that this operation is only to be used as a last resort, and I am the more inclined to approve of it since it is in the line of my own thought for some time past. After having seen the unsatisfactory results from the Mickulicz's operation, and after having seen the long and tedious suffering after the operation through the canine fossa, wherein the treatment accompanied by much discomfort has to be continued through one or more years, I have been led to think that there ought to be some method of entering the antrum and producing complete drainage, which would be more comfortable for the victim of the disease. It was my privilege to see Dr. Jansen, of Berlin, do a number of operations through the canine fossa, and to see some upon which the operation had previously been done at various intervals. The extreme swelling of a painful cellulitis immediately following the operation, the disagreeable packing of the cavity, the wearing of the obdurator, devised by him, for a couple of years or more after the operation—all of which has been described by him in one of the early numbers of Fränkel's "Archives"²—combine to make a picture which we would desire to have our patients avoid.

It seemed to me possible that the cavity could be explored and cleared of its contents, be it polyps, or the remains of teeth, dermic cysts, or other foreign material, through an opening in the canine fossa and then by passing points properly curved through the bone in the lower meatus, a part could be mapped out which could easily be removed, working through both openings, namely, the nose and the canine fossa; the wound in the front wall could then be allowed to close immediately, which, of course, would make the danger of reaction on the face less. But this operation has not been tried; I have been waiting only for a favorable case. Now this operation of Dr. Lothrop's has been presented and I think it much better than the one which I have been considering.

But it seems to me that perhaps we are too anxious or too ready to adopt radical measures in these cases. It is strange that a rigid cavity of this size has been made in the body with an opening at the top which, of course, controverts all our ideas of drainage; there must have been some wise provision for this cavity to take care of itself and it has been suggested by some author that the drainage is carried on when necessary

² Zur Eröffnung der Nebenhöhlen der Nase bei chron. Eiterung. A. Jansen: Archiv. für Laryngologie u. Rhinologie, Erster Band, Heft 2, S. 135.

on the principle of siphonage, promoted by the air currents as they come through the nose, especially as they come through the middle meatus. It has therefore seemed rational to direct our first efforts, even in the most obstinate cases, to the restoration of this drainage; therefore, it has been my object in the treatment of all cases of empyema of the accessory sinuses to clear the second meatus and, in fact, to reduce all swellings, remove all tumors, be they bony or soft, from the nose, in a word, to restore the anatomy to as near normal as possible. Of course this does not produce a complete cure in a short time in these chronic cases, but I have learned not to be discouraged if the patient continues to have more or less discharge through a series of years.

I have a case in mind which came to me about twelve years ago with a chronic purulent disease of the right antrum. After clearing out the polyps and reducing the swellings, the nose got into a very satisfactory condition, but, of course, the discharge from the antrum did not cease; I used all my powers of persuasion to induce the patient to be operated upon after Mickulicz's method, but was unable to do so. I saw him again from four to six years afterwards when I found his nose perfectly clear, no discharge and no subjective symptoms of disease of the antrum.

I have since carried out the idea suggested to me by this case and have determined to resort to no radical operation such as the one to-night advocated except as a last resort when the life of the patient has become intolerable.

I would, therefore, congratulate Dr. Lothrop on his valuable contribution to this branch of the subject, the diseases of the upper air-passages, and hope that we shall have from him reports of his success in carrying out this procedure.

DR. LOTHROP: Of course this method is devised merely for obstinate cases. Regarding when to operate, and when to give up the ordinary methods, that is a difficult matter. When the patient is tired of the irrigations which are continued month after month with practically little change in the discharge, I think it is fair to try this operation. As regards the operation being a formidable one, it seems to me that it is far less severe than the extensive canine operation. In the latter you have a great deal thicker wall of bone to go through and many soft parts to disturb. After almost every extensive canine operation there is considerable edema of the cheek, there is almost invariably more or less sepsis, and pus burrows not rarely down the cheek. When the operation is as extensive as Spicer advises (where he obtains permanent drainage), this is brought about by the removal of a considerable part of the anterior wall of the antrum which encroaches on the alveolar process; this is followed often by very troublesome disturbances in the teeth. Then, again, the patients he has operated upon complain of constant discharge into the mouth through this canine opening. In the operation suggested, the soft parts disturbed are not very extensive, and the total area of cut-surface is very slight compared with that of the canine operation. Many operations for deviated septa, and hypertrophied turbinates where you remove the lower portion of the inferior or middle turbinate, are attended with greater mutilation than this would cause as it appears on the cadaver. Concerning the whistling sound, that can be determined by examining some of the cases where the partition is gone as result of syphilis. I

have not noticed any observations on that question. If the empyema is a consequence of disease in other cavities and the antrum acts merely as a reservoir and the source cannot be reached, it seems to me it will be advantageous to obliterate this pus-retaining cavity. Surely some ethmoid cases will never be cured on account of the proximity to the base of the brain where the bony wall is almost paper-thin. Frontal empyema is also obstinate and as far as I can find both frontal and ethmoid are even more obstinate than antral.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWELFTH ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4, 5, 6, 1897.

THE meeting was called to order by Dr. J. M. Da Costa, President. Dr. Da Costa then delivered

THE PRESIDENT'S ADDRESS.¹

DR. GEO. B. SHATTUCK, of Boston, then read a paper on

THE SERUM TEST IN TYPHOID FEVER.

These tests were made in the pathological laboratory of the Boston City Hospital by the medical house-officers, under the supervision of Dr. T. Leary, of the pathological department. The clinical statements necessarily vary on account of the unavoidable peculiarities of hospital practice. Thus the date of the beginning of the fever is assumed to be the time when the first constitutional symptoms appear, but the patients not always being intelligent the records are not always exactly correct. All the tests were made with liquid blood. In the laboratory a longer maximum time limit (an hour) was allowed for the reaction than some observers consider justifiable. Room cultures react less promptly than the thermostat. Of these 145 cases, 125 were set down as typhoid fever, 19 not typhoid fever, and one doubtful, though reacting to a serum test. The cultures used at the laboratory were daughter cultures from the spleen of a patient who had died from typhoid fever. Room cultures had been used in most of the cases; and these cultures, while the organisms are fewer in number, are larger and more motile, and the reactions, while a trifle slower, are absolute. In the thermostat cultures there is often a small sediment of dead organisms, which, if shaken up into the fluid, may interfere with the diagnosis. The technique used is that commonly practised. A positive reaction was often obtained in much less than an hour's time; the bacilli had lost their motility and grouped themselves.

From the results of the test in 116 cases with the clinical diagnosis of typhoid fever, it was shown that reaction took place from the 6th day of the disease up to the 122d day. In 11 cases in which there was a doubtful diagnosis, four gave no reaction at any time. One of these was a case of meningitis; one of malignant endocarditis; the third and fourth were possible typhoid cases. In five of these cases the serum test gave the positive result, and was of material service in determining a doubtful diagnosis. In some doubtful cases the serum test gave both a positive and negative reaction on different days. In 18 cases with a clinical diagnosis other than typhoid fever, there

¹ See page 421 of the Journal, May 6th.

was no reaction in 15; and in three (one of which was pneumonia, one thought to be acute military tuberculosis, and one of exophthalmic goitre), the typhoid reaction was positive, and the diagnosis of typhoid was justified. It having been stated that negro blood was more prone than the blood from the white to produce the reaction even in the absence of typhoid fever, tests were made also with 13 colored patients, in eight of whom there was no reaction; in three there was a reaction more or less satisfactory, and in two there were good reactions. These two did not have typhoid fever while in the hospital, although what they had before they entered the hospital could not be positively affirmed.

The diazo reaction was sought for in 89 of the 125 cases of typhoid fever, and was found in 42, and not found in 47.

The following conclusions seemed justifiable:

(1) The serum reaction may be obtained towards the end of the first week of typhoid fever, but is both more pronounced and more usual later in the course of the disease.

(2) It may be present without relapse at the end of the fourth month.

(3) It may be absent one day and present the next.

(4) Of 125 cases of typhoid fever the reaction was absent in only one case. In two cases it failed, but there was in each only one test, in one case on the 12th and in the other on the 82d day.

(5) In 19 cases of other diseases clearly uncomplicated by typhoid, there was no reaction.

(6) In one case, where the diagnosis must remain doubtful, although typhoid cannot be positively excluded, there was a reaction.

(7) In a number of difficult and perplexing cases the serum test was of distinct service in establishing or correcting the diagnosis.

(8) This test will probably prove itself a useful aid to clinical diagnosis, and especially in hospital practice.

DR. A. C. ABBOTT, of Philadelphia, said that the conditions which surrounded this work in the City Board of Health were not so satisfactory as in hospitals, nevertheless the results in Philadelphia had been so far very good. Of 164 cases of dried blood, 115 had been examined; of 68 with the clinical diagnosis of typhoid fever, 66 gave a positive reaction; thus there were 2.9 per cent. failures; 23 developed in less than a week, and the longest time was 32 days. Two cases at first gave negative results, and on a second examination gave positive results; seven cases were doubtful at first and positive later; two cases gave a very meagre history.

DR. J. H. MCSSER, of Philadelphia, said there was one period when this reaction was confusing, and that was in the latest stages of the disease, when typhoid fever is a terminal infection. He related a case of meningitis preceded by typhoid in which the reaction was present and disclosed the condition.

DR. WM. OSLER, of Baltimore, said that 44 cases had been examined at the Johns Hopkins Hospital by Dr. Bloch, and the reaction proved satisfactory. In several cases the test was found very late in the disease. In one case the reaction appeared in a slight recrudescence of the disease; again in meningitis and in certain cases of remittent fever the absence of response to the test determined the diagnosis. Reaction is not usually found before the sixth day.

DR. HERMAN M. BIGGS, of New York, spoke of tests made with serum from cantharides blisters. He thought the ratio of serum to culture an important point.

DR. JAMES TYSON, of Philadelphia, said that the disease sometimes was aborted spontaneously; and he related a case of two young girls who went skating on the Schuylkill, and drank some of the water through a hole in the ice. Both had typhoid fever. One was well in a week, and one in three weeks; they both gave the reaction, though in a modified form. He mentioned one case of military tuberculosis. The case came on the 17th day of the illness, and was supposed to be typhoid fever. There were no signs of tuberculosis. The Widal test was negative, but he held to the diagnosis of typhoid fever. The autopsy showed a typical case of tuberculosis, with no signs of typhoid fever except the large spleen.

DR. FRANK BILLINGS, of Chicago, said that mistakes may occur, due to faulty technique. He thought that Dr. Wyatt Johnston had been misunderstood. He was made to say that an old culture could be used; but what he did say was that an old culture could be used as a basic culture from which the daughter-working cultures could be made. The technique should be well understood; for instance, as to the age of the culture, the proportion of serum to the culture, and other details. One case which he mentioned gave a positive reaction after three years, and Widal says that seven years is the longest time that he has heard of.

DR. JAMES T. WHITTAKER, of Cincinnati, related a case which early in its course gave first signs of Bright's disease and then of military tuberculosis. The reaction of Widal was perfect, the case went on to recovery and was found to be typhoid fever.

DR. F. C. SHATTUCK, of Boston, related a case in which there was first fracture of a leg, then some fever, 104°, and later albuminuria; and this was supposed to be Bright's disease. The reaction proved positive and the diagnosis was made of "nephrotyphus."

DR. E. C. JANEWAY, of New York, had seen the danger of trusting too much to the negative side of this test when early in the course of the disease. He had been called in more than once when the test was negative. In one case, on the 28th day of the disease, where there had been earlier a negative reaction, after collapse and intestinal perforation a positive reaction was obtained too late. A negative result does not deprive typhoid fever of its danger, and regarding the serum test as pathognomonic when negative results are obtained may be very misleading. The case may not be recognized as typhoid fever until too late. He had known of cases in which a diagnosis had not been made until the convalescence. We must be very careful in negative cases.

DR. A. LAWRENCE MASON, of Boston, then read a paper on

GALL-BLADDER INFECTION IN TYPHOID FEVER.²

The case began with an inflammation of the gall-bladder followed by a perforation and intestinal rupture as also complications of typhoid fever. In looking over the history of the subject he had found 40 cases which were first recognized at the post-mortem. His case was a woman, thirty years old, who in the

² See page 449 of the Journal.

third week of typhoid fever suffered from anorexia, vomiting and constipation. The reaction was positive; there was pain and tenderness in the right hypochondriac regions; swelling; the gall-bladder could be felt below the edge of the ribs; the liver dulness was normal. The pain became so intense that he aspirated the gall-bladder and drew off a quantity of brownish-looking liquid; the relief was immediate. There were no gall-stones found, the gall-bladder was resected, and the wound was packed with iodoform gauze. Recovery ensued. He showed some of the liquid, and also a photograph of the patient with the situation of the tumor outlined. A bacteriological examination of the fluid showed typhoid bacilli, and the serum reaction was positive. He inoculated rabbits with some of the fluid. Not many cases of recovery from this operation are on record. Rokitsansky and Frerichs have written the best histories on this trouble. He also quoted other authors. It is only in the past ten years that it has been possible to use bacteriological methods in investigating these cases. The typhoid bacilli were found in the biliary ducts; and in some cases gall-stones are found, but not many. Reinfection of the gall-bladder should be considered. Prognosis has been unfavorable if the gall-bladder is much extended. The treatment is to relieve pain and remove the fluid. Laparotomy should be necessary.

From his work he draws the following conclusions:

- (1) The gall-bladder in typhoid is always infected.
- (2) Cholecystitis may result.
- (3) Gall-stones predispose to this complication.
- (4) The gall-bladder may spread infection.

DR. WM. OSLER then read a paper on

THE HEPATIC COMPLICATIONS OF TYPHOID FEVER.

He considered the subject under the following headings:

- (1) The Focal Necroses.
- (2) Jaundice.
- (3) Abscess, which may be in the form of the suppurative pyelophlebitis, or as a solitary abscess.
- (4) Affections of the Bile-Passages, such as typhoid bacilli in the gall-bladder in typhoid fever, cholecystitis and cholangitis as complications and sequelæ of the disease, typhoid fever and gall-stones.

He spoke of the rarity of jaundice in these cases and said that in the first 500 cases in his practice at the Johns Hopkins Hospital there were only two instances of jaundice in this condition. Blachstein showed at the Hopkins that the bacillus typhosus could live for 15½ weeks in the bile-passages, and the colon bacillus for a longer time. In 14 cases in which the gall-bladder was affected, and which died, the typhoid bacillus was found in seven, and other organisms in the other seven cases. In these seven fatal cases there were no hepatic symptoms. There is a great possibility of infection in the gall-bladder, as the production of an acute cholecystitis without typhoid fever is possible from the records of the present day. He had seen a case in which there was a large amount of gravel. After a heavy meal of beefsteak and potatoes the patient the next day vomited the meal and the meal before it, became pale and anxious and cold, and had great pain and tumefaction in the right hypochondriac region. Dr. Hälsted operated, and found no bile, but stones and a yellow liquid in which the colon bacillus was found. Chiari's studies on this subject are made with great care. This condition is

very rare, there only being five found in 2,000 recorded in Munich. The number of recent cases is greater than is usually recorded. He then related four cases as follows:

CASE I. Typhoid fever. On the 27th day the colon bacilli was found during convalescence; subsequently the case recovered, though later the cholecystitis developed, the pain being in the right iliac region. Appendicitis was suspected and an operation was performed, but the appendix was not diseased. Then the gall-bladder was found adherent to the intestines and perforated, from which a yellow fluid was exuding. A serous fluid was removed and also a stone from the gall-bladder. The wound was packed with iodoform gauze, and the patient made a good recovery. This was a colon calculus.

CASE II. In the third week of typhoid fever she got better; later she came into the hospital, became jaundiced, gall-bladder was enlarged. Operation was performed; the gall-bladder was opened and drained, and the patient died.

CASE III. Had a fever for 82 days, with slight reaction, probably typhoid. Vidal's reaction was dubious. On the 35th day of the fever there was pain in the right hypochondriac region. Cholecystitis was found. The patient recovered.

CASE IV. Patient had had typhoid fever; got better, and was dismissed. Later she returned, complaining of pain in the right side, with headache and weakness. She looked healthy; there was a marked Vidal reaction. Later she was jaundiced; later she had parotitis.

DR. WM. T. COUNCILMAN, of Boston, spoke of the great frequency of typhoid bacilli in the gall-bladder; they are nearly always present there. The bacilli enter the gall-bladder from the blood; they are always in the liver, that is, practically always. There are very few organisms that get into the blood which escape the liver and from there they easily pass into the bile-vessels. He showed a very typical specimen of typhoid necrosis.

DR. JAMES TYSON, of Philadelphia, then read a paper on

UREA ESTIMATIONS IN CASES OF TYPHOID FEVER TREATED BY THE BRAND BATH METHOD.

He related a case of typhoid fever in the hospital. The third day after admission there was albuminuria, and hyaline casts were present. The diet was liquid, especially milk. Knowing the general prejudice against giving baths in this condition, he began on the fourth day to collect the urine, and found on the first examination 2.9 grammes of urea. During the bath the secretion of urea was markedly increased; the patient was tubbed five times in one day, and there was a large amount of urine and urea secreted. The secretion was full but fluctuating. Thus, on the 28th day of the disease, there were 2,100 c.c. of urine, with 29.8 grammes of urea; on the 29th day there were 2,100 c.c. of urine, with 24.7 grammes of urea; and on the 30th, 2,280 c.c., with 32 grammes. The albumin fell to one-twelfth of one per cent. of the bulk, and then disappeared entirely, and so did the casts. Expectoration was copious; the cough grew less, but no tubercle bacilli were present. There was an otitis media in both ears, but no defect in the hearing. The nephritis was mild, and was what Stockton would call an upper renal complication. Such a condition would not prevent him from using the Brand method when there is a rapid movement of the blood through the kidney; but this stagnation is dangerous, and therefore Brand's method does not do harm. He quoted some statistics to show the advantage of this treat-

ment. For instance, in a garrison where 138 soldiers had typhoid fever, 69 were treated by the Brand method, 5 had nephritis and all recovered; while of the 69 other soldiers who were not treated by the Brand method, 9 had nephritis and 5 died. As the patient was taking only milk, the source of the urea was easily found, and the amount of nitrogen ingested could be exactly analyzed, and would show how much was taken in and how much excreted, and the difference between that taken in and that secreted when obtained from tissue metamorphosis.

DR. GEORGE DOCK, of Ann Harbor, Mich., then read a paper on

CANCER OF THE STOMACH IN EARLY LIFE, AND THE VALUE OF CELLS IN EFFUSIONS IN THE DIAGNOSIS OF CANCER OF THE SEROUS MEMBRANES.

He reported a case of cancer of the stomach (scirrhous) in a man of nineteen years. There was extensive infiltration of the stomach, with early obstruction of the cardiac orifice. There was metastasis in the peritoneum and pleura with fatty ascites; later, effusion in the pleural cavities, first left, then right. In the various effusions were cells which, besides containing fatty granules and vacuoles, showed, in a large proportion karyokinetic figures, both typical and atypical. After a reference to the literature, a comparison was made with the findings in other effusions in serous cavities, tending to give to such cells a certain diagnostic value.

The paper was read in abstract, giving the salient points in the history and histological examinations, with demonstration of specimens and drawings. The patient had had typhoid, and after drawing off five litres of liquid no mass was felt. At the autopsy also a very small stomach was found, and there was no mass in the organs but in the serous membranes. He spoke of the early age of the patient and the character of the fluid, and said that we now know that cancer of the stomach occurs at an earlier age than was formerly supposed; but the disease runs a slower course and remains longer in the stomach than it does in older persons, so that it seems as if an operation should be urged. It is not easy to make a diagnosis of cancer by the cells alone, but it can be better made out when considerable portions of tissue are cut and examined.

DR. SIMON FLEXNER related a case that came into the Johns Hopkins Hospital. There was a large tumor extending into the intestines. Examination of the fluid showed no cells, but it was supposed to be cancer. A very careful study of the case showed it to be tuberculosis of the peritoneum.

DR. FRANCIS DELAFIELD, of New York, read a paper on

THE INFLAMMATIONS OF THE COLON.

The object of this paper was to describe the forms of colitis which ordinarily occur in New York, and to give the results of his experience as to the prognosis and the treatment. The paper was illustrated by micro-photographs. He spoke of the various kinds of dysentery; the simple acute, the climatic, the ordinary and the amebic. In the first kind there are no changes in the intestines: in the acute catarrhal colitis or dysentery. There were two varieties one of which was a mucous and one which was a serous condition.

The mucous variety is rarely fatal; there is sometimes bleeding; the cells are filled with mucus; the lymphatic glands are also swollen. The cause is not known. There are a variety of organisms found, but none in particular. This is probably due to impure drinking-water or impure milk, together with the high temperature of air and overcrowding. The principal symptoms are local. Little fecal matter passes; there is a rise in temperature. Some cases do not go to bed, and some do not even stop work. When the colon is affected it is worse still. Adults usually recover, but children often die. The treatment is rest in bed, careful diet, empty the colon, relieve the pain by opium, injections of weak infusion of flaxseed tea; many cases become chronic. There are no changes in the mucous membrane except a slight change in the epithelial coat.

In the serous variety there is a large exudation of serum, but this condition is not to be confused with the functional disturbance of the colon. This is not fatal, and he has never seen it post-mortem. This disease is common in New York, especially after hot weather, but occasionally occurs in the winter. Some persons are predisposed to it, and have it summer after summer. There is a feeling of necessity to empty the bowel, and the passages are considerable, as much as two quarts. A large number of cases get well under a variety of treatment, and some with no treatment at all, while others continue in spite of everything. The favorite drugs are opium, castor oil and salol. Here we have an infiltration of the connective tissue of the coat of the intestine; this is much thickened; there is an inflammation of the upper, rather than the lower parts of the intestines. The passages vary, and the disease may last from a few days to a year. The treatment is not satisfactory.

In the third variety there is an increased production of mucus and of serum and there are large numbers of blood-cells present; the inflammation is rather extensive; there are numerous small superficial ulcers which are not easy to be seen with the naked eye and the ulcers all have overhanging edges; he knows very little of the cause; the invasion is sudden or gradual and the cases vary in length, some being fatal in a few days and some running for several months. Treatment should be given early; milk diet, rest in bed, good food, dry climate, irrigation of the rectum, in the earliest stages, medication of opium, salol, castor oil.

Croupous or diphtheritic dysentery is familiar to all, and need not be further described. He showed some specimens obtained from dogs in which an artificial croupous dysentery had been set up by an injection of a strong solution of corrosive sublimate.

Amebic colitis is well known to us through the work of Councilman and others. There are two varieties, one with simple inflammation of the colon and another when ulcers are formed with overhanging edges.

DR. D. W. PRENTISS, of Washington, exhibited

TWO CASES OF ERYTHROMELALGIA.

Diagnosis, pathology and treatment were discussed with special reference to their relation to other diseases, classed as vasomotor. The treatment especially is worthy of note, since heretofore it has proved almost unavailing. It was hoped that other members would be able to add something in this direction, especially with reference to surgical interference.

(To be continued.)

AMERICAN PEDIATRIC SOCIETY.

NINTH ANNUAL MEETING, WASHINGTON, MAY 4, 5, 6, 1897.

THE meeting was opened by the President, DR. SAMUEL S. ADAMS, of Washington, who delivered an address entitled

THE EVOLUTION OF PEDIATRIC LITERATURE IN THE UNITED STATES.

In this address he reviewed in chronological order the various works on the diseases of children which have been written in this country during the past one hundred years. Every author writing upon this subject before 1870 was mentioned. Since that date the contributions have been too numerous to receive individual mention. The first definite contribution to pediatric literature was made by Dr. Rush in 1789, in a description of influenza. Following this were mentioned the names of Caldwell in 1796, Steuart in 1806, the American Matron in 1810, Jackson in 1812, Miller in 1814, and Logan in 1825. There were numerous contributions between that date and 1848, when J. Forsyth Meigs published his important work on the diseases of children, the last two editions of which appeared under the authorship of Meigs and Pepper. The next important name in pediatrics appeared ten years later, when Jacobi in 1858 wrote his first paper on children. It is also notable that J. Lewis Smith wrote his first paper on children in the same year. The first edition of his well-known work on diseases of children appeared in 1869. The most important names which have since appeared as the authors of systematic works are those of Keating in 1889, Starr in 1894, Sachs in 1895, Rotch in 1895, Holt in 1896.

Dr. James C. Wilson read a paper on Tic Convulsif, and reported a case which belonged to the class of nervous diseases which includes the "jumpers" described by Beard.

Dr. B. Scharlau presented a synopsis of fifty-six cases of Empyema operated upon during 1896 with very favorable results.

Dr. W. D. Booker reported a case of Congenital Diaphragmatic Hernia associated with recurrent attacks of asthma dyspepticum. During one of these attacks the child died and the true pathological conditions were revealed by the autopsy.

Dr. J. P. Crozer Griffith reported two cases of Unilateral Tremor in Children.

Dr. J. Henry Fruitnight read a paper on a Frequent Significance of Epistaxis in Children. He believed that this symptom was frequently the result of cardiac disease and should always receive full attention.

Dr. George N. Acker reported two cases of Meningitis, apparently tuberculous in nature, with recovery.

Dr. Joseph O'Dwyer reported a case of Congenital Stenosis of the Larynx, in which relief was obtained by gradual dilatation with steel sounds.

Dr. William Osler read an extended paper on Adherent Pericardium in Children, and reported cases.

Dr. A. Jacobi reported a case of Sarcoma of the Skin in a Newly-born Infant, and read a paper on the origin of such growths.

Dr. F. Gordon Morrill reported an analysis of one hundred cases of Frauk Pneumonia, that term being used rather than lobar pneumonia because of the confusion caused by the use of the latter term when applied to the pneumonias of children.

Dr. Floyd M. Crandall read a paper on Hereditary Tendency in Pediatric Practice, and called particular attention to certain misapprehensions which sometimes arise regarding that subject.

Dr. B. K. Ratchford read a paper on the Symptoms of Lithemia as they appear in Children, and considered the special symptoms in detail.

In a paper on Retro-esophageal Abscess, Dr. J. P. Crozer Griffith called particular attention to the great difficulties experienced in making a diagnosis of that condition.

Dr. C. Kerley reported a case of Exophthalmic Goitre apparently cured by the use of thyroid extract. The case was an undoubted one, and the beneficial effects of the extract seemed to be equally clear.

Dr. Henry Koplik reported the extensive Use of Thyroid Extract, for the purpose of testing its value in different diseases of the blood and bones, and his conclusions suggested its more general use in those diseases.

Dr. Francis Huber also presented a paper reporting a Cure of Goitre by Thyroid Extract.

The report of the Committee on the Collective Investigation of the Antitoxin Treatment of Laryngeal Diphtheria in Private Practice was read by the Chairman, Dr. W. P. Northrup.¹

Dr. Joseph O'Dwyer read an important paper on Retained Intubation Tubes, this term being used to mean the necessity of continuing intubation long after the disappearance of the original disease.

Dr. T. M. Rotch reported cases of Diphtheria of the Eye, and discussed the subject of Antitoxin in Diphtheria.

Dr. Henry Koplik exhibited an apparatus by which the Bacteriological Diagnosis of Diphtheria could be made within three or four hours.

Dr. Edward P. Davis presented an important contribution on Pre-natal Infection in Infancy causing diseases which develop during the first month of life.

Dr. Irving M. Snow reported a case in which Poisoning by Acetanilide had resulted from the absorption of that drug in the umbilical wound.

Dr. T. M. Rotch presented a specimen of Ileo-Colitis.

Dr. R. G. Freeman presented an Improved Nursing-Bottle.

Papers were read by title by Drs. J. Lewis Smith, W. F. Lockwood, W. P. Northrup, R. G. Freeman, H. D. Chapin, Francis Huber, C. G. Jennings and C. P. Putnam.

The following officers were elected for the ensuing year: President, Dr. L. Emmett Holt; First Vice-President, Dr. Henry Koplik; Second Vice-President, Dr. Charles G. Jennings; Secretary, Dr. Samuel S. Adams; Recorder, Dr. Floyd M. Crandall; Treasurer, Dr. F. A. Packard; Member of Council, Dr. Charles P. Putnam.

The following were elected members: Dr. J. H. McCallom, Boston; Dr. J. P. West, Bellaire; Dr. Churchill, Chicago; Dr. E. E. Graham, Philadelphia; Dr. Harold Williams, Boston.

The subject of Infantile Scorbutus was selected for collective investigation, the report to be made at the next meeting. The following Committee was appointed: Drs. W. D. Booker, J. P. Crozer Griffith, C. G. Jennings, A. Caillé, J. Lovett Morse.

Cincinnati was named as the next place of meeting, the exact date of the meeting not being decided.

¹ See page 462 of the Journal.

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THE FOURTH CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

THE Fourth Triennial Congress of American Physicians and Surgeons, held at Washington last week, brought together between four and five hundred of the foremost men interested in the various departments of medical science and practice from different parts of the United States and Canada. It was certainly a notable gathering. Fourteen different societies and associations met again at the same time and place. The mornings were devoted to the work of the separate associations, the afternoons and evenings to the addresses, the discussions, and the social receptions of the Congress of all these associations.

The programmes presented a vast amount of promising and interesting material, and the promise and interest were fully realized. The meetings of the Congress and of the associations were well on a level with the standard set by previous occasions. On the other hand, it was again made apparent that six days' work cannot be crowded into three, and that the possible or profitable receptivity of the human mind, even when at its best, is limited. The conception of these Congresses was a good one, they have been of service to the profession and to humanity, and may continue to be; but the feeling is undoubtedly growing among those who attend them that a less proportion of the three days should be given to papers and discussions in congress and more time to the work of the societies, that the programme of the general congress should be less ambitious in order that the work in the associations may be less hurried, more thorough and more fruitful. It is not necessary to sacrifice the organization and unity of the Congress in order to preserve the continued annual satisfaction and efficient activity of the associations; but these last should be preserved.

A proposal previously submitted that the Congress be allowed to meet elsewhere than in Washington was tabled without opportunity for discussion. Perhaps

this was wise, but to be assured of wisdom it is always gratifying to hear both sides of a question.

On the afternoon of the second day a statue of the late Dr. Samuel D. Gross, erected by the American Surgical Association and the Alumni Association of the Jefferson Medical College, was presented to the United States Government. Dr. Mastin, of Mobile, presented the statue, which was received on behalf of the Government by Surgeon-General Sternberg of the Army. Dr. W. W. Keen, of Philadelphia, delivered an excellent address.

In the evening of the second day, Dr. W. H. Welch, President of the Congress, gave an address on "Adaptation in Pathological Processes."

In opening his address, Dr. Welch described adaptive processes as those causing some sort of adjustment to changed conditions due to injury or disease. Physiological adaptation is a familiar and striking phenomenon full of purpose. In the existing order of Nature, the mechanical theory is our only working hypothesis in biology. Physiological adaptation by organic evolution gives the key to the study of pathology.

Compensatory and adaptive manifestations result from energy acting upon living matter. The final result does not influence the chain of events. A mechanical explanation of the process must be sought.

Pathological adaptations have their foundation in physiological processes, but the former are markedly imperfect. They are divided into the compensatory hypertrophies, the regenerations and the protective processes. Among the first work-hypertrophies, as illustrated by cardiac hypertrophies, are especially important. Such result from changes in the individual cell, not from increased supply of blood or lymph. Cell properties determining the character of the pathological process are original physiological properties.

Applying these conclusions to the study of inflammation, we find that this is an adaptive pathological process without especial fitness justifying extravagant claims recently advanced for it. In general, the healing power of Nature is often overestimated. In the light of modern knowledge, there is ample scope for the intervention of the physician and surgeon.

Thus far the Congress, as a body, has been judiciously guided, and has kept itself clear of all politics — whether medical politics, international, national, state or civic politics; and it is to be hoped that such abstention will continue to mark its course. The social side of this meeting was somewhat more developed than has previously been the case; wives and daughters of members were more in evidence. Instead of a reception by the President of the United States at the White House, there was a reception by the President of the Congress, supported by a number of ladies, wives of officials of the Congress. At the usual banquet, which occupied one evening and was largely attended, the speeches were devoted to inculcating the importance of the Congress.

The weather was cool and rainy until the last day, which was all that could be asked of May or even of June, the month which is credited by poets if not by weather bureaus with the fairest of days; the contrast was an agreeable one in comparison with the warm receptions extended to some previous meetings.

Two of the prominent hotels, by a brutal disregard of written promises, earned the future distrust of many whom they betrayed; apart from this, most of the members will doubtless revert to this last Congress as a pleasant and profitable occasion.

A COLLECTIVE INVESTIGATION OF THE ANTITOXIN TREATMENT OF LARYNGEAL DIPHTHERIA IN PRIVATE PRACTICE.

NEARLY a year ago (July 2, 1896) a first report of the American Pediatric Society on the results of a collective investigation into the use of antitoxin in the treatment of diphtheria in private practice was published. In this issue of the JOURNAL (p. 462), our readers will find a second report of the same Society on the results of a collective investigation into the use of the antitoxin treatment of laryngeal diphtheria in private practice. To those who are interested in this subject, as all should be and doubtless are, it is sufficient to indicate that such a contribution is accessible to have it read. The process of the investigation, the results, and the recommendations deduced therefrom are set forth so clearly and succinctly that he who runs may read, and having read may comprehend.

It is sufficient to say here that sixty thousand circulars were distributed by the Committee of the Society throughout the United States and Canada with the result of securing for study 1,704 acceptable cases of laryngeal diphtheria in which antitoxin was used. Of this total nearly 61 per cent. were not operated upon, and give a mortality of 17.18 per cent., a result which, though good, the Committee rightly believes can and ought to be improved upon. Of the cases operated upon the mortality was 27.24 per cent.

The mortality in both classes of cases it is believed might be reduced, were the standard of the antitoxic serum assured, and were both physicians and friends of patients less timid in its use.

In regard to the recommendations of the Committee it is only necessary to add that they are judicious and to the point.

THE QUALIFICATIONS FOR TRUSTEES OF HOSPITALS AND OTHER PUBLIC CHARITABLE INSTITUTIONS.

THE appointment of trustees to whom is confided the administration of large public institutions is at all times attended by grave responsibilities on the part of the official charged with this duty.

When these appointments relate to charitable institutions — whether hospitals, insane asylums, reformatories or almshouses — such responsibilities are, if possible, increased, and must be a source of deep concern to the executive. Such reflections naturally lead to a consideration of the qualifications which stamp individual citizens as fit to hold these places of trust, and here we immediately encounter the inherent difficulties of the problem. Those who are most fit are often the least able or the least willing to serve. They must be sought out and not seldom importuned. He who is already laboring eight hours in the vineyard, must often be persuaded to disregard this now usual limit to civic toil and be induced to labor nine or ten, and this not for himself but for the good name of his town or city or State and for the good of his fellow-men.

There is little doubt that the highest class of work rendered a municipality is done by its unpaid Boards and Commissions. This principle in social economics is now being recognized by those interested in civic government.

Trustees of such institutions as we have in mind should be persons, whether men or women, ripe in years, of experience of human nature and of affairs, of proven probity, standing high among their fellow-citizens, without disabling political entanglements, who will take an active interest in the affairs of the institution over which they may be called upon to preside and will see to it with an eye single that such institutions are administered for the welfare of all concerned.

Such ideal citizens must be sought and may be hard to find. On the other hand, it may be affirmed that those who seek these places of trust, are very rarely if ever those to whom they should be given, and it is absolutely certain that previous political services are not qualifications.

MEDICAL NOTES.

CHICAGO COLLEGES OF MEDICINE. — There are nineteen colleges of medicine in Chicago.

THE OLDEST PRESCRIPTION. — "The oldest medical recipe," according to a daily paper, is "said by a French medical journal to be that of a hair tonic for an Egyptian queen. It is dated 400 B. C., and directs that dogs' paws and asses' hoofs be boiled with dates in oil."

INTERNATIONAL CONGRESS OF FORENSIC MEDICINE. — In connection with the Exposition at Brussels the local society announces an International Medico-legal Congress to meet August 2d to 7th to discuss the following questions: "Internal Factors in the Putrefaction of Cadavers," "The Medico-legal Expert in cases of Accidents caused by the "Ingestion of Food," "Toxicology of Acetylene," "Intoxication with Carbonic Acid," "The Criminal Insane," "Medical Professional Secrecy before the Law," "Pulmonary Docimasias," "Medico-legal Significance of Subserous Ecchymoses," "Responsibility, especially Partial Responsibility," "Hypnotism in Relation to Criminality." For further particulars address Dr. Dewez, Mons, Belgium.

THE VALUE OF A KNOWLEDGE OF NEUROLOGY. — The following dialogue illustrates the possible value of neurology from a commercial standpoint:

Materfamilias. — James writes me that he is afraid he won't get his M.D. this year; he can't do anything with neurology.

Paterfamilias. — Tell him to keep a stiff upper lip and pull it through somehow. I think I can find an opening for him as expert for the Necropoietic Railroad Corporation.

THE NUMBER OF BREWERIES. — According to a statement in the *Medical Record*, there are in the eu-

tire world 51,000 breweries. Germany heads the list with 26,240; next comes England with 12,874; then the United States with 2,300; Austria has 1,942 breweries; Belgium, 1,270; and France, 1,044. In proportion to size and population, the number in the United States is surprisingly small as compared with Germany and England.

A PREJUDICED STATEMENT.—The following letter addressed to a State official, illustrates the singular prejudice which exists among the illiterate portion of the community in regard to hospital treatment:

Sir i had a son — and family livin in — and he was taken sick with Amonia, and he was taken to Hospittall and bout 12th day he was better in 2 or 3 days he grue woss probal cot A cold by not takin care of as he or to ben he did not live only or bout week — and if you will go to hospittall and look it up if thare anny chance to git anny recompence or anny law i should like to use it i dont want to have my folks go to hospittle and dye for want of not taken care of if he ben token care of and hadent got cold he ben livin now you find one that had care of him by goin thare or you go to his house and se his family you pleas rite me if anny chance i will improve it rite soon.

Ps He had what cold by catchin cold relaps of Amonia.

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 12, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 78, scarlet fever 70, measles 180, typhoid fever 5, small-pox 4.

SMALL-POX IN BOSTON.—Since the discovery and removal to hospital of three cases of small-pox in Boston last week one new case has been reported, and the three cases are all doing well. The original case from which these now under treatment arose occurred about two months ago in a car cleaner, who was employed in cleaning sleeping and parlor cars. The disease was of a very mild form, was diagnosed as chicken-pox, and the man was back at his work in two or three days. Several other cases of supposed chicken-pox developed in connection with the first case, until last week a typical case of small-pox developed in a car cleaner employed on the same railroad as the first patient, and later in two others who were relatives. Every precaution against the spread of the disease has been taken, and no further trouble is apprehended.

NEW YORK.

REAPPOINTMENT OF MR. CHARLES G. WILSON.—Mayor Strong has reappointed Mr. Charles G. Wilson President of the Board of Health, his term of office having expired May 1st. If the Governor signs the Greater New York charter his new term will end January 1, 1898.

A MEDICAL BOARD FOR THE DEPARTMENT OF CORRECTION.—A medical board for the Department of Correction was organized on April 26th, with Dr. J. P. Tuttle as President, and Dr. P. R. Bolton, Secretary. The board will have the medical care of the

prisoners in the City Prison, Penitentiary and Work-house.

DEATH OF DR. STRUBEL.—Dr. H. McDonald Strubel, a prominent practitioner of Middletown, N. Y., died suddenly at his residence in that place on April 30th. He was born at Newton, N. Y., in 1852, and was graduated from the Medical Department of the University of Pennsylvania in 1875. He was especially well known as a surgeon.

SMALL-POX IN BROOKLYN.—A case of small-pox has been reported in Brooklyn, the first in that city for two years. The patient is a working-man, who contracted the disease in New York. In the latter city, up to April 29th there had been reported since March 1st thirty-five cases of small-pox in all, eleven of which occurred at the institutions on Randall's Island.

COMMENCEMENT OF THE MEDICAL DEPARTMENT OF NEW YORK UNIVERSITY.—The fifty-sixth annual commencement of the Medical Department of the University of the City of New York was held at the Carnegie Music Hall on May 4th. There were 102 graduates, and the Faculty of Bellevue Hospital Medical College occupied seats on the stage with the University Medical School professors.

RESIGNATION OF DR. CHARLES F. CHANDLER.—Dr. Charles F. Chandler has resigned the position of Professor of Chemistry in the College of Physicians and Surgeons, which he has held for the past twenty-five years, and on May 6th, when he delivered his last lecture in that capacity, he was presented by the students with a handsome loving-cup appropriately engraved.

DEATH OF DR. CORNELIUS OLCOTT.—Dr. Cornelius Olcott, a well-known physician of Brooklyn, died at his residence in that city on May 3d, from the effects of an attack of influenza. He was sixty-nine years of age, and had been a practising physician for forty-eight years. During the late war he served with distinction in the medical service of the Army of the Potomac under McClellan and Burnside. He leaves a widow and one son, Dr. Charles Olcott, of Brooklyn.

DAMAGES WANTED FOR "SPOILED BEAUTY."—Mrs. Barbara George is the plaintiff in a novel suit brought in the Supreme Court, Brooklyn, against the Cypress Hills Cemetery Company. She asks \$10,000 damages for "the spoiling of her beauty." In June, 1895, she states that she visited her husband's grave at Cypress Hills, and found weeds growing thereon. She pulled them out, and afterwards discovered, to her cost, that they were poison ivy. In consequence of the effects of the poisoning she was confined to the house for eighteen months, and when she was finally able to go out her beautiful complexion was ruined. As she had paid a certain sum each month to the managers of the cemetery for the care of her husband's grave, she claims that the company is re-

sponsible for her condition, and so prays the court to award her the sum mentioned for her suffering and loss.

Miscellany.

THE MATERIAL RELICS OF THE GREAT.

THE recent instances of the cremation of distinguished medical men has caused some discussion as to what is the most reverent way of treating "remains." Mummification is out of the question, for a mummy is almost as repulsive as a corpse mouldering in an ordinary coffin. It is this that makes many men prefer the prospect of cremation, with possible preservation of part of their ashes. A singular idea struck the rulers of France during the Great Revolution. In 1793, under the influence of a fanaticism yet more terrible to the living, the Convention ordered the destruction of the bones of the kings of France in the royal vault of St. Denis. This act of desecration is specially odious to the anthropologist. How interesting it would have been to examine carefully the cranium and skeleton of Dagobert, who died in the seventh century! His remains were ruthlessly scattered over the street. A very different step taken by the Convention has been till recently forgotten. The bodies of several great men were exhumed and taken to the national mint to be made into a phosphatic glass. Cups were then to be moulded out of this material, so that citizens could drink toasts in gratitude to the great dead out of their very remains! As usual, the order was revoked very soon, and moderate republicans re-interred what red republicans had exhumed. D'Arcet, who was charged with attempting the vitrification of the bones, retained the lower jaw of Molière; some bones of La Fontaine were also preserved. The systematic preservation of integral parts of the skeleton would, however, be displeasing to the public mind, and would seem almost as ghastly as Isabella's pot of basil.

THE OUT-PATIENT ROOM AS A FIELD FOR RESEARCH.

THE failure to properly utilize the opportunities for clinical study which are afforded by out-patient departments is so general, that the following remarks of a correspondent of the *British Medical Journal* on this subject are of interest:

How great a field for clinical research lies open and unused in out-patient rooms is a matter for reflection. It is not wonderful, for in this department the time is short and the work heavy, and the patients' attendances or non-attendances are due to so many causes remote from the progress of the disease for which they are under treatment that it has seemed to many useless to try to obtain valuable generalizations from incomplete particulars. Definite results are hardly to be hoped for, and individual experience is reduced to its minimum value for want of systematic recorded observation of the cases and their treatment. The recorded observations of any one man extending over a number of cases and a year or two of time are of value; how much more would this be true of a scheme of concerted action, followed concurrently by investigators in one or in several hospitals. One great gain would be that a man wishing to compare his conclusions with those of others would probably have at his disposal data less inade-

quate and makeshift than they too often are at present, and would probably less often be obliged to support first-hand theories by second- or third-hand facts, or with facts the scarcity of which is as often as not the measure of their aptness. No very elaborate changes would be necessary in order to turn waste material to good use. A few short, printed lists of questions or observations concerning the diseases for the time being under study, with dates and results of treatment shortly noted, would probably suffice to place a quantity of excellent material in the hands of those disposed to put it to scientific use. A little order, and a few intelligent assistants supervised by a registrar, all of whom might be obtained to their own great advantage among medical students or newly-qualified men, would under capable direction serve to set going and maintain a most valuable system of investigation. Climate or season, material conditions, heredity, susceptibility and idiosyncrasy are among the various influences and conditions which might be made, even in a fluctuating out-patient practice, to yield information of inestimable value.

The above reflections have been suggested by a study of an experimental analysis of a year's out-patient letters in one department of a children's hospital. The notes were taken with no particular aim in view, and yet as they stood they recorded much, and might easily have recorded more. They indicated various seasonal variations in disease; for instance, a marked group was formed by rheumatism of every variety, including cases of morbus cordis and chorea, of which nearly all presented themselves for treatment during the summer. Diarrhea, of course, emphasized itself as a summer malady, while anemia showed a marked preference for the spring months. Marasmic and wasting diseases in children, even among those said to be entirely breast-fed and not ostensibly due to specific diseases, stood significantly highest in the month of August. In cases of pleurisy in an early stage, but at times accompanied by effusion, very satisfactory results were noted from the administration of salicylate of soda in fair doses. In cases of whooping-cough, in which the paroxysms of coughing were severe and the bronchitis only moderate, the benefit of antipyrin was markedly shown. The drug treatment of broncho-pneumonia did not yield any definite results, but in cases in which a treatment consisting of very hot baths and plenty of fresh air out of doors was carried out, surprisingly good results were noted. These conclusions, drawn from a brief inspection of imperfect material, are not, of course, particularly new or valuable, but the point is that while so much is being said of the difficulty of finding clinical material, either for teaching or other purposes, they suggest a neglect of existing material which is both blameworthy and unaccountable.

Obituary.

JOSEPH W. CUSHING, M.D.


DR. JOSEPH W. CUSHING, formerly of Boston, died at Brookline, May 9, 1897, at the age of sixty.

Dr. Cushing was of a very retiring disposition, but this did not prevent his being known to many of his professional brothers as a man deeply interested in medicine, industrious in reading, intelligent and devoted in practice. He had been for many years a councillor of the Suffolk District Society, and was an original member of the Brookline Medical Club.

After having been house-surgeon of the Massachusetts General Hospital, he studied abroad, and then entered the army as assistant-surgeon, being employed during most of his military service at the Lovell General Hospital. After the close of the war he entered general practice at the South End of Boston, where he remained during most of his professional career, and where he had a large practice. His wife, the daughter of the late Charles Woodbury, and two of his three children survive him.

METEOROLOGICAL RECORD

For the week ending May 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
					8.00 A. M.	8.00 P. M.		8.00 A. M.	8.00 P. M.					
S...25	29.86	68	81	54	67	57	62	S.W.	S.W.	8	21	C.	F.	.02 .02 .04
M...26	29.66	57	63	51	67	62	64	N.W.	S.W.	8	12	F.	C.	
T...27	29.61	44	51	38	62	92	77	N.W.	W.	20	12	C.	C.	
W...28	29.92	42	47	38	73	67	70	N.W.	N.E.	12	6	C.	C.	
T...29	29.88	50	60	40	72	69	70	N.W.	W.	8	7	F.	C.	
F...30	30.02	60	66	53	60	82	71	N.E.	E.	4	6	C.	C.	
S...1	30.21	47	54	40	94	100	97	E.	E.	16	16	C.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 1, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,868,060	815	298	11.28	16.20	1.92	3.84	1.32	
Chicago	1,619,226	360	130	14.28	17.92	5.32	3.36	.84	
Philadelphia	1,214,256	489	143	13.14	14.91	1.47	5.25	1.47	
Brooklyn	1,160,000	384	122	9.91	14.82	.52	4.42	1.04	
St. Louis	560,000	165	47	4.27	17.69	.61	1.22	—	
Baltimore	550,000	169	53	14.16	10.03	4.13	2.95	1.18	
Boston	517,732	261	85	16.72	17.66	.38	5.70	2.66	
Cincinnati	405,000	121	—	5.81	9.96	—	.83	—	
Cleveland	350,000	101	—	—	—	—	—	—	
Pittsburg	285,000	88	27	14.82	12.54	2.28	2.28	1.14	
Washington	277,000	93	21	3.24	18.36	—	2.16	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,754	31	10	3.23	19.38	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	105,050	24	6	4.15	16.66	—	—	—	
Fall River	95,919	38	11	7.89	21.04	5.26	—	2.63	
Lowell	87,143	28	10	3.57	14.28	—	—	—	
Cambridge	86,812	30	9	16.66	20.00	—	—	6.66	
Lynn	65,220	21	5	4.76	19.04	—	—	—	
New Bedford	62,416	28	16	17.85	14.28	7.14	3.57	3.57	
Springfield	54,790	16	4	6.25	12.50	—	—	6.25	
Lawrence	55,510	21	—	4.76	14.28	—	—	—	
Holyoke	42,364	—	—	—	—	—	—	—	
Salem	36,062	13	6	7.69	—	—	—	—	
Brookton	35,853	—	—	—	—	—	—	—	
Haverhill	31,406	11	4	18.18	9.09	—	9.09	9.09	
Malden	32,894	9	4	33.33	11.11	—	22.22	—	
Chelsea	32,716	14	4	7.14	28.56	—	—	—	
Fitchburg	28,392	7	3	—	—	—	—	—	
Newton	28,990	6	3	—	—	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Taunton	27,812	10	2	—	30.00	—	—	—	
Waltham	21,812	4	1	—	—	—	—	—	
Quincy	22,562	3	3	33.33	33.33	—	—	33.33	
Pittsfield	21,891	—	—	—	—	—	—	—	
Everett	21,675	7	3	14.28	28.56	—	14.28	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,149; under five years of age 1,052; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping-cough, erysipelas, diarrheal diseases and fever) 382, acute lung diseases 529, consumption 401, diphtheria and croup 120, diarrheal diseases 62, scarlet fever 45, typhoid fever 42, cerebro-spinal meningitis 39, whooping-cough 33, measles 22, erysipelas 11, small-pox 5, malarial fever 3.

From typhoid fever Philadelphia 18, Pittsburgh 5, Chicago and Baltimore 4 each, Cincinnati 3, New York and Boston 2 each, Brooklyn, Cleveland and Nashville 1 each. From cerebro-spinal meningitis Boston 16, New York 11, Somerville, Philadelphia, Lowell, Salem and Chelsea 1 each. From whooping-cough New York 11, Chicago 7, Brooklyn 5, Philadelphia 4, Pittsburg 2, St. Louis, Boston, Cincinnati and Somerville 1 each. From measles New York and Brooklyn 5 each, Baltimore 4,

Chicago 3, Philadelphia, St. Louis, Cincinnati, Pittsburg and New Bedford 1 each. From small-pox New York 4, St. Louis 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending April 24th, the death-rate was . . . Deaths reported 3,965; acute diseases of the respiratory organs (London) 289, whooping-cough 109, measles 101, diphtheria 57, diarrhea 40, scarlet fever 31, fever 29.

The death-rates ranged from 10.1 in Derby to 36.1 in Bolton; Birmingham 19.2, Bradford 18.5, Cardiff 17.2, Gateshead 11.3, Halifax 19.1, Hull 15.3, Leicester 17.9, Liverpool 24.7, London 17.5, Manchester 28.8, Newcastle-on-Tyne 17.0, Nottingham 18.6, Portsmouth 13.1, Sheffield 18.8, Sunderland 26.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 1, 1897, TO MAY 7, 1897.

The following named officers are detailed to represent the Medical Department of the Army at the seventh annual meeting of the Association of Military Surgeons of the United States, to meet at Columbus, O., May 25 to 27, 1897: LIEUT.-COL. WILLIAM E. WATERS, deputy surgeon-general; MAJOR HENRY LIPPINCOTT, surgeon; CAPTAIN ROBERT J. GIBSON, assistant surgeon.

FIRST-LIEUT. GEORGE A. SKINNER, assistant surgeon, will proceed to Fort Spokane, Wash., and report for temporary duty during the absence of CAPTAIN EDWARD R. MORRIS, assistant surgeon, on leave for six months, to take effect on or about May 18, 1897.

By direction of the President, the retirement from active service this date, May 3, 1897, by operation of law, of COLONEL CHARLES T. ALEXANDER, assistant surgeon-general, U. S. A., is announced.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FIFTEEN DAYS ENDING APRIL 30, 1897.

ROSENAU, M. J., passed assistant surgeon. Granted leave of absence for three days. April 21, 1897.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will hold its regular meeting on Wednesday, May 19th, at 8 p. m., at the Medical Library, 19 Boylston Place.

At 8 to 8.30. Short communications by Drs. Cones, Capps and Taylor.

At 8.30. Dr. G. Liebmann: "Experience with Hyperacidity of the Stomach."

E. W. TAYLOR, M.D., Secretary.

ERRATUM.

On page 430, line 31 of the number of the JOURNAL for May 6th, October 26th should be October 16th.

RECENT DEATHS.

JOSEPH WHITNEY CUSHING, M.D., M.M.S.S., died in Brookline, May 9, 1897, aged sixty years.

GEORGE WASHINGTON BURDETT, M.D., M.M.S.S., died in Clinton, May 10, 1897, aged seventy-eight years.

WILLIAM BAXTER CUSHMAN, M.D., M.M.S.S., died in Oxford, February 25, 1897, aged forty years.

DR. JAMES P. WALKER, died in Manchester, N. H., on May 6th, aged sixty-nine years. He was graduated at Harvard Medical College in 1856. He had practised in Manchester continuously since his graduation. He was assistant surgeon nearly a year on the medical staff of the Fourth New Hampshire Volunteers and had served a number of years on the Board of Education and in the Legislature. He was a member of the Harvard Alumni Association.

BOOKS AND PAMPHLETS RECEIVED.

American Physical Education Review. Vol. II, No. 1, March, 1897.

Tenth Annual Report of the Kindergarten for the Blind. Boston, August 31, 1896.

Annual Report of the Milk Inspector, for the Fiscal Year ending April 13, 1896. St. Louis, 1897.

Atlas and Essentials of Gynecology. By Dr. Oscar Schaeffer, Privat-docent in Obstetrics and Gynecology at the University of Heidelberg. With 173 colored plate illustrations and 54 woodcuts. New York: William Wood & Co. 1897.

Original Articles.

VAGINAL MYOMECTOMY.¹

BY EDWARD L. TWOMBLY, M.D.,

Gynecologist to St. Elizabeth's Hospital, Out-Patient Department.

Mrs. D., married, forty years old, born in Nova Scotia, and living in Braintree, Mass., entered St. Elizabeth's Hospital, August 15, 1896, with the following history: father and mother died of old age. Family history good. She was married at sixteen years. Has three children, youngest eight years old. One miscarriage. Menstruation began at thirteen years and was always regular, without pain, flowing three or four days, until last May. Personal health always good.

May 8th. Menstruation began, and lasted three days. It returned on May 15th, and she has flowed intermittently ever since, only stopping for a few days at a time. Blood thick, black, sometimes offensive. No pain. Has become pale and weak.

Examination showed an enlarged uterus, a hardness of posterior wall, but no irregular masses without. Diagnosis of myoma of uterus; but whether interstitial or submucous was to be determined at time of operation. It was suggested that the cervix be dilated on the day before operation for purpose of further diagnosis and, if possible, remove the tumor by vagina. If it were then found inexpedient to do it, a laparotomy could be done, and she was prepared for it.

About 4 P. M. the largest size tupelo tent (22 English) was inserted without ether after dilatation with Hanks' dilators up to the highest number. Iodoform gauze packed about to keep it in place. The tent gave the patient very little pain, and was not removed till the operation on the next morning. All cleanliness and aseptic precautions were observed. Vagina cleansed with permanganate and oxalic acid and corrosive. The finger entering the uterus easily made out a submucous fibroid on the posterior wall of it, and could determine its upper portion. It seemed a very suitable case for the vaginal operation, and that was done.

The cervix was divided posteriorly in its central axis for its whole length by the scissors, and each part was grasped by a pair of bullet forceps. Very little bleeding followed. This gave room enough to pass a knife, on the finger as a guide, nearly to the top of the tumor, and the incision was made down through the mucous membrane from top to bottom. With fingers and scissors the myoma was nearly enucleated, and then grasped in vulsellum forceps and twisted out. No hemorrhage followed, so the interior of the uterus and the remains of the tumor's sheath were carefully curetted. Some clots and hyperplastic tissue removed. The cervix was then reunited with silkworm-gut sutures and a strip of gauze placed in the cervical canal as a wick-drain for any bleeding. Patient put back to bed in good condition.

There was very little pain afterwards, no bleeding. The gauze was removed on the fourth day, no temperature. On the tenth day she was sitting up in bed, and she went home three days after. She need not have been kept in bed so long except that she was very weak and tired out from the loss of blood previous to entering the hospital.

Examination, six months afterwards, showed nothing

abnormal, no development of another myoma-bud in the same or different locality, a small uterus, menstruation regular but occurring every three and one-half weeks, no pain, flowing slightly for two days instead of four, cervix perfectly united, woman in good health (with cachexia gone) and doing her household work in good spirits.

This case illustrates the subject which I wish to bring before you. While so many hysterectomies are being done in these last three years, we are apt to lose sight of other and simpler operations. That every fibroid of the uterus should be removed by hysterectomy is too sweeping a statement, and yet there are men who uphold it.

That there are many indications when a hysterectomy ought to be done, I do not doubt and often would advise; but I wish to leave out that important operation in this discussion and come at once to the question, whether the lesser operation of vaginal myomectomy has not still its place in the treatment of this disease. Another point I wish to emphasize is that an earlier diagnosis by the general practitioner will be of great importance to the patient, and lessen the necessity of a major operation in many instances.

It is perfectly justifiable for the general practitioner to insist on a vaginal examination in a married woman, when any irregularities of menstruation occur, or where unaccountable pain is present. By so doing he may be able to diagnose the myoma before it has grown to so great a size that the proposed operation is impracticable, and save the woman much suffering, and perhaps the loss of her uterus.

We know that fibroids of the uterus are divided into three general classes: (1) The subserous, (2) the interstitial or intramural, (3) the submucous.

As a purely fibroid growth it is exceedingly rare, for with few exceptions, the tumor contains muscle-cells. These growths of the uterus should more properly be called myomata, myo-fibromata, or best of all, fibro-myomata. In the later studies by Rösgeru and Kleinwächter, the theory is confirmed that myomata are originally developed from the muscular coat of the uterine arteries. "The embryonic cells of the united Müller's duct are the common origin of the walls of the uterine vessels and of the muscle-cells of the uterine walls."

Senn says that in the majority of cases, the tumor springs from a matrix of myoblasts in the uterine tissue, and in exceptional cases, it may start from a similar matrix in the wall of the blood-vessels.

Virchow also confirms this idea by attributing the new growth to a hyperplasia of existing muscular fibres.

The growth is in the direction of least resistance, and it pushes before it the mucous membrane or peritoneum, which with the blood-vessels that supply the tumor form the pedicle, when there is any. The more fibrous the tumor the less abundant is the blood-supply, and as the muscular elements predominate in the uterus, we are more apt to get a vascular tumor within. When the tumor is born (so to speak) from the uterus, other sources of nourishment may occur which increase its vascularity, or, when cut off by twisting or pressure, diminish it.

These tumors degenerate frequently because of interstitial pressure or thrombosis producing edema. They are liable to become cystic, hyaline, more often fatty or calcified, or transformed into sarcomata if situated in the body of the uterus. The transforma-

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, January 27, 1897.

tion of intra-uterine myomata into carcinoma has never been demonstrated.

The exciting cause is some disturbance of menstruation which gives rise to tissue-proliferation.

Frequency. I have been amazed at statistics in looking up this subject to find its relative frequency.

Pozzi says that one-fifth of all women who arrive at the age of thirty-five, are so afflicted. (He considers that there is seldom a single fibroid, but usually more than one.) Klob states that 40 per cent. of the uteri of females who die after the fiftieth year, contain fibroid tumors.

In 528 cases, tabulated from different operators, 18 per cent. were in women between twenty and thirty years of age; and one-third of the whole number occurred in women before the age of thirty-five, and one-fourth of the whole number had symptoms before the age of thirty. The majority of cases occurred between the ages of thirty-five and forty.

Seun says that marriage increases the frequency, and that in 33 per cent. of the married women the tumors caused sterility.

Hofmeier studied 213 cases and their influence upon conception, and concluded that they had no effect upon fertility or sterility. Another set of statistics shows that these tumors occur in the unmarried 25 per cent., married 75 per cent., and that 30 per cent. of the married were sterile, but that the tumor had no influence on the sterility.

Location.—Subserous 25 per cent., intramural 65 per cent., submucous 10 per cent. They may start from any portion of the uterine wall, and near the cervix is given as the most frequent location, and the next favorite position is the posterior wall below the fundus. Mundé in 130 cases of fibroids at Mt. Sinai Hospital found only three in the tissue of the cervix. Twenty-one had developed into polypi. The great majority were in the body of the uterus.

I would call your attention also to the results of study regarding the conditions of the tubes given by Fabricius, of Vienna. In 42 cases, he found them normal in 17; unilateral catarrh in two; and all forms of bilateral tubal disease in 23; which shows (in these cases certainly) either that the tubes are more frequently affected than not, or else that they were long-standing cases and that an early diagnosis might have prevented this complication. He adds, however, that along with the smallest tumors, were the greatest alterations in the tubes.

The *Symptoms* are too often overlooked because of the insidious and generally slow growth, and the pains and aches are attributed to displacements. We should therefore be more careful in making our diagnoses; for, as I hope to show, the earlier we can make them, the better it is for our patients (although not for our pocket-books), and the tumors admit of easier removal.

The tumor of itself may not give rise to any symptoms for a long time—one small nodule or several small nodules on the surface of the uterus under the peritoneum do not disturb or cause any trouble. It is only when they grow rapidly.

On the other hand, intramural tumors of small size pressing towards the mucosa may give rise to decidedly nervous symptoms from pressure. "The degree of suffering is not dependent upon its size." The first symptom generally noted is some change in menstruation, and, at its beginning, the usual symptoms are aggravated. Profuse menstruation is a most impor-

tant factor. The duration of the period is prolonged. Then follow irregularities and hemorrhages between times. Uterus is painful on pressure. The menorrhagia varies in intensity from time to time. The cervix becomes soft and dilatable and there are copious catarrhal discharges. There is apt to be irritability of the bladder and rectum and pain in the pelvis when the tumor is large enough to press on the crural vessels and nerves.

The *Diagnosis* can be made from these foregoing symptoms, in connection with the necessary physical examination, which should show an increased localized resistance of the uterus over the tumor if the tumor itself cannot be felt. The uterine sound reveals much, and should be used if pregnancy can be safely excluded. Retroflexions, pelvic peritonites, ovarian tumors, and malignant tumors can be generally differentiated. Pregnancy is the most difficult thing to exclude, and many mistakes have been made. Many an operator has closed the abdomen over a pregnant uterus, which had previously been diagnosed as a fibroid. The breasts and cervix simulate the changes of early pregnancy, but in pregnancy the lower segment of the uterus presents a characteristic bluish-red color, and both uterine arteries are enlarged, which are not so to the same degree in myoma. I believe that it is wise to give ether for thorough examination in doubtful cases.

The *Prognosis* is now considered more grave than was formerly supposed, ten years ago. It is estimated that 10 per cent. of all cases die, and that hemorrhage and uremia are the most frequent causes. (A myoma, stationary as regards growth for a considerable length of time, grows very rapidly during pregnancy, but it may as rapidly diminish during involution. Unless the myoma is very large, pregnancy is apt to be completed without abortion. In 119 cases, 21 aborted, and 98 were delivered at full term.)

I have thus passed rapidly in review these main points collected from all reliable sources in order to refresh your memory, and because they have an important bearing on the method of treatment which I especially wish to bring to your notice. Ten years ago, aseptic surgery was but just beginning and all statistics of operations before that time are of but little value now. Asepsis has brought about a revolution of methods. Old methods of doubtful utility are now rendered safe procedures. Opening the peritoneal cavity either through the abdomen or vagina under aseptic precautions is without danger. No wonder, then, that in the last three years hysterectomy for fibroids has attained great proportions and a low mortality. It has its place, and a very important one; but while that truth remains, it is also true that many hysterectomies are done needlessly for small tumors of this kind.

A very decided opinion is given by Emmet who says, "No one should remove the uterus until the uterine canal had been dilated, and digital exploration had enabled him to form an intelligent opinion of the true position and condition of the tumor." I suggest that vaginal myomectomy has a place in surgery still, and should more often be performed.

Martin, Polk, Price, Gordon and Homans prefer hysterectomy, Obalinsky, Von Erlach, Péan, Mundé, Kelly of Baltimore, T. A. Emmet and Thomas are against it.

Most operators have limited this operation to tu-

mors "not larger than a fetal head." That seems, and is, a severe limit, for in great efforts to remove such large masses, by cutting or otherwise, there is much fraying and bruising, and sloughing is the result. All such processes are to be avoided as far as possible.

I would limit the operation to interstitial or submucous fibroids of moderate size where the base of the tumor can be reached, or where there is a fair possibility of enucleation without great tearing of the tissues.

I will not speak of medical treatment, which is palliative only; nor of electrolysis, which has given no favorable results in the hands of most men.

Under aseptic surgery, the vaginal operation is the ideal one, because there is less mutilation of the patient (depriving of uterus or adnexa); no abdominal wound; slight, if any, mortality; and it is not very difficult to do. Ten years ago, such operations were done, and some deaths occurred. Skene had 100 cases and one death. Mundé had 130 cases and three deaths.

Mundé says that he would not operate simply because it was a fibroid, but only when it produced serious symptoms, such as hemorrhage, pain, rapid growth causing injurious pressure; when it is associated with inflammatory diseases or pus-tubes; or when the woman is scared enough to be invalidated by the thought. I believe that rapid growth or hemorrhage demands this operation and should consider the advisability as soon as a diagnosis was made, before such occurrences. The danger of hemorrhage and of the operation increases with the size of the tumor.

The age of the individual is an important factor, for we know that many of these tumors atrophy or remain at a standstill after the menopause, although many others take on a new lease of life and growth. Those cases should always be kept under observation if possible.

(1) Subperitoneal myomata. In these days when we venture to open the anterior or posterior vaginal sacs with impunity, and the tumors are small nodules on the uterine surface, their capsules can be opened and the tumor shelled out. When, however, they are deeply imbedded in the uterus, the operation is more difficult and the nest left after enucleating the tumor is very apt to bleed and several deaths from hemorrhage or sepsis following have been reported. A few small nodules on the uterus may give rise to no symptoms and no harm come to the carrier by their presence. The vaginal operation in subperitoneal cases should be limited to the small, easily accessible and very superficial nodules. The vaginal vault should be closed afterwards.

(2) The Submucous variety, which have burst into the uterine cavity and become pedunculated—the fibrous polyp, so-called. I think all operators remove this growth through the vagina, the self-evident way.

In these cases, while making strong traction with vulsellum forceps well embedded, it seems to be a good plan to divide the mucous membrane covering the pedicle by a circular incision far enough away from the attached portion of the pedicle so as to allow a cuff of mucous membrane which will cover the wound afterwards. By using blunt-pointed scissors, very little hemorrhage occurs. Reflect back this cuff, and the pedicle containing the principal blood-vessels of the tumor is reduced in size, and its capsule can be pretty well exposed at the base. Then enucleate if

the pedicle is broad, twist if narrow. The tampon of iodoform gauze (long strip) is then generally used and allowed to remain for three or four days. Afterwards the mucous membrane covers the granulating surface, and the entire wound heals very rapidly within a week. If traction partially inverts the uterus, the operation is easier, but one must be careful to push back the fundus into its normal position again and look out for bleeding.

(3) Interstitial, or interstitial becoming submucous. This class of cases call for enucleation or morcellation. Péan did wonders on large growths by this latter method, attacking them from the centre after cutting into them and removing them piecemeal until all their tissues had been removed. He detaches the cervix first, as in performing a vaginal hysterectomy, but avoids opening the peritoneal cavity if possible. Thomas does enucleation whenever practicable, using his "spoon-shaped" saw by which he makes a blunt dissection close to the capsule after a long incision through the mucous membrane covering it, parallel with the long axis of the uterus.

T. A. Emmet read an interesting paper in 1895, in which he advocates traction as very important in helping to obliterate the cavity left, after removing the tumor. He says that the muscular tissue contracts very quickly and promptly even in subperitoneal tumors in this way. He uses blunt, curved scissors for enucleation after a longitudinal cut down to the capsule, and makes continuous traction, first applied at the upper portion of the tumor; for the pedicle is situated at the lowest part of the growth, near the mouth of the uterus. Sometimes he uses a cord with a slip-knot if there is much of a pedicle. The traction is not made directly downwards, but he twists the growth laterally from side to side while pushing away the shell from the tumor, so to speak, instead of digging it out. Downward traction may be made later on. His strong point is traction so as to pull up into the cavity or nest of the tumor the underlying muscular fibres which readily contract and partially obliterate it—illustrated by removing a ball from a soft mass of tar. He finally adds that if the mass becomes frayed out or in shreds in the effort of removal, "it is better to desist, wash out, and pack with gauze; and if in twelve hours there is any appearance of sloughing, remove the uterus without delay, or you may get blood-poisoning."

Now, if we can take the experiences of all these operators, and combine the important points, we may reach the best method to follow. That operation would be as follows: Not a gradual dilatation of the cervix with gauze for several days, but a rapid one the day before operation. A creolin vaginal douche one to two per cent. twice daily for two days before the operation. A rapid dilatation with Hanks' dilators up to the highest number, and the insertion of the largest tupelo tent possible, for further dilatation, under careful asepsis, on the afternoon of the day before operation. Generally the cervix is soft and dilatation, and ether will not be required. Packing about the cervix with iodoform gauze to hold the tent in position and partly fill the vagina for further protection. The tupelo must not remain in the cervix if there should be a chill, or chilly sensations accompanied by nausea and vomiting and a temperature rising above 100° F. Generally the discomfort is not great, and a little codeia or morphine can be given, if neces-

sary, for the pain. The tupelo is allowed to remain until after the vagina is thoroughly washed with soap and water, followed by permanganate and oxalic acids, and sterile salt-solution at the time of operation the next morning, when the patient is under ether. I prefer the tupelo-dilatation, as one gets a more even stretching of the canal than if rapid dilatation were practised with the uterine dilator at the time of operating.

The plug is now removed, and the aseptized finger of the operator explores the uterine cavity and determines the condition and true position of the tumor. If the finger can sweep around the growth, if it does not include the whole wall of the uterus, if, as in the majority of cases, the attachment is low down in the body of the uterus, or if the tumor is felt under the mucous membrane, interstitial, but bulging into the cavity rather than outwardly, it can be deemed advisable to proceed. If there exists a doubt that the uterus may be ruptured or a hole made into the peritoneal cavity, or by reason of a very large pedicle that much hemorrhage may be apprehended, preparations may be made for tying the uterine arteries, or a complete vaginal or abdominal hysterectomy, as the operator prefers. The cervix is then slit in the middle line posteriorly (to allow more room) up to the body, with straight scissors. The posterior division is much safer than the lateral, as the wounding of the large vessels is thus prevented. Often no bleeding follows. When it does, and any way, both lips of the divided cervix are seized by a pair of bullet forceps which holds and steadies but does not crush the tissues as clamps would. With the finger as a guide, a long-bladed knife is passed to the highest point of the tumor, and an incision is made down onto the tumor, parallel with the long axis of the uterus. The mucous membrane is pushed away from the incision on either side, the myoma seized and firmly held by vulsellum forceps, and traction made, as described by Emmet, while the dissection is made close to the capsule. Laceration of the uterine tissue must be avoided as far as possible, because it is apt to give rise to troublesome hemorrhage.

Fingers can be used most safely in this shelling-out process. The saw-spoon is also useful in many cases. It is sometimes easier to begin from above and sometimes from below. In the case reported, the shelling process was easily accomplished from below upwards. If the myoma is too large to remove entire, then it is to be done by *morcellement* (as previously described).

Finally, the myoma may be twisted out from its bed when it has been pretty well separated from its adhesions and where only a small pedicle or connection remains. If any hemorrhage follows or if the cavity remaining be large, it is advisable to pack it with iodoform gauze, the end of which protrudes from the cervix; and that is allowed to remain for three days. In other cases, a small wick-drain of gauze through the cervix is all that is required. Where it is possible, a careful curetting of the uterine cavity and the removal of shreds about the wound with the curette is allowable.

The last step is to sew up the cervix, which has been incised at the beginning of the operation, using either silkworm or chromicized catgut, and arranging the iodoform-gauze in the canal for drainage or for checking hemorrhage. Unless there has been a very great deal of morcellation, or vigorous, long-continued

traction, there is very little shock, and the after-treatment is simple. A vaginal douche of plain hot-water or corrosive (1-5,000), morning and night, after the first day, for four days; sitting up in bed on the sixth; out of bed on the eighth; home on the tenth or twelfth, for average cases.

I perform this operation with the patient on her back, for the relative position of the tumor to the uterus and surrounding parts seems to be better marked out; but other operators often use Simm's position.

From the fact of the great frequency of these growths at a comparatively early age (thirty-five years); that one-fourth of the women have some symptoms before they are thirty; that the frequency of the growths increases with the married state (75 per cent.); that they may be a cause of sterility; that an examination is perfectly allowable when there are irregularities of menstruation in married women; that about 65 per cent. are intramural, with tubes affected sooner or later (estimated in one-half the cases), and that in many cases the growth towards the place where the functional activity is greatest (that is, the uterine cavity) is apt to be single, while the multiple fibroids are crowded out towards the peritoneum; that degeneration is so common; that 10 per cent. of all cases die from hemorrhage or nremia, and that the danger of hemorrhage increases with the size of the tumor,—from all these facts, my conclusion is that I am justified in recommending an early operation in this class of cases, irrespective of severe symptoms, and this special operation because—

- (1) It causes very little mutilation.
- (2) There is slight danger from sepsis.
- (3) There is very little shock.
- (4) It is not excessively difficult to perform.
- (5) It has scarcely any mortality.
- (6) There is a rapid convalescence.

A REPORT OF A CASE OF SUPPURATING OVARIAN CYSTS. OPERATION AND TREATMENT.¹

BY D. P. RONAYNE, M.D., BOSTON,
Gynecologist to Out-Patients, Carney Hospital.

As it is rather an unusual condition to find cysts of any considerable size of both ovaries, at the present time, when the large ovarian cyst of former years is almost a matter of history, owing no doubt to the watchful eye of the gynecologist, a report of such a case may be of some interest to the members of the Society. Due to the same alertness, it is a fact that suppurating diseases in the pelvis come to operation at a much earlier period than the present case did, thereby giving to the patient added chances of recovery on account of better and more favorable conditions.

A brief history of this case is as follows: First saw Mrs. M., October 27, 1896, through the kindness of Dr. W. H. Devine, who had seen her for the first time the day before. She was twenty-eight years of age, married two and a half years, and had always enjoyed good health. Regular and painless menstrual periods and negative family history. About a year and a half ago she first noticed a swelling in the right side; this tumor gradually increased so that it was especially noticeable when patient was lying on the right side. Pain in this side and hip increased in severity as the

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, January 27, 1897.

tumor enlarged, so much so, that she suffered considerable discomfort when lying down. A year ago was confined to bed by the intensity of the pain and the exhaustion from constant nausea and vomiting, she being pregnant at the time. As pregnancy advanced, the mass assumed a higher level in the abdomen; and this, together with the increasing size of the uterus, caused dyspnea.

June 28th. Confined; forceps delivery; and on the second day following had fever, preceded by a chill, abdominal distention and pain.

After a month she was able to sit up, although distention, pain, and evening temperature persisted for some time. Subacute attacks occurred at irregular intervals; during the month previous to my seeing her she had three such attacks, and was confined to bed from the last one when I first saw her. At this time she presented all the appearances of a thoroughly septic woman—facial expression, clammy skin and a weak, irregular pulse. Examination of the abdomen showed a uniform enlargement, dulness on percussion, and tenderness. Palpation gave the sensation of a solid tumor such as a fibroid, so definite and circumscribed was the peritonitis. By vagina, the uterus was found slightly enlarged, forward and to the right of the median line, fixed in that position by a mass in the left pelvis which extended posterior to the uterus. The right pelvis was free from any appreciable mass. By rectum the contents of left pelvis could be mapped out very distinctly. Two days previous there had been a discharge of a brownish, foul-smelling fluid from the rectum. Owing to the extremely exhausted condition of the patient, palliative treatment (ice-bag, douches, stimulants and saline laxative) was advised, with the hope of improving her condition.

Ten days later I saw the patient again, and found that the abdominal distention had in a great measure disappeared, leaving the walls lax. A large, fluctuating tumor could now be mapped out, occupying a median position in the abdomen and extending about three inches above the umbilicus. Pressure on the fundus of the cyst caused a discharge of thin pus from a sinus at the umbilicus which had been discharging for three or four days. Mass in left pelvis found the same as upon previous examination. As the patient's general condition was improved, operation was advised.

After the usual preparations, on November 11th, a median incision was made, and the first difficulty of opening the peritoneal cavity presented itself on account of the cyst being firmly adherent to the abdominal wall. The parietal peritoneum was thickened and friable, and any attempt to strip it back from the cyst wall proved unavailing. In the upper angle of the wound the convex surface of the cyst dipped away from the abdominal wall and thus allowed the finger to make the opening wedge, and after considerable manipulation the hand could be introduced into the cavity. The cyst was found adherent on all sides by fibrous adhesions which were separated with difficulty. During the separation the cyst wall ruptured, and the contents—a thin, dark-brownish fluid, with a fecal odor and filled with flakes of necrotic material—was discharged over the field of operation. The cyst was delivered through the incision, and the omentum was found adherent to its anterior and superior surfaces. Owing to its congested appearance and free oozing from the denuded surfaces, a large portion of it was ligated and removed.

Following down into the pelvis the cyst was found to have a broad pedicle about four inches long coming from the right side of the uterus. Tube and pedicle were ligated and excised. No twist in the pedicle could be demonstrated. The left pelvis was filled with a tumor mass, about the size of a grape-fruit, surrounded by adhesions and exudate. This proved to be a cyst of the left ovary. It ruptured during the attempt to separate the adhesions; and discharged a fluid of the same character as that of the larger cyst. The left tube, which was enlarged and thickened, as was the right, showing a chronic salpingitis, together with the cyst sac was ligated and removed. During the operation not a coil of intestine was visible. They were apparently walled off completely by adhesions and confined to a space immediately beneath the diaphragm.

The exact location of the large cyst was well defined by adhesions. It extended from the right iliac fossa across the abdomen, so that the median point of the fundus was three inches above and two inches to the left of the umbilicus. After removal of cyst there were many oozing surfaces throughout this area. The peritoneal cavity was flushed out with warm normal salt-solution, and cleansed as thoroughly as possible. Strips of iodoform gauze were placed about the stumps of the omentum and loosely packed in the space occupied by the cyst. Another strip filled the pelvis, and the loose ends were brought out at the lower angle of the wound. Through and through silkworm-gut sutures were used to close the wound, with the exception of the lower angle, and a large gauze dressing was applied. The operation consumed an hour; and at the end the patient was in a condition bordering on collapse, so that active stimulation had to be resorted to at once. Stimulating rectal enemata and a transfusion of two quarts of salt-solution beneath the breasts and in the thighs produced beneficial results.

During the first twenty-four hours patient suffered severe shock; the pulse was weak and compressible. During the second twenty-four hours patient had recovered somewhat from the shock, and showed a slight improvement in general condition. Drainage was continued free by removing a small portion of gauze from day to day. On the fifth day all gauze was removed and irrigation with half-strength peroxide was begun, and repeated three times each day. The discharge at this time had a fecal odor, but there were no other evidences of a fistula. Sutures were removed on the eighth day, the wound having healed contrary to expectation. The general condition of the patient showed very little improvement; and on the eleventh day temperature rose two degrees, and remained at 103.5°, with the accompanying weak, thready pulse. The patient was in very poor condition, presenting all the symptoms of profound sepsis. It was at this juncture that I thought of using anti-streptococcus serum. I had seen what I thought were good results in three similar cases, when it was first proposed as a remedy. Not being able to obtain the serum at the time, it was suggested to try phenol as a substitute. This is prepared after the formula of Edson. Where the preparation had been used in cases of phthisis the results were such as would be desirous to obtain in this case, namely, a lowering and finally a disappearance of fever and regular heart action. This was probably due to a decreased absorption of septic material.

The first injection of a drachm was given on the fourteenth day, and repeated twice a day. The amount

was increased ten minims at each injection until the maximum dose was two drachms. During the first twenty-four hours the changes noted were a lowering of the temperature by 1.5° and a drop in the pulse from 150 to 130 beats. The character of the discharge changed from a thin, dark-brownish fluid to a thick, purulent one, still having a fecal odor. During the second twenty-four hours temperature remained the same, pulse dropped to 120. The third day the temperature was 100° and pulse 110. From this it will be seen that the most marked action was on the heart, the pulse becoming slower and stronger. There was a marked change in the general condition of the patient, and for the first time she seemed to be interested in things about her; color and condition of skin improved, and a large amount of nourishment was taken. On the fifth day the temperature reached normal, and patient was able to turn on side. From this on the patient improved rapidly. Injections were omitted after the ninth day, the temperature having remained normal for forty-eight hours. There was an evening temperature on the thirteenth day due, I think, to the superficial closing of the fistula. The patient was up at the end of the fourth week from operation and was discharged two weeks later. There remained a small sinus which communicated with an indurated mass on the right side two inches above the umbilicus. This was probably due to an exudate about one or more of the silk ligatures used in tying off the omentum.

Several points of interest are suggested by this case.

First, the value of some antitoxin treatment in pus case coming to operation or in those where by accident sepsis follows operation. The study of serum therapy which is now engaging the attention of scientific investigators will, I think, produce something of value for these cases. We have all seen cases of septicemia due to one or more of the less virulent of the infectious organisms where the patient after struggling along succumbs because the eliminating functions of the body were no longer able to perform the work demanded of them. If in these cases by the introduction into the circulation of some antitoxin which would change the character of the ptomaines produced and thereby allow the eliminating functions to store up some reserve energy it would tide the patient over the danger point and add to the chances of ultimate recovery. In a patient with perfectly normal organs this might be accomplished by stimulation. But in by far the greater number of patients sepsis has already done the damage by impairing the function of the organs and the added shock of operation still further dissipates the reserve forces. This being the case it is necessary to reduce the demand to a minimum.

Reasoning from the value of antitoxin in diphtheria it is not unreasonable to expect that some form of serum-therapy may be applied to these cases with good results.

Phenol was used in this case, not because I think that it is the ideal, but because it was a substitute by necessity.

I do not mean to give the impression that antitoxin will be a substitute for operative procedure, but be a valuable adjunct.

Another point is the choice of ligature material in septic cases. I think some form of absorbable ligature should be used, and thus avoid sinuses which detract from the otherwise good results of the operation.

Where silk is used it remains as a constant irritant, keeping the sinus open until, in many cases, it is removed.

Clinical Department.

APPENDICITIS IN AN INFANT¹

BY F. W. TAYLOR, M.D., CAMBRIDGE, MASS.

C. T. L., male, one year and three days old, well developed and unusually well nourished, vomited in the night of February 22, 1897, without known cause. Vomiting was soon followed by loud, prolonged crying, which was repeated whenever the patient was moved. Vomiting, frequent retching, and crying continued throughout the sickness. Nothing was retained by the stomach. The vomitus consisted of mucus, with water or milk if either had been swallowed. Dejections of normal feces occurred February 24th and 25th spontaneously, and on the 26th with intestinal douche. The temperature ranged from 100° to 102° F. The pulse was very rapid. The color was always good. Repeated palpation failed to discover tumor, or to locate pain or tenderness. Distention of the abdomen was slight February 25th. On the 26th it became extreme, but no flatus was passed. In the afternoon the vomitus became brown.

Dr. Charles P. Putnam saw the case in consultation February 26th, about 5 P.M., and confirmed the diagnosis of intestinal obstruction. At 9 P.M. the abdomen was opened in the median line, and the peritoneal cavity found to contain a large amount of thin pus. An incision was at once made over the appendix ceci. The appendix was swollen, red, and attached to the neighboring intestines by adhesions of lymph. It was removed. It had been perforated on the side opposite the mesentery, at about one-third of its length from the tip. The abdomen was flushed with boiled water, and free drainage provided. Death occurred February 27th at 1 A.M.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR meeting, Wednesday, January 27, 1897,
DR. F. W. JOHNSON in the chair.

DR. PEASE showed

A VERY MUCH ELONGATED UTERUS,

removed by a combined vagino-abdominal operation for extreme vagino-uterine prolapse, which had not been relieved by other modes of treatment.

This was a case on which ventral fixation was done about two months ago, and the uterus came down as much as ever within a month of time of leaving the Carney Hospital. The uterine depth was six inches, and the body could be felt going up towards the umbilicus, the seat of previous operation. The fundus could not be made out with great traction on the cer-

¹ Reported at the meeting of the Cambridge Medical Improvement Society, March 22, 1897.

vix and with the finger in the rectum. A sound in the bladder showed this viscus to reach nearly to the os uteri in front. The cervix itself was not much enlarged except longitudinally, and therefore was not one in which amputation at the cervix would have cured. As she was nearly sixty years of age hysterectomy was decided on as the only means of relief. As the prolapse of the bladder is most difficult to hold up after a hysterectomy, it occurred to me to sew the upper wall of the vagina to the round ligaments after hysterectomy, from the abdomen.

The abdominal operation in this patient was necessary because of probable adhesions from previous ventral fixation. Two years ago I operated on a similar case, but where there had been no previous operation; there I did a vaginal hysterectomy, and at the close of the operation, I sewed the anterior vaginal wall to the broad ligaments at each side. That case has had no trouble with a vaginal prolapse, yet in this sewing from below there was some risk of drawing away my broad-ligament ligature.

In the case of to-day I separated bladder and rectum as high up as I could pull it down conveniently, and then amputated about three inches of the cervix; and having curetted off two large ulcers on each side of the vagina, I sewed the denuded surfaces together, practically doing double lateral colporrhaphy. The stump of the cervix was then sewed together. The abdomen was now opened from above, and the uterus found securely attached for the space of one inch square at the site of the previous operation. The uterus, therefore, though having its os over three inches outside the vulva still had its fundus attached to the abdominal wall, and the ventral fixation did no good, nor would an Alexander have done good. The bowel also was attached for one and one-half inches along the upper line of the incision. This was dissected away, leaving a part of the parietal peritoneum on the bowel. The uterus was now removed from above by cutting and tying the broad ligaments, the round ligaments being tied separately on each side. The upper wall of the vagina was then brought up to what was left of the round ligaments, and sewed to them by silk, care being taken not to tie them so tightly as to produce sloughing. The peritoneum was then caught together except at the middle where a piece of iodoform gauze was allowed to go into the vagina for drainage. The vagina below had previously been caught together with silkworm-gut sutures. In order to perfect the operation, I almost closed the vaginal outlet by refreshing the perineum and putting in three silkworm-gut sutures.

DR. CUSHING: Had this stretching of the uterus occurred since the previous operation, that is, had the uterus elongated since the time it was fastened to the abdominal wall?

DR. PEASE: The previous operation was done by Dr. Mixer, the uterus was held firmly by the good strong adhesions which had been formed. The body and cervix were so long, however, that the os uteri fell fully two inches outside the vulva, although the fundus was held at the abdominal wall.

DR. CUSHING: Is there any record as to its length at that time?

DR. PEASE: The house-officer told me the uterus then was very long and string-like; but exact measurements were not taken. In these cases of hysterectomy for prolapse the question with me has been how

to hold the bladder up securely after the uterus is removed. In an old lady who has passed the child-bearing period, and who is obliged to work for a living, hysterectomy after supports have been tried, seems a most proper operation. It is important, however, that the bladder should be prevented from prolapsing; and, in order to accomplish this result, I know of no better way than to fasten the anterior vaginal wall to the round ligaments after removal of the uterus. As I mentioned before, the case I operated on two years ago has had no prolapse and is doing well. In both these cases there was prolapse of the whole vaginal wall as well as uterus. In both cases different sorts of pessaries were tried before operation was done.

DR. JOHNSON: Did you find the ligature used in suspending?

DR. PEASE: No, sir, I did not. I think usually that ligature is taken out at the end of ten to fourteen days. In dissecting it off, the ligature was not to be seen, but this part was adherent to the scar for a space that large.

DR. CUSHING: Dr. Polk has practised and written about a method by which he fastens the cut end of the vagina up to the abdominal incision. That, of course, is pretty effectual. I don't think the attaching it to the broad ligament or to the round ligament, for that matter, is always sufficient. I have had cases where that has been done, and it has come down unless at the same time thorough anterior colporrhaphy and repair of the perineum is done. In an old woman you can narrow the vagina as much as seems desirable; but the mere hitching of the vault of the vagina to the stump of the broad ligament or to the round ligament will not always hold it unless that is done.

DR. CUMSTON: I should like to show a pedicle needle I had made for me according to my design. In the first place it is made in one piece. It has no eye, simply a slit made in the side of it; and you place the ligature in the slit after the needle has been pushed through the tissues. The slit is made in this sense that, as you withdraw it, the silk does not come out. The ordinary needles have proved unsatisfactory in the large majority of cases, especially when you want to perforate a certain amount of tissue; in removal of the kidney or a large abdominal tumor of any description or operating for goitre or tumors of the neck, it requires a heavy needle. I had this made for me as I wanted it. I had it made on the principle of the amputating knife, that is to say, the handle is as heavy as the length of the blade. It is all made in one piece and can be sterilized. I have found it very satisfactory.

DR. D. P. RONAYNE read a

REPORT OF A CASE OF SUPPURATING OVARIAN CYSTS, OPERATION AND TREATMENT.¹

DR. CUSHING: I think the paper is one of very great interest, and especially the suggestions in regard to the use of some antitoxin for such cases. It has long been evident to me that there was something in regard to the resistance of different patients which could not be accounted for except on the principle that they were immune. For instance, great reputations were early made in the successful removals of pus-tubes and abscesses that were necessarily ruptured into the peritoneal cavity, and yet without fatal re-

¹ See page 480 of the Journal.

sults. I think we must say that all those patients recovered on account of a certain immunity in the woman. We have long ago learned that if the abscess is large enough, and smells bad enough, and the woman is not actually injured in the operation, she is pretty sure to get well, at least not have sepsis. I tried to make some experiments in this line myself, in Paris two years ago, about the serum therapy of staphylococcus infection; but it had not advanced so that any results could be safely deduced from it. I understand it has been used in puerperal fever, etc.; but my impression was that no real results had been obtained. I would like to ask what we are to understand by phenol? Do you mean carbolic acid?

DR. RONAYNE: Phenol is the other name for Edison's asepsine used in phthisis.

DR. CUSHING: Some years ago it was the equivalent of sulpho-naphthol, or creolin. The symptoms would have suggested to me dilating that opening, and investigating whether there was not something collected which needed to be washed out, or running a catheter down and washing out with peroxide of hydrogen. Whether it was the phenol that did this or the discharge of whatever was dammed up is a question. Certainly it is an extremely interesting sequence to the giving of this substance.

In regard to the use of ligatures, I think most of those who have had experience for a good while in foul cases of one kind and another have got to depend on catgut, and have given up silk ligatures for the reason suggested in the paper.

DR. ENGELMANN: This paper recalls the earlier years of abdominal work when we were forced to deal, far more frequently than at the present day, with very large ovarian tumors, and with those in process of degeneration and suppuration; yet I have been fortunate enough to meet with more tractable cases of suppurating ovarian cyst as well, and in one instance only have I seen a condition similar to the one now before us for consideration. The tumor, probably once a multilocular cystoma, now one large sack with disintegrating walls adherent to and in many places closely united with the surrounding viscera, contained a turbid dirty-brown fluid. I was obliged to leave parts of the friable adherent cyst wall *in situ*, and after opening the Douglas, as Marti was then doing, washed freely and drained through the vagina (which I might not now do). Recovery followed after a prolonged struggle, but convalescence was slow. Modern methods would have saved more, such as the one reported, which would appear to have been doomed, but for the "phenol" injections, as indicated by their marked effect on pulse and temperature.

The operator is to be congratulated upon so opportunely seizing on this recent preparation, and upon his success with it at a time when the case seemed hopeless. The remedy is a new one to me, and I shall look with interest for further reports.

DR. CUMSTON: There was one other method, which has been used very considerably of late in Paris, which appears to have given very brilliant results, what Tuffier, who has inaugurated this method in cases of septic conditions such as the writer speaks of, calls "washing of the blood." They inject two or three litres of normal salt-solution into the veins of the arms; and although this may seem an enormous quantity to put into the system, its effect is very remarkable in producing abundant diuresis, which causes

elimination of the toxins and in fact forms a new amount of liquid in the body. I cannot remember the exact number of cases reported by Tuffier in his last publication, but there were six or seven desperate cases, and more than one-half recovered. I simply mention this as another manner of treating septic infection after operation.

DR. JOHNSON: Within the last three or four months I have had two cases of suppurating cyst, one in a young girl fifteen years of age. The tumor, a dermoid, had twisted three times on its pedicle, and the cyst-wall was infiltrated with blood; intestines, omentum and bladder were adherent to the cyst; the temperature 103°, pulse 120; there was also blood in the peritoneal cavity. The cyst was of a dark-green color, about the size of a child's head. The other case was in a patient about fifty years of age, and it was not a dermoid, but the tumor had twisted three times on its pedicle. It was from the right ovary; the other was from the left ovary. She had been sick about a week with severe pain in the abdomen, vomiting, temperature and pulse. Both recovered, had no drawback. Both cysts were of a dark-green color; and in the second case, as in the first, there were adhesions to intestine and omentum.

DR. KINGMAN: I suppose I ought to say something about this paper because I am partly responsible for it, having suggested the use of the tent. I have a case which forcibly brought to my mind the desirability of making this intra-uterine examination before operating. In June I saw a lady about thirty years of age. She was a near relative of a physician who tried for two years to get her to have an examination on account of symptoms that suggested some form of uterine trouble. She agreed to it by reason of a long and painful period. When I saw her she had been flowing ten days. Uterine pain was marked, part of the time of colicky nature, at other times simply aching. On examination I found a symmetrical enlargement of the uterus, firm, hard, suggesting fibroid and extending nearly to the umbilicus. I did not say anything to the patient about it. I was told she was of morbidly sensitive make-up, and that if she heard the word tumor she would refuse operation and go through nameless terrors and suffering. I talked the matter over with the family, and hysterectomy was in prospect. I saw her two days later when she had been relieved of pain, probably in consequence of remedies given, and she was beginning to sit up. I saw her three days later when the pain had returned and there had been a profuse discharge of glairy, stringy material. This rather surprised me, and I made another examination. I found protruding from the vulva some shreds of tissue which looked like the membranes preceding the delivery of the placenta. With this was the brownish, glairy discharge. The vagina was filled with a mass that was the size of a small fetal head, honeycombed completely throughout. This extended through the os to the inside of the uterus. Here was a broken-down fibroid which had retained its contour until after my first examination. The result of the pains had been to dilate the cervix, expel this mass and rupture it. If an operation had been done previous to this spontaneous rupture and delivery the patient would have gone through a hysterectomy to no purpose. She was taken into the hospital and operated upon, the tumor being removed by morcellation. It was not encapsulated, had no line of

demarcation, and was beginning to become putrid. It was tough, resisted curette and everything but knife or scissors. It was trimmed off as closely to the uterus as could be, iodoform gauze introduced, careful cleansing of the uterus being performed by myself every day. The temperature ran to 100° or 101° three or four days after the operation. Then the temperature was normal. She never had any pain. She does not know she had a tumor. The uterus is normal. She is perfectly well, and all her symptoms have disappeared.

This case was very suggestive to me as to the desirability of intra-uterine examination where the contour of the tumor could not be made out upon the outside, and yet where we supposed there was a fibroid. Still I am not a strong advocate of the vaginal operation. I believe that in a small number of cases, strictly submucous fibroids of not too large size should be thus removed, but it seems to me the operation is open to many of the objections I have always felt attach to vaginal hysterectomy. We are handicapped if a sharp hemorrhage starts up. There is more danger of immediate and subsequent hemorrhage than through the abdomen, and it seems to me the added annoyance of a scar and weakened abdominal wall does not compensate for the greater difficulty of the operation by the vagina and for the lessened feeling of security after the operation is done; so that, unless there are strong indications that we can remove the tumor readily through the vagina, I should say go through the abdomen.

DR. E. W. CUSHING: The paper is very interesting, and the reader is to be congratulated on the very successful operation. As I understand it, the main purport of the paper is to the effect that in the recent enthusiasm for vaginal hysterectomy the older operation for removal of submucous fibroids has been neglected, and that the application to that older operation of modern methods of asepsis will in selected cases give very good results and save the uterus. So far I am inclined to agree with him. The operation of vaginal hysterectomy is certainly an easier operation, and there is no doubt a great many men will do it by preference. Looking back in cases you will find, however, that that preference for vaginal hysterectomy rests on a good many rather unpleasant occurrences which have occurred in the attempts in previous times to do the same operation which he describes. I had such a case myself at one time, a fibroid which was submucous and pedunculated. I was removing it in good faith, pulled down a little, turned it round a few times, and it came out—and there was a hemorrhage which didn't stop, and they said the woman was looking badly. I passed a sound, and found the other end up under the abdominal wall; and I suddenly reflected that that fibroid had gone clear through the uterus like a rivet, and I had twisted it out and made a hole. I pulled the uterus down, slipped the clamps on, and had it out in a very few minutes, and there was a pint of blood in the abdomen. In that case I should have lost the woman if I had hesitated five minutes.

Now that brings us to the real difficulty in these cases, which is, in working this way you cannot be sure how thin the partition is between the fibroid which you are removing and the peritoneal wall. If you notice, a good many fibroids as they are removed by hysterectomy, they differ without any particular

rule; one is in the uterus, one in the middle, one on the peritoneal side, one may protrude into the uterine cavity and yet there may be a very thin uterine wall outside of it. One may proceed as the operator has done, remove his tumor with care and skill and discretion, and nevertheless there may have been a perforation which he may know nothing about and which is difficult to find, and the woman will get up sepsis and die. I have a strong suspicion that these cases have happened to a good many men. There was a great deal of this work five to ten years ago. The older books are full of it, and there is very little about it in modern literature, which would imply it has been given up for cause, and the causes are two or three: first, the difficulty of knowing what the other side of the capsule is, how thick it is; and second, in the fact that so many tumors are multiple. As I understand, the reader of the paper rather leaves out the general question of myomectomy abdominally and by the anterior and posterior cul-de-sacs, and limits it to the submucous. I think in a certain number of selected cases, where the tumor bulges into the uterus, is easily accessible and not very large, it can be removed. There is another class of cases where it is something in the nature of a large polyp with a broad base, such as one as Dr. Marcy and I removed and showed here nine years ago, as large as a child's head, where the os uteri was dilated to two or three inches in diameter. We cut it into fourteen pieces and delivered, and the woman got well; but it is not on the whole quite as safe an operation to my mind as vaginal hysterectomy except in very selected cases. Although we ought always to have it in mind and try to save the uterus if we can, and if we are pretty sure the tumor is single and not multiple, yet we have to consider how few the cases are where the tumor is both small and easily come at, and yet of sufficient gravity to necessitate an operation; for if we go to operating on every woman with a little fibroid as big as a marble or an inch or so in diameter, I think we should do a great many really unnecessary operations.

DR. RONAYNE: I remember, in Dr. Emmet's service three or four cases where he attempted to dilate with a tent, and in two cases it had to be removed in ten hours on account of severe pain that was not controlled by morphia, and in all the cases he had to resort to forcible dilatation.

DR. JOHNSON: I agree with the reader that in every case where you cannot make out decided disturbances outside the uterus as a cause for the trouble, that the uterus ought to be examined inside by the finger. I know of three cases where hysterectomy was done, and after the uterus was removed all that was found was a small polypus that could have been twisted off and so put an end to the trouble. I saw one case this winter where the fibroid had undergone carcinomatous degeneration according to the pathologist, Dr. Mallory. He thought it was a fibroid originally which had undergone the cancerous degeneration. I do not agree with the writer that the opening of the abdominal cavity is without danger. I do not think it ought to be put that way. I think it is a more serious procedure. Dr. Joseph Price claims that gonorrhea is a very common cause of fibroid tumors of the uterus. In reference to the statistics on superapubic hysterectomy for fibroids of the uterus, the death-rate is less than one per cent. In the hands of some men it is absolutely nothing.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

FOURTH TRIENNIAL SESSION, WASHINGTON, D. C.,
MAY 4, 5, 6, 1897.

FIRST DAY. — TUESDAY.

WILLIAM H. WELCH, M.D., of Baltimore, President.

This session of the Congress was divided between the American Ophthalmological and American Otolological Societies. The first subject for discussion was

THE GOUTY AND RHEUMATIC DIATHESSES OF THE EYE.

DR. CHARLES STEDMAN BULL, of New York, opened the discussion with a paper dealing with the "Lesions in the Retina and Optic Nerve associated with Gout."

He said that it was worthy of note that endarteritis and endophlebitis were found much more frequently in the retina of persons suffering from an atypical form of gout, than in those who presented the well-known manifestations of the acute type of the disease. The speaker called special attention to three features: (1) the peculiar changes in the arteries, capillaries and veins of the retina; (2) the peculiar localized retinitis, confined to the fundus, with or without hemorrhages in the vitreous, and characterized by a yellowish exudation, occurring in clearly defined patches; and (3) an optic neuritis, occurring generally with, but sometimes without, a retinitis. The subjective symptoms were deterioration in vision, and photophobia characterized by being most marked with artificial light. The ophthalmoscope would show blurring of the outlines of the optic disk, diminution in the calibre of the retinal arteries, occasional fusiform dilatations of the veins, and yellowish patches of exudation, irregularly distributed in the deep layers of the retina. The subject could be briefly summarized as follows:

(1) The changes in the fundus are always bilateral, though rarely symmetrical in the two eyes; (2) the degenerative changes in the walls of the arteries and veins are at first so minute as often to be overlooked; (3) the general angio-sclerosis and retinal patches result in impairment of *central* vision; (4) loss of central vision is progressive up to a certain point; (5) hemorrhages into the retina are chiefly observed in the early stages of the disease; (6) the important feature is the peculiar yellowish, granular exudation in the retina, around the posterior pole of the eye, generally leaving the macula intact until late in the disease; and (7) the changes in the optic nerve are generally intra-ocular.

DR. S. OLIVER RICHEY, of Washington, D. C., continued the discussion, speaking more especially of its relations to glaucoma. He said that the increased intra-ocular tension in glaucoma was due to the distention of the blood-vessels. As far as chronic glaucoma was concerned, the morbid agent of rheumatism could be excluded. Every form of glaucoma was to be attributed to gout or to acquired syphilis in the tertiary stage.

Dr. Richey then called attention to a little-known anatomical point. He said that the venae vorticosae pass in the meshes of the sclerotic downward and backward, the shortest being only 1.5 millimetres long, or half as long as the thickest part of the sclerotic. With the high arterial tension associated with gout,

the arteries would become engorged. As a result of even very slight increase in the intra-ocular tension pressure would be made upon the venae vorticosae. This, in turn, would give rise to venous stasis, and a still further increase in the intra-ocular tension.

DR. S. D. RISLEY, of Philadelphia, then presented a paper on "Cataract, and its Association with the Gouty and Rheumatic Diatheses." He said that when the lens underwent physiological hardening, and at the same time became opaque, one had strong grounds for believing in the existence of an underlying pathological process, for it was exceptional for senile hardening to be attended with any marked loss of transparency. He was of the opinion that the gouty and rheumatic diatheses were the most common causes of chronic forms of inflammation of the uvule tract. As remarkable changes in refraction were observed in diabetics, as a result of variations in the density of the fluids about the lens, coincident with variations in the quantity of sugar in the blood, it was not unreasonable to suppose that similar changes in the nutrition of the lens might result from the circulation of the poison of gout or rheumatism in the blood.

DR. ROBERT SATTLER, of Cincinnati, then read a paper on "Gouty and Rheumatic Affections of the Uvule Tract." From the author's experience he was inclined to believe that, in this country, at least, iritis and other choroidal complications were very commonly associated with rheumatism. Where gout was the underlying condition, it would be found that, as a rule, the ocular manifestations developed in the early stages of the constitutional disorder. In early gout, one saw "hot eye," but rarely iritis. Experience had taught that the degenerative processes of gout interfered very seriously with operative measures intended to improve or restore the sight.

DR. R. A. REEVES, of Toronto, presented a communication on "Rheumatic and Gouty Affections Involving the Cornea, Conjunctiva and Sclera." He said that in gouty individuals of over forty years of age, it was not uncommon to find a porcelain-like opacity of the cornea, which gave the impression that the sclera had been encroached upon. There was also a variety of gouty episcleritis, characterized by edema, lachrymation, pain and severe photophobia. It occurred in paroxysms of a few days, but the whole course of the disease sometimes extended over a number of years. Episcleritis proper was found in adults of gouty or rheumatic constitution, and should be treated by the internal administration of the salicylate of sodium.

DR. J. M. DA COSTA, of Philadelphia, opened the general discussion. He expressed the belief that four-fifths of all supposed cases of *chronic* rheumatism were not rheumatism at all, and that therefore, we should be careful about assuming too great an influence of chronic rheumatism in eye affections. As we knew a little more about the pathology of gout, there was less liability to error with that disease. In his opinion, there was no such disease as "rheumatic gout." As a general practitioner, he had observed in connection with acute rheumatism chiefly conjunctivitis and iritis. This eye complication was apt to develop at the height of the rheumatic attack—in other words, just at the time when endocardial and pericardial complications were most prone to arise. It was different with gout, for gouty inflammations of the eye occurred in the intervals, as well as with the distinct

gouty attacks. He did not recall having seen a single case in which an eye affection had complicated a rheumatoid arthritis. In patients presenting symptoms of lithemia, first one and then the other would sometimes be affected. This was often associated with headache.

DR. CLARENCE J. BLAKE, of Boston, on behalf of the American Otological Society, delivered an address on

OTOLOGY IN ITS RELATIONS TO GENERAL MEDICINE.

He said that the great vascularity of the auditory canal, drumhead and middle ear in children made these parts liable to become inflamed. In the earaches of childhood attention should be given to the condition of the nose and pharynx, and in cases of the acute exanthemata, the general practitioner should not consider that he had done his whole duty if he had failed to frequently examine the ear. Investigation had brought out the appalling fact that 27 per cent. of the cases of deaf-mutism were the result of suppurative disease of the ear in early life. It should be the duty of the American Otological Society, the speaker said, to endeavor to secure the examination of deaf-mutes by competent aurists, with a view to determining the individual hearing capacities, and hence, the best means of educating these individuals. As it was easier for the aurist to cope with the intra-cranial brain complications of ear affections, this field should be occupied by the aurist, rather than by the general surgeon. In many young women, exhibiting remarkable variations in hearing, examination would show a localized congestion of the tympanic mucous membrane, particularly around the oval window, by the stapes. This was often associated with the menstrual flow. In such cases, the gynecologist was often able to give relief by rectification of pelvic abnormalities.

The subject of vertigo furnished an excellent example of the elucidative work that otology was capable of doing for general medicine. It was now recognized that an effusion or hemorrhage in the labyrinth might affect the balancing power. Such cases were examples of auditory or labyrinthian vertigo. But in many cases it would be found that a mass, or epidermal growth, by pressure on the stapes, might give rise to various symptoms, of which, perhaps, vertigo was the most prominent.

A condition, which should be designated "the fatigue of deafness" was another important matter, but one that received very little consideration. It was to be remembered that persons with normal ears entered life with double the hearing capacity needed for the demands of life. It was in cases of slowly progressive impairment of hearing that this fatigue of deafness was chiefly noticed. Few outside of those who are deaf can appreciate the great effort necessary for persons with impaired hearing to keep themselves in communication with the outer world. Where there is but one act or effort in those with normal hearing, there are, in deaf persons, three acts, namely, (1) hearing, (2) seeing, and (3) understanding.

SECOND DAY. — WEDNESDAY.

This session of the Congress was under the charge of three societies: The Association of American Physicians, The American Physiological Society, and The American Pediatric Society. The subject selected for discussion was,

INTERNAL SECRETIONS CONSIDERED IN THEIR PHYSIOLOGICAL, PATHOLOGICAL AND CHEMICAL ASPECTS.

DR. WILLIAM H. HOWELL, of Baltimore, contributed the opening paper. He said that Brown-Séquard had revived an old idea in medicine, when he stated his belief that all animal tissues ought to be used in special cases. This observer attributed internal secretions to all tissues, but our present knowledge would seem to indicate that the chief organs having such a secretion were the liver, pancreas, supra-renal bodies, the ovaries, testicles and spleen. The one clearly successful method of treatment by animal tissues was that by the thyroid extracts — a method that had been established quite independently of the generalization of Brown-Séquard. The complete removal of the thyroid in man is followed by serious disturbances of nutrition, resulting sooner or later in death. The fact that extracts of thyroid tissue, when absorbed into the blood, remove or ameliorate the evil effects resulting from loss of function of the thyroid, would seem to indicate that these tissues act normally by giving to the blood something which favorably effects the nutrition of the body — in other words, the thyroid furnishes a true "internal secretion." According to one theory, the secretion is antitoxic; according to the other, or neuro-trophic hypothesis, the secretion of the thyroid acts normally by promoting or regulating the ordinary metabolic processes of the body. Histologically, the para-thyroids do not resemble the thyroids, and appear to have a different origin.

The supra-renals are found constantly in all the vertebrates, and would seem, therefore, to be bodies of fundamental importance. The complete removal of both supra-renals causes extreme muscular weakness, anesthesia and feeble heart action, thus resembling very closely the symptoms of Addison's disease. On injecting an extract of the medulla of the supra-renal body into an animal, the blood-pressure rises, and the heart's action is temporarily slowed. As this effect is not produced if the vagi have been divided, it would seem that the injection of the supra-renal extract stimulates the cardio-inhibitory centre in the medulla. A similar effect is observed when blood drawn from the supra-renal vein is injected into the circulation of a healthy animal. It was interesting to note that Oliver and Schaeffer found that the supra-renals in Addison's disease did not contain this substance.

Observations on the function of the pituitary body, the speaker said, had been limited to the anterior lobe, but he had himself recently made some observations with extracts obtained separately from the glandular and infundibular lobes. Extracts of the infundibular portion has a decided effect on the heart, causing a more pronounced and protracted slowing of the heart action than the injection of the supra-renal extract. When the animal was etherized, or when the vagi had been previously severed, this reduction in the rate of the heart action was not nearly so great. Entirely negative results were obtained from injections of the extract from the posterior lobe.

PROF. RUSSELL H. CHITTENDEN, of New Haven, discussed the physiological and chemical aspects of the subject. He stated that there must be a close similarity in function in the case of the thyroid and para-thyroids, for experiment had clearly shown that

in animals possessing para-thyroids, the thyroid and all but 40 per cent. of the para-thyroids could be removed without causing the death of the animal. The administration of thyroid gland and thyroid extracts to normal individuals produced a very noticeable effect on the metabolism of the body, leading to a marked loss of body-weight, and to increased excretion of phosphoric acid, nitrogen and water. It had also been shown that the thyroid was concerned in hematosis. After thyroidectomy, there was an increase in the mucin in the body, especially in the salivary glands. It was to be presumed that the toxic products were formed, not in the thyroid, but in the tissues of the body as a result of perverted metabolism due to atrophy or alteration in the thyroid gland. The thyroid gland is especially characterized by the presence of a compound proteid of peculiar constitution. This substance, to which Hutchin-on gave the name of "colloid matter," is the active constituent of the gland. There are also present a small quantity of nucleo-albumin and certain extractives, but the latter seem to be without physiological significance. Interest centred chiefly around this colloid matter, which contained a compound known as "iodo-thyrine." In human thyroids, and in the thyroid of sheep, oxen and pigs, iodine is present even to the extent of ten per cent., yet so far as known, it is not normally present in other tissues. In cases of goitre only minimal and relatively small amounts of iodine are found. These facts would seem to indicate that the iodine contained in iodo-thyrine was an important element, but this view is controverted by the fact that a dose of only one milligramme of iodo-thyrine would produce a distinct effect on goitre, and also by the fact that the thyroids of some children do not contain an appreciable quantity of iodine. The speaker, in closing, said that there was some evidence that there were two distinctly physiologically active substances in the adrenals. In extracts of the testis, a peculiar nitrogenous body had been separated, to which the name of "spermine" had been given.

DR. J. GEORGE ADAM, of Montreal, on behalf of the Association of American Physicians, discussed the pathological aspects of the subject. He said that assuming that the glands of the body possess an internal secretion of physiological activity, we must recognize the possible existence of three orders of conditions, namely, (1) glandular inadequacy, (2) glandular overactivity, and (3) compensation. In the first two divisions there were changes accompanied by symptoms, but not so in the third division. It was difficult to discuss internal secretions from this standpoint because of the rarity with which the pathological findings permitted one to draw conclusions regarding what had been the functional activity of the various organs during life.

DR. FRANCIS P. KINNICUTT, of New York, said that the use of thyroid preparations in myxedema had given very encouraging results, and had demonstrated that complete recovery could be effected by this remedy, even in severe cases of long standing. But experience had also shown that it was necessary to continue the use of the remedy throughout the lifetime of the patient. In sporadic cretinism administration of the thyroid extract caused a rapid disappearance of the symptoms of myxedema, and a striking improvement in both the mental and skeletal development. If begun sufficiently early in the child, there

was now every prospect that the treatment was capable of causing a cretin child to develop into a healthy adult. It should be borne in mind that the degree of improvement effected in goitre depended upon the variety. The best results were obtained in simple hyperplastic goitre, and the least benefit was observed in the cystic goitres. There had already been some experience reported which was favorable to the use of the thyroid preparations in certain forms of mental disorder. The remedy had become very popular in the treatment of obesity. It was true that it often caused a very rapid and marked diminution in the body-weight without deterioration of the general health, but the obesity returned very soon after the discontinuance of the thyroid extract. He had personally investigated the claims made for thyroid extract in the treatment of phthisis, but his experience with it had been entirely negative. Of 48 cases of Addison's disease treated with extracts of the adrenals, 6 had been reported as cured, 22 as improved, 18 unimproved, and 2 as made worse by the treatment.

DR. JAMES J. PUTNAM, of Boston, spoke of the relation of infantilism to myxedema, and of acromegaly, giant growth, and similar affections to loss or perversion of the function of certain glands, such as the pituitary body, the thyroid, the adrenals and the testes.

DR. WILLIAM OSLER, of Baltimore, then exhibited a series of lantern slides illustrating the remarkable results obtained in the treatment of cretinism by thyroid preparations.

THE PRESIDENT'S ADDRESS.

DR. WILLIAM H. WELCH, of Baltimore, the President of the Congress, delivered his Address in the evening before a large audience, taking for his subject

THE ADAPTATION OF PATHOLOGICAL PROCESSES.

He said that the most wonderful and characteristic attribute of living organisms was their adaptation to external and internal conditions in such a way as to promote the welfare of the individual or the species. Familiar examples of this were to be found in the preservation of the body temperature amid varying conditions, the adaptation of the heart to the changing demands upon it, and the adjustment of the iris to different degrees of illumination. The mechanical theory of the purposefulness observed in Nature was the only one that could be recognized in science. One of the most important characteristics of pathological adaptations was that they had their foundation, for the most part, in physiological processes or mechanisms. As an illustration of the fundamental principles of pathological adaptation the speaker selected cardiac hypertrophy. Physiologists had shown that the heart responded to the increased demands made upon it, by reason of an embarrassed circulation, because these circulatory disturbances increased the tension on the cardiac muscle in much the same way as a weight augments the tension on a voluntary muscle. But with a given stimulus, and with increased muscular tension, a point is reached at which the contraction is diminished, although the actual work done is increased. The result is dilatation of the heart; hence, dilatation often precedes the compensation. This dilatation lessens the strain on each muscular fibre, and so enables it to shorten more with each contraction.

But some kinds of excessive work, it should be noted, did not lead to hypertrophy. An example of this was to be found in an unusually rapid heart action, which might last for years without causing cardiac hypertrophy. Clinical experience showed that the reserve force was less in the hypertrophied than in the normal heart. The regulation of the velocity and volume of the circulation furnished another example of adaptation. Again, the clinician was not likely to look upon inflammation as a beneficent process, but the pathologist saw in it a protective process by which invading micro-organisms might be kept out of the system.

Dr. Welch said Nature was neither kind nor cruel, but simply obedient to law, and therefore consistent. Her healing power was often incomplete and imperfect; hence too much reliance should not be placed on systems of treatment based on Nature's curative powers.

THIRD DAY.—THURSDAY.

CONGENITAL DISLOCATION OF THE HIP.

DR. E. H. BRADFORD, of Boston, on behalf of the American Orthopedic Association, opened the discussion on this subject, illustrating the various conditions by lantern slides. Speaking of the diagnosis, he said that congenital dislocation of the hip was not likely to be confounded with other conditions, unless it might be coxa-vara. In the latter, however, the gait was unlike that so characteristic of congenital dislocation. In operating on these cases, the best line of incision was that employed by Lorenz, namely, one passing from the anterior superior spine of the ilium obliquely downward along the outer edge of the tensor vaginae femoris and anterior edge of the gluteus medius muscle. The femoral head and acetabulum having been exposed, the acetabulum was curetted until sufficiently deep to receive and retain the head of the femur. The reduction of the dislocation was often rendered difficult by the surgeon failing to freely divide the attachment of the capsule to the lesser trochanter.

Dr. Bradford said that a new method of treatment, also devised by Lorenz, was now being given a trial. In this, no incision was made, but the child was subjected to a preliminary stretching for several days. The child should be placed in a horizontal frame, and the limb gradually abducted at the same time that traction was made. The object of this is to stretch the shortened capsule. After a few days of this stretching, the child was placed under an anesthetic, and the limb subjected to traction at right-angles to the body. He had found that this could be most conveniently done by means of a Thomas splint with a windlass attachment at its inferior extremity. The limb should next be flexed and abducted, and, while in this position, put up in a spica bandage of plaster-of-Paris. After a week or two the child should walk on crutches, being instructed to keep the leg slightly abducted. In concluding his remarks, the speaker stated his belief that congenital dislocation of the hip, coming under treatment between the ages of two and five years, was a curable condition.

DR. V. P. GIBNEY, of New York, said that he was sorry he could not share Dr. Bradford's hopeful views regarding the results of treatment in congenital dislocation of the hip. At one time he had treated these cases according to the mechanical method advocated by Dr. Buckminster Brown, of Boston, and he thought

he had obtained in this way one or two good results. At the present time, he was obliged to say that he did not know of any case in this country in which the patient did not continue to limp after either the Hoffa or Lorenz operation. Moreover, he had known this operative treatment to be followed by chronic suppurative arthritis of the hip. The preliminary stretching was very important.

DR. HARRY M. SHERMAN, of San Francisco, spoke of the operative treatment of congenital dislocation of the hip from the standpoint of one who had been an eye-witness of the method as employed by Lorenz himself. Lorenz uses a sharp-pointed knife in entering the capsule of the joint, and then a large knife, shaped like a tenotome, to still further divide the capsule. He next introduces his finger into the capsule, and with it as a guide, curettes out the acetabulum. While this part of the operation is being done, traction is made by means of a traction apparatus and aseptic towels placed around the groins and hips. After the reduction of the dislocation, a drain of iodoform gauze is inserted into the joint, and superficial sutures used to close the wound. The leg is then extended and markedly abducted, and while in this position both limbs are put up in plaster-of-Paris, and kept firmly apart by a cross-piece of wood. After six weeks, this apparatus is removed and the child allowed to walk. At first, there would usually be free motion at the hip, but this would gradually diminish, and if massage and carefully-planned exercises were not carried out for six months flexion and abduction would probably ensue. In closing, Dr. Sherman said that he believed that with further experience and improvement in the technique, the Lorenz operation would yield satisfactory ultimate results.

The latter part of this session of the Congress was in charge of the American Surgical Association.

THE CLASSIFICATION OF ACUTE GENERAL PERITONITIS; THE PROGNOSIS AND TREATMENT OF THE DIFFERENT VARIETIES.

DR. NICHOLAS SENN, of Chicago, opened the discussion with a paper in which he presented a "Classification of Acute Peritonitis," as follows:

1. Anatomical Classification: (a) Ecto-peritonitis, (b) endo-peritonitis; (c) parietal peritonitis; (d) visceral peritonitis; (e) pelvic peritonitis; and (f) diaphragmatic peritonitis.
2. Etiological Classification: (a) Traumatic peritonitis; (b) idiopathic peritonitis; (c) perforative peritonitis; (d) metastatic peritonitis; (e) puerperal peritonitis; (f) peritonitis infantum (fetal, intra-uterine peritonitis and peritonitis neonatorum).
3. Pathological Classification: (a) Diffuse septic peritonitis; (b) putrid peritonitis; (c) hemorrhagic peritonitis; (d) suppurative peritonitis; (e) serous peritonitis; and (f) fibrinoplastic peritonitis.
4. Bacteriological Classification: (a) Streptococcus infection; (b) staphylococcus infection; (c) pneumococcus infection; (d) bacillus coli communis infection; (e) gonococcus infection; (f) tubercular infection.
5. Clinical Classification: (a) Ecto-peritonitis; (b) diffuse septic peritonitis; (c) perforative peritonitis; (d) circumscribed peritonitis; (e) hematogenous peritonitis; (f) visceral peritonitis; (g) pelvic peritonitis; (h) puerperal peritonitis; and (i) subdiaphragmatic peritonitis.

Ecto-peritonitis, the speaker said, was an inflammation of the attached side of the peritoneum, as distinguished from inflammation of the serous surface. This inflammation of the sub-endothelial vascular con-

nective tissue was characterized clinically and pathologically by intrinsic tendencies to limitation of the inflammatory process. In certain localities, however, it might become quite diffuse, as when the cavum Retzii or the retro-peritoneal space on either side of the spinal column was the seat of suppuration. In infected wounds of the abdominal wall, in which the peritoneum was exposed, but not perforated, the primary ecto-peritonitis was occasionally followed by extension of the infection to the serous surfaces through the lymphatics, or by the direct extension of the infective process through the tissues to the endothelial lining. Peritonitis of visceral origin is always preceded by ecto-peritonitis.

Parietal peritonitis may occur as a primary affection in penetrating wounds of the abdomen, but more frequently as a secondary disease in consequence of the extension of an infection from one of the abdominal or pelvic viscera, or perforation into the peritoneal cavity of a visceral ulcer, or of a subserous or visceral abscess.

By "visceral peritonitis" is meant an inflammation of the peritoneal investment of any of the abdominal or pelvic organs. As the mesentery and omentum are modified anatomical forms of the peritoneum, when they are inflamed, the process is spoken of as a mesenteritis and an epiploitis respectively.

As peritonitis is always the result of infection with pathogenic microbes, usually of the pyogenic variety, an etiological classification must take cognizance of the various avenues through which the microbes find their way into the peritoneal cavity.

The term "idiopathic peritonitis" indicates a peritonitis without antecedent injury or suppurative lesion. It is exceedingly rare — indeed, by many its very existence is doubted. Probably future bacteriological examinations of the inflammatory product will reveal a microbic cause in all such cases.

Perforative peritonitis is a very common variety. Experimental research has shown that the intestinal wall, when paretic or gangrenous, becomes permeable to the microbes contained in the intestinal canal. In many cases of intestinal obstruction, death results from septic peritonitis after the intestine has become paretic or gangrenous. Metastatic peritonitis is seldom seen except as a lesion associated with pyemia.

In puerperal peritonitis the infection may extend from the endometrium through the Fallopian tubes, or it may follow the lymph channels or the thrombosed uterine veins.

Intra-uterine peritonitis is most apt to occur between the seventh and ninth month of utero-gestation, and frequently proves fatal to the fetus. It is often associated with syphilis. Peritonitis neonatorum is met with most frequently in children of women suffering from puerperal fever. The infection takes place through the imperfectly healed umbilicus.

The pathological classification, Dr. Senn said, was based almost entirely on the gross and microscopical appearances of the exudation and transudation. The term "diffuse septic peritonitis" should be restricted to those cases in which, as a rule, death occurs in a few days, and before any gross pathological conditions have had time to form. The microbes which produce this form of peritonitis are those which follow the lymph spaces and are rapidly diffused, not only over the entire peritoneal surface, but also through the subserous lymphatic channels. Putrid peritonitis is

characterized by a brownish, fetid product, and occurs most often in grave forms of puerperal metritis. Hemorrhagic peritonitis occurs most frequently in the pelvis, upon the posterior surface of the uterus and vagina, and, in men, behind the bladder. The inflammatory product consists of brown patches composed of delicate and very vascular villi. Sero-purulent peritonitis is always associated with fibrinous exudations which tend to limit the extension of the infective process. Serous and fibrinoplastic peritonitis are due to a mild infection, and are ordinarily more or less limited by firm adhesions.

In considering the bacteriological classification, streptococcus infection must be given first place. This is the microbe most frequently found in septic peritonitis. Absence of fibrinous exudate and effusion are the most striking negative findings at operations and autopsies. In staphylococcus infection the intrinsic tendency to localization of the process is more marked. Occasionally, the diplococcus of pneumonia is the bacteriological cause of acute suppurative peritonitis. In cases of intestinal paresis or perforation, the colon bacillus escapes into the peritoneal cavity and gives rise to suppurative and fibrinoplastic peritonitis. In the peritoneal cavity, the gonococcus produces a plastic peritonitis, and sometimes localized suppuration. Depending upon the intensity of the infection and the susceptibility of the patient, the tubercle bacillus gives rise to (1) tubercular ascites, (2) fibrinoplastic peritonitis, and (3) adhesive peritonitis. Suppuration only takes place when the tubercular product becomes the seat of a secondary mixed infection with pus microbes.

The clinical classification, Dr. Senn said, must be based on the information already obtained from the classification. For example, ecto-peritonitis is associated with abscess formation of the subperitoneal connective tissue, most frequently in the pelvis of women, and the cavity of Retzius in men. It is not infrequently followed by extension of the infection through the lymphatics to the free surface, thus exposing the patient to the risk of perforation of the abscess into the free peritoneal cavity, diffuse septic peritonitis and death. Again, diffuse septic peritonitis is a common result of penetrating wounds of the abdominal cavity, complicated by visceral lacerations of the gastro-intestinal canal, contusion or laceration of any of the abdominal or pelvic organs, or perforation of a septic lymphangitis from any of the visceral or pelvic organs to the peritoneum. The characteristic of perforative peritonitis is usually marked by the sudden onset of the symptoms — diffuse tenderness, rigid abdominal walls, fever, vomiting — and by the impossibility of ascertaining by inspection, palpation and auscultation, the presence of intestinal peristalsis. This last sign is almost positive proof of the presence of gas in the free peritoneal cavity. Among the more common causes of circumscribed peritonitis are, appendicitis, cecitis, perforating ulcer of the stomach and inflammations about the gall-bladder, Fallopian tubes and ovaries. A form of inflammation of the peritoneum, called "hematogenous peritonitis" has been observed in connection with nephritis, pyemia, rheumatic arthritis and the acute exanthemata.

DR. ROBERT ARRÉ, of New York, spoke of "The Prognosis of the Different Varieties of Peritonitis." He said that it was now generally admitted that every

case of inflammation of the peritoneum was due to some septic micro-organism, but as yet no definite relation had been established between specific forms of micro-organisms and particular types of inflammation of the peritoneum. An interesting point in connection with both the prognosis and treatment was that it had been shown experimentally, and confirmed clinically, that the peritoneum was capable of absorbing from three to ten times the body-weight in an hour. In many regions, inflammation of the peritoneum is a limited process from beginning to end. This is particularly true of inflammation of the peritoneum about the stomach, gall-bladder and uterine appendages. It is much more apt to be diffuse if it originates in middle portion of the abdominal cavity.

The influence of the particular region involved upon the prognosis was well shown in the statistics that had been collected by Dr. Robert F. Weir regarding cases of operation for perforating ulcer of the stomach. He found that out of 97 such cases, 22 recovered. An equally favorable prognosis could now be given in cases of gunshot injuries of the abdomen provided there was not much delay about operating. If the operation were done within twelve hours, half of the cases would recover; if delayed over twenty-four hours, not more than 25 per cent. of recoveries should be expected. Recent statistics showed that even in cases of peritonitis due to perforation of a typhoid ulcer, 26 per cent. recovered. This was indeed a great improvement on the statistics of only a few years ago. If appendicitis cases were not treated by the general practitioner with hopeless expectancy for days before calling the surgeon to his aid, the prognosis in this class of cases would soon be vastly better than at present.

DR. GEORGE R. FOWLER, of Brooklyn, spoke of "Septic Peritonitis considered from the Clinical Standpoint." He said that peritonitis might occur without the actual presence of bacteria, as, for example, when their toxins penetrated the visceral walls without producing any actual lesion, and thus reached the serosa. The least dangerous mode of entrance was in connection with a wound of the abdominal wall. Important elements in the prognosis were: source and virulence of infection, mode of entrance, concomitant circumstances, the presence of hemorrhage or serous exudation, and whether or not the infection were localized. It should be remembered that the serous effusion in the peritoneal cavity possessed a certain germicidal power.

Referring to treatment, the speaker said that during the last ten years several cases of diffuse septic peritonitis had been operated upon successfully. From our present bacteriological knowledge it was difficult to conceive of a case in which the patient's doom was sealed from the very commencement; hence the responsibility of the surgeon was enhanced. Dr. Fowler said that from his observations in one case in which he had used the streptococcus antitoxin in an effort to control a diffuse septic peritonitis, and from a study of several other reported cases, he felt doubtful as to the influence exerted by the serum over this form of peritonitis. The matter must still be considered *sub judice*.

DR. ANDREW J. MCCOSH, of New York, objected to Dr. Senn's classification of acute peritonitis on the ground that it was too elaborate for clinical purposes. For example, it was next to impossible to distinguish clinically diffuse septic, putrid and suppurative periton-

itis. The bacteriological division was the most definite and satisfactory of the classifications offered. In making a prognosis in a case of peritonitis, he was inclined to give much weight to the duration of the process, and the individual resisting power, as determined by the age and other elements. Of his successful cases, in none had the patient been over thirty-five years.

In considering the treatment of peritonitis, Dr. McCosh said he could not agree with those who would divide the cases into two classes—those requiring sponging or swabbing, and those demanding irrigation—for the reason that in some of the most virulent forms of peritonitis the gross appearances would rather indicate, in many instances, a mild grade of inflammation. It seemed to him, therefore, safer to regard every case as exceedingly grave, and treat it by irrigation. It was true that this did not remove all the septic matter, but it had been shown, both by experimental investigations and by clinical experience, that this was not necessary. Moreover, the scrubbing process must inevitably injure the peritoneal endothelium, and diminish by just that much its powers of resistance. It also favored the migration of the bacillus coli communis through the wall of the intestine into the peritoneal cavity. The speaker said that for the past year or two he had made it a rule to draw out the intestinal coils into *hot* towels, and to cleanse them by pouring over them large quantities of hot sterilized salt solution, at the same time irrigating the abdominal cavity, by means of a hose, with the same solution. The salt solution should have a temperature between 110° F. and 115° F., as even this high temperature was not harmful to the peritoneum, while it acted as an excellent stimulant to the heart. By leaving considerable of this solution in the peritoneal cavity, the circulation would be still further stimulated, and the flow of septic material would be excited in the direction of the intestine, instead of from the bowel into the peritoneal cavity. As for opiates, he mentioned them only to condemn their use in peritonitis. His own experience had led him to feel that the safety of the patient depended largely upon his ability to prevent intestinal paralysis and to promote intestinal peristalsis. Accordingly, he usually gave one dose of ten grains of calomel shortly after the operation, and followed this by injecting high up in the *small* intestine an ounce or two of sulphate of magnesium. He used a medium-sized aspirating needle and an antitoxin for making these intra-intestinal injections, and used a saturated solution of the sulphate of magnesium. He felt positive that some lives had been saved by this means. From January, 1896, to March, 1897, he had operated upon eight cases of diffuse septic peritonitis, with six recoveries. In all but one of the cases the peritonitis had apparently existed for more than twenty-four hours before operation, and most of the cases showed an advanced stage of septic inflammation. In the matter of drainage, Dr. McCosh said it was his practice to use several strips of gauze, projecting in different directions among the coils of intestine. Sometimes he used strips of rubber tissue, or strips of pure silk sponge. The latter had the advantage of being easily removed. Rubber drainage-tubes were more liable to become obstructed than glass tubes. Success in the treatment of general septic peritonitis depended chiefly on early operation, thorough irrigation, efficient drainage and promotion of intestinal peristalsis.

ASSOCIATION OF AMERICAN PHYSICIANS.

TWELFTH ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4, 5, 6, 1897.

(Concluded from No. 19, p. 470.)

SECOND DAY. — WEDNESDAY.

DR. A. MCPHEDRAN, of Toronto, read a paper on
PANCREATITIS FOLLOWED BY CYST OF THE PAN-
CREAS.

The patient came to him in 1891 with pain over the right abdominal region. He treated him, and during the next five years he had repeated attacks of pain, which became more frequent. Gall-stones were diagnosed, and an operation was advised. On September 6th he suffered from colic, prostration, vomiting and extreme pain lasting for three days; his temperature was 101°. After this he began to improve, but was still uncomfortable; his diet was regulated and Carlsbad salts prescribed. On October 8th a large cyst was discovered over the epigastrium, extending to the right over the pancreas; his temperature was 99.5°. He was operated on, and a clear serous liquid was drawn off. At the bottom of the wound the pancreas was felt enlarged and hard; the liver was healthy, the gall-bladder was not reached. The opening was closed without drainage; pulse, 130; temperature, 101.5°; extreme cyanosis and dyspnea. Ten days later a thick fluid, purulent in character, came from the lower border of the wound; it was probably the result of fat necrosis. The pancreas seemed to have increased in size.

Later the patient improved, but his digestion continued disturbed, and he suffered from flatulence. The tumor grew forward, and pushed the colon below and the heart above. The urine was free from sugar. In March another operation was performed, and a cyst with walls two millimetres in thickness was laid open. The fluid was thick, flocculent, contained albumin, and was outlined; and there seemed to be no digestive ferment present in the fluid. The patient recovered; but a fistula persisted, and the discharge was free and the skin was excoriated. The fluid now seemed to possess some digestive powers. The general health of the patient was good, but the sinus persisted and the discharge still continued. The first attack and the subsequent ones were undoubtedly due to the beginning of the trouble in the pancreas. As Fitz has shown, there are three forms of pancreatitis: the simple, the hemorrhagic and the purulent.

DR. J. H. MUSSER, of Philadelphia, read a paper entitled

ANGINA PECTORIS: ITS RELATION TO DILATATION
OF THE HEART,

which was entirely clinical. The contention of the paper was to the effect that patients who have had an attack or attacks of angina pectoris are relieved of the paroxysms if dilatation of the heart supervenes. Often, if dilatation persists, the patient may live for years, and no other paroxysms occur. It seems the pain, as long ago pointed out, is due in large part to the stretching of a tense ventricle from intra-cardiac pressure. Such stretching is not so likely to occur in dilatation because of "safety-valve action" in the heart. The idea appears to explain the infrequency of angina in the young; in mitral valvulitis with regurgitation; in women, possibly; and in the occupants of infirmaries

and hospitals. In the latter class the vigor of the heart muscle is lessened from lack of food, etc., which obtains in the better class. Certainly it is not because of the absence of atheroma of the coronary arteries, for endarteritis is very prevalent among senile, usually alcoholic, perhaps syphilitic inmates of the hospitals and almshouses.

If the contention is true, the diagnosis, prognosis, and the treatment tentatively admitted, are influenced thereby. The diagnosis is that angina-like paroxysms in dilatation of the heart are probably not due to true angina pectoris. The prognosis is that, if, as rarely happens, an undoubted attack of angina occurs in a case of valvulitis with dilatation, and even failing compensation, the patient, on the one hand, is not likely to perish from the angina, because of the safety valve, while, on the other hand, it indicates that there is sufficient strong muscle fibre to ensure cardiac recuperation. Further, if a patient subject to attacks of angina presents signs and symptoms of dilatation, the angina will disappear, or at least never be so severe as to terminate fatally. That the pain is due to intra-cardiac pressure is more possible because of the presence of dilatation of the heart in angina *sine dolore*. Attention was called to a similar association of pain with increased tension of the globe in acute glaucoma. In connection with the above the writer showed the influence of "safety-valve action" in the relief of some peripheral symptoms of high arterial tension.

DR. WHARTON SINKLER, of Philadelphia, said that the question of the cause of the pain in this trouble was of great interest, and Dr. Musser's explanation did not seem to be sufficient. There is also a pseudo-angina which is very painful and he cited a case of this disease in a young woman in whom one grain of morphia failed to relieve the pain. There was no evidence of disease of the heart at any time. The case finally recovered.

DR. H. C. WOOD, of Philadelphia, asked what was the cause of the increased intra-ventricular pressure in these cases. It cannot come from any condition of the heart itself. If angina pectoris is due to increased intra-ventricular pressure, we should expect the arterial system to play the chief rôle, and not the heart. Nitrite of amyl is interesting in this connection, for it relieves the angina and takes away the resistance of the heart. Digitalis has a very curious action, and the subsequent effect is not good. If this theory holds, then the angina pectoris could be stopped by a hypodermic injection of the nitrite of glycerine. If you give enough aconite you could do away with intra-ventricular pressure altogether. In some conditions digitalis does great harm to the heart in angina pectoris.

DR. E. G. JANEWAY, of New York, mentioned some cases in his practice. A man who was frightened in an accident on the railroad, suddenly had a severe pain in the right side and not the left, and was ashy pale. He later had pericarditis, and a diagnosis was made of thrombosis of the coronary artery with partial rupture of the heart. He was at first feeling a little better, when one day he suddenly sat up in bed and fell over dead. At the autopsy there was found a rupture of the septum of the left ventricle and a soft clot there, and thrombosis of the right coronary artery.

Dr. Musser's theory does not explain every case. Another patient was walking through a field, when he had a sudden attack of angina pectoris for the first

time; he died three weeks later. As no one had seen this attack, and as his death took place at night, poisoning was suspected; but the autopsy showed that both coronary arteries were diseased, the left one having been affected earlier than the right. Dr. Janeway had had some cases of low arterial tension in which nitroglycerine rather did harm; these were not true anginas but cardiac strain.

DR. CHAS. CARY, of Buffalo, said that the increased tension in glaucoma was in a certain sense a parallel to the intra-ventricular pressure with angina; but he doubted if Dr. Musser's theory was entirely correct and the whole thing was open to question.

DR. MUSSER said, in reply, that he did not mean to refer all cases of angina pectoris to this cause, but he wished to lay special stress on the fact of the safety-valve action of the mitral valve by which all pain was decreased. It was not his object to explain all the causes of the pain by this theory.

DR. F. P. KINNICUTT, of New York, said that Dr. Musser's theory might explain some cases, but he had seen certain conditions of the heart in which there was great pain from stretching of the heart walls.

DR. F. C. SHATTUCK, of Boston, read a paper on

PERICARDITIS, SOME POINTS ON ITS DIAGNOSIS AND TREATMENT.

He said that this disease though well known was often overlooked because it was not sought for. Rheumatism was the principal cause. Endocarditis and pericarditis may coexist. In many cases, especially in children, the physician does not see the beginning of the disease. It may come from pneumonia; indeed, pneumonia and pericarditis are often more associated than is commonly supposed. Of 57 cases in his service at the hospital during the last three years there were 20 autopsies, in 13 of these pericarditis was found, five being detected during life, and in eight it was not discovered though carefully sought for. Symptoms are not to be relied on, because if the effusion is small or absent there are no signs or symptoms to indicate the disease. If the primary disease is severe, it may mask the complications. The less severe the original disease the more likely are symptoms of complications to be found. Though the diagnosis must rest mainly on the physical signs, these may be absent. The friction murmur is very evanescent, and may come and go between the examinations. He thought that the shape of the dulness was not pyriform or triangular but similar to that of general enlargement of the heart. He reported eight cases.

Treatment other than rest is of little use. Opium is indicated for pain and alcohol for stimulation. In his opinion blisters were of no use. Ice packs might be used for the comfort of the patient. He had tapped six patients successfully, and feels sure that he had saved the lives of two. Absorption might follow the removal of a small amount of the liquid. There is no hard and fast rule as to when to tap; each case must be treated on its own merits. The point of election for tapping was in his opinion in the fifth interspace, one to two inches to the left of the left nipple, or just inside the left limit of the line of dulness. In one case he had drawn away 16 ounces, again 24, and in another 36.

DR. JAS. T. WHITTAKER, of Cincinnati, spoke of the latency of the disease, and said it was often unrecognized until the post-mortem. He thinks that a

collection of a large amount of clear fluid in the pericardium is due to tuberculosis in many cases. He was able to locate and map out the effusion by letting the stethoscope hang in his ears just touching the chest wall of the patient, who is in a recumbent position. He taps every case he suspects, and often succeeds in finding fluid in the second or the sixth left interspace when he cannot find it anywhere else; he always feels the heart pulsate against the trocar and then withdraws it slightly.

DR. G. L. PEABODY, of New York, spoke of a case in which he had passed the trocar in, and the canula had become stopped by a piece of cartilage.

DR. H. A. HARE, of Philadelphia, said the danger of hurting the heart muscle was not very great. He had made the experiment of stabbing a number of dogs in the heart, and had found that the results were never fatal unless the heart centres were wounded, which was very seldom done. He killed these dogs after a certain time, examined their hearts, and found in every case the wound had healed with very little blood in the pericardium. He spoke of a man with articular rheumatism and pericarditis whom he tapped twice; he pierced the heart each time and drew blood. The man felt better, though he subsequently died. At the post-mortem he found the wound in the heart healed.

DR. T. M. ROTCH, of Boston, said that Dr. Hare's experience agreed with his. It is often hard to make a diagnosis, and the usual signs sometimes fail; but he found that the heart was floated up by the effusion, therefore the tapping was done below, for it was better to avoid the heart if possible. He referred to a case in which he had tapped the pericardium through the back near the angle of the scapula.

DR. NORMAN BRIDGE, of Los Angeles, Cal., reported several cases in which there was very little effusion and in which the diagnosis was extremely difficult.

DR. JAS. TYSON, of Philadelphia, referred to the outline of the effusion. He differed somewhat from Dr. Shattuck. He thought we did get a pear-shaped dulness on percussion. He had found the phonendoscope very useful in mapping out organs in ordinary heart disease; he thought it would prove to be a useful instrument in this respect. He did not agree with Dr. Shattuck in doing away with the blister. He was inclined to stick to the blister, for it sometimes saved tapping. He had never tapped a pericardium. When Dr. Shattuck had finished his paper he felt bold enough to tap any pericardium; but since the other members had spoken, his courage had oozed out and he was back in his old position.

DR. A. MCPHEDRAN, of Toronto, thought that myo-cardial infection should be considered. It is often the chief disease.

DR. F. H. WILLIAMS, of Boston, said that the x-rays had been useful in making a diagnosis of pericarditis.

DR. E. G. JANEWAY, of New York, thought we could always make out the pyramidal shape of the pericardial effusion. In one case in which the heart was punctured, the patient had died.

DR. SHATTUCK said, in conclusion, that he had had only one case in which no fluid was obtained. Some dry taps were afterwards productive.

DR. M. HOWARD FUSSELL, of Philadelphia, read by title a paper on

PNEUMONIA IN PRIVATE PRACTICE.

This paper embraced a series of cases treated privately, in which accurate notes had been kept. They were analyzed, and deductions as to mortality, symptoms, physical signs and treatment were made.

DR. BEVERLY ROBINSON, of New York, read a paper on

DIAGNOSTIC AND THERAPEUTIC CONSIDERATIONS WITH RESPECT TO CERTAIN DISEASES OF THE UPPER AIR TRACT.

He spoke of the utility of the laryngoscope and rhinoscope in making a diagnosis. He said that throat specialists in using these means first began to look for deviated septa and enlarged turbinates, which were respectively cut, cauterized, etc.; then a reaction set in, and it was concluded that deviated septa and enlarged turbinates should be let alone. The specialist should remember not to treat the nose and throat alone, but to look after the general condition of the patient. The great contrast between the general practitioner and the specialist in the treatment of the diseases of the upper air tract was that one looked too much after the general health and neglected local treatment, while the other paid too much attention to the local causes and forgot about the rest of the body.

DR. J. E. GRAHAM, of Toronto, reported

TWO CASES OF BRONCHO-BILIARY FISTULA.

One was a further history of a case of broncho-biliary fistula which was reported at the first meeting of the Association. A second attack occurred after an interval of ten years. The patient coughed up large quantities of bile, almost daily for a period of eight months; there was great loss of flesh and strength. A cholecystostomy was done. Gallstones were found. Death from cholemia and hemorrhage followed. Short notes of some similar cases, and notes of a second case of broncho-biliary fistula, in which the lesion followed a traumatism, were given.

DR. J. C. WILSON, of Philadelphia, reported

A CASE OF NERVOUS DEAFNESS IN DIPHTHERIA.

He gave the following abstracts: Follicular tonsillitis in an adult: moderate fever, occipital headache, tinnitus aurium et cerebri; fourth day, dense pellicular exudate upon right tonsil, conjunctivitis, increasing tinnitus and deafness, injection of diphtheria antitoxin serum; a few hours later, total deafness with slight vertigo, great chemosis; gradual defervescence completed by the 13th day, at which date there was partial paralysis of accommodation together with paresis of extensor muscles of the head, persistent tinnitus, slight vertigo and absolute persistent loss of hearing. A married woman, aged thirty-three, came to him with sore throat, high fever, weakness and collapse. He found a suspicious looking eruption in the throat; she later had albuminuria and then membranous colitis. He could find no syphilis and no evidence of septic poisoning. She suddenly lost all power of hearing without any apparent cause; it was not like the deafness following mumps, meningitis or any other such trouble; he thought it was a disease of the labyrinth. He gave antitoxin because it looked like diphtheria, although several examinations failed to find the organisms. The deafness continued in spite of all treatment. He thought this was a very rare trouble.

DR. BEVERLY ROBINSON, of New York, said this

was a very interesting and unique case. It was also interesting from the standpoint of several cases which he related, and in which the diphtheria organisms could not be found, though the clinical picture was one of diphtheria. While it is gratifying to know from the Board of Health that these cases of his were not diphtheria, still he told the parents of the patients that it was diphtheria, and treated it as such. We should give some attention to the clinical side of the cases rather than too much to the bacteriological report of one who has never seen the case.

DR. I. E. ATKINSON, of Baltimore, said that such cases as Dr. Wilson had reported should be very carefully looked into to see that all the conditions of a careful diagnosis are fulfilled. In this case the diphtheria organism was wanting; but could we not account for these symptoms in another way? There may be some form of septic meningitis or an inflammation of the brain, just as in the deafness which comes from cerebro-spinal meningitis.

DR. M. H. FUSSELL, of Philadelphia, reported a case of deafness similar to Dr. Wilson's case.

DR. W. W. JOHNSTON, of Washington, thought that these might be anomalous cases, many of which are seen in a disease affecting many different parts of the body, that is, epidemic influenza. Possibly Dr. Wilson's case was of that kind. We all know how profoundly the nervous system is affected in this disease.

DR. WILSON said, in conclusion, that he had also seen his share of cases of epidemic influenza, and was rather well acquainted with the disease in all its forms. He thinks there is no link missing in the demonstration of this case. It does not seem worth while to go out of one's way to make a diagnosis. He had been very careful to use germicide, and had isolated the patient. He removed every one else, and no one saw the patient but himself and the nurse. He had never seen a case of this kind before. He agreed entirely with what Dr. Robinson said.

DR. J. P. CROZER GRIFFITH read a paper on

TYPES OF EDEMA IN INFANCY AND EARLY CHILDHOOD.

He discussed the obscurity which attends many cases of edema occurring at this time of life. He referred first to the possibility of nephritis being present in earliest infancy, and then took up the question of the production of congenital syphilis. He reported two cases as apparent proof of the occurrence of this form of renal disease, and referred to some instances from medical literature. The existence of nephritis in an infant as one manifestation of general septic infection was instanced by the report of a case. Edema consecutive to heart disease and to marasmic conditions was then touched upon, and then that under the name of edema neonatorum. The relation of this condition to sclerema neonatorum was next considered, and an instance of the latter reported. He then reviewed the cases of sclerema occurring in America. Next, angioneurotic edema, as seen in infants and children, was reviewed, and the various reported cases abstracted. He reported two instances occurring in his own experience. Finally, instances of edema of entirely doubtful origin were taken up, and two unusual cases detailed. Dr. Griffith also showed some very beautiful normal and pathological specimens which were treated in such a way that the material colors were preserved.

DR. D. D. STEWART, of Philadelphia, presented

A FURTHER COMMUNICATION ON THE OCCURRENCE OF A HITHERTO UNDESCRIBED FORM OF CHRONIC NEPHRITIS, UNASSOCIATED WITH ALBUMINURIA.

This was a continuation of a paper which was published several years ago. He dealt with an unrecognized form of chronic nephritis with distinctive symptoms, in which albumin even in traces by the commonly employed tests was persistently absent from the urine, and yet uremic symptoms are common. Although unable to present the result of a necropsy on a personally observed case of this sort, a portion of a kidney removed from a case in life throws some light on the pathological condition present.

DR. H. A. HARE, of Philadelphia, made a report on A STUDY CONCERNING THE CUMULATIVE ACTION OF DIGITALIS.

He first referred to experiments which were made to test the effect of digitalis on the muscular structure of the heart. He took a number of small pigs as nearly alike in weight as possible, and put six in one pen and six in another, and to one set of pigs he gave digitalis until they were taking 15 drops three times a day. In a little while he noticed that the digitalis pigs were more developed than the others, they gained more in weight, and were more lively and showed a desire to jump out of the pen. After killing the pigs he found that the hearts had gained in weight and the muscular structure was much thicker. Was this the cumulative action of digitalis? It is a more or less sudden development of the regular action of the heart; the effect is cumulative. He quoted many authorities to support his point. He had addressed a series of questions to a number of physicians throughout this country and elsewhere, asking if they believed in the cumulative effect of digitalis, and what was their experience with it, and in what form digitalis was used. He received a variety of answers.

DR. I. E. ATKINSON, of Baltimore, believed in this cumulative action; and DR. SHATTUCK and DR. MUSSER denied it entirely.

DR. WM. OSLER, of Baltimore, thought that cumulative action was exceedingly rare. When a man only gives a few drugs he does not like to hear anything against his friends. He gives digitalis largely and with a free hand, and has never seen the cumulative action. We all know the digitalis pulse. The digitalis pulse of the wrist is not the same as the digitalis pulse of the heart; the heart may be 80 while the wrist is 40. In cases of chronic valvular disease of the heart he had given 10 minims of tincture of digitalis, three times a day, for three years. The cumulative action may occur, but it is so rare that it may be disregarded.

DR. E. G. JANEWAY, of New York, asked if we always attributed sudden death in the hospitals to the right cause. He had looked up the hospital records and had found in several cases of sudden death, where autopsies showed no sufficient lesions, that the patient had been taking digitalis, which caused a slow heart and a slow pulse. Some such sudden deaths are probably due to the drug and not to the disease. Sudden death in pneumonia may be due to the digitalis which is given in large doses, and he is sure that it has been the cause of death in Bright's disease.

DR. GEORGE WILKINS, of Montreal, has used it in many cases in which he observed the cumulative action, and he reported several cases.

DR. J. C. WILSON, of Philadelphia, said that sudden death may occur from other causes as well as from digitalis. He has never seen a cumulative effect, and never gave it in pneumonia as a routine measure. He does not give it in fever; it does no good, and interferes with digestion; he has given 15 minims, three times a day for three or four weeks, until it was contraindicated. He has two rules in giving this drug: to let the patient take it a certain number of days, then stop it in order to prevent the poisonous action, and he always uses the tincture in moderate doses.

DR. J. T. WHITTAKER, of Cincinnati, has had to stop its use when nausea followed. He often gave it at the crisis in pneumonia.

DR. CHAS. CARY, of Buffalo, has never seen any poisonous effects from it, and referred to a case that had taken five drops every three hours for six months, but never took more than six doses in a day; and there were no bad effects.

DR. H. A. HARE said, in conclusion, that Dr. Osler had proved just what he had not intended to prove. The heart-pulse of 80 and a wrist-pulse of 40 was to him evidence of the cumulative action. He wished to emphasize his statement that the effect was cumulative and not the drug. It is well to remember that different results may be obtained because it is so difficult to get tinctures of uniform strength.

THIRD DAY. — THURSDAY.

DR. R. T. EDES, of Jamaica Plain, Mass., read a paper on

THE RELATION OF NEURASTHENIC CONDITIONS TO THE GENERAL NUTRITION.

Gain in body-weight and improvement in neurasthenic symptoms usually go together, but there are enough exceptions to the rule to show that the nervous nutrition is something more than a mere sample of the general. The more symptoms approach in character the "fixed idea" of the insane the less amenable are they to the beneficial effect of mere somatic therapeutics. The blood color (Fleischl) of a considerable number of neurasthenic patients corresponds quite closely with that of the employes in the same institution. It was not possible to establish any correspondence between the degrees of anemia and the intensity of nervous symptoms. Measurements of the excretion of uric acid afford no sufficient ground for supposing that neurasthenic symptoms depend in any way upon this substance. There may be such a thing as a chronic uric-acid headache, but the ordinary continued neurasthenic headache is not of this character. Indian determinations have not been numerous enough to be decisive, but do not seem to indicate that the poison consists in this substance or in those which may be transformed into it. If neurasthenia is a toxic condition, the poison has not yet been satisfactorily identified.

DR. JAS. J. PUTNAM, of Boston, said he could corroborate the statements of this paper; neurasthenic patients look pale and bloodless and yet have the normal amount of blood. The uric-acid theory is far from being settled. Haig's writings are attractive, but devoid of the critical spirit which one would look for in such an important subject; there are loopholes for error in every step. Changes of metabolism are effected by the nervous system; normal and pathological nervous activities are immediately connected with

changes of metabolism. When the subjects are so clearly connected it is hard to say which is the cause, or if there is simply a union of both causes.

DR. NORMAN BRIDGE, of Los Angeles, Cal., read a paper on

THE REFLEX NEUROSES OF THE ABDOMEN.

His paper was simply an attempt to set forth from a clinical standpoint the large number of these reflex neuroses, as symptoms found are frequently overlooked and sometimes confusing in diagnosis. These reflexes are hard to understand; they cause the patient annoyance and often suffering; and some simulate grave diseases and continue for years. A common neurosis is increased peristalsis, causing the passage of gas and diarrhea. A diarrhea of the colon is frequent, and it is hard to understand why it follows so closely each meal, when it is, of course, the result of the previous meal. This diarrhea is due to the reflex cause, and may be brought on by excitement, by emotion, by fever, causes which are extra-abdominal. Public speakers are often affected by it; surgeons who are about to operate; and, in one instance, a clergyman was forced to give up his vocation because of these reflex disturbances. He mentioned a case of a woman who had regularly borborygmi and pain in the top of the head, which was brought on by mental excitement. Another reflex neurosis is slight sciatic pain after a passage from the bowels. Another reflex is what is commonly called "growing pains," which come from an overloaded condition of the stomach and bowels. A free evacuation will often stop it. Then again, prurigo of the legs is another reflex, which has the same cause and may be cured by the same treatment. In addition to that, we have the rash or urticaria caused by the eating of crabs, fish, strawberries and such things. Asthma is in many cases a spasm of the muscular structure of the lungs from faults of digestion. Convulsions, especially in children, are caused by an overloaded stomach. Insomnia is often averted by an enema at bedtime.

DR. WELCH referred to urticaria as a reflex phenomenon and mentioned the work of Dr. Gilchrist in his laboratory, which was striking. A class of cases in which a slight scratch of the skin causes an eruption. He had cut out small pieces of the skin and found that in five minutes after the irritation there was the presence of serum and migrated leucocytes, and in fifteen minutes after the irritation there was a large collection of leucocytes around the point of irritation. There must be something outside that attracts leucocytes, but it is not yet clear what. The reflex phenomenon does not explain how this chemotaxis takes place.

DR. STOCKTON, of Buffalo, said there were two points in the paper to which he would like to refer: one was the post-prandial diarrhea, if he might call it by that name, which occurs with sufficient frequency and has a sufficiently regular pathological course to have a name of its own. This is not simply a hurried evacuation of the intestinal canal after a meal, but later there is gastric acidity. Then, again, this diarrhea seems to have many other peculiarities. He has recorded a number of cases in which there was a striking error of refraction of the eye. He does not mean to say that this depends on the ocular error, but he thinks all the conditions are connected. The other point is a painful neurosis in which there seems to be

a descent of the organs in the abdomen, causing pain. Thus he has found that fixing a floating kidney in this condition will often bring about a cure.

DR. F. H. WILLIAMS, of Boston, demonstrated

THE RÖNTGEN RAYS IN THORACIC DISEASES.

He referred to the general physical, chemical and physiological principles involved in the use of these rays. He has examined about 400 cases of thoracic disease in the hospital, some of which had pneumonia, and he had no untoward effects from the rays. He usually had the patient brought on a stretcher and placed in a recumbent position with a Crookes tube beneath and the fluoreoscope above. In this way he had examined most of the cases mentioned. He found this especially useful in detecting any increase in the density of the lungs, and he was much struck with the different powers of resistance of the different substances. Thus air is more permeable by the light than water. In order to use this instrument intelligently one must be familiar with the normal appearance of the body when viewed with these rays. He showed a number of charts which demonstrated the significance of the diaphragm outlines with deep inspiration and deep expiration, and also showed some beautiful radiographs of pneumonia, consumption and like subjects. He had watched about 40 cases of pneumonia throughout the course of the disease, and in several noticed especially that the lungs did not become normal until a month after apparent cure. He also said that with the fluoreoscope he could see the heart pulsations, and he noticed that the movement of the heart was less at the apex and greater at the left side than near the base.

DR. REGINALD H. FITZ, of Boston, showed some

RADIOGRAPHS OF ANEURISMS.

DR. W. H. WELCH, of Baltimore, then introduced DR. OSBORNE, of the New Haven Medical School, who reported a most interesting

CASE OF ACROMEGALY

in a man, forty-seven years old, who came to the New Haven Hospital complaining first of edema of the lower extremities. A complete history could not be obtained, but it was found that he had had the disease twenty-three years. He suffered also with tinnitus aurium, which is one of the early symptoms of this trouble. The man eventually died, and a post-mortem was obtained. A number of photographs of the case and of his hands and feet were shown, also specimens from his skeleton, which were especially characteristic, such as the lower jaw, the spinal column, the clavicles, and the phalanges of the fingers. He found that many of the organs were not only increased in size, but some were heavier than normal, especially the heart, which weighed two pounds and nine ounces, which is probably the heaviest heart on record. He thought the man also had a myxedematous complication. The pituitary body was affected as is usual in these cases. The thanks of the Association were extended to Dr. Osborne for this interesting case.

DR. JOHN J. ABEL, of Baltimore, discussed

THE CHEMICAL PROPERTIES OF THE BLOOD-PRESSURE-RAISING CONSTITUENT OF THE SUPRARENAL CAPSULE.

He thought that the suprarenal capsule was an organ of vital importance; it furnished to the blood

and to the muscular system a stimulant the nature of which could not exactly be made out. He had studied the subject very carefully, and had obtained a substance from the suprarenal capsule which had a stimulative effect; but in spite of all the work that had been done by chemists, there is still an uncertainty as to the nature of this substance.

DR. WM. OSLER, of Baltimore, asked if he had examined the commercial products of the market to see if this blood-raising product could be obtained. He had on hand now several cases of Addison's disease, and had seen no marked effect from the use of the suprarenal capsules.

DR. ABEL said he had not looked for a commercial product, but he thought it was very likely that one could be obtained, for it was a very simple matter to take the suprarenal capsules from sheep and dry them and reduce them to powder.

DR. SIMON FLEXNER, of Baltimore, read a paper on
THE OCCURRENCE OF THE FAT-SPLITTING FERMENT
IN PERITONEAL FAT NECROSES.

Upon the etiology of peritoneal fat necroses much light has recently been shed, partly through the findings in cases occurring in human beings and partly through animal experimentation. A study of the cases in the literature would make it appear that the occurrence of fat necroses was not always due to the same cause. Although infection seems in certain cases to play a part, it is probable that it is not by any means the most important factor. The view has gained ground that the disseminated forms of necroses met with in the peritoneal cavity, as well as the more circumscribed lesions in the pancreas itself, may result from a perversion of the pancreatic secretion.

Again, since it has been shown that trypsin when injected into the peritoneal cavity does not set up this condition, the suggestion that the fat-splitting constituent of the secretion, steapsin, might possibly prove to be the chief cause, has been ventured. In the literature no record occurs of any attempt to demonstrate the presence of this body in the areas of necrosis, and it is possible that investigators were deterred by the belief in its extreme sensitiveness. A suitable human case having presented itself, he undertook to prove the presence of this body in the fat necrosis and its absence from the normal fat. A satisfactory demonstration of this point having been arrived at, he next instituted a series of experiments in order to study more particularly the conditions under which the necroses make their appearance and the length of time the ferment is demonstrable in them. From the report of this experience he drew these conclusions:

(1) In peritoneal fat necroses the fat is easily demonstrable.

(2) It is present in the early stages, and may disappear later.

(3) The ferment is the direct cause, which can be proved.

(4) The escape of pancreatic secretion is the origin of the necroses.

He also showed some specimens under the microscope.

DR. W. H. WELCH, of Baltimore, said that some years ago he had brought a case before the Association, in which the micro-organisms were present. It was the first demonstration of the colon bacillus. He remembered that he had said at the time that he be-

lieved that the organisms had nothing to do with the necroses, and now this has proved to be true. It is very satisfactory to have these observations so well confirmed by Dr. Flexner.

DR. A. C. ABBOTT, of Philadelphia, read a paper on

FURTHER STUDIES UPON THE PATHOGENIC SPIRILLA
OF THE SCHUYLKILL RIVER AT PHILADELPHIA.

This was the result of further experimental work by himself and Dr. D. H. Bergey. They had examined the Schuylkill water, and found certain spirilla which seemed to be present all the year round. He had only found them in the Schuylkill and the Delaware. He could not examine the water from other rivers, but he believed this was due to some contamination. He found 110 varieties of organisms, but they had so many points of difference and overlapped each other in so many ways that a classification was almost impossible. Even the division into the pathogenic and non-pathogenic was hardly satisfactory, as some of the pathogenic organisms were very weak, while some of the non-pathogenic organisms seemed to respond in every other way to the test of the pathogenic organism. They expected still to continue this work.

SURGEON-GENERAL GEO. M. STERNBERG thought these observations made at this time when there was no cholera in the country were exceedingly valuable. If he had found these spirilla at the time when the cholera was suspected or was present they would certainly have been called cholera organisms.

DR. B. MEADE BOLTON, read a paper entitled

THE EFFECTS OF VARIOUS METALS AND METALLIC
SALTS ON THE GROWTH OF CERTAIN BACTERIA.

This was the result of original work done by himself and Dr. W. G. Brown. They found that the zones that are formed by bacteria around bits of metal laid on plate cultures are due to the fact that the solution of the metal tends to concentrate in one or more zones. Where the concentrated zone of the metal is formed the bacteria fail to grow. Metallic salts act in the same manner as the metals. The more soluble the salt the more pronounced the action. In the zones where the growth is more pronounced than on other parts of the plate the colonies are usually fewer but larger in size.

DR. WALTER REED, of Washington, read a very elaborate paper on

THE APPEARANCE OF CERTAIN AMEBA-LIKE BODIES
IN THE BLOOD OF VACCINATED MONKEYS (RHOESUS)
AND CHILDREN, AND IN THE BLOOD OF VARIOLA:
AN EXPERIMENTAL STUDY.

Following the introduction of Koch's improved methods, the search for the specific causative agent of vaccinia has been made especially along the line of bacteriological research. Notwithstanding many claims of positive results, these have in the end proved groundless. During the past ten years, and more especially during the last half-decade, the attention of investigators has been turned toward the possibility of the animal nature of the parasite. Van Der Loeff, L. Pfeiffer, Rieck and more recently, Ogata, have described minute bodies always present in vaccine and variolous lymph, which they assign to the sporozoa. The first attempt to cultivate the supposed parasite of vaccine lymph was made in 1892 by Guarneri, who

used the cornea of guinea-pigs and rabbits for this purpose. After forty-eight hours, epithelial scrapings from the inoculated cornea, suspended in a hanging drop of aqueous humor, showed little shining, slowly moving ameboid bodies, often with irregular margins, within the epithelial cells. Guarnieri considers these bodies to belong to protozoa, and calls the parasite *citrocytes vacciniæ*. These observations have been confirmed by L. Pfeiffer, Von Sicherer, Clark and E. Pfeiffer. Ferroni and Massari have failed to confirm Guarnieri's observations. In 1894, L. Pfeiffer reported the finding in the blood of vaccinated children (seventh day), and calves (fourth day), and in the blood of variola ameboid cells (provided with pseudopodia) one-half the size (in the calf) of a red cell, and (in the child) one-fourth the size of a red cell. These bodies are not intracellular, but swim free in the blood. They have a nucleus; and sometimes flagella — which can be stained — appear during the stage of fever, and disappear. My own experiments confirm in some respects Pfeiffer's observations. Bodies of a corresponding size, and ameboid in character, appear in the blood of vaccinated monkeys about the seventh and disappear about the twelfth day. The same bodies are found in the blood of vaccinated negro children, but were much more difficult to find in the blood of white children, and in several cases of the latter could not be discovered. Bodies of a like nature, though differing somewhat, were found in the blood of three small-pox patients during the height of fever, disappearing later.

DR. F. H. WILLIAMS, of Boston, then gave an account of

AN EPIDEMIC OF CEREBRO-SPINAL MENINGITIS
CAUSED BY DIPLOCOCCUS INTRACELLULARIS MENINGITIDIS (JAEGER).

He said that there had been a slight epidemic of cerebro-spinal meningitis in Boston, and the opportunity had been taken to examine the cerebro-spinal fluid obtained by a puncture at the level of the second lumbar vertebra. He described the epidemic and gave a brief outline of the treatment.

The pathological results in these cases were reported by Dr. W. T. Councilman, of Boston, who began by quoting the observations of Weichselbaum who first found the organisms in cerebro-spinal fluid. This trouble sometimes came from acute otitis media. He found staphylococci, streptococci and diplococci. He had 11 cases in all in which these organisms were found by cultures from the fluid obtained. He found organisms in nine cases out of 20 at the City Hospital, and in 16 out of 30 at the Children's Hospital. In some cases the spleen was enlarged. These organisms have sometimes been found in the nasal sinuses and in one case in an abscess of the tonsil. The organisms grow best on blood serum.

DR. GUITERAS had seen two cases, which he would relate more fully later. One was in a hospital nurse and one was in a new-born child. The organism was found in the blood. There was no other lesion.

DR. WILLIAMS said that the lumbar puncture was of great value in the diagnosis, but the relief to the symptoms was only temporary. The fluid should be withdrawn gradually, 70 per cent. of the cases died.

DR. COUNCILMAN referred to the character of the exudation, and said that in quite a number it had a tendency to extend along the cranial nerves; in one case along the optic nerve so that it could be seen

with the naked eye, and that in some cases which had recovered there had been loss of sight and hearing. The eye complications will be found to be due to infection directly from the meningitis.

DR. F. C. SHATTUCK has seen about 15 cases, and his experience has been that not a child had died and not an adult had recovered.

DR. A. A. SMITH, of New York, reported a case of
LEVANT FEVER.

This fever has many names, but the one he selected seems to be the most suitable. It is a disease which exists especially on the eastern shores of the Mediterranean Sea. His patient was a woman from Bayrout who was the wife of a physician who had seen many cases, and he had given Dr. Smith a careful description of these cases. This patient was first seen in January, 1897, and had been sick only since July, 1896. The fever would continue for three or four weeks; then it would cease; then there would be a relapse, which was often more severe; and then especially there would be intervals of freedom from fever. In her case the fever still continued. It seems to change its character often. It resists quinine. He examined the blood very carefully, and showed some beautiful specimens which were unpigmented. There is no pigment in the blood plasma nor in the blood corpuscles. The parasite which he described was much like Laveran's organism, but contained no pigment.

In answer to Dr. Shattuck he said that arsenic had been used, and indeed everything except phenic acid.

DR. GEORGE DOCK, of Ann Arbor, said that these specimens and this description would make one think of the form of malarial parasite without pigment which had been described by the Italian writers. Lack of pigmentation and segmentation would seem to do away with resemblance to the usual malarial parasites. We do find in fevers certain bodies which look like the malarial parasite; and when Laveran's observations were first published writers in Germany and elsewhere said they could find these bodies in other diseases. They looked too much like protozoa. The appearance of the colored drawings made him very sceptical. We should be very slow to believe that the parasite of Levant fevers has been discovered.

DR. A. JACOBI, of New York, read by title a report of

A CASE OF ADENOMA OF THE LIVER WITH COMPLICATIONS.

DR. B. K. RACHFORD, of Cincinnati, then spoke of

THE TREATMENT OF LITHEMIA

and called special attention to the following prescriptions, which were put up in siphons and charged with carbon dioxide.

One siphon contained:

R Sod. sulphate, 120 grs. wet salt.
Sod. phosphate, 30 grs. wet salt.
Sod. salicylate from oil wintergreen, 10 grs.
Tr. nux vomica, gtt. 3.
Aqua, q. s. 3 iv., CO₂ q. s.
Take before breakfast.

The other contained:

R Sod. sulphate, 30 grs. dry salt.
Sod. salicylate from oil wintergreen, 10 grs.
Magnesia sulphate, 50 grs. wet salt.
Benz. lithia, 5 grs.
Tr. nux vomica, gtt. 3.
Aqua, q. s. 3 iv., CO₂ q. s.
Take before breakfast.

DR. JAS. T. WHITTAKER, of Cincinnati, read a paper on the

EARLIEST POSSIBLE RECOGNITION OF TUBERCULOSIS.

Physical symptoms do not always show the beginning of tuberculosis, and the bacilli sometimes escape observations. The approach of the disease is very insidious. The symptoms may look suspicious, but it is very important to make early the exact diagnosis; and he would like to emphasize more thoroughly the great value of tuberculin in the early diagnosis of tuberculosis. The use of tuberculin was objected to on the score that it caused a reaction when there was no tuberculosis. This is hardly true. In the first test five millimetres of tuberculin should be used, and so on up to two centigrammes. There should be no reaction if tuberculosis is not present. Virchow raised an objection against tuberculin because he said it aroused latent tuberculosis and caused the disease to be spread throughout the whole body. It must be remembered that tuberculin should not be used in too large doses or too late in the course of the disease.

DR. F. C. SHATTUCK said that tuberculin had been used in his hospital, and no harm had come from it. If tuberculin were used regularly the number of cases would be increased, but there would be more recoveries.

DR. A. L. MASON, of Boston, said that tuberculin had been used a good deal in the Boston City Hospital, and said that it had often been the means of deciding whether to do a laparotomy or not when depending on the presence or not of tuberculous peritonitis.

DR. E. A. DESCHWEINITZ, of Washington, read a paper on

SOME PRODUCTS OF THE TUBERCULOSIS BACILLUS AND THE TREATMENT OF EXPERIMENTAL TUBERCULOSIS BY ANTITOXIC SERUM.

He gave a description of two of the products obtained from tuberculosis cultures, one of these a crystallizable acid, and its probable bearing upon the progress of the disease. A brief sketch of some experiments showing the relationship of the attenuated tuberculosis bacillus to immunity was given, followed by a description of some methods for the production of antitoxic serum and its experimental application. He used injections of live cultures, which he found to be the best. Horses are better than other animals to use. At no time has he produced toxic effects, but care must be exercised to prevent any dangerous results.

DR. D. D. STEWART, of Philadelphia, read a paper on

THE OCCURRENCE OF PRIMARY RENAL TUBERCULOSIS,

which was the result of some work by himself and Dr. A. D. J. Kelley, of Philadelphia. The diagnosis, frequency of occurrence, and source of infection of tuberculosis of the kidney as a primary affection was discussed; and an unreported case of Dr. Stewart's in which a limited, primary tuberculosis of the pelvis of the left kidney occurred in a case of chronic nephritis was reported.

DR. H. A. HARE of Philadelphia, reported

A FURTHER STUDY ON SOME OF THE UNTOWARD EFFECTS OF THE BROMIDES.

This paper was a study of the frequency with which this class of drugs produced evil influences and the manner in which these results were obtained. He re-

ferred to Dr. Weir Mitchell of last year, and said that before he looked into the matter he thought that Dr. Weir Mitchell's work was original, but on inquiring from the asylum superintendents he found the subject was an old one and well known. He looked up the literature on the subject, and found that much had been written on it. He addressed a series of questions to various asylum physicians, and the general answers seemed to be that most of them had seen attacks of maniacal delirium following the excessive use of the bromides, especially in epilepsy; so that patients have nerve storms in which they have homicidal or suicidal mania. He thought that the presence of potassium in bromide of potassium caused a certain amount of poisoning, and therefore he preferred the sodium salts.

DR. H. C. WOOD, of Philadelphia, thought that a great deal of what asylum physicians and superintendents reported rested on an insignificant basis. A man for instance has epilepsy, bromides are given him; bromides do not cause the mania, but at times the attacks take another direction. He preferred the ammonium bromide to the sodium, and referred to a quack in New York who always used the ammonium salts, and that he had done a great deal of good to a patient whom Dr. Weir Mitchell had not helped at all. He found out what the quack was giving by analyzing a bottle of the medicine.

DR. I. E. ATKINSON, of Baltimore, thought that bromide of potassium was so much used that these untoward effects represented by Dr. Hare would have been observed before. It must be in part an idiosyncrasy.

DR. HARE reported in conclusion that many hospital physicians had told him that they hoped he would impress upon the general profession not to give so much of the bromides, because cases which entered asylums under the influence of the bromides were torpid and stupid and had to be freed from the effects of the bromides.

At the business meeting on the morning of the first day, the recommendation of the Council for the adoption of the amendment increasing the limit of membership from 100 to 125, which was offered last year, was acted upon favorably by the Association.

Dr. Frederick C. Shattuck, of Boston, was elected President; Dr. G. Baumgarten, of St. Louis, Vice-President; Dr. M. Allen Starr, of New York, Councillor; Dr. J. T. Whittaker, of Cincinnati, Alternate Representative to the Congress.

The second week in May, at Washington, was named as the time and place of the next meeting.

"THE MOST PAINFUL OPERATION KNOWN TO SURGICAL SCIENCE." — A correspondent of the *London Daily Telegraph*, in describing a visit to the military hospital at Larissa, gave the following harrowing account of what he saw there: "The medical department," he says, "did its best under the unfavorable conditions. Operations, however, had to be performed without the administration of narcotics. Thus one man, whose face had been horribly disfigured by bombs, underwent the most painful operation known to surgical science — that is, the cutting out of both optical nerves — without the aid of anesthetics. This man was a German, and his exquisite suffering painfully impressed me."

THE BOSTON
Medical and Surgical Journal.

THURSDAY, MAY 20, 1897.

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THE CHEMISTRY AND PATHOLOGY OF GOUT

THE Goulstoeian lectures on "The Chemistry and Pathology of Gout,"¹ by Arthur P. Luff, are of unusual interest. Dr. Luff has performed many experiments to determine the seats of formation of uric acid in the economy, and the presence or absence of uric acid in the blood in normal and morbid states, also laboratory experiments with solutions of sodium urate, and it is these original researches which give the chief importance to these lectures.

The main points and conclusions arrived at in these lectures are as follows:

(1) Uric acid is not normally present in the blood of man and other mammals nor in the blood of birds. This proposition is based on a great number of careful experiments made by Von Jaksch, Klemperer, and the author of these lectures; the latter regards the fact as established beyond question.

(2) Uric acid is produced normally only in the kidneys.

This, according to Dr. Luff, was the accepted belief down to 1847. Till that time, no uric acid had been detected in the blood. In 1847, Garrod showed the presence of uric acid in the blood of gouty persons, which led to the view that it was formed in other organs and tissues of the body and excreted by the kidneys. Garrod, who originally held this view, subsequently came to believe that uric acid was produced by direct action of the kidneys from urea and other nitrogenized bodies in the blood. Hence the presence of this acid in the blood implies its absorption from the kidneys. Kalisch and Latham also regard the kidneys as the chief uric acid formers, through conjugation of substances formed in the liver. Zalesky's experiments on serpents also favored this doctrine, no uratic deposits being found in any of the tissues after removal of the kidneys. The views of Charcot and Murchison as to uric acid being formed in the liver are regarded by Dr. Luff as erroneous, and based on theoretical considerations only.

¹ Lancet, March 27, April 3, 17, 1897.

(3) Uric acid is normally formed from urea, probably by conjugation of that substance with glycocine in the kidneys.

Glycocine is a derivative of biliary acids, and having served its purpose, is probably converted, with other amido-bodies — taurin, leuciu, and tyrosin, into urea in the hepatic cells. The considerations given by Latham (Croonian Lectures, 1892) whereby this view of the production of urea is probable are too lengthy and intricate to be dwelt on here — that glycocine is concerned in the production of uric acid may be inferred from the fact that in the carnivora whose urine contains little or no uric acid the bile contains no glycocholic, but only taurocholic acid, and therefore yields no glycocine.

The proposition that the kidneys form uric acid out of urea is only an inference from facts such as this, that no uric acid is found in the blood of the renal artery going to the kidney, but only urea, and from analyses of the blood and urinary excrement of birds.

If uric acid be formed in the kidneys from urea and glycocine, brought from the liver, it can be readily understood that alterations in the metabolism of the liver must affect the formation and excretion of uric acid. This would explain why liver trouble of some kind is so commonly associated with gouty dyspepsia. Harley and other authorities have always held that a strong relationship exists between gout and hepatic derangements.

(4) Uric acid is present in the blood in gout as a soluble sodium quadriurate. Investigations have shown that the amorphous deposits in acid febrile urines consist of quadriurates of the three alkalies, sodium, potassium and ammonium, and it would seem that the uric acid which is formed in the kidneys is at once converted into the mixture of these quadriurates, which in the normal state are excreted, dissolved in the urine. If, however, any absorption of these takes place into the blood, as probably occurs in the gouty state, the ammonium and potassium quadriurates would be converted by the sodium carbonate of the blood into sodium quadriurate which would constitute the sole compound of uric acid circulating in the blood.

In its soluble form, this quadriurate is not a toxic agent. This is proved by the presence in excess of urates in leucocythemia and states of anemia generally where this excess *per se* is not baneful. The urates of the blood are deposited in the joints, etc., as sodium biurate, which acts passively and physically as a foreign body and irritates the parts where deposited.

(5) The presence of uric acid in the blood in gout is due to its deficient excretion by the kidneys, and to the subsequent absorption of the non-excreted portion into the blood from those organs.

This is in accordance with the view of the older authorities, notably Garrod, Sir William Roberts, Levison, also of Von Jaksch, Klemperer and others.

(6) Gout is always preceded by some affection of the kidneys, functional or organic, which interferes with the proper excretion of uric acid.

Here again, there is a notable consensus of many authorities, Dr. Norman Moore, who bases his observations on a large number of post-mortem examinations, states that chronic interstitial nephritis is found in a large proportion of those bodies in which sodium urate is to be seen in the joints. Levison is a strong supporter of the view that there is always some degree of antecedent renal disease connected with gout and he thinks that the exceptional cases adduced by some authors are open to criticism. Luff's seventy-seven examinations of chronic gouty patients revealed in all granular kidney disease.

Luff states, as the result of his studies, that the probable seat of the kidney affection giving rise to gout is the epithelium of the convoluted tubes.

(7) In certain diseases of the blood, and disorders accompanied by leucocytosis, uric acid is formed within the system from nuclein and impregnates the blood.

This statement is based chiefly on experiments by Horbaczewski and Umber. The view of the former is that sudden variations in uric-acid production may be due to the breaking up of leucocytes and conversion of their nuclein into uric acid within the system. In leucocytosis, the excess of uric acid thus formed is rapidly excreted in the urine.

(8) The solubility of uric acid in the blood is not affected by a diminished alkalinity of the blood produced by the addition of organic acids.

This proposition is based on careful experiments on blood serum charged with urates—not in the living organism, but in the chemical laboratory. These are, of course, open to the objection that processes under the control of the vital forces cannot be exactly imitated out of the body. If valid, they teach that the ingestion of vegetable acids is not harmful in gout.

(9) The deposition of sodium biurate is not accelerated by a diminution of the alkalinity of the blood.

This is also the result of experiments *in vitro*. If this proposition be correct, the ingestion of alkalies can have little remedial effect in gout.

(10) An increased alkalinity of the blood does not increase the solubility of deposits of sodium biurate.

This statement is also based on laboratory experiments. The therapeutic inference is the same as in Proposition 9. It runs counter to much current theory and practice.

Another series of experiments performed by Luff on solutions of quadriurates out of the body are in confirmation of empirical notions long held, namely, that the saline constituents of vegetables exercise a remarkable inhibitory power over the decomposition of sodium quadriurate. In other words, a vegetable diet promotes the solution in the system and inhibits the deposition of urates. If this deduction be sound, it is a therapeutic rule of the utmost importance for the gouty.

He also states as conclusions from similar experiments that the solubility of sodium urate in the blood is diminished by the presence of the saline constituents of meat. This, again, is in conformity with old tradi-

tional and empirical notions, and gives a sanction to the rigid exclusion of animal food from the diet of the gouty.

MEDICAL NOTES.

THE INTERNATIONAL CONGRESS AT MOSCOW.—Dr. Lauder Brunton has accepted an invitation to deliver one of the general addresses before the Congress at Moscow.

DENVER AND THE AMERICAN MEDICAL ASSOCIATION.—The medical profession of Denver, Col., have decided to extend to the American Medical Association, at their coming meeting in Philadelphia, an invitation to meet in Denver in 1898.

THE ADVANTAGES OF TECHNICAL LANGUAGE.—The advantages accruing to the modern trained nurse from a familiarity with technical medical terms are shown by the recent remark of a nurse in attendance upon a man suffering from vesical retention. The patient had for some days been obliged to make several futile attempts in each case before accomplishing the function of micturition. Finally relief came, and the nurse saluted the doctor at his morning visit with the cheerful words, "He passed water to-day *by the first intention*."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, May 19, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 84, scarlet fever 98, typhoid fever 14, small-pox 3.

PUBLIC CHARITABLE AND REFORMATORY INSTITUTIONS OF MASSACHUSETTS.—The Massachusetts Legislature has voted to refer to the next General Court the recommendations of the report of the Commission appointed by the Governor of the Commonwealth to investigate the public charitable and reformatory interests and institutions of the State.

THE MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED.—The trustees of this institution in their report for the year ending September 30, 1896, give the following statements of its work: "There are now in the school 425 inmates, feeble-minded persons of all descriptions. Of these, 181 are supported by the Commonwealth in the school department and 37 in the custodial department. The towns and cities are charged for the support of 155 in the custodial department. There are 34 private pupils, of whom 5 pay more than the average cost of maintenance and instruction, 12 pay the average cost of maintenance and instruction and 8 pay about one-half the average cost. There are 27 beneficiaries of other States, who pay each about \$300 per year. The average number for the year has been: males, 248; females, 168; total, 416. There have been 164 applications for admission, but of these only 22 could be received. The

current expenses for the year have amounted to \$70.-761.98, or \$3.25 per week for each inmate."

NEW YORK.

BUILDINGS FOR THE CONSOLIDATED MEDICAL SCHOOLS.—At a meeting of the corporation of the University of the City of New York held May 14th, the committee having in charge the consolidation of Bellevue Hospital Medical College with the medical department of the University made an elaborate report, which was unanimously adopted. Plans for the proposed new buildings were submitted, together with diagrams showing their relative positions. These, with the old buildings of the University School, enlarged and improved, the Loomis Laboratory, the Carnegie Laboratory, and the schools for male and female nurses, will take up almost the entire block located between 25th and 26th Streets and First Avenue and the East River; while the old Bellevue College building within the grounds of Bellevue Hospital, across the street, which was partially destroyed by fire during the past winter, will be used as a dispensary for out-patients.

THE FACULTY OF THE NEW MEDICAL SCHOOL.—The work of arranging the Faculty and various teachers of this great consolidated medical school was one of much delicacy. It was unanimously agreed that the University corporation should elect the new Faculty, and in order that there might be as little embarrassment as possible the members of the old ones all tendered their resignations. The corporation then furnished blanks to the professors, and asked them to nominate men whom they considered most competent to fill the different chairs, and it is stated that the corporation selected nine-tenths of those who were thus recommended. While there were twenty professorships in the former medical department of the University, there are now forty-one in the new consolidated school. The following is a list of those elected:

PROFESSORS.—Medical Ethics, Dr. John P. Munn; Pathology, Dr. J. G. Adami; Public Medicine and Infectious Diseases, Dr. Hermann M. Biggs (Bellevue); Applied Anatomy and Clinical Surgery, Dr. Joseph D. Bryant (Belv.); Physiology, Dr. Austin Flint (Belv.); Practical Anatomy, Dr. Irving S. Haynes (University); Materia Medica and Therapeutics, Dr. Henry P. Loomis (Univ.); Obstetrics, Dr. Wm. T. Lusk (Belv.); Gynecology, Dr. Wm. M. Polk (Univ.); Theory and Practice of Medicine, Drs. A. Alexander Smith (Belv.) and W. Gilman Thompson (Univ.); Surgery, Dr. Lewis A. Stimson (Univ.); Chemistry, Physics and Toxicology, Dr. Rudolph A. Witthaus (Univ.); Anatomy, Dr. George Woolsey (Univ.).

EMERITUS PROFESSORS.—Chemistry, Dr. R. Ogden Doremus (Belv.); Medical Jurisprudence and Psychological Medicine, Dr. Alexander E. Macdonald (Univ.); Otology, Dr. Chas. I. Pardee (Univ.); Orthopedic Surgery, Dr. Louis A. Sayre (Belv.); Materia Medica and Therapeutics, Dr. William H. Thomson (Univ.); Dermatology, Dr. Henry G. Piffard.

ADJUNCT AND ASSISTANT PROFESSORS.—Obstetrics, Dr. J. Clifton Edgar (Univ.); Practical Anatomy, Dr. John F. Erdmann (Belv.); Surgery, Dr. Frederick W. Gwyer (Univ.); Medicine, Dr. Egbert LeFevre (Univ.); Chemistry, Dr. J. A. Mandel (Belv.); Anatomy, Dr. George D. Stewart (Belv.); Chemistry and Physics, Dr. Ivan Sickels (Univ.).

CLINICAL AND SPECIAL PROFESSORS.—Otology, Drs. Edward B. Dench (Belv.), and Gorham Bacon; Diseases of the Nose and Throat, Drs. F. H. Bosworth (Belv.), and Cornelius

G. Coakley (Univ.); Ophthalmology, Drs. Charles S. Bull (Univ.), and Henry D. Noyes (Belv.); Surgery, Dr. Frederic S. Dennis (Belv.); Diseases of the Nervous System, Dr. Edward D. Fisher (Univ.); Genito-Urinary Diseases, Drs. Samuel Alexander (Belv.), and P. A. Morrow (Univ.); Midwifery, Dr. Austin Flint, Jr. (Belv.); Dermatology, Dr. John A. Fordyce (Belv.); Mental Diseases, Dr. Carlos F. MacDonald (Belv.); Diseases of Children, Drs. Wm. P. Northrup (Belv.), and Joseph E. Winters (Univ.); Medicine, Drs. Beverley Robinson (Belv.), and Charles E. Quimby; Lecturer on Orthopedic Surgery, Dr. Reginald H. Sayre.

In the above list there appear the names of but two who did not formerly occupy positions in either Bellevue or the University Medical School, namely, Drs. John P. Munn and J. G. Adami. Dr. Munn is the only member of the Faculty who is also a member of the Council of the University. Dr. Adami is now Professor of Pathology in McGill University, Montreal, and has an international reputation. He is a graduate of Cambridge University, where he formerly held an assistant professorship. It is also announced that Dr. Edward G. Janeway, who preceded the late Dr. Austin Flint in the Chair of Practice of Medicine in the Bellevue Hospital Medical College, but resigned the position some years ago, will be one of the professors in the new Faculty and will give a special course of lectures upon some topic not yet fully determined upon. The chairs of histology and bacteriology have not been filled, and no appointments to them will be made until Dr. Adami's arrival in New York. Dr. Munn is to be Dean, and Dr. Egbert LeFevre, Secretary of the Faculty. Up to the previous time Dr. W. T. Lusk has been President, and Dr. Austin Flint, Secretary of the Bellevue School, and Dr. C. I. Pardee, Dean of the University Medical School.

THE MORTALITY RATE DIMINISHES.—There has of late been a notable diminution in the mortality of the city. During the week ending May 8th there were reported 770 deaths against 815 in the previous week, and in the week ending May 15th, the number was reduced to 709. The decrease is especially marked in the mortality from pneumonia and tuberculosis, the deaths from the latter declining from 106 in the week ending May 8th to 62 in the week following. As the season advances influenza is on the wane, the number of deaths decreasing from 11 to 4. Small-pox also seems to be disappearing, and in the last week but one death from it was reported.

Miscellaneous.

ANTIVISECTION IN THE DISTRICT OF COLUMBIA.

IN connection with the receipt of Public Document 31, Part 2, which is entitled a "Second Memorial from a Joint Committee of the Medical and Other Scientific Societies and Educational Institutions of the District of Columbia, protesting against the Proposed Legislation Embodied in Senate Bill, 1552, entitled 'A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia,' and Presenting their Views on

the Same," we print the following extract from the *Congressional Record* of May 13, 1897:

PREVENTION OF CRUELTY TO ANIMALS.

Mr. Gallinger.—I am directed by the Committee on the District of Columbia, to whom was referred the bill (S. 1063) for the further prevention of cruelty to animals in the District of Columbia, to report it favorably without amendment, and submit a report thereon. I desire to enter a request that 500 additional copies of the bill be printed for the use of the Committee on the District of Columbia.

The Vice-President.—Is there any objection to the request made by the Senator from New Hampshire? The Chair hears none, and the order to print 500 additional copies will be made.

Mr. Gallinger.—In connection with the report submitted a moment ago, I desire to give notice that I shall endeavor to have the bill called up for consideration at a very early day. A favorable report was made on a similar bill during the first Session of the Fifty-fourth Congress, but in deference to the wishes of Senators I did not press it for consideration. It is a matter of great importance, and I simply desire now to give notice, so that the Senate may understand it, that I shall endeavor to get early consideration for the bill.

The Vice-President.—The bill will be placed on the Calendar.

THE LATE DR. WILLIAM G. WHEELER.

RESOLUTIONS OF THE GYNECOLOGICAL SOCIETY OF BOSTON.

At a regular meeting of the Gynecological Society of Boston, held May 13, 1897, the following resolutions were unanimously adopted:

Resolved, That this Society learns with deep regret of the death of Dr. Wm. G. Wheeler, an honorary member, a former president, and one of its original founders.

Resolved, That our late comrade was not only distinguished for his great surgical skill, and for acute perception of the salient points of diagnosis, but also for exceptional kindness of heart and for untarnished honor. His interest in the Society's welfare continued to the last, notwithstanding advanced age and infirmities. We shall all miss his genial presence.

Resolved, That a copy of these Resolutions be sent to his family and also to the *Boston Medical and Surgical Journal*.

Obituary.

DR. W. B. CUSHMAN.

DR. WILLIAM B. CUSHMAN, of Oxford, Mass., whose death was noted in the *JOURNAL* of last week, was an able and successful practitioner, and a man who had in a high degree the confidence and respect of the community in which he practised.

He was born in Roxbury, Mass., in 1856. He graduated at the Roxbury Latin School, Harvard College and Harvard Medical School, after which he held the position of demonstrator of anatomy in the Bowdoin Medical School for a time. He began practice at Cumberland Mills, Me., after studying two years at the Eye and Ear Infirmary at Boston. He came to Oxford in 1880, soon won a reputation for skill and devotion in the treatment of his cases, and had been in the active exercise of his profession up to the time of his death.

It is reported that his last illness was brought on by overwork and exposure incident to his professional duties. He was a censor of the Massachusetts Medical Society. A widow and two sons survive him. During the hour of his funeral service all the stores in Oxford were closed, and business was suspended in his honor.

METEOROLOGICAL RECORD

For the week ending May 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S... 2	29.94	44	46	41	98	96	97	N.E.	N.	20	12	O.	O.	1.14
M... 3	29.86	50	56	44	98	100	99	N.E.	E.	8	7	O.	G.	.05
T... 4	29.91	55	66	44	85	63	74	S.W.	S.	10	12	C.	C.	.30
W... 5	29.94	52	61	41	85	52	68	N.W.	S.E.	6	1	F.	C.	
T... 6	30.06	54	60	47	73	63	68	N.E.	N.E.	13	3	C.	C.	
F... 7	30.12	47	51	43	73	85	79	N.E.	E.	6	13	C.	C.	
S... 8	30.30	50	62	39	83	56	60	N.	N.W.	14	6	F.	O.	
Mean														1.49

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; S., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 8, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	770	272	13.52	17.03	1.82	.26	7.02	
Chicago	1,619,226	424	138	10.56	19.92	4.32	.96	2.64	
Philadelphia	1,214,256	418	122	10.32	19.36	.48	2.4	4.32	
Brooklyn	1,100,000	359	153	9.52	16.52	.56	.28	5.04	
St. Louis	570,000	188	39	5.30	15.90	1.59	1.06	2.12	
Baltimore	550,000	145	46	8.84	9.52	2.72	1.36	2.04	
Boston	517,732	201	63	18.00	14.00	1.00	.50	6.50	
Cincinnati	405,000	90	—	11.11	8.88	1.11	2.22	5.55	
Cleveland	360,000	76	19	2.62	15.72	—	1.31	—	
Pittsburg	275,000	80	29	13.75	11.25	5.00	3.75	—	
Washington	277,000	75	21	3.99	11.97	—	1.33	1.33	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	87,764	26	4	3.85	11.55	3.85	—	—	
Charleston	65,165	34	15	11.76	8.82	11.76	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Worcester	105,000	39	10	5.12	4.21	—	—	—	
Fall River	95,919	33	15	9.09	21.21	9.09	—	—	
Lowell	87,133	37	14	8.10	27.00	—	2.70	5.40	
Cambridge	86,812	25	7	4.00	8.00	—	—	4.00	
Lynn	65,220	17	2	—	17.64	—	—	—	
New Bedford	62,416	23	6	4.35	8.70	—	4.35	—	
Lawrence	55,510	20	3	—	10.00	—	—	—	
Springfield	54,790	19	7	15.78	15.76	—	5.26	—	
Holyoke	42,304	—	—	—	—	—	—	—	
Salem	36,062	12	5	—	—	—	—	—	
Brockton	35,853	10	3	10.00	—	—	—	—	
Malden	32,854	11	4	27.27	18.18	—	—	9.09	
Chelsea	32,716	9	1	—	11.11	—	—	—	
Haverhill	31,415	10	5	10.00	10.00	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg	28,392	8	2	—	37.50	—	—	—	
Taunton	27,812	18	5	11.11	11.11	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	7	2	—	—	—	—	—	
Everett	21,575	5	3	—	20.00	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	6	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,202; under five years of age 1,045; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fever) 349, acute lung diseases 489, consumption 387, diphtheria and croup 135, diarrheal diseases 60, typhoid fever 36, scarlet fever 30, cerebro-spinal meningitis 30, measles 26, whooping-cough 21, erysipelas 8, small-pox 3.

From scarlet fever New York 7, Philadelphia 6, Boston 5, Brooklyn 4, Chicago 3, St. Louis, Worcester, Brockton, Haverhill and Taunton 1 each. From cerebro-spinal meningitis Boston 13, Somerville 6, New York 5, Pittsburg and Malden 2 each, Cleveland and Worcester 1 each. From measles New York and Brooklyn 7 each, Chicago 5, Philadelphia 3, Pittsburg and Springfield 2 each. From whooping-cough New York 9, Philadelphia and Baltimore 3 each, Chicago and Cincinnati 2 each,

Boston and Washington 1 each. From erysipelas New York 4, Chicago, Baltimore, Boston and Providence 1 each. From small-pox New York 2, Somerville 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,982,524, for the week ending May 1st, the death-rate was 18.3. Deaths reported 3,854; acute diseases of the respiratory organs (London) 273, measles 110, whooping-cough 104, diphtheria 55, scarlet fever 32, diarrhoea 31, fever 19.

The death-rates ranged from 9.9 in West Ham to 28.9 in Salford; Birmingham 20.7, Bradford 16.2, Cardiff 13.8, Gateshead 15.5, Hull 21.8, Leeds 17.3, Liverpool 22.2, London 16.8, Manchester 25.2, Newcastle-on-Tyne 19.7, Nottingham 15.7, Plymouth 12.8, Sheffield 22.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 8, 1897, TO MAY 14, 1897.

Leave of absence for one month, with permission to apply for an extension of two months, is granted CAPTAIN R. K. BALL, assistant surgeon, U. S. Army, Fort Adams, R. I.

COLONEL WILLIAM H. FORWOOD, assistant surgeon-general, MAJOR LOUIS M. MAUS, surgeon, CAPTAIN RUDOLPH G. EBERT, assistant surgeon, are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Medical Association, to be held in Philadelphia, Pa., June 1 to 4, 1897.

The leave of absence granted CAPTAIN NATHAN S. JARVIS, assistant surgeon, is extended to July 1, 1897, at which time his resignation has been accepted by the President to take effect.

FIRST-LIEUT. PAUL F. STRAUB, assistant surgeon, is assigned to duty with Troop C, 4th Cavalry, during the season at Sequoia National Park and General Grant National Park, California.

CAPTAIN MERRITT W. IRELAND, assistant surgeon, is assigned to duty with Troop K, 4th Cavalry, during the season at Yosemite National Park, California.

FIRST-LIEUT. GUY C. M. GODFREY, assistant surgeon, now on temporary duty at St. Paul, Minn., will proceed on the 15th instant to Fort Yellowstone, Wyo., and report to the commanding officer for temporary duty with troops in the National Park, during the season.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING MAY 8, 1897.

PROMOTION.

E. K. SPRAGUE, assistant surgeon, commissioned as passed assistant surgeon. May 7, 1897.

MASSACHUSETTS MEDICAL SOCIETY. ONE HUNDRED AND SIXTEENTH ANNIVERSARY.

The annual meeting will be held at 9 o'clock A. M., Wednesday, June 9, 1897, in the building of the Massachusetts Charitable Mechanic Association, on Huntington Avenue, Boston.

Meetings of Sections will be held in the same building, on the preceding day, Tuesday, June 8th.

TUESDAY, JUNE 8, 1897.

At 10 A. M., the Fellows of the Society are invited to visit the Massachusetts General Hospital on Blossom Street; the Boston City Hospital on Harrison Avenue; the Children's Hospital on Huntington Avenue, and the Carney Hospital, South Boston. The new Clinical Laboratories at both the Massachusetts General and the Boston City Hospitals will be open for inspection.

At 1 P. M., in Cotillion Hall, the Shattuck Lecture will be delivered by Dr. D. W. Cheever, of Boston; subject, "The New Surgery."

At 2.30 P. M., in Banquet Hall, meeting of the Section in Medicine. Dr. C. E. Steadman, of Dorchester, Chairman; Dr. G. G. Sears, of Boston, Secretary. General Subject, "Dyspepsia and Dietetics." Papers will be read as follows:

"General Remarks on Dyspepsia," by Dr. E. G. Cutler, of Boston; "Food Nostrums," by Dr. Charles Harrington, of Boston; "Treatment of Constipation," by Dr. Frauz Pfaff, of Boston; "Enteroptosis," by Dr. Mary P. Dole, of Greenfield.

At 2.30 P. M., in Cotillion Hall, meeting of the Section in Surgery. Dr. G. W. Gay, of Boston, Chairman; Dr. J. C. Munro, of Boston, Secretary. General Subject, "Chapters in Ophthalmology and Otolaryngology." Papers will be read as follows:

"On the Occurrence of Retinal Hemorrhage after Middle Age and its Bearing on the Duration of Life," by Dr. Hasket Derby, of Boston; "Anomalies of Muscular Balance," by Dr. O. F. Wadsworth, of Boston; "Some Phases of Lachrymal Trouble and their Treatment," by Dr. David Harrower, of

Worcester; "Contagious Conjunctivitis," by Dr. Myles Standish, of Boston; "Convergent Squint," by Dr. C. H. Williams, of Boston; "Purulent Ophthalmia from the Bacteriological Standpoint," by Dr. W. J. Daly, of Boston; "Brain Complications of Diseases of the Ear," by Dr. J. O. Green, of Boston; "The Fatigue of Deafness," by Dr. C. J. Blake, of Boston; "Nasal Obstruction with Reference to Aural Diseases," by Dr. G. A. Leland, of Boston; "Some of the More Common Affections of the Ear and their Treatment," by Dr. H. L. Morse, of Boston; "Some of the Indications for Opening the Membrana Tympani," by Dr. F. L. Jack, of Boston; "The Ear Complications of Typhoid Fever," by Dr. E. M. Holmes, of Boston.

Reading of the ophthalmological papers will begin promptly at 2.30 P. M.; of the aural papers at 3.30 P. M. Each contributor will be allowed ten minutes, only, in which to read his paper or its abstract. Papers for publication are not necessarily limited.

WEDNESDAY, JUNE 9, 1897.

At 9 A. M., in Cotillion Hall, the Annual Meeting will be held. The following papers will be read:

"The Diagnostic Value of the Examination of the Blood Serum," by Dr. R. C. Cabot, of Boston; "Fistula in Ano: its Palliative and Operative Treatment," by Dr. J. B. Blake, of Boston; "Some of the Uses of the Röntgen Rays in Medicine," by Dr. F. H. Williams, of Boston; "Medical Inspection of Schools," by Dr. S. H. Durgin, of Boston.

Introduction of delegates.

At 12 M., the Annual Discourse, by Dr. Z. B. Adams, of Framingham.

At 1 P. M., at the close of the discourse, the Annual Dinner will be served.

BUREAU OF INFORMATION.

The Bureau of Information which was established two years ago will be continued during the coming meeting. The object of the Bureau is to furnish information of any kind to members and to add in every way possible to their comfort and pleasure while in Boston.

EXHIBIT.

On Tuesday and Wednesday, in Mechanic Building, from 9 A. M. to 5 P. M., there will be an Exhibit, including the usual features.

A valuable collection of original paintings and x-ray photographs, representing pathological specimens and anatomical dissections, will be exhibited.

In addition to the above special exhibit, there will be a display of surgical instruments, books, electrical and orthopedic apparatus, artificial limbs, trusses and carriages.

There will be a demonstration of the x-rays taken by the Röntgen process.

COUNCILLORS' MEETINGS.

The Annual Meeting, at 7 o'clock P. M., Tuesday, June 8, 1897; Stated Meetings on the first Wednesday in October and in February, at the Medical Library, No. 19 Boylston Place, Boston.

FRANCIS W. GOSS, M.D., *Recording Secretary*.
217 Warren Street, Roxbury.

SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION.—The forty-fifth annual meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 2, 3 and 4, 1897.

DR. CHAS. D. SMITH, *Recording Secretary*, Portland.

NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.—The seventh annual meeting of this Association will be held at the Hotel Walton, Philadelphia, Monday, May 31, 1897, beginning at 10 o'clock A. M.

Members and ex-members of State Medical Examining Boards, physicians and educators who are interested in the cause of higher medical education are cordially invited to attend.

WILLIAM W. POTTER, M.D., *President*, Buffalo, N. Y.
A. WALTER SUITER, M.D., *Secretary*, Herkimer, N. Y.

RECENT DEATHS.

DR. MAISONNEUVE died recently at Nantes, his native town, in his eighty-eighth year. He was one of the most eminent surgeons of Paris in the days of the Second Empire. He was on the staff of the great hospitals of La Pitié, the Hôtel Dieu and Cochin, and he wrote several standard works on surgical subjects. The urethrotome which bears his name is a valuable instrument, even at the present day, and has not been superseded in the treatment of a certain class of cases.

MR. LOUIS PASCAL CASELLA died at Highgate on April 23d, aged eighty-six years. He will be remembered as the author of many important improvements in scientific apparatus of various kinds, and in particular of the clinical thermometer. Sir William Aitken has perhaps the best claim to be regarded as the pioneer of medical thermometry in England, and Mr. Casella has the credit of being the first maker, if not the inventor, of the clinical thermometer.

Lecture.

THE DIFFERENTIAL DIAGNOSIS OF THE ACUTE EXANTHEMATA, WITH ESPECIAL REFERENCE TO SCARLET FEVER.¹

BY T. M. ROTCH, M.D., BOSTON.

GENTLEMEN:—Your Professor of Diseases of Children, Dr. W. P. Northrup, has honored me so far as to ask me to open his course on the Exanthemata, and it gives me great pleasure to comply with his wishes.

What I tell you must necessarily, from the time which is given to this lecture, be limited to a few important facts concerning the exanthemata as a group, and to a few salient points concerning the most important of this group, scarlet fever.

In contradistinction to the various diseases of the skin which dermatologists are accustomed to designate as exanthems of local origin are certain acute, specific, infectious diseases which are called the exanthemata. The exanthemata occur most commonly among children, and are practically self-protective, the exceptions being when they develop in an individual more than once.

The exanthemata comprise five diseases, — variola

special, and of the differential diagnosis between the various members of this group you should understand that, though the efflorescence is important, it is not necessarily the essential or exclusive factor of the problem. Thus a papular efflorescence, although significant in most cases of measles, may also be present in other members of the group; while an erythema closely resembling scarlet fever may occur in variola, measles or rubella. You should, therefore, be familiar with the characteristics of all the stages of these diseases, as it is by a careful consideration of the pictures which they present to us as a whole that we avoid being misled by what may or may not occur in any one of the stages, and in fact thus only can be made a correct differential diagnosis in the atypical cases which at times confront us. It is the experience of those in charge of the contagious hospitals that patients supposed to have variola or scarlet fever, from the efflorescence which they present, are sent to the hospital, when no variola, but varicella exists; when no scarlet fever, but measles, or even diphtheria, exists. Again, since antitoxin injections have been used, a class of efflorescences has arisen, the result of such injections, which simulates so closely both scarlet fever and measles that we cannot distinguish them

	VARIOLA.	VARICELLA.	MEASLES.	RUBELLA.	SCARLET FEVER.
Incubation	12 days.	17 days.	10 days.	21 days.	4 days.
Prodromata	3 days.	A few hours.	3 days.	A few hours.	2 days.
Efflorescence	Macules. Papules. Vesicles. Pustules.	Vesicles.	Papules.	Papules.	Erythema.
Desquamation	Large crusts.	Small crusts.	Furfuraceous.		Lamellar.
Complications and sequelæ . .	Larynx. Lungs.		Ear. Lung. Tuberculosis.		Kidney. Ear. Heart.

(small-pox), varicella (chicken-pox), measles (rubeola), rubella (German measles, r  theln), and scarlet fever.

This group of diseases is characterized by certain conditions common to all. They run a definite course and are self-limited. Each member of the group is supposed to have its own special micro-organism which produces it, but none of these organisms have as yet been discovered. The course of all of these diseases from the time when infection takes place up to the appearance of their later manifestations may be divided into four distinct stages:

(1) The stage of incubation, during which the micro-organism has entered the individual and, so far as external manifestations are concerned, is lying dormant.

(2) The prodromal stage, when certain general symptoms appear, varying according to the characteristics of the special member of the group represented.

(3) The stage of efflorescence, during which an efflorescence appears on the skin.

(4) The stage of desquamation.

You will see by this table how the different stages vary according to the member of the group in which they occur. One of the first points to which I wish to call your attention is that in the recognition of a

from these diseases, and when, too, these cases are added to efflorescences arising from a number of drugs, such as belladonna, we are forced to admit that it is not safe in making a differential diagnosis between the acute exanthemata to depend on the character of the efflorescence.

Keeping this table before you, I will briefly refer to its contents.

The length of the stage of incubation in variola is about twelve days, in varicella about seventeen days, in measles about ten days, in rubella about twenty-one days, and in scarlet fever about four days.

The characteristic prodromata of typical cases of variola is three days in length, and in young infants is commonly represented by convulsions, restlessness, quick pulse and high temperature (104  , 105   or 106   F.). In varicella it is a few hours in length, and only shows slight malaise. In measles it is three days in length, with heightened temperature (101  , 102   or 103   F.), cough, coryza and lachrymation. In rubella it is only a few hours in length, with slightly heightened temperature and malaise; and in scarlet fever it is one or two days in length, and accompanied by apathy, nausea, vomiting, sore throat and high temperature (103  , 104   or 105   F.). Observe how different are these groups of symptoms in their prodromal stages, and how valuable they are for differential diagnosis.

¹ The Opening Lecture in the Course on Children, delivered by invitation of the faculty at the Bellevue Hospital Medical College, New York, December 16, 1896.

There is also a peculiar range of temperature characteristic of each disease. In variola, a rapid rise of temperature on the first day to 104° or 105° , and remaining at about this height to about the third day, with slight remissions in the morning, and a decided fall in temperature almost to the normal on the fourth day (this period being called the fever of invasion), then a slightly raised temperature on the fifth and sixth days, and a rise to 104° or 105° again on the seventh, eighth and ninth days (the fever of suppuration), and then falling by lysis to the normal at about the thirteenth or fourteenth day.

In varicella, a slight rise of temperature with the appearance of each successive group of vesicles, the temperature falling to the normal in a few days.

In measles, a sudden rise on the first day, then falling almost to the normal on the second day, and again rising on the third day as the efflorescence appears, remaining up for two or three days, and then on the fifth or sixth day dropping by crisis, or a broken crisis, and becoming normal on the seventh, eighth or ninth day.

In rubella, a slightly raised temperature lasting for a few days.

In scarlet fever, rising steadily for four or five days, and falling by lysis to the normal at about the tenth or eleventh day.

We now arrive at the stage of efflorescence, which in variola consists of macules, papules, vesicles and pustules, all developing one from the other in slow progression. In varicella, vesicles develop from macules and papules so rapidly that we speak of the lesion as essentially vesicular. In measles, papules. In rubella, papules; and in scarlet fever a punctate erythema.

Let us now for a moment observe the topography of the different members of the group. What is the geographical distribution on the skin characteristic of each of these diseases? Supposing that we make certain arbitrary divisions, the head, the neck, and the thorax, and observe in which of these areas the efflorescence is most apt to begin in the several diseases. This is a very important point, and is often of great aid in making the differential diagnosis of a doubtful case. Thus in variola the efflorescence is most apt to begin on the forehead; in varicella on the face, behind the ears, and on the back; in measles on the face; in rubella on the face and thorax, being rather irregular in its distribution; while in scarlet fever it first appears on the neck and thorax.

As illustrating the locality and appearance of these efflorescences, I will now show you first a case of varicella.

This little girl, after feeling sick for a few hours, presented this vesicular efflorescence on her face and back, which then quickly covered the whole body. You will notice that the face is not swollen.

This second case, a little girl six years old, you will notice has a papular efflorescence on her face, which is much swollen. It is a case of measles. The papules, as you see, have coalesced on the face, and the whole face has a blotchy appearance. This in connection with a few papules on the chest, some of them arranged in rather a concentric shape, and somewhat lighter in color than those on the face, complete the typical picture of the disease, measles, which you see in comparison with the next case which I shall show you, has an ugly and almost repulsive appearance.

This next case, on the contrary, which is one of scarlet fever, is an essentially becoming disease. The eyes are bright and clear, where those of measles were dull and reddened. The skin of the forehead and nose, and about the mouth is white and smooth in comparison with the rough, congested skin in the case of measles. This boy, as you see, presents the efflorescence of scarlet fever, a punctate erythema, markedly located on the neck and thorax, so that the mere location of the efflorescence would make us state at once that one was a case of measles and the other of scarlet fever.

As to the remaining points of differential diagnosis in the exanthemata, I have only time to state that the stage of desquamation shows in variola large crusts, in varicella small crusts, in measles a fine furfuraceous mealy condition of the skin. Rubella, as a rule, shows no desquamation; and in scarlet fever there is a lamellar desquamation often amounting to large strips of skin.

The complications and sequelæ of the different members of the group differ according to the disease. Those which are particularly to be thought of and apprehended are, in variola, an invasion of the larynx and the lungs; in varicella, nothing especial; in measles, the eye, the lung, and a tendency to general tuberculosis; in rubella nothing especial; and in scarlet fever the kidney, ear, and heart.

I shall now, gentlemen, occupy the remainder of the time allotted to me in speaking of certain important conditions connected with the disease scarlet fever. Scarlet fever is one of the group of exanthemata, and is characterized by a short incubation, a short prodromal stage, erythematous efflorescence, a pronounced desquamation, and a long course. The micro-organism which produces it has not yet been discovered. The streptococci which are so often found in this disease seem to be merely manifestations of a secondary infection, as they do in diphtheria. So far as infants and young children are concerned, scarlet fever is the most important of all the exanthemata. Not being controlled by vaccination, as is variola, it occurs far more frequently than does that disease. Its complications are so much more serious, and its sequelæ so much more common and grave than measles or varicella that a thorough knowledge of all its manifestations is exceedingly important to the physician whose practice is among children.

Scarlet fever is the most irregular of all the exanthemata in its virulence and in the manifestations which it presents in different individuals. The skin appears to be the chief vehicle of the contagium, which has a wonderful tenacity for clothing and other articles, and may be capable of reproducing the disease for many months. In contradistinction to measles, which is known to be highly infectious in the early stage, scarlet fever appears to be most infectious in the later stages, and the contagium to be most likely to be disseminated during the stage of desquamation. As illustrative of this fact, I will report to you the cases of two children who were under my care a few years ago.

A boy six years old and a girl four years old slept in the same room, with their beds touching each other. The boy was taken sick May 1st, but remained in the same room with his sister during that day and the following night. He was seen by me early on the morning of May 3d, and was then found to have scar-

let fever. His sister was taken to the country and the boy was left in charge of a trained nurse. There was absolutely no communication between the town-house and the country-house, either by people, clothes or letter. I myself did not again see the boy during his sickness, having placed him under the charge of another physician.

On June 1st, I was called to see the girl, and found that she had scarlet fever. There were no other cases of scarlet fever in the vicinity of the country-house where she had remained since leaving the city.

The boy at this time was desquamating freely, and four days previous to the girl's being taken sick a letter written by him had been sent to her, and she, after having had it read to her, had been allowed to keep it under her pillow.

A careful study of this case led to but one conclusion, that the boy during the period of his desquamation had infected his sister at a distance of twenty miles by enclosing the contagium of scarlet fever in an envelope. The girl, although she had been in the same room with the boy for thirty-six hours at the beginning of the disease, and although susceptible to the disease, had not contracted it at that time, owing to its very slightly infectious nature in its early stages. On the other hand, the incubative stage of scarlet fever being only a few days, and many instances having proved that the disease is very infectious during its period of desquamation, it was evident that the girl had been infected by means of the letter.

In the following year, on May 20th, I was again called to see the same boy. He had been well in the morning, but in the afternoon was found to have a high pulse and temperature, with coryza and lachrymation, so that it was deemed best to send the sister, who had been in the nursery only a few hours with her brother after he had been taken sick, to another house, while the boy was absolutely isolated. Three days later the boy was found to have measles. Ten days later the girl was attacked by measles. This case merely emphasizes the now commonly accepted belief that measles, in contradistinction to scarlet fever, is highly infectious in the early hours of the disease.

Scarlet fever may occur at all ages but the vulnerability to the disease is decidedly lessened after the tenth year. There is no drug which will prevent scarlet fever or cure it. It is a self-limited disease, and is apparently benign or malignant according to the vulnerability of the individual. Thus we may meet with many cases where the symptoms are so mild and the convalescence so rapid that the disease runs as uneventful a course as does the usual case of measles. Again, in the same family at the same time another child may be attacked with severe prodromal symptoms, convulsions, delirium, and later uremia, endocarditis, or purulent otitis media. These cases are not necessarily fatal but, rendered dangerous from the gravity of their sequelæ, may still be considered benign in comparison with a third class of cases, which also may arise in the same family with the benign cases, but which is so terrible in its manifestations and so universally fatal that it can well be called malignant.

Bearing in mind what I have just told you, you will, I know, agree with me that we should discountenance the opinion so often expressed by the laity, and too often supported by the physician, that it is well for children to have scarlet fever while they are young

and get through with it, on the ground that they may contract it at a later period of life when the type of the disease may be more severe. The assertion that the type of the disease is more severe in adults than in children is not corroborated by my experience. In either case it is probably the individual vulnerability which makes the disease benign or malignant, and we have no right to encourage the parents by our advice to take the risk and responsibility of testing whether the individual child happens to have or not a special vulnerability to the scarlet fever organism, and whether it will contract the infection and the benign or malignant form of the disease result. On the other hand, the sequelæ are far more dangerous and far-reaching in the child than in the adult. For instance, a large proportion of our deaf mutes have had their deaf-mutism originate in an otitis secondary to scarlet fever. The commonly occurring and often intractable form of otitis which accompanies scarlet fever may not only render the child deaf, but in a case where the child has not learned to talk, may lead to deaf-mutism.

There are, then, three distinct types of scarlet fever apparently caused by the same micro-organism, but determined by the vulnerability of the individual. The first benign and harmless; the second benign, but dangerous from its complications and sequelæ; and the third malignant. The first and third types can, after what I have told you, be described in a very few words.

In the first class, for instance, a child four years old, exposed to scarlet fever four days previously is on the fourth day attacked with vomiting, a reddened throat, a temperature of 104° F., and thirty-six hours later a punctate erythema appearing first on the neck and thorax and later extending to the arms, face and legs. No other symptoms arise during the course of the disease and the temperature falls slowly to the normal, as I have shown you when describing the comparative temperatures of this group of diseases. Desquamation of a lamellar character occurs in the second or third week. In these cases the urine is usually lessened during the height of the fever, gradually returns to the normal as the temperature falls, and during the stage of desquamation increases to such an extent as to almost represent a polyuria, this being a conservative effort of nature to restore the function of the kidney to the normal. In these cases the throat though reddened often does not cause sufficient discomfort to demand especial attention.

The differential diagnosis from measles in the prodromal stage by the appearance of the throat is as follows: In scarlet fever there is a general intense redness of the whole throat, including the hard palate. The entire mucous membrane is affected, and the small dots, which in connection with the hyperemic condition of the skin represents the condition of a punctate erythema from being localized on the moistened mucous membrane, have a little darker appearance than the adjacent reddened tissue. In measles, on the contrary, the mucous membrane of the throat has a blotchy appearance and is of a darker red than is seen in scarlet fever, while the mucous membrane between these blotches is but slightly congested in comparison with that of scarlet fever.

In these benign cases the diet should be entirely of milk, because in all cases of scarlet fever, even of the mildest character, there is in all probability a tendency

to nephritis, and if a nephritis develops, a diet of milk is the best treatment for the disease.

This first type of scarlet fever, therefore, is essentially benign, requires no drug treatment, and will do well with careful nursing, unless a nephritis is precipitated by injudicious diet or nursing.

The third or malignant type of cases can be described in still fewer words. We know of no treatment which is of the slightest avail in these cases. They all die. The streptococcus toxin in the future may be of some avail where the violence of the symptoms depends upon the secondary infection, but in all probability it is the primary micro-organism of scarlet fever which in this class of cases kills the child. Until this primary micro-organism has been discovered and its toxin produced, we shall probably never be able to cure the disease. It may perhaps impress this class of cases on your minds for me to describe a case which I saw some years ago in consultation.

A girl, eleven years old, was perfectly well and strong, and had no other diseases up to January 10th. In the middle of the day she felt very ill and vomited. Her pulse was 150, and her temperature was 104.5° F. The pharynx and tonsils were much reddened, but there was no exudation or membrane to be seen. An efflorescence of a scarlatinal type appeared on the chest in the afternoon. The vomiting continued through the night and up to the morning of January 11th. The child was conscious, but dull. The pulse was 150, and the temperature was 105° F. At 4 p. m. the face became puffy, and the efflorescence was well marked on the body and extended to the extremities. The child was wandering and stupid and the temperature rose to 108° F. The extremities became livid and the vomiting began again. At 6.30 p. m. the temperature, after the internal administration of various remedies, was found to be 107° F., and at 10 p. m. 106° F., and the pulse 160, weak, and difficult to count. At 6 a. m. on the 12th, forty-eight hours from the appearance of the first symptoms, the child died.

The case was a perfectly hopeless one from the beginning, as every method of treatment which could be thought of was tried and proved absolutely fruitless. Tub-bathing with water at different temperatures, and finally sponging with ice-water, had no effect whatever on the temperature or the general symptoms.

The second type of what I have called the benign cases of scarlet fever is of much interest and is well worthy of study. While there is no treatment by drugs for the first and third types, which I have just spoken of, and no known treatment of any kind which will cure the third, there is no class of diseases in children which needs more general treatment, including drugs, and gives more satisfactory results than this second class of cases. Children have such wonderful recuperative powers that even the seemingly desperate cases may recover, and organs apparently crippled be restored to a fair working capacity. As in every disease, a knowledge of the pathology is of primary importance if we expect to intelligently make the diagnosis and carry out the treatment, so in this more serious class of cases of the benign form of scarlet fever we should appreciate what organs are affected, and what morbid conditions are most likely to be met with.

The organs primarily affected in scarlet fever are the skin and the throat.

The principal complications which arise in the

course of the disease are connected with the ear and the cervical glands.

The chief sequela, and the only one which is at all common, is nephritis. Cardiac disease, commonly secondary to the nephritis, may occur. Lesions of the other organs are unusual, and have no direct connection with the scarlet fever. They are due partly to the fever and partly to the septic processes which have arisen in the course of the disease, and are represented, as would naturally be expected, by a congested condition of the various internal organs, and by the usual changes which are found in pleuritis, pericarditis, endocarditis and meningitis.

The Skin. — Macroscopically the morbid conditions of the skin in scarlet fever, though varying in their manifestations, are usually represented by an intense general erythema, covered thickly with minute macules which are of a darker red than the accompanying hyperemia. Minute white spots may also appear thickly scattered over the reddened surface, probably arising from areas of unaffected skin existing in the midst of the general hyperemia. No evidence of this hyperemic condition, which is so pronounced during life, is found after death.

According to Neumann, microscopic examinations of the skin explain in a measure why scarlet fever is so much more likely to be infectious during the stage of desquamation than is measles. In contradistinction to the pathological processes which are found in the skin in measles, and which affect chiefly the blood-vessels and glands, a very different picture is presented on examination of sections of skin taken from scarlet fever. In the latter we find the pathological process represented especially by exudative cells, which are very numerous and are closely packed together, reaching even up to the horny layer of the epidermis. Occasionally these exudative cells may finally take the place of the epidermal cells, appearing on the free surface of the skin, and are gathered thickly among the excretory ducts of the cutaneous follicles. You will thus readily understand why the tissue proper of the skin and its epidermis presents no marked changes in measles, and why the epidermal cells are far less likely to carry the contagium than in scarlet fever where the possibility of contagion exists until the desquamation has entirely ceased.

The Throat. — The earliest lesions of scarlet fever appear on the mucous membrane of the hard and the soft palate. This appearance is very similar to the efflorescence which is seen on the skin, except that the minute white spots do not appear on the congested mucous membrane. The pathological conditions which occur in the throat in scarlet fever may be either simply catarrhal or the result of one of the more severe inflammatory conditions affecting the tonsils, the pharynx and the larynx.

One of the most marked features of scarlet fever is the predisposition which it entails to the incursion of pathogenic germs other than those which we believe to cause this disease. Thus, in addition to the inflammatory lesions produced by the scarlet fever organism, an acute exudative inflammation of the mucous membrane apparently caused by the streptococcus pyogenes may be associated with them. We may conclude indeed that in scarlet fever the mucous membrane of the throat is rendered peculiarly vulnerable to the invasion of pathogenic germs, and that where the morbid condition in the throat is represented by a pseudo-mem-

brane it will be found in the great majority of cases that the process is due to streptococci. On the other hand, where diphtheria is prevalent and the opportunities are favorable for exposure, a large portion of the cases may be due to the Klebs-Löffler bacillus.

In addition to the lesions of the throat just described, the micro-organism of scarlet fever may attack the naso-pharynx. In this way also by direct extension through the Eustachian tubes secondary aural lesions may be produced. The morbid changes in the naso-pharynx which thus take place may result in a thickening of the tissues which in some cases lasts for many months after the fever has run its course.

The Ear.—The pathological condition of the ear which is most commonly met with in scarlet fever is an acute inflammation of the middle ear. This inflammation is likely to result in the destruction of tissue, the formation of adhesions, the establishment of a long-continued suppurative process, and an accompanying necrosis.

Cervical Glands.—There may be hyperplasia of the cervical lymph-nodes. This condition is sometimes accompanied by inflammatory edema of the tissues of the neck, which may go on to suppuration and even to gangrene. In these cases streptococci are found in the glands and in the areas of suppuration. The infection is supposed to originate in the throat. The enlarged glands are, as a rule, indicative of secondary or mixed infection though it is possible that the slighter forms of enlargement may be due to reflex irritation with resulting hyperplasia from the scarlet fever contagium. In the severe form the glands are at times very much enlarged, and where a gangrenous process results the blood-vessels may be affected to such an extent as to be ruptured.

The Kidney.—In scarlet fever, as in a number of other infectious diseases, there are certain poisons produced in the course of the disease which are probably soluble in character. The result of bacteriological cultures in scarlet fever have shown that in a number of cases there is a general streptococcus infection, the infection probably coming from the lesions in the pharynx. In these cases of general infection streptococci may be cultivated from most of the organs of the body, there being a general septicemia. In a number of these cases extensive lesions may be found in the kidneys and yet these lesions may bear no relation whatever to the presence or absence of streptococci. In like manner streptococci may be found in the kidney without any lesion of the kidney. These lesions are diffuse and affect both kidneys and all parts of the kidneys. From the best evidence which we have it would seem that the virus, or whatever it is which produces the lesions in the kidney, is not a living organism but is a soluble chemical poison produced by the organisms of scarlet fever, or by some other organism located in some other part of the body. This soluble poison when produced elsewhere is taken locally into the blood and affects various parts of the economy. In post-mortem examinations of scarlet fever certain lesions will be found in the kidney.

These lesions, according to Councilman, may be divided into two classes: (1) represented by simple degeneration of the epithelium, and (2) represented by marked changes in the tissues of the kidney.

In the first class of cases the soluble poison may only affect the integrity of the capsular epithelial cells of the glomeruli. The poison may produce cer-

tain degenerative changes in these, but need not be accompanied by any proliferation of cells or by any condition which may be characterized as inflammatory. It is more than probable that these simple degenerative lesions are accompanied during life by evidence of albuminuria, and in case death takes place there may be no macroscopic evidence of any lesion in the kidneys. Careful microscopic examination, however, will show a condition of degeneration in the capsular epithelium of the glomeruli. Associated with this there will usually be found cloudy swelling of various degrees of intensity in the cells of the convoluted and the smaller collecting tubules. The degeneration here is rarely of a fatty character. Clinically, in the purely degenerative changes there may be only albuminuria with the presence of faint hyaline casts and here and there a few leucocytes.

In the second class, owing to a greater intensity in the action of the poison, or to some possible difference in its character, more marked changes may take place in the kidney and may be accompanied by the degenerative lesions which are distinctive of the first class. Different forms of lesions may occur in the second class, and, according to the predominance of one form over the other, may characterize a special form of renal disease. Thus these lesions may be divided according to their anatomical distribution into interstitial, where there is a marked proliferation of the interstitial tissue, and glomerular, where the lesions are chiefly confined to the glomerulus and its capsule.

In the interstitial form there may be found in the interstitial tissue between the tubules accumulations of cells which are probably due to a proliferation of cells of the capsule and of the connective tissue. These cells are most of them epithelioid in character and show very few leucocytes mingled with them. This form of nephritis should be considered as purely interstitial, since its lesions are in no way related to those of the epithelial tissue. There is both a general and a focal infiltration of cells in the interstitial tissue. The focal infiltration is found principally in the cortex of the kidney and about the glomeruli, the glomerulus frequently appearing as a centre from which the infiltration extends into the interstitial tissue between it and the surrounding tubules.

Clinically, in this form there may be little evidence of the severity of the lesions. There may be, however, albuminuria corresponding to what is seen in the purely degenerative class. The quantity of the urine may be very little diminished, and casts may be present, as well as a certain number of desquamative epithelial cells and leucocytes.

These lesions are not confined to scarlet fever, but may be found in diphtheria, in measles, and in other infectious diseases of children. They are not common in the infectious diseases of adults.

The other form of nephritis, called the glomerular, is much more frequently found in scarlet fever than is the interstitial form and may be considered almost typical of the disease. In this glomerular form the chief lesion of the disease consists essentially in a proliferation of the capsular epithelium combined with hyperplasia of the connective tissue.

The proliferation of the capsular epithelium leads to the formation of masses of cells within the capsule between the glomerular capillaries and the capsule. These cells evidently result from the proliferation of

the capsular epithelium. As a result of this there may be greatly increased pressure on the vessels of the glomerulus with possibly obliteration of these vessels. The cellular infiltration of the interstitial tissue is not so extensive as in the other form. Accompanying these changes in the glomerulus there is almost always more or less hemorrhage both in the tubules and in the interstitial tissue.

It is this capsular glomerulo-nephritis which gives the most marked clinical evidences of the extent of the lesions in the kidney. In this form dropsy is almost always present, the amount of urine is greatly diminished, and in more severe cases there may be anuria. Blood-casts are found more frequently in the urine than in the interstitial form. The diminution in the amount of the urine points to the involvement of the glomerulus. Even severe cases of this form may be recovered from. In a certain number of cases from this form of nephritis a chronic nephritis is developed. These two forms of nephritis should be separated from each other, although transitions between their lesions are found. Usually they can be distinguished macroscopically.

We can, therefore, recognize three pathological conditions of the kidney in scarlet fever: first, the purely degenerative; second, the acute interstitial; and third, the capsular glomerular.

The Heart.—The pathological conditions of the heart which are at times found in scarlet fever do not differ in their macroscopic appearances from those met with in other diseases. Cardiac disease occurring in the course of scarlet fever may arise in two ways: (1) from the general septic condition existing during the period of the height of the temperature and general efflorescence, and represented usually by an endocarditis; (2) at a much later period from a nephritis which has arisen as a complication, and following which, from the resulting increased blood pressure, enlargement of the heart has been produced, which may be represented by hypertrophy, or by dilatation, or by both.

During the stage of efflorescence, especially if the temperature is considerably heightened, there may appear in the urine a small amount of albumin, but this disappears as the temperature subsides. It is probably only the result of the fever, as in many other diseases accompanied by a high temperature, and is not to be confounded with the albuminuria of the nephritis which in some cases complicates the stage of desquamation.

There is considerable reason to suppose that a mild form of nephritis accompanies almost every case of scarlet fever, although in many cases no clinical symptoms pointing towards the kidney appear and nothing abnormal is found on examination of the urine. This latter statement, however, rests to such a degree on the authority of the general practitioner, rather than on that of the expert in urinary analysis, that we shall probably in the future find the number of cases which show nothing abnormal in the urine greatly lessened when the number of expert examinations of the urine in mild cases of scarlet fever has increased.

In this second form of scarlet fever the gravity of the disease arises from the various complications and sequelæ, which may be of varying degrees of severity.

When the temperature remains heightened at the end of the period of efflorescence and continues into

the period of desquamation, especially if there is local pain anywhere, we should suspect that a nephritis may be developing. When the temperature after having become normal rises again we should expect such complications as otitis, and suppuration of the subcutaneous tissues of the neck or that the heart is involved. Certain cases are at times met with in which the high temperature, or the especial vulnerability of the child to the scarlet fever contagium, causes the symptoms to vary considerably from the typical form and be unusually grave.

As an instance of this class of cases I will report to you that of a boy six years old, seen in consultation with Dr. Loring. The invasion of the disease was characterized by restlessness and sore throat which were soon followed by vomiting and delirium. The temperature on the first day rose to 106° F. During the first three days the pulse could not be counted. The heightened temperature continued until the sixth day from the beginning of the prodromal symptoms. There was great gastro-enteric disturbance, and during the first forty-eight hours there was almost continuous vomiting. This was succeeded on the third day by frequent profuse, and often involuntary discharges from the bowels. These discharges continued until the fifth day. On the fourth day a slight erythematous efflorescence appeared on the neck and chest, and on the fifth day it extended all over the body and was of an intense character. On the sixth day pain in the wrists began but it disappeared in twenty-four hours under the administration of salicylic acid. At this time, also, there was considerable swelling on the left side of the neck which gradually disappeared in four or five days. When the fever was at its height there was considerable cyanosis, with quickened respiration. The pulse at this time was weak and difficult to count. Whenever the temperature reached 105° F. the child was placed on a pillow in the bath and kept there until the temperature was reduced three or four degrees. The time required to accomplish this was usually from one to one and a half hours. While the child was in the bath stimulants and milk were given to it. The temperature of the water was at first that of the child, and was gradually reduced to about 90° F. During the first four days the child was either delirious or in a comatose condition, and when in the bath would pass its urine and fecal discharges involuntarily. The high temperature continued until the sixth day when it fell and the baths were omitted: the temperature continued to fall by lysis until it reached the normal degree on the sixteenth day from the invasion of the disease. After this the child had no unusual symptoms and made a rapid recovery. There were no complications. The desquamation took the usual course.

Scarlet fever may begin with such great cerebral excitement as to lead us to suspect meningitis and it may not be possible to determine the diagnosis until the efflorescence has appeared, which may not be until even the eighth or ninth day.

Most of the complications which arise in scarlet fever are due probably to the action of streptococci, either isolated or associated with other micro-organisms. These micro-organisms produce serious symptoms, which are often followed by death, either directly by giving rise to septicemic processes or indirectly by nephritis.

It is supposed that the infection which complicates

scarlet fever enters the system commonly through the pharynx either by direct absorption or by inhalation of these organisms.

It is of great importance to detect by means of frequent analyses of the urine the beginning of either the milder forms of renal disturbance or the more severe forms of nephritis, usually represented by that which is called capsular glomerulo-nephritis. If carefully watched for, the appearance of albumin will almost always precede the clinical symptoms. It is quite frequently the case that a suspicion is first aroused as to the presence of nephritis, either by vomiting or edema of the face, especially about the eyes, commonly occurring during the period of desquamation, from the eighteenth to the twenty-fourth day. Under these circumstances the urine will be found to be diminished in quantity and to contain albumin. The daily amount of the urine may be reduced as low as three and one-half ounces or even lower. The microscopic examination of the urine does not materially differ from that which results from the other forms of nephritis in their early stages, but later you may find that fatty casts are less numerous in the nephritis of scarlet fever because there is less fatty degeneration in the renal epithelium. The earlier in the course of the disease the symptoms of nephritis appear, the more severe, as a rule, will be its type. The extent of the albuminuria is of less consequence than the total quantity of the urine. A rapid and extensive diminution of the urine is ominous, as it indicates the accumulation of nitrogenous waste in the blood and the danger of a resulting uremia. The albumin occurring early in the disease is more apt to be in large quantities than when it appears first in the third or fourth week. Hematuria is frequently present in this form of nephritis but ordinarily of itself adds little to the gravity of the disease. The edema of the face may be followed by a rapid involvement of the ankles and legs, and at times may become general. During the course of a general edema the desquamation is apt to cease, returning on its disappearance. The edema may last for months or may pass away quickly; it may be entirely absent, but in such cases the nephritis is almost invariably of a light grade.

At times during the presence of a general edema serous effusions into the pleura may occur. Edema of the lungs and brain, though very rare, may also take place. Instead of a slow development beginning with edema of the face, we may have an acute attack, ushered in by fever, vomiting, headache, edema, amblyopia, coma and convulsions.

Relapses may occur many weeks after an attack of scarlatinal nephritis, and we should watch the case with the greatest care for several months. The nephritis of scarlet fever, although it may last for months, has a tendency in children ultimately to recover, on account of their wonderful recuperative powers. It is also rare for the renal disease following scarlet fever to become chronic.

Retinitis and amaurosis at times occur during the progress of the nephritis in scarlet fever. In these cases of amaurosis it has been noticed that, although the loss of sight may be complete, almost always where uremia and amaurosis are coincident, there is found no perceptible change in the retina, no congestion of the papillæ, no increase of intracranial pressure, and no intense edema of the brain. The sight under these circumstances may be recovered completely.

We find in quite a number of cases of capsular glomerulo-nephritis a rapid hypertrophy of the left ventricle. This cardiac complication is not to be confounded with the endocarditis which I have already spoken of as secondary to the scarlet fever, and which is supposed to be caused by its special poison or by the streptococci which I have already described as being present in the disease. It is, in fact, not the direct result of the scarlet fever, but is secondary to the nephritis, and is, in this sense, tertiary to the scarlet fever. We, therefore, do not find this acute cardiac hypertrophy in the earlier stages of scarlet fever; but when a capsular glomerulo-nephritis is once established, it may take place in so short a period as a week. This rapid hypertrophy has usually been observed in children between the ages of three and six years. At this age a physiological hypertrophy of the heart exists, possibly caused by a continuance of the aortic narrowing in the neighborhood of the ductus arteriosus, and the heart will thus be more readily affected by increased blood pressure. Besides the cardiac hypertrophy, we may at times have an acute dilatation of the heart in these cases. This is a serious condition, which must be guarded against, and when it occurs must be recognized at once. These various complications very frequently recover completely, as it is seldom that any extensive changes in the muscles of the heart take place.

We should be careful about using diuretics which might irritate the kidney. Acetate of potash is one of the safer diuretics in this complication. In severe cases, with general edema and threatening uremia, cathartics are rather more certain in their action than diaphoretics and diuretics, and are especially indicated where, as is usually the case, constipation is present. Podophyllin in doses of one-tenth of a grain may be given to a child five years old, and be repeated a number of times. It usually acts quickly. The compound jalap powder, in doses of five to ten grains, may also be given where a rapid and decided derivation by the intestine is indicated.

Having provided for the proper movement of the bowels, if the skin is hot and dry and uremic symptoms (usually represented by anuria, somnolence, amblyopia and headache) are present, the hot pack, either wet or dry, should be resorted to. I prefer in these cases to have the child wrapped in a blanket and placed directly in a tub containing water at a temperature of 105° to 110° F. The child should be kept in the water fifteen or twenty minutes, or even longer if necessary, and should then be taken from the wet blanket, enveloped in hot, dry blankets, and kept in them until the skin has become moist and reaction has taken place. While the child is in the bath milk can be given to it, and stimulants if they are indicated by a weak or an intermittent pulse.

In addition to this treatment, muriate of pilocarpine in doses of one-twentieth of a grain should be given by the mouth to a child of two years, and subcutaneously if desired to a child five years of age. In these cases of threatened uremia convulsions sometimes appear quite suddenly. Under these circumstances enemata of hydrate of chloral, five to ten grains dissolved in water, are of value in controlling the nervous phenomena. I prefer, however, to use a combination of bromide of potash and hydrate of chloral.

Where the ascites is extreme, paracentesis abdominis is often of great value, not only in relieving the press-

ure, but also in increasing the action of the diuretic which perhaps before was not acting freely. Digitalis is a valuable remedy especially adapted to the treatment of the nephritis of scarlet fever and to that of the cardiac changes which result from it. By the administration of this drug the flow of urine is increased. It is best given in the form of a freshly prepared infusion, in teaspoonful doses every four hours, to a child five years old. Diuretin, five grains dissolved in water and given two or three times in the twenty-four hours, has proved of considerable value in my cases, and is apparently harmless.

I speak of special ages, such as five years or two years, merely as a guide by which you can judge what the proper doses should be at the other ages.

I have not time to dwell upon the various other complications of scarlet fever, such as the acute inflammation of the joints and synovitis. I must, however, before ending this lecture impress upon you the importance of prophylaxis in the treatment of cases of scarlet fever where as complete an isolation as possible should always be enforced and where the diet should be as nearly one of milk as the case will permit. The remaining details of the treatment of scarlet fever I shall leave for Professor Northrup to give you in his coming lectures on this subject.

As illustrative of the benign type of scarlet fever, with complications, I will report to you the case of this boy, seven years old, who is said to have been well until eighteen months ago, when he had an attack of scarlet fever, mild in form and not accompanied by severe symptoms. In the latter part of the attack his temperature rose, and he began to have dyspnea and dropsy. Since that time he has been slowly but steadily growing worse. As you see, he has extensive edema of the face, chest, arms, abdomen and legs. He is somewhat cyanotic, and his breathing is so much affected that he is unable to lie down, the orthopnea compelling him to be supported in a semi-recumbent position. On closer examination you see there is slight puffiness about both eyes, that there is a yellow tinge to the conjunctivæ, and that the lips and tongue are cyanotic. The extremities are cold to the touch and their skin pits readily on pressure. The skin of the whole face is dry and harsh and in some portions is covered with fine scales. In addition to the edematous condition of the walls of the abdomen, a distinct fluctuation is found on palpation, showing that there is fluid in the abdominal cavity. An examination of the lungs shows that there is dulness over both bases behind; and over these areas, as well as over the whole front of the chest, fine moist râles can be heard, indicating an edematous condition of the lungs. On examining the heart I find that its impulse is most distinct in the sixth interspace a little outside of the mammary line. The area of cardiac dulness extends from the second rib on the left to one inch to the right of the sternum, in an area corresponding to the third interspace and fourth rib. The dulness then extends to the left, across the sternum, to a point one inch outside of the mammary line and as low as the sixth interspace, corresponding to the cardiac impulse. A loud systolic murmur can be heard over the region of the cardiac impulse, and is transmitted so that it can be heard in every part of the thorax. The total amount of urine in twenty-four hours has varied from 30 to 35 ounces. An analysis of the urine gives the following results:

Color	darker than normal.
Specific gravity	1.013.
Reaction	acid.
Urophein	diminished.
Indican	increased.
Chlorides	diminished.
Albumin	four-tenths per cent.
Sugar	absent.
Sediment: very slight and flocculent.	

Microscopic examination shows numerous short hyaline casts, and granular casts; an excess of renal epithelium; considerable abnormal blood; an occasional white corpuscle; one or two blood-casts; many hyaline and granular casts with one or more renal cells adherent; occasional fatty renal cells and casts with a few fat drops adherent.

You see that he is unable to lie down with comfort on account of the dyspnea arising from the accumulation of fluid in the stomach. The cyanosis is so marked and the child is in so much distress that it is evident immediate relief should be given, not only to the general symptoms, but also to the great tax which is being imposed upon the already disabled heart. Unless some relief to these symptoms is given, it is very likely that he will die suddenly from heart-failure. I shall, therefore, withdraw a certain amount of fluid from the abdominal cavity, which will, I think, be followed by considerable relief to the dyspnea.

This case illustrates some of the points in the pathology and clinical symptoms of scarlet fever to which I have already referred. Of course in so late a stage of the disease as this it would be impossible to make a definite diagnosis as to the condition of the kidney and heart. It is possible that during the stage of efflorescence an endocarditis such as might complicate the earlier symptoms of scarlet fever may have been present, and may have been followed by a pathological lesion of the valves. The history of the case, however, shows that the course of the scarlet fever was a mild one, and that whatever complications followed arose at a later stage of the disease during desquamation. It would seem probable, therefore, that the symptoms of edema and cyanosis which appeared in this later stage of the disease were caused by a disturbance of the kidney. As I have already told you a renal complication is most common in the later stages of scarlet fever. The physical examination shows that there is a complication of the heart represented by cardiac dulness and a mitral systolic murmur. The examination of the urine shows us that it is probable that there are organic changes in the kidney as well as in the heart, although we cannot say definitely that such conditions as we find in the urine have not been produced by a cardiac lesion followed by passive congestion of the kidney. Therefore, although we cannot decide without a post-mortem examination whether both kidney and heart are affected, we can at least suppose that the following sequence of complications has resulted and has produced the present clinical symptoms.

The child had scarlet fever in a mild and apparently uncomplicated form until it reached the stage of desquamation. During the latter part of this stage a lesion of the kidney, presumably of the capsular glomerular form, occurred, and owing to the increased blood-pressure which finally resulted from the changes in the kidney, hypertrophy of the heart, presumably followed by dilatation, appeared. If I have correctly read this sequence of lesions, we have, then, cardiac enlargement secondary to renal disease and tertiary to the original scarlet fever contagium.

The prognosis in this case is very unfavorable. Although we know that in children dilatation of the heart may be entirely recovered from, yet as long as this condition exists there is danger of sudden death from cardiac failure. Where the cardiac dilatation results from extensive disease of the kidney, especially in the form which we most commonly meet with in scarlet fever, capsular glomerulo-nephritis, the chances are that this failure will take place before the nephritis has been recovered from, when a patient has been reduced to such a degree as is the case with this boy.

The treatment should be absolute rest so as not to tax the muscles of the heart more than can possibly be avoided. To relieve the intra-abdominal pressure, which augments the edema of the lungs and interferes with the action of the heart, paracentesis of the abdomen should be performed, as I have just told you. Hot baths should be given to increase the action of the skin, laxatives to relieve the congested condition of the kidneys, and non-irritating diuretics, such as acetate of potash and digitalis, are indicated. Nitroglycerine is valuable where the action of the heart at any time becomes suddenly feeble and irregular.

Original Article.

GAVAGE IN INFANTS.

BY JOHN W. BARTOL, M.D., BOSTON,
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THE attention of the profession was called long since to the value of tube feeding in patients (infant or adult) suffering with forms of disease attended by obstruction to the passage of food into the stomach; but it is perhaps not so generally recognized that there are frequently, among infant patients, cases free from such obstruction in which resort to this procedure will be followed by gratifying results.

When a child *can* but will not swallow its food, we are apt to accept the condition as a decree of nature and console ourselves with the belief that the patient is better after all without the food. That such refusal is, however, not rarely the result of some slight discomfort attending the taking of food, or of a whim caused by the disordered *morale* of the child, and not dependent on a seriously disabled condition of the digestive organs, is certainly indicated by the few cases here reported in support of such assertion.

In other words, the infant, like the adult, often has in its morbid conditions of body or mind a positive distaste for nourishment of any kind; but, unlike the adult, is not able to call to its aid the power of will so often essential for the obedient execution of the physician's mandates. It is obviously our duty, then, in appropriate cases, to feed him if need be directly against his will.

Let no one imagine that I am thus advocating wholesale and indiscriminate "forced-feeding" of sick children, or asking anybody to disregard the evident indications of a given case: the point simply being, not to disregard the possibility of satisfactory assimilation of much-needed nourishment in spite of obstinate refusal to receive such nourishment in the ordinary manner.

Furthermore, the method not only offers the advantage of administering food of fixed amount and definite

proportions at appropriately regulated intervals, but also furnishes a ready means of exhibiting, at the same time, such medicine as may be desirable.

The indications for instituting this method of feeding need no extensive mention, but the following three selected cases from the wards of the Summer Hospital at Rainsford Island, certainly show that it has a varied application.

CASE I was a male infant, eleven months old, who had previously been under treatment for congenital syphilis in the wards and out-patient department of the Infants' Hospital. He had been lost sight of for some months, but in the latter part of July was sent to Rainsford with the history of ten to twelve dejections daily, and of taking his food badly. It was further elicited that the inunction cure had been persisted in without medical supervision for four months.

The physical examination showed nothing of material interest except general delayed development. He was fairly well nourished. After admission to the wards and cessation of the inunctions there was no diarrhea; but he persistently refused to take a satisfactory quantity of food, and consequently as persistently lost weight (seven ounces in five days). He was accordingly discharged with the idea that he would probably take his food better in the home surroundings.

To quiet a possible suggestion that it may have been the taste of the food that caused him to rebel, it should be noted that, although at first he was given a Pasteurized modification, this was later changed to non-Pasteurized whole milk, without effect.

Ten days after discharge he re-appeared, and according to accounts had been vomiting and defecating almost constantly since going home. It was found that he had continued to lose weight at the rate of nine ounces in ten days, and now, at the age of eleven and a half months weighed 12 pounds 11 ounces.

The diarrhea proved not to be an important factor in his condition, but he at once resumed his old tactics of refusing food, and on the fourth day had dropped to a total food consumption of 20 ounces daily (the normal average being about 40 ounces), with a loss in weight of six ounces. During all this time he seemed perfectly well and happy but simply would not take his food.

He was then put on alternate feedings by tube, with the immediate effect of raising his total for the following twenty-four hours to 32 ounces. For the next month, by aid of the supplementary feedings, he maintained a daily average of 34 ounces; and in this time, his weight, which had steadily fallen for at least three weeks previous to beginning the treatment, increased one pound.

The day before his discharge tube feedings were entirely omitted, and the total amount of food taken fell from 32½ ounces to 21½ ounces, and his weight dropped 1½ ounces. But as cool weather came on, he began to take his food better; and I have lately learned that he is now thriving.

CASE II was a male infant, four months old, who entered the hospital with fermental diarrhea complicated by a moderate degree of colitis. The treatment of the latter condition proved somewhat prolonged and does not concern us now. The important consideration was to get him to take nourishment enough to keep from falling seriously behind in vitality; for in the first 17 days he averaged only 14 ounces daily, when he should have taken about 30 ounces, and his weight dropped from 10 pounds 1½ ounces to 8 pounds 9½ ounces, a loss of 1½ pounds.

He was accordingly put on alternate feedings by tube, which brought his total for the next twenty-four hours to 20½ ounces (from 14 ounces), with an immediate gain in weight of 2½ ounces.

For the ensuing 26 days, that is, the period of supplementary feedings, his daily average was 27 ounces as against 14 ounces, and his total gain in weight one pound one ounce.

The intestinal disorder having yielded to treatment, tube

feedings were omitted, and, although his average food-consumption and weight-gain showed an immediate drop, the advantage gained was permanent, and he was discharged in first-rate condition, weighing, in spite of his initial loss of $1\frac{1}{2}$ pounds, three-quarters of a pound more than at entrance.

CASE III is in some respects the most satisfactory of the three chosen for report, because, while in the others the procedure served to keep the system much nearer par, and thus established normal gain much earlier and on a more rapidly advancing basis than could otherwise have been done, in this case the prognosis *quoad vitam* was distinctly gloomy, and the necessity for quickly turning a corner very evident.

The patient was a female infant, one and a half years old. Her previous history was not obtained, but at entrance she had a temperature of 103° , with signs of well-developed broncho-pneumonia. There was evident delirium, and she seemed entirely unconscious of her surroundings, throwing herself about the crib regardless of consequences.

Without further reference to the course of the disease, it is sufficient to say that the problem which soon presented itself was how to get proper food and stimulation into her. From the first what milk she took voluntarily was evidently simply to satisfy her thirst; and at the end of the first week she was taking only twelve to fifteen ounces daily, and much of that under protest and at expense of provoking exhausting spasms of coughing. Put upon tube feedings, alternating with others from a cup, she rapidly increased her average; and when it was considered safe to begin regular weighing, which so far had been omitted on account of her serious condition, she was found to be steadily gaining.

To spare further details, I will simply add, that, partly on account of her disinclination to take food, partly because of the obstinacy of the spasm of coughing provoked by drinking, the tube feedings, which were attended by much less irritation, were continued to a greater or less extent for one month; and that in the 21 days after weighing was begun she gained one pound four ounces.

The progress thus so satisfactorily initiated continued until her discharge, one month later, during which period she made a further gain of two pounds five ounces.

Of the *modus operandi* I need hardly speak, except to remind those who happen never to have followed the procedure, of its great simplicity.

The entire apparatus consists of a soft-rubber catheter coupled to a small funnel by a combination of rubber and glass tubing. Of course, the largest catheter that can be comfortably passed gives quickest results. In most cases I found the nose by far the better route, but in at least one case the milk ran much better when the catheter was passed through the mouth. For the nasal cases a No. 6 catheter was generally found best, and for the mouth Nos. 10 to 12.

Feedings were given with patient lying in the crib, firmly rolled up in a sheet to keep the arms and legs from interfering. The right and left nostrils were taken alternately, and in no instance was there notable irritation of the mucous membrane, although in one case four tube feedings daily were given for nearly a month. There is almost no danger of passing the tube into the larynx, but a sufficient check against this, is the sound of the voice in the short fit of crying that is sure to be excited by the procedure. The arrival of the end of the tube in the stomach is heralded by the escape of a small amount of gas. The food may then be poured in at once, disregarding the small column of air in the catheter.

The tube during withdrawal should be tightly pinched to prevent the milk from trickling over the pharyngeal wall and exciting the reflex. Coughing

and crying delay, but do not prevent, the passage of the food, which flows at least during the inspiratory interval. If there is any indication for it, the feeding should be preceded by washing out the stomach.

Catheters and tubing should be boiled daily and kept between feedings, after thorough washing, in boric-acid solution.

There is an important class of cases which is not illustrated here by any specific instance because there happened to be no striking example in the wards, but which deserves emphatic mention before closing this paper. I refer to a certain type of obstinate vomiting, where the child takes food readily enough, but is unable to retain it even in small amounts. It will often be found in these cases that the reflex vomiting is much less likely to be excited by the passage of the tube, than by the food itself taken in the natural way; and thus patients that give every promise of steadily advancing failure may be tided over until a slight gain in tone enables them to resume the normal habit.

Clinical Department.

A CASE OF CONGENITAL MALARIA.

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MALE child. Family history negative, except that mother had quotidian malaria of a severe type for two weeks preceding birth of patient. The malaria was untreated by her physicians who deemed such treatment unwise during pregnancy. The malaria continued until parturition, and then ceased. The child weighed seven pounds at birth, was well developed, and appeared sound, except for an umbilical hernia.

The writer saw the baby for the first time, December 3, 1896, when the child was ten weeks old, the case having been kindly referred to him by Dr. F. H. Daveuport, of Boston.

The child did not flourish on his mother's milk; had colic and vomiting. Most of the artificial foods had been tried for a few days each in turn, and Meig's mixture had been in use for a short time previous to my visit. The baby appeared to improve with all the foods at first, and then began to vomit, had colic and refused the food altogether. Considerable mucus had been evacuated from the bowels (which were generally constipated) and vomited from the stomach. In addition to these symptoms the child slept little, cried a great deal, was continually moving, and had cold hands and feet.

Physical examination showed the patient to be much emaciated, pale and weak. Chest and abdomen negative, except hernia. Muscles of the limbs and neck rigid; head slightly retracted; and child cries out on handling.

This child was fed for a few days succeeding my visit on whey and beef-broth, when the patient had a severe convulsion in the writer's presence, characterized by muscular rigidity, unconsciousness, clonic spasms and strabismus, followed by a period of muscular relaxation and stupor. It then developed that these attacks had occurred daily since birth, and had been unrecognized as convulsions. They were always preceded by prolonged crying.

On this day, December 7, 1896, the convulsions were more continuous and severe than ever before. Three grains of chloral and five grains of sodium bromide were given by rectum, and Dr. T. M. Rotch was called in consultation. Dr. Rotch made a provisional diagnosis of inanition from indigestion, which might well have followed the injudicious method of feeding. The child was so exceedingly ill at this time that the prognosis was doubtful. The question of malaria was suggested by the family, but, as the temperature had been normal and no periodicity of the symptoms had been observed, the matter was left in abeyance.

Dr. Rotch recommended Walker-Gordon-Laboratory milk of the following composition:

Albumin	0.5%
Fat	2.0
Sugar	6.0

One-half ounce every hour.

The child improved slightly for three days, and then began again to have continuous convulsions, so that bromide and chloral were resorted to for several days.

The blood was examined on December 10th, and the plasmodia malarie were found in abundance. The child was given one grain of quinine by the rectum in enema twice daily, and the convulsions ceased from this time, but muscular rigidity, sleeplessness, colic, constipation and restlessness persisted.

Dr. Rotch was informed of the result of the blood examination, and advised one-half grain of quinine twice daily by suppository. The suppositories were so frequently expelled that it was necessary to resort to enemata again.

December 15th. Milk altered as follows:

Albumin	0.75%
Fat	3.00
Sugar	6.50

One and one-half ounces every hour and a half.

December 19th. Blood-count showed normal number of red corpuscles, and examination also exhibited plasmodia present.

January 1, 1897. Milk increased as follows:

Albumin	1.00%
Fat	3.50
Sugar	6.50

January 2d. Plasmodia present in the blood. The Walker-Gordon-Laboratory milk had been taken and retained admirably; but the symptoms did not improve, except in relation to vomiting and convulsions.

About this time I tried to substitute a home-made milk mixture for the laboratory milk, but it caused vomiting and convulsions after a few days. Analysis of my mixture showed seven per cent. of fat, which explained the result.

Since the patient did not improve nor gain in weight after a month's treatment with quinine, I advised the removal of the child to a non-malarial place. The baby was taken to a relative in Danvers, and began to improve immediately, gaining one-half pound a week. The quinine was stopped after the first week of absence from home, and one-fifth of a drop of Fowler's solution substituted, three times a day. To exhibit the sensitiveness of the child in regard to its milk, the formula was increased in strength, January 24th, as follows:

Albumin	from 1.00 to 1.25%
Fat	from 3.50 to 4.00
Sugar	from 6.50 to 7.00

Two ounces every two hours.

The patient vomited several days, owing to this slight increase in the quantities of the various nutrients, but did not have convulsions. Since this time there has been an uninterrupted recovery.

February 25th. Blood examination showed absence of plasmodia.

March 1st. The baby weighed thirteen pounds and was taking the following milk mixture:

Albumin	1.50%
Fat	4.00
Sugar	7.00

Three ounces every two and one-half hours.

The case is of interest because of the rarity of congenital malaria, and in illustrating the value and necessity of blood examinations for diagnosis and exact methods of feeding in order to proportion the strength of the food to that of the patient's digestion. The plasmodia were probably conveyed directly by means of the fetal circulation, although there is a possibility of infection by the mother's milk. Since the symptoms were the same up to the time that the diagnosis of malaria was made, it is sufficiently evident that the disease existed from birth.

A CASE OF ACHILLODYNIA DUE TO AN EXOSTOSIS OF THE OS CALCIS, ASSOCIATED WITH AN INTERESTING FORM OF BURSTITIS.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE following case is reported in order to put on record another case of achillobdunia, due to the presence of an exostosis under the tendon Achilles, and also, because of the condition of the bursal sac found at the time of the operation, which probably explains, in part, the irregular attacks of pain which are described in such cases.

The patient, H. F., twenty years of age, has for several years been troubled with his feet, having suffered considerably with pain about the heels. During this time he has been unable to work with any degree of regularity, a few days of activity being followed by so much pain and discomfort that it was impossible for him to be about. The pain has usually come on suddenly, and has been chiefly referred to the heels, with some, of late, across the front of the feet.

The patient came to the Orthopedic Clinic at the Carney Hospital several months ago, and when first seen there was a marked flat-foot in both feet, and all motions were accompanied by pain. Behind both heels there was some acute swelling, with a distinct increase in the surface temperature. There was no fluctuation or evidence of anything more than an inflammation of the sheath of the tendo-Achillis. Under rest and bandaging the pain and swelling disappeared, and by the use of foot-plates the flat-foot was entirely corrected.

In a short time, however, after the patient commenced to go about, the pain and swelling in the heels returned. This was again relieved by rest and bandaging, but was followed by relapse as soon as the feet were used. This was repeated several times, until finally a skiagraph of the feet was taken which showed plainly the presence of the tubercle under the

tendo-Achillis. Recognizing this as the probable cause of the heel symptoms, an operation was performed and the tubercle of bone removed. During the operation, when the tendon Achillis was drawn aside, a large bursa was opened, the lining membrane of which had become so much hypertrophied as to be thrown up into folds, forming fringes which undoubtedly became pinched between the tendon and the bone during motion. This undoubtedly caused the acute symptoms, exactly the same as the synovial fringes in the chronic (non-tubercular) inflammations of the knee-joint get caught between the bones, locking the joint and cause acute pain and swelling.

Some of the fringes in this case were fully a half an inch long, and during the operation it was perfectly easy to demonstrate the way in which these folds caught and became pinched between the tendon and the bone during motion.

The presence of exostoses under the tendon in such cases has been fully described by Albert, Röseler, Schüller, Brackett and Wiesinger; but the condition of the bursal sac described above has not, so far as I am aware, been described before. This condition is probably not rare, as the normal bursa must enlarge as the result of the increased irritation due to the presence of the exostosis or bony tubercle; and with this enlargement, or chronic inflammation, the lining of the sac is, in all probability, usually thrown into folds, as is true of synovial membranes elsewhere.

The only suggestion to be made in regard to the treatment of such cases, is not only to remove the bone protuberance, but also to carefully remove the bursa as well.

Medical Progress.

REPORT ON PROGRESS IN GYNECOLOGY.

BY EDWARD REYNOLDS, M.D.

SHORTENING THE SACRO-UTERINE LIGAMENTS FOR RETROVERSION.

GOTTSCALK¹ writes in advocacy of another vaginal method of treatment of movable retroversions. He believes that the cause of the retro-deviation is to be found in relaxation of the sacro-uterine ligaments, and holds that shortening these ligaments is therefore the most reasonable method of treatment. He replaces the uterus and cuts through the posterior fornix in the median line, opens Douglas's fossa, and holds the wound open with temporary stitches inserted between the vaginal and perineal edges. If adhesions are found, they are separated at this stage of the operation, and the uterus is then replaced. An assistant holds the wound open by traction on the temporary ligatures while the operator makes one utero-sacral tense with his forefinger, and then under the guidance of the eye transfixes it from above downwards with a sharp aneurism needle. The other end of the same suture is then passed through the substance of the cervix by a sharp needle just below the level of the os internum. When this suture is tied, the cervix is drawn strongly backward by the tension of the shortened utero-sacral. The same procedure is then performed upon the opposite side, and the operation is completed. The wound is drained by a small strip of gauze, and al-

lowed to heal by granulation. The patient is made to lie upon her side or abdomen, and is kept in bed seven days, the uterus being held in position by an internal tamponade. Gottschalk has performed this operation twice, both times with satisfactory results.

NEW METHOD OF VAGINAL FIXATION OF THE UTERUS.

Kiefer² adds still another to the many methods which have of late been proposed. In his operation the bladder is separated from the uterus, and two fingers are introduced into the peritoneal cavity. Under the direction of the fingers the abdominal wall is punctured with a long, sharp, curved artery-needle carrying a ligature of catgut or silkworm-gut. The end of this suture is caught on the outside; the other end of the suture is then passed around the round ligament and out again through the abdominal wall by the same instrument. The other ligament is treated in the same way, and the vaginal wound closed. The advantages of the operation are, of course, found in the fair mobility which is permitted to the uterus, thus rendering interference with pregnancy unlikely, and in the absence of the abdominal scar. The author believes that in this method, puncture of the intestines is practically impossible.

ADMINISTRATION OF OVARIAN TISSUE DURING THE ARTIFICIAL MENOPAUSE.

Chrobak³ has been experimenting for some years upon the effect of the internal administration of the ovarian tissue of cows upon the modification of the nervous symptoms following the removal of the ovaries in women. In the first case, the fresh ovaries of calves were given, with a negative result. In seven other cases the ovaries of mature cows were washed with ether and alcohol, dried, powdered, and made into tablets, each of which was equal to three grains of ovarian tissue. Two to five such tablets were given daily. Of the seven cases, one was passing through the normal climacteric, while in the other six both ovaries had been removed. In two patients the climacteric disturbances ceased entirely after twelve tablets had been taken; in the third, after twenty tablets, the frequency was reduced one-half; in the fourth, the frequency was reduced two-thirds, but was re-established at its old vigor whenever the tablets were omitted. The author believes that the remedy promises well.

Landau,⁴ after experiments similar to Chrobak's, and suggested by his, reaches essentially the same conclusions, namely, that the remedy produces no evil results, that it probably improves the condition of the patients, and should be carefully observed in some further series of cases.

TRANSPLANTATION OF THE OVARY.

Knauer⁵ makes a preliminary report on the transplantation of the ovaries of rabbits, the operation being done under an anesthetic and the strictest aseptic precautions. Three rabbits were operated upon, the ovaries being tied off with silk, and removed essentially without handling. All the ovaries but one were then stitched to the uterine cornua with silk, care being taken not to include ovarian tissue in the

² Centralblatt für Gynäkologie, April 11, 1896.

³ Loc. cit., 1896, No. 20.

⁴ Berliner klin. Wochenschrift, 1896, No. 25.

⁵ Loc. cit.

¹ Centralblatt für Gynäkologie, 1896, No. 16.

stitches. In the first experiment, one ovary was placed a little to one side of the abdominal wound, between the fascia and muscle, and the wound was then closed with buried sutures. Two of the rabbits were killed, the other died several months after the operation. All the ovaries were fairly well nourished and functionally active, that which had been placed between the layers of the abdominal wall being the most atrophied, that is, to about one-third of its former size. He makes the following deductions: (1) the ovaries of rabbits may be transplanted to a distance from their natural sites; (2) the attachment may be to peritoneum or muscular tissue; (3) the transplanted ovaries are nourished by new-formed vessels and remain functionally active, developing Graafian follicles which ripen and in all probability discharge their ova.

The author next intends to transplant the ovaries of other animals and to transplant them from one individual to another, with the special object of noting whether fecundation follows the operation or not.

Mond,⁶ after observations made by a closely similar method, attained about the same results.

THE TREATMENT OF FIBROIDS BY THYROID EXTRACT.

Jouin,⁷ in the course of treatment of obesity by the administration of thyroid extract, noticed a large uterine fibroid extending above the umbilicus, become rapidly lessened in size to about one-fourth of its former dimensions. He afterwards treated 17 cases by this method. In 12 cases marked hemorrhages ceased, and the size of the tumor diminished; two other tumors were decreased decidedly; two slightly, if at all; and one not at all. The author believes that in addition to the reduction of size which he noticed, the pain, pressure, weakness and hemorrhage due to the affection was certainly lessened.

THE CURE OF SEPTIC PELVIC DISEASE IN WOMEN.

Henrotin⁸ has a long article in support of the conservative vaginal operations with which his name is prominently associated. After a discussion of the value of and indications for curettage, an earnest plea in support of the coming recrudescence of a belief in the frequency of pelvic cellulitis, and a statement of his own belief that the inflammatory masses under consideration may be originated by an infection of the ovaries, he comes to the consideration of the operative treatment. He condemns a too early removal of the appendages, but lauds heartily his procedure of incising and draining the organ which is the source of the infection at the earliest possible moment, and redescibes the technique in detail. The first step in the operation should always be a thorough and efficient curetting, isolating and packing of the uterus. The posterior vaginal fornix should then be incised along the posterior face of the cervix; and from the centre of this a second incision should be extended backward along the median line so far as the rectum permits. The retro-uterine connective tissue should then be drawn up by the fingers, always working close to the uterine surface, the cervix being held steady by moderate downward traction with a hook or tenaculum. If pus is detected in the connective tissue before the

peritoneum is opened, it should be followed up by tearing dissection with the fingers into the centre of the mass which is felt to be present. If pus cavities to correspond with all that has been felt on bimanual examination are opened in this manner, and the operator is certain that he has not opened the general cavity, they should be drained and the operation concluded. If the peritoneum is reached without the opening of pus cavities, the general cavity should be opened at once on the ground that even the traction on the uterus may rupture pus sacs; that if this is done before drainage of Douglas's fossa has been instituted, it will probably result fatally; if afterwards, there is but slight danger. The hands and instruments are then again thoroughly cleansed and the pelvis explored bimanually, the examining finger being, however, in Douglas's fossa instead of in the posterior fornix of the vagina. Whatever masses are felt should be dissected apart with the fingers and drained by the insertion of gauze. Even if fluid is not found, the opening a path into the centre of an exudate may entirely remove the symptoms; and though the operation may seem blind, the majority of the patients are cured. The duration of the drainage after the operation must be determined by the character of the fluid discharged, being guided by ordinary surgical principles. Hemorrhage may be quite free, but has always heretofore been controlled by the gauze packings. The author quotes a number of cases as types of those with which he has met.

SADDLES AND POSTURES FOR WOMEN ON THE WHEEL.

Dickinson⁹ has an article admirably illustrated with photographs of nude and costumed models, and of skeletons, each position being shown by a series of three photographs, and, in addition, comparisons of the bicycle posture with that of the sewing machine and of the side-saddle are afforded by additional series of photographs. The position advocated is that in which the centre of the hip-joint is directly over the centre of the pedal when at its highest or lowest point, when the height of the saddle is such that with the pedal at the lowest point the knee is slightly bent and the ankle somewhat straightened, while the height of the handle-bar flexes the elbow slightly and keeps the wrists well extended. The various makes of saddle which have been upon the market for the past year are illustrated by cuts, the type of saddles represented by the Messenger, Garford, Hunt and the Reform Wheeler being considered by the author the most generally useful. The Christie, Duplex, Empress and Common-sense are considered well adapted to some individuals.

HYSTERECTOMY FOR FIBROID, CARCINOMA, AND IN PREGNANCY, AFTER LIGATION OF THE ANTERIOR TRUNK OF THE ILIAC ARTERY.

Polk.¹⁰ The various bloodless methods which have been proposed for the radical removal of extensive uterine carcinoma, or for the difficult extirpation of fibroids are added to by this paper of Polk's. His operation differs from those of Pryor and Kelly chiefly in the method by which he reaches the origin of the anterior trunk of the internal iliac artery which, like other operators, he believes to be the best point

⁶ Münchener med. Wochenschrift, 1896, No. 36.

⁷ La Gynecologie, June, 1896.

⁸ American Gynecological and Obstetrical Journal, 1896, vol. viii, No. 6.

⁹ Loc. cit., 1896, vol. viii, No. 6.

¹⁰ Loc. cit., July 1896, vol. ix, No. 1.

for the application of the ligature. He recommends that the ovarian vessels and round ligaments should be tied and separated as in any other hysterectomy; the cut surface of the broad ligament at the sides of the pelvis should then be lifted up and opened. The posterior portion of the cut surface should be drawn back and the peritoneum separated from the pelvic wall by the fingers and handle of a scalpel inserted through the cut, until the finger reaches the internal iliac artery. This should then be followed by touch to its bifurcation; the anterior trunk is then separated, isolated and tied. In about one-fourth of all the cases the obturator artery gives off the uterine as well as the two lower vesical arteries, and in such cases, the obturator springs from the posterior trunk but then leads forward directly below the anterior trunk, where it is easily felt and can be included in the same ligature. In case of doubt, this divergence from the normal can be ascertained by tracing the uterine artery. The operator should restrict himself to the fingers and the handle of the scalpel in order to avoid the danger of wounding a vein. When these vessels have been tied upon both sides there is no possibility of bleeding in the removal of the genital organs, except from the incision of the posterior vaginal wall which, in many people, is fed by branches from both the superior and middle hemorrhoidal vessels and may, therefore, require separate ligation at the time of their division, since the superior hemorrhoidal is not controlled by ligation of the anterior trunk of the internal iliac. If the operation is undertaken for the removal of a cancer, the ureters should be dissected from their beds as soon as the vessels have been ligated. This may be accomplished either by taking up the ureters at their origin from the bladder and dissecting them off from below upwards, or by finding them as they cross the common iliac artery at the brim of the pelvis and making a similar dissection downwards.

AN ELECTRODE FOR THE REMOVAL OF LIGATURES.

Cleveland¹¹ describes an electrode for the removal of ligatures in vaginal hysterectomy. He believes that it is of great benefit to remove the sutures early, and has been much pleased with the instrument here described. It is a loop of platinum attached to copper wires, which is tied in with the silk ligature. At the end of thirty-six hours, the wires are attached to a three-cell storage battery, the current burns through the silk and ligature and electrode are removed together.

NEPHROTOMY FOR PYELONEPHROSIS.

Tally¹² reports a well-studied case of pyelonephrosis during pregnancy originating from catheterization during the previous puerperium.

Norris¹³ reports a similar case treated at first by attempts at catheterization of the ureter with the idea of washing out the pelvis of the kidney; and later, by lumbar incision. The author failed to make a success of the catheterization of the ureters, and each attempt only aggravated the symptoms. After the incision, it was found that each attempt to remove the drainage-tube was followed by severe pain. This was believed to be due to the presence of an inflammatory thickening of the ureter which rendered it practically impervious. A bougie was therefore passed from the lum-

bar wound through the bladder to the ureter every third day, and after three weeks of this treatment, the drainage-tube was removed without ill result. This condition of the ureter probably explains the failure of the attempts at catheterization, as the author had repeatedly been successful in previous catheterizations of the ureters for disease of other types.

NEPHRECTOMY FOR TUBERCULOSIS OF THE KIDNEY.

Noble¹⁴ reports a nephrectomy in which a positive diagnosis of large tubercular tumor of the left kidney was made by repeated catheterizations of the ureters, which at the same time showed the condition of the right kidney to be such as would warrant the nephrectomy. He concludes that systematic examinations of the urine should be made in all cases of supposed renal colic, and supplemented by a systematic study of the separated urines obtained through the ureteral catheters.

TREATMENT OF PERITONEAL INFECTION.

Pichevin¹⁵ discusses the relative advantages of flushing out the abdomen or wiping the peritoneum with dry gauze after the entrance of pus into the abdominal cavity. He considers that the question of the superiority of the one to the other at the time of the accident has not yet been settled, but strongly advocates the re-opening of the abdomen and free washing out of this cavity with a borated and then a normal salt solution, when the operation is followed by the symptoms of suppurative peritonitis. He relates a case in which he used the dry sponge method after rupturing a sac in the cavity. Two days later, the abdomen was tympanitic, pulse 120, small and wiry, respiration 50, tongue dry, thirst excessive, no vomiting. Drainage had of course been inserted, and, on examining the serous fluid which the drain was removing, no micro-organisms were found, from which the author diagnosed the beginning of an intestinal occlusion. The drainage was removed, cathartics given, and the patient recovered. He says that intestinal occlusion following operation often simulates peritonitis. It may be caused by pathological germs in the perineal cavity, but can also occur as the result of operation, or from paresis of the intestine. A bacteriological examination will determine with certainty whether the cause is sepsis or not. Catharsis should be used in all cases, but more especially when there is no peritoneal infection. In occlusion from compression, the effect is remarkably valuable. In true peritoneal infection, catharsis is not sufficient. It must be supplemented by intravenous or subcutaneous injections of salt solution and, if necessary, the flushing out of the peritoneum either through the drainage tract or by re-opening the abdomen.

THE EIGHTH INTERNATIONAL CONGRESS OF PHARMACY will be held at Brussels from August 14th to 19th inclusive. The proceedings of the Congress are designed to interest all working in pharmacy or such allied branches of knowledge as toxicology, pharmaceutical chemistry, bacteriology in relation to pharmacy, and the legal position of the dispenser and the prescribing physician. There will be prizes given for essays contributing to scientific or practical knowledge on any of these points.

¹¹ Am. Gyn. and Obstet. Journal, August, 1896, vol. ix, No. 2.

¹² Loc. cit., September, 1896, vol. ix, No. 3.

¹³ Loc. cit.

¹⁴ Loc. cit., September, 1896, vol. ix, No. 3.

¹⁵ Semaine gynécologique, April 7, 1896, vol. ix, No. 3.

Reports of Societies.

ANNUAL MEETING OF THE AMERICAN SURGICAL ASSOCIATION.

WASHINGTON, MAY 4, 5, 6, 1897.

FIRST DAY. — TUESDAY.

THE meeting was called to order at 10 o'clock, the President, JOHN COLLINS WARREN, in the chair.

The President read a paper entitled

THE INFLUENCE OF ANESTHESIA ON THE SURGERY OF THE NINETEENTH CENTURY.¹

DR. J. HOMANS, of Boston, read a paper entitled

THE INDICATIONS FOR THE TECHNIQUE OF HYSTERECTOMY.

He divided the indications for Hysterectomy into seven headings: (1) in intractable, often-recurring hemorrhage without discovered fibroid, or malignant disease when all the usual remedies including curetting have failed; (2) in all cases of malignant disease when the operation is possible without permanent injury to the bladder or bowels; (3) under certain circumstances in cases of fibroid tumor; (4) in cases of uncontrollable complete prolapse, particularly after the change of life, when pessaries and all the usual operations have failed; (5) in cases of incurable chronic inversion; (6) in cases of infection when the removal of the Fallopian tubes affected with salpingitis has not cured the patient; (7) to cure puerperal sepsis where the diagnosis is as certain as it can be.

Dr. Homans then described two cases in detail, as examples of the first class. The first case was one of chronic hyperplastic endometritis, and the other one was where an undiscovered fibroid existed in the right cornu and gave rise from time to time to severe hemorrhage. He then described in detail the technique of hysterectomy, and stated that the technique for malignant fibroid disease of the uterus by the vaginal route is the same as for the removal of the non-malignant uterus, while the technique of the removal of the uterus on account of cancer will vary according to the type of the disease. Hysterectomy is indicated in cases of fibroid tumor which cannot be enucleated either from the inside or from the outside of the uterus. He then fully described the technique of abdominal hysterectomy, where it was decided to leave the neck and os. The author objected to the expression "the uterus, and its appendages," and suggested instead, "the ovaries and their appendages," the ovaries being the reigning powers in the generative organs. The vagina may be wanting or the uterus may be wanting in cases of imperfect development, but their absence does not imply that of the ovaries, while if the latter are wanting, the other organs always are. In complete hysterectomy the os and the neck are separated from the vaginal wall before the abdominal dissection is begun.

The author then mentioned two cases illustrative of his sixth heading, both of which made good recoveries after operation. He advised the vaginal route in operation for the cure of puerperal sepsis, and suggested that a Jacques' self-retaining catheter should be put into the bladder for a few days after every hysterectomy.

DR. H. H. MUDD, of St. Louis, in discussing this paper, said that the technique of hysterectomy for fibroid tumors varied with the special indications of each case, and he considered that this operation for suppurative peri-uterine inflammations should be restricted to a very narrow field. The extension of carcinoma of the os occurs in two ways: first, along the vaginal tissue; and, second, into the broad ligament. Abdominal hysterectomy is probably the best in cases where the malignant growth begins in the body of the uterus. Most cases of malignant disease requiring hysterectomy originate in the os, and may be removed by the vaginal route when seen early. The author prefers to have the patient anesthetized upon the operating-table, so that as much time as possible may be saved. He is in favor of the Trendelenburg position, and advises that the abdominal incision be sufficiently large for rapid and accurate work. When the growth is soft and pliable, he suggests that it should be cleansed with a curette and sterilized water and wiped off with a gauze sponge; the firmer margins should be approximated by sutures. He described in detail the steps in the operation, and recommended that silk be used in securing the ovarian artery. He has discarded the use of iodoform gauze where it is brought in relation with the peritoneum, considering it dangerous.

DR. F. E. LANGE, of New York, stated that all working in the dark in these operations should be avoided, and considered hemorrhage and sepsis the two most important dangers. In some cases he has employed a vaginal incision, and in others a crucial incision above the symphysis pubis. But in some cases the fleshy portions do not offer sufficient resistance when brought together, particularly where the patient becomes pregnant after the operation, and has not been so previously. Sometimes it is necessary to use the apron of the large omentum to prevent the agglutination of the intestine. The para-vaginal and para-rectal incisions consist of the separation of all the soft parts alongside of the rectum, which the author has employed in some cases. The advantage is that the floor of the pelvis is more accessible and provision against infection is also greater, because the drainage takes place away from the peritoneal cavity.

DR. DUDLEY P. ALLEN described an operation which he has found to work very well in a number of these cases.

DR. ALBERT VANDER VEER, of Albany, agreed with Dr. Homans as to the places where hysterectomy was advisable. He was in favor of the supra-vaginal or abdominal method in cases where the vagina was comparatively normal, and the cervix in a healthy condition. It gave the operator an opportunity to remove adhesions and to thoroughly explore the pelvis and its contents. He preferred the vaginal route if a cystocele or rectocele or prolapse of the ovaries be present. He laid great stress upon the fact that much more could be done for these cases if they were only seen much earlier and promptly diagnosed and treated. In cases of carcinoma confined to the uterus where microscopical examination confirms the suspected symptoms and indications, he advised operation. The surgical route should be by way of the vagina when the uterus is not too large from invasion of the body by the disease, and when no pregnancy beyond the third month complicates it; but he was not in favor of operation in all cases of fibroid, as

¹ See Journal, page 432, May 6, 1897.

many patients are not inconvenienced by their existence. He strongly urged a free abdominal incision in all cases of pan-hysterectomy, and urged that no more of the pelvic organs should be removed than is actually necessary.

DR. J. WILLIAM WHITE, of Philadelphia, read a paper entitled

THE X-RAYS IN SURGERY.

The author dealt with the subject under three headings: (1) in its relation to foreign bodies; (2) fractures and dislocations; (3) diseases of bones and joints. He stated that bullets in the thoracic cavity can be located with reasonable accuracy in the trachea, bronchi, lungs and pleura, and that their recognition in the cranial cavity is usually an easy matter. Bodies can be very satisfactorily detected in the esophagus, but rubber tubes in the pleural cavity seem to be translucent to the rays and cannot invariably be detected. The taking of skiagraphs with the patient in several different positions in the case of foreign bodies in the pelvic cavity is of service. He divided fractures of the skull, as regards their recognition into three kinds: fracture of the inner table, fracture of the outer table, fracture of the base. Up to the present the first two have only been successfully recognized. The author predicted great help in the future from skiagraphy in diagnosing obscure cases of fracture of the sternum, scapula, clavicle, and pelvic bones. Skiagraphing the ribs is somewhat difficult on account of the respiratory movements, but this can be overcome by restricting the movements with a fixed dressing. Close fibrous union in cases of ununited fracture does not prevent its demonstration accurately, and the limitation of motion in cases of old fractures has been readily explained by the skiagraph.

The author gave it as his opinion that a patient has not the right at the present time to demand the taking of a skiagraph in cases of fracture, and thought that in this connection much trouble would result in the near future in a medico-legal way. He said there was no doubt that these pictures had done much towards aiding in the diagnosis of diseases of the bones and joints, but believed that the fluoscopes would be more useful than the skiagraph in cases of cardiac disease, on account of the constant motion. He mentioned that no rule can be laid down as to the time of exposure, as many things cause this to vary. Vesical calculi are more difficult to skiagraph than renal calculi, on account of the supra-position of the pelvic bone; and the urethral stone has not at the present time been seen clinically. The author has done some work with the rays in connection with cases of cancer, but as yet could not make any report.

DR. W. W. KEEN, of Philadelphia, referred to the medico-legal importance of the x-rays, and illustrated this by the history of a case.

DR. CHARLES B. NANCREDE, of Ann Arbor, urged that several pictures should be taken in different positions before one could feel safe in using the results for diagnostic purposes and demonstrated how the fluoscopes has in some cases succeeded better than the skiagraph. He stated that an expensive apparatus is not at all necessary for skiagraphic work, and that an expenditure of fifty dollars was sufficient for all purposes.

DR. G. R. FOWLER, of Brooklyn, agreed with Dr. Nancrede as to the importance of taking a number of

pictures in various positions, and also as to the fluoscopes being at times better than the skiagraph.

DR. M. H. RICHARDSON, of Boston, showed a large number of skiagraphs, and laid great stress upon their medico-legal importance, giving it as his opinion that many suits for malpractice would result from their use.

DR. WILLIAMS also showed a number of skiagraphs and an instrument for detecting calculi in the bladder.

DR. CHRISTIAN FENGER, of Chicago, mentioned a case in which the soft parts of the scalp died after exposure to the x-rays in the attempt to locate a bullet in the cranium, and attributed this result to too long an exposure.

SECOND DAY. — WEDNESDAY.

DR. DEFORREST WILLARD, of Philadelphia, showed a large number of skiagraphs and explained each. Some of them were of special interest, and particularly those taken of women with all the clothing on.

DR. EDMOND SOUCHON, of New Orleans, read a paper entitled

THE OPERATIVE TREATMENT OF IRREDUCIBLE DISLOCATIONS OF THE SHOULDER, RECENT OR OLD, SIMPLE OR COMPLICATED.

The writer considers all the forms and varieties of irreducible dislocation, and studies for each one the operation performed, the difficulties and complications after the operation, the results immediate, the results remote, and formulates the conclusions as to the advantages or disadvantages of each. The study is based on 140 operated cases. The profound silence of the text-books and also of special books on dislocations in regard to this most important subject renders this study most imperative and timely.

All irreducible dislocations, recent, simple or complicated with fracture that were operated by reduction or resection have given good results, with one exception, in which death does not seem to be due truly to the operation alone, but to a complication of shock, unusually severe at that.

Irreducible dislocations, old, simple and forward, operated upon by resection through an anterior incision, are the most frequent — 56 cases against 33 by arthrotomy and reduction. Results remote show a great mortality percentage in resections from injuries to the vessels, but this is avoidable with special care. The fatalities in reduction are due to sepsis, now preventable. The disadvantages of reductions are necrosis of the cartilages and of the head of the bone, calling later for sequestrotomies and resection. This is probably due to the greater dissections and denudations of the head and surgical neck necessary to reduce than to simply resect the head. Reduction is the more desirable operation of the two because it preserves the head and all the movements depending therefrom, but the necrotic consequences are serious drawbacks, as also anchylosis following sometimes the reduction. It should not be resorted to unless it can be done easily, without too extensive dissections, although it may be necessary to use hooks, levers and some curetting of the cup, as the cases reported show. The duration of the dislocation is immaterial; it is the condition of the parts that is all important. Recent irreducible dislocations have given as much, if not more, trouble to reduce than dislocations of months' standing.

The anterior incision is the route in all forward dislocations; almost all forward cases operated by the axillary route and the posterior incision have been unfavorable.

Cases reported as operated by subcutaneous section of fibrous bands, of tendons, of muscles and by osteotomy have given good results, but they are so few. It seems extraordinary that surgeons have not employed these methods oftener; perhaps they have, but, having failed, have not reported the cases. In considering the extent and the density of the tissues binding down the head and surgical neck to the surrounding parts, as reported by operators, it is a wonder that these methods should succeed except in very selected loose cases.

Irreducible dislocations, old and downward, four in number, have all been treated by the axillary incision with the resection, that is, removal of the fractured head more or less loose in the axilla, with favorable termination. In one case, however, the head was "pegged back" and reduced, with a good result. One downward dislocation (Desprès) was treated by osteoclasis; but it was a failure, no false joint forming. Yet there are cases on record of forward dislocation in which the bone was fractured near the head or through the surgical neck during efforts at reduction, and which yielded a fair enough result.

Irreducible dislocations, old and backward in the adult, have been reported twice. They were operated by resection, with a very ordinary result.

Irreducible dislocations, old, upward and operated, have not been found on record.

Irreducible dislocations, congenital, have been operated on several times; they were old, backward dislocations. Two cases were operated by reduction; one case died; the other had to have sequestra removed, and did well. Three cases were operated by resection, two with good results, the third one is not stated.

Irreducible old dislocations in young subjects or in old subjects are duly considered; also old dislocations double, that is, of both shoulders; also spontaneous or pathological and paralytic irreducible old dislocations.

The forms and varieties due to complications accompanying irreducible old dislocations are fully treated, and also the forms and varieties due to relapses or recurrences and to the sequels of the operations performed for irreducible dislocations and old, simple or complicated.

DR. J. EWING MEARS, of Philadelphia, suggested that the word "unreduced" should be used instead of "irreducible," and considered that the latter word could be applied when efforts at reduction are limited to manipulation, while the former could refer to dislocations which were not reduced even by operation. He advised an incision through the deltoid muscle in cases of recent dislocations of the shoulder which could not be reduced by manipulation, provided any operation was decided upon, and thought that disability and pain were the two most important factors for operative interference in old, unreduced dislocations. He suggested that massage and other like methods should be employed before an operation was suggested, and considered that any operation that would remove pressure and relieve pain was justifiable. He then referred at some length to an operation performed by himself in 1886 in attempting to form a false joint. Although the operation resulted in the relief from

the pain, it was demonstrated a year later at an autopsy that a false joint had not been formed, but union had taken place in such a manner as to pull the head of the bone off the axillary plexus.

DR. JOSEPH RANSOHOFF, of Cincinnati, did not think that it was often necessary to consider operative interference in recent cases of uncomplicated dislocations of the shoulder, that they were usually so easily reduced under anesthesia by manipulation, and that the degree of disability present in unreduced dislocations of long standing must decide the course of treatment to be followed. He considered pressure upon the vascular or nerve trunks a positive indication for operation. The operations suggested and practised for irreducible dislocations are four in number: first, subcutaneous division of the adhesions; second, subcutaneous osteotomy of the neck of the humerus; third, arthrotomy; and, fourth, resection; the last two being the most frequently indicated. A ready nidus for infection is afforded in old cases where a large cavity exists bounded by firm fibrous walls and lined with an imperfect serosa in the space where the head of the bone has been, and the earlier the interference the better the results.

In conclusion, the author summarized the present status of the question of operative interference in shoulder luxations, as follows:

(1) Immediate operative interference is indicated when the ordinary methods by manipulation under anesthesia have failed.

(2) In irreducible dislocations, operations should not be delayed until irremediable changes have taken place in the capsule and about the humeral head. In comparatively recent cases arthrotomy offers the best end-results.

(3) In old standing cases the conditions found must determine the choice between arthrotomy and resection.

(4) In unrecognized dislocations of long standing, a year or over, only grave compression symptoms must be recognized as indications for interference.

(5) Special attention must be given to the prevention of sepsis, since in a very large proportion of cases recorded, sepsis has been either the cause of death or by the destruction of the humeral head or obliteration of the joint cavity has frustrated the very object of the operation.

DR. J. J. OWENS, of Chicago, has only seen three cases of this kind, one of which was of the subcoracoid variety, in which it became necessary to cut into the joint, and finally to do a resection on account of necrosis setting in. In the second case, which was one of seven or eight weeks' standing, a resection had to be done, all other possible means of reduction having failed; and excellent results followed. In performing Kocher's method for reduction of a dislocation in the third case, the upper end of the bone gave way. The position was at once improved, and the pain at once disappeared. Daily movement of the bone was practised to prevent adhesion, and a very satisfactory result followed this sudden and accidental slip.

DR. JOHN B. ROBERTS, of Philadelphia, referred to a case in which much bruising and damage to the soft parts resulted from attempts at reduction, and necessitated postponement of the operation. Subsequently, after the operation was performed the patient died from shock and hemorrhage.

DR. L. McLANE TIFFANY, of Baltimore, recommended a free opening into the joint in cases of dislo-

cation of the shoulder-joint, putting them on the same basis as injuries to any other joint, and advised a resection in all cases where the head of the bone is firmly fixed in an abnormal position.

DR. SOUTCHON closed the discussion by speaking in favor of early operation in all cases before adhesions could form, and laid stress on the important part played by the deltoid muscle and a division of the filaments of the circumflex nerve in these cases. He also dwelt upon the significance of the after-treatment in these cases.

DR. E. H. BRADFORD, of Boston, read a paper on
TENDON ANASTOMOSIS.

He mentioned some of the good results that have followed the transference of muscles and tendons from a healthy to a paralyzed portion of the limb, and gave a number of instances in which this operation had been performed with excellent results. He illustrated diagrammatically a method of splitting the patella, and advocated in cases of spastic paralysis the lengthening of tendons and muscular fascia in the popliteal space, groin, etc. He laid stress upon the importance of testing a muscle electrically before transplanting it. The paper was illustrated with a large number of diagrams and drawings.

DR. JOHN B. ROBERTS, of Philadelphia, mentioned a case in which he had performed a similar operation with good results where paralysis of the extensors of the fingers existed.

DR. DEFORREST WILLARD, of Philadelphia, reported great improvement in several cases where similar methods had been employed.

DR. BRADFORD, in closing, merely mentioned a case of Dr. Dawbarn's in which good results followed transference of the insertion of the ligamentum patella by chiselling off the tubercle to which it is attached, crushing a portion of the tibia, and inserting the tubercle there.

DR. JOHN B. ROBERTS, of Philadelphia, read a paper on

THE SURGICAL TREATMENT OF SUPPURATIVE PERICARDITIS.

The author advocated, as he had since 1876, the treatment of pericardial effusions in the same manner as pleural effusions; and stated that paracentesis was insufficient to cure suppurative pericarditis. Incision and drainage were essential, and should be adopted as soon as diagnosis of pus in the pericardium was made. The diagnosis of the purulent character of the effusion was only determinable by exploratory puncture. This should be done at the upper part of the left xiphoid fossa, close to the top of the angle between the seventh cartilage and the xiphoid cartilage. Pericardotomy should then be done after resection of the fourth and fifth costal cartilages in the manner described by the author. The operation was believed to be novel in some of its details, though others have recommended, and operated by, various forms of resection. This method was devised to avoid injury of the left pleura, which is nearly always a complication in the ordinary methods of puncturing or incising the pericardium. As a rule, empyema is liable to occur as a sequel of pericardial puncture or incision in suppurative pericarditis. The prognosis is good in pericardotomy for pyo-pericardium. In a table of 26 collected cases 10 recoveries and 16 deaths were shown. This gave a

percentage of recovery of 38.4 +. Of the fatal cases at least nine were septic, and all the others who died had complicating lesions, such as pleuritis, or pulmonary, cardiac or renal lesions. The operation devised by Dr. Roberts consisted in raising a trap-door of the fourth and fifth costal cartilages and connecting soft parts, and using the tissues of the third interspace as a hinge. The internal mammary vessels and left pleura are thus exposed and pushed to the left, so as to leave the pericardium uncovered and accessible to operation.

DR. CHARLES B. PORTER, of Boston, reported one case successfully operated on, in which excellent health followed. He thinks the operation is indicated in all cases of purulent pericarditis based upon the results of cases already reported. In his opinion the ideal operation was, first, to avoid opening the pleural cavity; second, to open the pericardium opposite the point where the drainage will remain good after the sac has contracted; and, third, to secure permanent and free drainage. He then dwelt at some length upon the surgical anatomy of the parts, the steps of the operation, and the histories of a number of cases of reported recovery after free incision and drainage had been practised, illustrating his remarks with a number of illustrations.

DR. J. MCFADDEN GASTON, of Atlanta, Ga., stated that the conditions are more urgent in pericardial effusions than they are in pleural effusions, and consequently of late years more vigorous measures of internal treatment before mechanical evacuation is employed have been suggested. It has been urged that aspiration should be limited to serous effusion, and not to purulent collections. The author then detailed a large number of references to this subject by many authors in various publications during the past few years, and recommended the aspirator or the hypodermic syringe as the only means of testing the pericardial contents. Incision and drainage should be practised without delay when the collection is of a purulent character.

DR. DUDLEY P. ALLEN, of Cleveland, and DR. G. R. FOWLER, of Brooklyn, agreed with the foregoing speakers.

DR. ROBERTS closed the discussion, and thanked Dr. Porter for his report of the cases operated upon.

DR. S. H. WEEKS, of Portland, Me., read a paper entitled

REPORT OF A CASE OF REMOVAL OF THE GASSERIAN GANGLION.

The only apparent cause for neuralgia in this case was excessive mental work, the patient being a minister. The author described the operation as performed by himself, and stated that excellent results had followed, the limited amount of aphasia which had been present from the first having been gradually disappearing ever since.

DR. G. R. FOWLER, of Brooklyn, stated that he knew the patient upon whom Dr. Weeks had operated, and was aware of the intense suffering which preceded the operation. He was very glad to learn of the subsequent improvement.

Dr. Fowler also referred to the fact that the two cases of ligature of the common carotid and the external carotid which he performed in an effort to starve off the Gasserian ganglion, the details of which he reported to the Society last year, have remained free from a return of the disease up to the present time.

UNVEILING OF THE GROSS STATUE.

Wednesday afternoon, the Association, in conjunction with the Alumni Association of Jefferson College of Philadelphia, unveiled the statue of the late Samuel D. Gross.

The Address was delivered by DR. W. W. KEEN, of Philadelphia, who referred very feelingly to Dr. Gross, and gave a history of his life and of his services to the medical profession.

THIRD DAY. — THURSDAY.

DR. DUDLEY P. ALLEN, of Cleveland, read a paper entitled

THE ORIGIN OF APPENDICITIS.

He considered that there are three factors which must have some causative relation to this disease: first, a bend of the appendix itself; second, a stricture of the appendix on the proximal side of the inflamed portion; and, third, a great increase in thickening of that portion of the appendix distal to the point of flexure and stricture. The author dwelt at great length on the pathology of the disease, and illustrated his remarks with a number of drawings demonstrating the histology of the appendix, as well as with an actual appendix and also with a fetus showing the appendix *in situ*. In concluding his paper, the author summarized his conclusions as follows:

(1) In the descent of the cecum from the right hypochondriac to the right iliac fossa, the position of the appendix with relation to the cecum becomes changed.

(2) The bend thus produced may be sufficient to embarrass the passage of the contents of the appendix into the bowel.

(3) To empty the appendix an increased effort becomes necessary on the part of the muscular coats.

(4) The increased effort on the part of the muscle results in hypertrophy, amounting in the specimen presented to nearly five diameters.

(5) Increased pressure at the point of flexure produces irritation and inflammation, causing destruction of mucous membrane, and at length organic stricture.

(6) The hindrance to the escape of mucus produces the repeated attacks of pain resembling colic.

(7) When the escape of the contents of the appendix is no longer possible, either from the tightness of the stricture or because it is closed by a concretion too large to escape, distention of the distal portion may gradually go on to perforation, or, if the distention be rapid and extreme, to gangrene.

(8) In some cases the inflammatory process may not cause perforation, but terminate in destruction of the mucous coat, and final obliteration of the lumen of the appendix.

This paper was not discussed.

DR. L. M. TIFFANY, of Baltimore, read a paper on

THE TECHNIQUE OF CRANIAL SURGERY.

He dwelt at some length on the difference between traumatic and pathologic operations, the best way of gaining access to the brain, and the various methods of arresting hemorrhage.

He also went into considerable detail concerning the recognition of the brain area presenting through an opening in the skull, the removal of intracranial structures, and the closure of the wound.

DR. W. W. KEEN, recommended Pyle's chisels for

opening the skull, and stated that no rule could be laid down as to the size of the opening necessary, each case being a law to itself. He was not in favor of the employment of the dental engine in opening the skull for several reasons, but he was in favor of osteo-plastic operations in certain cases. He advised that the operation should be performed in two stages. The interval between each to be governed according to the special case.

DR. WEIR, of New York, discussed the question of hemorrhage and the various methods of controlling it. He has to a large extent given up the use of the chisel, and rarely resorts to osteo-plastic operations.

DR. J. PARMENTER, of Buffalo, preferred the gouge and hammer to the chisel, as he considers them less dangerous. He advised against the practice of palpating the intracranial structures, and laid great stress upon the importance of cleanliness in these operations.

DR. S. J. MIXTER, of Boston, considered that no trephine should be over three-quarters of an inch in diameter, and believed in the employment of extensive flaps rather than running the risk of having to enlarge the incision. He also suggested the placing of a piece of celluloid between the skull and the skin to prevent adhesion where the operation is performed in two stages. He thought the questions of how much pressure the brain could stand, and how much compression was safe in the case of hernia of the brain were very important. He recommended the presence of a skilled pathologist when exploring the brain, so that removed fragments might be immediately examined and their true nature determined.

DR. CHRISTIAN FENGER, of Chicago, read a paper entitled

URETERECTOMY.

He stated that ureterectomy has been performed for tuberculosis, suppuration in the dilated ureter, hydro-ureter and non-infected dilated ureter. He referred to the operations as primary, secondary, total and partial. He considered a primary as one when the ureter is removed simultaneously with the kidney; a secondary operation when, after nephrectomy, the removal of the ureter of the same side becomes necessary; as total when the entire ureter is removed; and as partial when only a portion of the ureter is removed. He gave four methods of operating: trans-peritoneal, extra-peritoneal, sacral and trans-vaginal.

DR. A. T. CABOT, of Boston, saw no especial advantage in transplanting the end of the ureter into the vagina, and he thought the discharge from the lumbar fistula quite as endurable as from the vagina. He advised that the ureter should be cut off as low as possible when it was tuberculous, stating that the remainder could be removed, if necessary, subsequently.

DR. M. H. RICHARDSON, of Boston, showed some colored illustrations from a case of extirpated ureter.

Dr. Richardson also read a paper entitled,

A CASE OF FENGER'S PYLOROPLASTY FOR INTERMITTENT HYDRONEPHROSIS.

In this case it was only when pain and tenderness were present that the tumor could be felt, and it was supposed to be a distended gall-bladder, but proved to be an enlarged renal pelvis. After describing at some length the steps of the operation, the author

stated that the patient made a good recovery and has no recurrence of the symptoms.

Dr. Richardson then presented another paper entitled

A CASE OF CHRONIC INTESTINAL OBSTRUCTION FROM INCOMPLETE VOLVULUS OF THE SIGMOID FLEXURE.

The case occurred in a man, forty-seven years of age, who had constipation alternating with watery discharges, and occasionally sudden pains. Upon opening the abdomen, the sigmoid flexure was found to have a capacity of at least two gallons, and was so twisted upon the colon as to obstruct the fecal flow. After untwisting the colon it was fastened to the abdominal wall, and the patient made a complete recovery.

Drs. H. L. BURRELL, and R. W. LOVETT, of Boston, read a paper on

HABITUAL DISLOCATION OF THE SHOULDER-JOINT.

The authors mentioned several methods of treating these cases, referred to the way in which the x-ray and the fluoro-scope acted in such cases, and also to two cases successfully operated upon.

Many other papers were read by title, after which the Society went into executive session and elected the following officers: President, Dr. T. F. Prewitt, St. Louis, Mo.; Vice-Presidents, Dr. J. McFadden Gaston, Atlanta, Ga., Dr. M. H. Richardson, Boston; Secretary, Dr. H. L. Burrell, Boston; Treasurer, Dr. G. R. Fowler, Brooklyn.

The next meeting of the Association will occur at New Orleans, April 20, 1898.

Recent Literature.

A Practical Treatise on Medical Diagnosis. For the Use of Students and Practitioners. By JOHN H. MUSSER, M.D., Assistant Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New second edition, thoroughly revised. In one octavo volume of 925 pages, with 177 engravings and 11 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1896.

The second edition of Dr. Musser's *Diagnosis* follows the first at an interval of two and a half years. This in itself is a tribute to the recognition of its qualities. The author has availed himself of the opportunity to enlarge the text by between fifty and sixty pages, the book has been thoroughly revised, the results of recent investigations have been incorporated, and additions have been made to the illustrations. The book is therefore well up to date. In truth, activity in medical research and in the sciences bearing on medicine is so great at the present time, that revision of a book used by students as a text-book and by practitioners for reference in their daily work is practically necessary at least every three or four years.

In regard to the plan and execution of Dr. Musser's book, we have only to repeat what was said of the first edition. The volume is still of a manageable and convenient size, the presentation by the publishers—paper, type and illustrations—leaves little if anything to be desired.

Diseases of the Stomach. A Text-book for Practitioners and Students. By MAX EINHORN, M.D., Instructor in Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Dispensary. 496 pp. New York: William Wood & Co. 1896.

Dr. Einhorn's book is dedicated to Professor Ewald, of Berlin, as friend and teacher. This suggests the scope of the book, and reminds the reader of the attention given during the last twenty years, to the investigation of the physiology and pathology of the stomach and of the more accurate knowledge of the functions and disorders of that viscus which has been gradually developed during that time. "Dyspepsia" is no longer a sufficient diagnosis for either physician or patient. A point has even been reached where there is great danger that the diagnosis and treatment of diseases of the stomach may become a "specialty." New processes for physical examination have been devised, and chemical tests applied to the gastric secretions. The technique is not for all of these absolutely simple, and the apparatus has grown to be numerous as well as ingenious. It is the exceptional practitioner who is possessed of a gastrodiphane or is prepared to give his patient the benefit of transillumination of the stomach.

This volume has 478 pages, and its contents are divided into fourteen chapters: the first four treat of anatomy and physiology, methods of examination, diet, local treatment of the stomach; the next four chapters are devoted to organic diseases with constant lesion; the next three to functional diseases with variable lesions; Chapter XII deals with abnormal conditions with reference to the size, shape and position of the stomach; Chapter XIII elucidates at considerable length, as due to its importance, the nervous affections of the stomach; and Chapter XIV is given to the condition of the stomach in diseases of other organs.

The author has produced in the English language a useful book of practical value to the practitioner on an important subject—a subject which he had previously discussed in the eighth volume of the "Twentieth Century of Practice."

A Manual of the Practice of Medicine. Prepared especially for Students. By A. A. STEVENS, A.M., M.D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania. Fourth edition, revised and enlarged. Illustrated. Philadelphia: W. B. Saunders. 1896.

The fourth edition of this excellent manual contains important modifications and additions. A number of articles have been rewritten in conformity with modern progress in our knowledge of the subjects of which they treat, and a short appendix giving an exceedingly brief account of the examination of the blood and of the gastric contents has been added. To the study of the white blood-corpuscles only a page and a half is given, including a large cut, a brevity which seems extreme even in a manual.

The book, as a whole, contains a vast amount of knowledge condensed into a very small space, and resembles in many of its descriptions a medical dictionary. It will be a useful reference book for students and may also serve as an outline of a course of study on this subject.

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THE SURGICAL TREATMENT OF ACUTE PERITONITIS.

DURING the past twenty years, great interest has attached itself to the surgical treatment of all forms of peritonitis, and especially of the tubercular form.

Sir Spencer Wells operated in a case of the latter kind as far back as 1862 and effected a cure. Ceccherelli, several years subsequently, reported 88 cases, three of which only were his own; 55 of these cases resulted in permanent cure. Trzebicky, in 1888, collected the particulars of 54 cases, of which 40 were cured; and Kümmell out of 40 cases reported 35 recoveries. The objective signs were generally those of an encapsulated ascites.

Lawson Tait, in 1888, reported a case of puerperal peritonitis in which he performed laparotomy with a successful result. Acute peritonitis appeared on the third day, after a severe labor, and soon became general. On the fifth day there was great distention, pulse 135, hiccough and excessive vomiting. The day following, the condition of the patient was worse. Laparotomy was performed, and a bloody, purulent fluid was evacuated after separating the adhesions; the uterus was adherent to the pelvis on the right side. A glass drainage-tube was passed deep into the pelvis, and the wound was closed. The unfavorable symptoms disappeared promptly, and the patient recovered.¹ Tait subsequently reported eight cases of acute peritonitis treated by laparotomy and drainage after thorough cleaning of the abdominal cavity. Six of these made a good recovery.²

Since then cases have multiplied in foreign lands and in this country, and all our leading surgeons have had a more or less favorable experience in laparotomies for peritoneal inflammations. According to Wylie, Gordon, Davis, Price, Mears, Cushing and others whom we might name who have written on the subject, abdominal section is imperatively demanded when-

ever the peritonitis becomes general and signs of pus are manifest. It is the only thing that gives a chance of recovery. Drainage should be employed in all cases.

It is easier to understand the beneficial effects of laparotomy, irrigation and drainage in acute septic cases following abortion, appendicitis, perforation of the stomach or duodenum by an ulcer, etc., than in tuberculous peritonitis, where the operation certainly seems often to do good. Fehling attributes the results to the change of pressure in the abdomen and the contact of extraneous germs with the bacillus tuberculosis.³ Lauenstein believes that the withdrawal of the ascitic fluid is an important factor, as the tubercle-bacilli cannot thrive on the dry peritoneum. He also thinks that exposure to sunlight during the operation has a curative influence.⁴ Osler thinks that cases with fresh eruption and considerable effusion, whether free or sacculated, offer the best chance of recovery, as the tubercular disease is more likely to be primary in the peritoneum, the general condition is usually better, and the subsequent chances of general infection are much slighter.⁵ In cases, then, with somewhat sudden onset, rapid development of ascites, with flow of moderate grade, we may be most sanguine of success.

The treatment of diffuse septic peritonitis, however, from the acuteness and severity of its symptoms, and the frightful rapidity of its progress toward a fatal termination, without, and often in spite of, surgical treatment, presents problems of tremendous interest and importance to surgeons who are called, too often unfortunately as a last resort, to attempt to save the life of the unfortunate victims of this disease. Recovery from an acute septic process diffused throughout the enormous cavity of the peritoneum, with its tremendous absorbing surface, is, of course, out of the question without the freest possible drainage and most thorough cleansing. But, in addition to cleansing and drainage, which must be secured with the least possible damage to the inflamed and roughened serous surface, the weakened and paretic muscles of the intestine must be stimulated to peristaltic action, or the bowels will not move, and the distention, fecal vomiting, etc., will continue till the fatal termination. All these objects must be accomplished in patients whose nervous system is intoxicated by the absorption of the septic products of bacterial growth, and whose strength is thereby reduced almost to the lowest ebb. Surely a difficult problem for the surgeon to grapple with. The prognosis of the disease, if untreated, is, however, so bad, that the attainment of success, even in a small proportion of cases, is a worthy reward for the surgeon's efforts.

The subject in all its bearings was recently discussed at the Twenty-sixth Congress of the German Society of Surgery held in Berlin, April 21-24, 1897.

Körte spoke of acute purulent peritonitis from lesions of the stomach, intestines or uterus. He has

¹ Medical Press and Circular, June, 1887.

² Le Bulletin Médical, May 20, 1888.

³ American Journal of Obstetrics, June, 1888.

⁴ Centralblatt für Chirurgie, Leipzig, No. 42, 1890.

⁵ Johns Hopkins Hospital Reports, 1890.

observed 99 cases during the last seven years. In 71 cases laparotomy was performed, with 25 recoveries (the cases were all bad cases). He first taps the abdomen to remove exudate (if there be any), then makes a free incision in the middle line. He regards the washing out of the peritoneal cavity as a matter of indifference; when done, only boiled water should be used. He cautions against much manipulation of the intestines. The establishment of good drainage is essential. He cautions against opium in the after-treatment. If there is much vomiting, he would perform lavage of the stomach. The bowels should be kept open. Of the 71 cases operated on by him, 34 were the result of appendicitis; 13 recoveries. In six cases the peritonitis was due to perforation of the stomach or duodenum; only one cure. In 31 cases the peritonitis proceeded from suppurative disease of the uterus and tubes; of these there were only six recoveries. The prognosis of peripheral peritonitis is better than that of central peritonitis, because the former presents a smaller surface for absorption than peritonitis localized in the coils of the small intestine.

König, of Berlin, stated that he had recently operated for two cases of perityphlitis presenting the symptoms of general peritonitis. In the course of the operation, he came upon numerous circumscribed abscesses; there was no diffused exudation. Such cases are sometimes, though incorrectly, classed as diffuse peritonitis. In operating, he never washes out the abdominal cavity; he makes a very free opening into the abdomen. He would urge the importance of extending the same surgical treatment to puerperal peritonitis, and to suppurative peritonitis from whatever cause, considering the very bad prognosis of these affections when left to themselves. A laparotomy is never to be undertaken unless there is a fair pulse and the patient is in a good condition to rally after the operation.

Sonnenberg, of Berlin, said that he was in the habit of making the incision in the right hypogastric region, seeing that most of these peritonites are of perityphlitic origin. This incision leads directly to the primitive focus of the suppuration, and exposes the surgeon much less to the risk of tearing the adhesions which may exist between the abscess and the abdominal cavity than when the opening is made in the linea alba. He opens the abdominal cavity freely and packs with antiseptic gauze for drainage.

Israel, of Berlin, also believes in the free abdominal opening, and in desperate cases makes a large crucial incision of the abdominal walls; he then packs in iodoform gauze. He claimed more successful results since he had adopted this method.

The discussion of the same subject before the recent Congress of American Physicians and Surgeons in Washington brought out some interesting differences of opinion as to operative methods. The speakers were naturally in accord that free irrigation with normal salt solution and drainage were essential to success; but the advocacy of Dr. McCosh of the pro-

cedure of drawing the coils of small intestine outside the abdomen for more thorough washing, met with considerable opposition. It must certainly prolong the operation, a matter of serious moment in this class of cases, and there is certainly a possibility of increasing the shock.

A very thorough washing can be done through a large tube passed to the bottom of the deep recesses of the abdominal cavity without drawing out the intestine.

The injection of saturated solution of magnesium sulphate into the small intestine through an aspirating needle, which has been done by Dr. McCosh, is a procedure which seems worthy of trial. Dr. McCosh's record of success in six out of eight cases operated upon is certainly an excellent one.

Drainage by gauze wicks arranged as siphons, and of tubes (preferably glass), passed to the bottom of the pelvis are of the greatest importance.

Although the success which Dr. McCosh has achieved has so far failed to crown the efforts of most surgeons who are called upon to treat these cases, there is reason to hope that the development of a thorough and at the same time rapid technique, and the adoption of every means which can be employed to encourage peristalsis, may be sometimes successful in saving a life. Many points in the methods of draining the peritoneum remain yet to be perfected, and afford a field for the surgeon's inventive efforts.

MEDICAL NOTES.

THE LATEST ASSOCIATION. — Now comes the American Gastro-Enterological Association.

THE MISSOURI STATE MEDICAL ASSOCIATION. — This Association held its fortieth annual meeting at St. Louis, May 18, 19 and 20, 1897.

PLAGUE IN BOMBAY. — Plague in Bombay is declining. For the week ending May 7th, there were 130 deaths. In the Cutch district, north of Bombay, plague continues with marked severity.

INSPECTION OF SCHOOLS IN BALTIMORE. — The Health Department of Baltimore has begun the systematic examination of the throats of school children where diphtheria is suspected.

DR. LUCY WAITE, the wife of Dr. Byron Robinson, has been elected head physician and surgeon to the Mary Thompson Hospital, of Chicago. The hospital is devoted to the diseases of women and children; it has a capacity of eighty beds.

DR. JOHN B. HAMILTON. — Dr. John B. Hamilton, formerly of the Marine-Hospital Service under Surgeon-General Wyman, has gone to the Illinois Northern Hospital for the Insane, at Elgin, to assume the duties of Superintendent. We understand that, while abandoning his extensive surgical practice in Chicago, he will still be retained as editor of the *Journal of the American Medical Association*. — *Medical Record*.

A TESTIMONIAL TO HENRI DUNANT. — A committee has been formed at Stuttgart for the collection of funds for a testimonial to M. Henri Dunant, the founder of the Red Cross Association, and promoter of the Geneva Convention.

A MEDICAL SENATOR. — After a protracted struggle in the Kentucky Legislature, that body, on its sixtieth ballot, elected Dr. Wm. J. Deboe as United States Senator. During the sessions Dr. Wm. G. Hunter led in the race, but always lacked from one to five votes. Both of these gentlemen are well-known and reputable physicians. Dr. Hunter is now a member of the National House of Representatives. All honor to these gentlemen, and all honor to their constituents! Drs. Hunter and Deboe are all the more useful to their State and to the nation by reason of their medical education. — *Cincinnati Lancet-Clinic*.

BOSTON.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, May 26, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 64, scarlet fever 80, typhoid fever 6, small-pox 1.

NEW YORK.

A PRACTICAL TEST OF THE BERTILLON SYSTEM. — The first practical test of the Bertillon system of identification in the criminal courts of New York has just been made in the Court of General Sessions in the case of a thief giving the name of Reynolds, who in February last was detected in the act of entering the second story of a residence. He broke his leg in jumping to the ground, and was easily captured. The chief of the detective force sent his photograph and description to the heads of police of all the leading cities, with the result that he was identified by the Chief of Chicago as John Coogan, who had served a term in Joliet prison, and by the Chief of Philadelphia as John Martin, who had been convicted of burglary there. At his trial the man strenuously denied his identity with either Coogan or Martin, but the evidence presented by the identification cards sent from Chicago and Philadelphia was so conclusive that both the judge and jury were thoroughly convinced that he was an old offender.

THE NEW YORK PUBLIC LIBRARY. — The bill providing for the construction of the New York Public Library, Astor, Lenox and Tilden foundations on the site of the reservoir at Fifth Avenue and 42d Street, and appropriating \$2,500,000 for the purpose, which recently passed the legislature, has been signed by the governor, and the work of removing the reservoir will be commenced at once. Dr. John S. Billings, director of the library, has lately visited a number of the principal cities for the purpose of inspecting their libraries, and, in company with the Professor of Architecture of Columbia University and the constructing engineer of the Library of Congress, will

select the six most satisfactory plans for the building submitted in competition by architects. The final selection of the plan from these six will be made by a committee of seven experts. A feature of the new library will be a department for the blind.

DEATH OF DR. JOHN P. ATWATER. — Dr. John P. Atwater, last surviving member of the class of 1834 at Yale College, died at his home in Poughkeepsie on May 23d. He was born in 1813 at Carlyle, Pa., where his father, the Rev. Jeremiah Atwater, was President of Dickinson College. Dr. Atwater, after completing his professional studies, settled, in 1837, in Cincinnati, where he was very successful and accumulated a fortune by investments in business property in Chicago. In 1870 he removed to Poughkeepsie.

Miscellany.

THE AMERICAN MEDICAL ASSOCIATION.

THERE is soon to be held in Philadelphia the annual meeting of the American Medical Association, at which will be celebrated the completion of the first half-century of its existence. Great preparations are being made by the physicians of Philadelphia to realize the expectation that this will be the most successful meeting the association has ever had, and we sincerely trust the result of these labors will fully meet the highest anticipations of Dr. Hare and his efficient co-workers on the committee of arrangements.

There are apparently but two dangers ahead, and we trust these can be avoided by skilful management. The first of them is the enormous list of papers with the reading of which the various sections are threatened — seventy-six papers in the section on laryngology and otology, ninety-three in the section on general medicine, and others in proportion. Of course many of these are merely announced as to be read, the authors never meaning to read them, even if they ever write them, but with these aside there will be enough left to occupy every minute of the four sessions of each section, to weary every suffering member of the section, and effectually to strangle all discussion. No good to anybody can come from the hurried reading of paper after paper, shutting off the long-winded speakers in the middle of their argument, and so limiting discussion as to make it barren of any result. This is a danger to which the association is exposed in its scientific character. But what most menaces its usefulness, and will always, as long as it lasts, prevent the American Medical Association from attaining the position it should occupy as the representative body of the American medical profession, is the everlasting quarrelling which disturbs the general meetings and disgusts all who think the grabbing of offices is not the chief end of medical man. Of late years the great bone of contention has been the secretaryship of the association. The present most capable secretary, Dr. Atkinson, has performed the arduous duties of his office in a most efficient manner for many years, and a meeting without his genial presence might, indeed, be a medical meeting of some sort, but it would hardly seem like one of the American Medical Association. Even the father of the association himself would

scarcely be more missed. Yet for years this faithful servant of the association has been compelled to sit upon the platform and listen to accusations of incompetency and worse brought against him by young men who were unheard of and undreamed of when he first took up the cares of the office which he fills with so much honor to the society. The fact that the constitution of the association makes the office of secretary a permanent one has hitherto stood in the way of Dr. Atkinson's enemies; but at this coming meeting, held in the City of Brotherly Love, the home of the secretary and the birthplace of the association, these men hope to carry through an amendment to the constitution whereby they will be enabled, if they can pack the meeting efficiently, to depose the secretary and elect another man to serve in his place. We hope for the good of the association and for the honor of American physicians that their plans may be thwarted. — *Medical Record*.

Obituary.

BENJAMIN EDDY COTTING, M.D.

DR. BENJAMIN EDDY COTTING died at his home in Roxbury on May 22d, aged eighty-four years. He was born in Arlington, Mass., on November 2, 1812, was graduated at Harvard in 1834, and at the Harvard Medical School in 1837. He began the practice of medicine on Washington Street, Boston, and later moved to Winter Street.

In 1841-2 he assisted Dr. Jeffries Wyman as curator of the Lowell Institute; and in 1843, on Dr. Wyman's resignation, he became curator, a position which he held with honor and credit for fifty-five years, or until March of the present year, when owing to his increasing infirmities he resigned.

In 1843 Dr. Cotting moved to Roxbury, where he built up an extensive practice, in which he was actively engaged up to the last years of his life.

In 1872-74 he was vice-president of the Massachusetts Medical Society, and from 1874-76 its president. For many years he was a consulting physician to the Boston City Hospital.

He was very influential in reorganizing the JOURNAL at one time, and in placing it under a board of management of which he continued to be a member.

We hope in another issue to present a more critical appreciation of Dr. Cotting's life and influence upon his contemporaries.

GEORGE W. BURDETT, M.D.

DR. GEORGE W. BURDETT, of Clinton, Mass., whose death was noted in our issue of May 13th, was for many years a physician of prominence in Worcester County.

He was born in Clinton in 1819, and studied at the Dartmouth and Harvard Medical Schools, graduating at the latter in 1846. He began practice in Clintonville immediately after graduation.

He became a trustee of the Clinton Savings Bank on its organization, and was the last one of the original board. He had been the first vice-president since 1885. During the first three years after the incorporation of the town he served on the school committee and helped organize the new school system. He was for many years a member of the board of directors for the Bigelow Free Public Library. He was the chief agent in the organization of the Baptist Church of Clinton and served as its clerk for forty years or more.

He was married and had seven children, five of whom are living.

Correspondence.

PUBLIC HEALTH IN VIENNA.

VIENNA, April, 1897.

MR. EDITOR:—In Vienna, one of the great capitals of Europe, and the Mecca of medical students for many years, one would naturally expect to find the most modern and the most scientific methods of health work. Such however, is not the case. The Viennese are scientific and able; therefore, theoretically, their work is good. Unfortunately, the usual Austrian indolence characterizes the practice.

The central health office, or *Stadtphysikate*, is situated in the *Rathhaus*, and is under the direction of Herr Physikus Löffler. There are, besides, various sub-offices, and a physician and inspector for each of the nineteen districts of the city. These local physicians attend to the health work in their several districts, but make full reports to the central office.

Each practising physician in the city receives from the health office a number of printed blanks. These blanks are so arranged that they may be divided into two parts. The upper part has spaces for the name of the patient, residence, disease, date of disease, etc. On this part of the blank are also instructions to the physician as to isolation of the patient, disinfection of the sick room, burning of waste stuffs, disinfection of instruments, as also of the dejections in typhoid, cholera, dysentery, diphtheria and scarlet fever, and the sputum of tuberculosis, diphtheria and pneumonia. Instructions are likewise given as to the care that must be taken by the attendant, the disinfection of the attendant, and the exclusion of strangers. When a physician meets a case of infectious disease, he fills out this upper part of the blank, tears it away from the lower, and sends it to the health office. The Imperial post carries all such papers free.

The local health physician is immediately notified of the reception of the paper. He visits the house, and fills out another blank, which contains the number of children in the house, the number attending school, which schools they attend, the isolation, the manner in which the instructions as to disinfection are carried out, and any other necessary details. This is also forwarded to the central office, and inspected by Herr Physikus Löffler, who may either approve or order another inspection as he chooses. The attending physician must make his own bacteriological examinations, as no facilities are offered him by the government.

When illness is ended, the practitioner fills out and sends in the lower part of his blank, on which he writes the name and residence of the patient, the date of recovery or death, date of removal to hospital, or of any other removal, to what place, and in cases of diphtheria he states whether or not he used serum. On the verification of this report, the house is disinfected. The trouble with the system is, that too much responsibility is placed on the shoulders of the family physician. We need waste no pity on him, however, for if he be a true Austrian, he will quickly shift the weight on to some one else.

There are six sub-stations of the health department, one for every three districts of the city. Each of these stations contains a small steam-sterilizer, an oven for burning straw mattresses and other worthless objects, and all the various smaller articles necessary for disinfection. Three of them (one for each six districts) contain besides, ambulances for the removal of the sick, and a wagon for the transportation of the bodies of those who have died of an infectious disease. There are four ambulances in each of the three larger stations, two for infectious diseases, and two for non-infectious and accidents. The health department is responsible for all transportation to the general hospital.

A pamphlet is issued from the central office, giving explicit directions, first as to the general disinfection, then as to the particular care to be taken after each of the various infectious diseases. All objects which are easily movable must be taken to one of the stations, and there rendered

sterile, preferably by steam. It is especially enjoined that no article shall be removed from an infected room, unless it is thoroughly wrapped in sterilized cloth. For general disinfection in the apartment it is recommended that five-per-cent. carbolic acid, or two-per-cent. lysol solution be used for all washable objects, ordinary floors, walls, and unpolished furniture; two-per-cent. carbolic or one-per-cent. lysol for polished furniture, pictures, books, waxed floors and ornaments; and slaked lime for water closets, cesspools, sinks, and unclean water-courses of all kinds.

The carbolic and lysol solutions are applied by means of a hand-pump, either in the form of spray or solid stream, according to circumstances. Soft soap is also plentifully used, and the rooms are finally freely opened to the air. Attendants of the sick must not only bathe in disinfecting fluids, but must also thoroughly wash out the hair of the head and beard in a strong soft-soap solution.

The articles to be removed are placed in a small, tightly-closing, zinc-lined wagon, and taken to the nearest sub-station. There they are treated by steam if possible. A maximum thermometer (registering 100° C.) is placed in the centre of the articles to be disinfected, and they are then put into the sterilizer. There is another thermometer on the outside of the apparatus which registers the heat of the interior. When this thermometer shows a temperature of 100° C, the time is noted. The heat is kept up for an hour. After that, one half-hour is given for ventilation. The goods are then removed from the other side of the boiler, in the usual way. It is fairly easy to disinfect thoroughly by means of these sterilizers, because each apparatus is so small, that but a limited quantity of goods can be treated at once. Therefore the heat quickly reaches the centre. They are economical, also, as the fires need not be constantly kept up. A sharp wood fire will quickly generate steam enough for all purposes.

The defect lies in the placing of a steam apparatus here and there, in different parts of the city. Steam sterilization inefficiently performed, is worse than useless, and in the scattering of the responsibility we necessarily multiply the chances of carelessness. This might be remedied, however, by the use of an automatic register for each operation, as is done in Rome.

Furs, feathers, leather articles and such things as cannot be treated by steam, are subjected to formaldehyde gas. There is in each station, a simply made, air-tight chest, having shelves around its sides, the centre being open from top to bottom. The infected objects are ranged along the shelves, a solution of formalin is poured over blotting paper previously placed on the bottom of the chest, and the lid if closed down and fastened. The lid comes down a little way over the sides of the chest, and is provided on all its edges, with strips of felting somewhat resembling our weather strips for doors and windows. The gas arising, is thus enabled to penetrate everywhere through the chest, but cannot escape. After twenty-four hours, the box is opened, and the goods removed.

You are all probably aware by this time, of the experiments in disinfection by formaldehyde made in Venice during the recent Sanitary Congress. These experiments were made according to the method for disinfection of ships, advocated by Dr. H. D. Geddings, of the U. S. Navy, and Dr. J. J. Kinyoun, of the U. S. Marine-Hospital Service. Various test-tubes containing cultures of bacilli of cholera, diphtheria, etc., were placed, opened, in two rooms with an open connecting door. Other objects were then scattered about the rooms, after which the windows and doors were sealed by strips of paper. Formaldehyde was introduced into one of the rooms by a small metallic tube passed through the keyhole. This tube led from the top of a metallic cylinder, which contained about two litres of formaldehyde, and the stream was generated by a small alcohol lamp underneath. The steam was kept up for twenty-five minutes, and the rooms remained closed for three hours afterward. Inoculations from the cultures in the tubes, were made on animals with negative effect. Not only that, but it is said that the walls of the rooms remained sterile for three days. Moreover, none of the various arti-

cles left in the rooms, such as furs, fabrics, etc., were at all injured. Dr. Sédan, who conducted the experiment, is said to have been thoroughly convinced of the practicability of using formaldehyde gas as a disinfectant of houses after infectious diseases. I asked one of the health-department men in Vienna, as to his opinion, and he said that he thought there was no question about the efficacy of the gas for the purpose, but that it was too expensive to be used in such a wholesale manner. I do not believe, however, that it would be suitable for general use in American cities. A gas, to be a good disinfectant, must be exceedingly volatile. It must seek out, and creep through all interstices. Such a gas may be easily lost before it has performed its office.

Dujardin-Beaumetz, formerly one of the strongest advocates of sulphur disinfection, was once commissioned by the French Government to disinfect barracks, which had been used by the troops during an outbreak of cholera. He found sulphur practically useless for the purpose, on account of the loose construction of the buildings, and the consequent escape of the gas. Again, a light, volatile gas constantly arises, and it must needs be very perfectly confined, and for a long time, under strong pressure, before it would exert much influence on the floor and lower walls of a room, which are the parts most contaminated during an illness.

Any one, who has remained for any length of time in one of our draughty tenement-house rooms, with its shrunken door, its rattling casements, its cooking-stove with innumerable openings, its large chimney and imperfectly fitting fire-board, will easily understand how difficult it would be to make such an apartment air-tight, therefore, and how hazardous would be our dependence on a gas like formaldehyde. Used as it is in Vienna, in an especially made air-tight receptacle, I believe that formaldehyde is a valuable agent, and a powerful adjuvant in health work, but I should hesitate to rely very strongly upon it for general house disinfection.

As to the directions given for each particular infectious disease, in the pamphlet which I have mentioned, Asiatic cholera naturally takes the first place. Then comes variola and diphtheria. It is then enjoined that tuberculosis be handled with the same care that is given to diphtheria. Of course, the same isolation cannot be maintained, but the attendant must exercise the same precautions in regard to clothing, drinking-vessels, etc., and the room must be as thoroughly disinfected after death or removal. After instructions are given for scarlatina and typhoid, there come a number of diseases of which we take little notice, such as varicella, puerperal fever, mumps, dysentery and influenza.

The law in regard to vaccination is the same as with us, that is, that an unvaccinated child cannot enter the public school. The scarred faces that one sees in the clinics and hospital wards amply testify to the inefficiency of the law and the laxity of its observance.

There are absolutely no plumbing regulations in Vienna. I have as yet failed to find, outside of the hotels, a properly trapped sink, and the water-closets are enough to make a pious sanitarian swear. There are very few automatically flushed closets. They are nearly all of the old-fashioned pan variety, and are provided with a tiny tank, inserted with devilish ingenuity between the occupant's back and the wall. These tanks are not connected with running water, but are filled, once in a while, by the housewife or servant with water carried in from the kitchen sink. A very filthy closet frequently results.

Stable laws are also conspicuous by their absence. One hires apartments in a very good quarter of the city, and a week after, along comes a gentleman who engages the ground-floor, and stables three or four horses under one's courtyard windows. There is absolutely no redress, since this is the custom of the city.

Although the public baths are not under the control of the health department they still belong to the public health and merit a short description. In the summer are the swimming baths on the Danube, with which we have noth-

ing to do, as our facilities for such things are much better at home. In the winter are opened in different quarters of the city, eleven *volksbuden*, or baths for the general public. These are all of the same general character, and include places for both men and women. Admission is to be gained on payment of five krenzers ($2\frac{1}{2}$ cents). This entitles one to the use of a locked cupboard for the clothes, to a bath, and two towels, one to be tied about the loins, and the other for drying purposes. Soap is furnished at one krenzer more, or the bather may furnish his own soap. Although both men's and women's baths may be contained in the same building, the entrances are entirely distinct. A description of one of the men's baths will suffice for all.

One enters first a central corridor from which open doors to the right and left respectively. The door on the right leads into the men's dressing-room, that on the left into the boy's apartment. Both of these dressing-rooms open into the same bathing-room, which runs at right angles to them. The dressing-rooms and bathing-room form three sides of a rectangle. Although the two dressing-rooms open into either end of the same apartment, still the men and boys do not come into contact while bathing, as a partition about eight feet high separates one part of the room from the other. The same division exists between the women and girls. The locked cupboards for clothing resemble somewhat those in our own gymnasias, but are higher and narrower.

The bathing-room has no tubs, but is divided by iron or zinc partitions into small open compartments, each containing a shower bath. The brick flooring is covered with strips of manilla matting, and each bathing-compartment has a small, low, wooden platform made of slats about one-fourth of an inch apart. The bathers' feet are thus kept warm and comfortable.

It would seem to me that bathing-places such as these would answer well our requirements in Boston during the winter months. We need no swimming tanks as we have ample facilities for sea bathing in summer. Tubs in such an establishment would mean a waste of space, time and money. One tub would require the space of two or three showers, and four or five men could use a shower, while a tub was being filled, used, emptied and cleaned. Whatever would waste space and time, would waste money since extra rentals and extra salaries of attendants would be required for the same amount of work performed.

On no account, however, should such baths be placed in, or about the premises of our public schools. They are sufficiently overcrowded already, and it is sufficiently difficult to provide proper light and ventilation without further complicating the problem. Besides, we have among our present foreign population many semi-civilized men from tropical climes; men who are children of nature, who have frequently untrained minds, and, perhaps, unbridled passions. It would be better for our children that such men should not be taught to loiter in the vicinity of our schoolhouses. It would be exceedingly easy to rent the basement floors of business buildings in the various districts of our city, and fit them for the purpose. Such bathing-places would be efficient and economical.

I am tempted here to introduce a somewhat irrelevant, but exceedingly important matter, and that is a consideration of the dressing-rooms in our public schools. It has seemed to me for some time that the cases of infectious disease contracted in our public schools were not so likely to be from actual contact of the scholars in the school-room, as from the clothing in the dressing-rooms. Our school dressing-rooms are exceedingly small, and the hooks, generally in two rows, are exceedingly close together. The children's wraps are piled closely, one on top of the other. The wraps are frequently damp, either from the playing in the snow or the thousand and one other careless things that school-children are apt to do. This damp clothing is placed in a warm, steam-heated room, and is thus subject to conditions most favorable to bacteriological growth. One can easily see how a child coming from an infected house might spread disease. In fact, these rooms are very pretty incubators for bugs, both macroscopic and microscopic.

While I am not going to advocate a locked cupboard for each youngster's coat, I still think that a remedy exists. In the first place all dressing-rooms, already existing, might have a thin partition between the hooks so that there would be no actual contact. Secondly, that walls and floors might be altered so that such rooms could be drenched with corrosive or some other disinfectant solution at least once a week, and in times of danger every day. Every new school-house should have ample dressing-rooms with partitions, and should be constructed like a ward in a contagious-disease hospital, so that proper disinfection could be done at all times, or better still, all the clothing could be hung in different sections of a locked basement which could be so built that it might be hosed down at any time, or possibly could be closed up so that a full head of steam could be turned in. With such appliances, I am satisfied, that many cases of contagious disease would be prevented, and many young lives saved. It is time to return to Vienna, although it does seem good to wander about Boston's schools for a while.

Many regulations of the health department of this city are imperative, because of the want of co-operation on the part of the local practising physicians. For instance, it is enjoined that if a child be presented for treatment at the polyclinic, and is found to have an infectious disease, it shall be sent by the physician of the clinic to a room provided for the purpose, and there held until the arrival of the ambulance, in which it may be transported either to its home or to the hospital. A very good rule, this, and intended to minimize the chances of infection in public conveyances. In practice, it works like this: The physician at the clinic orders the child into the designated room, then turns to his class, and grumbles because he is requested to perform work which properly belongs to health employees. The mother of the child, finding no supervision exercised, soon tires, takes her child by the hand, and starts out for the nearest omnibus or horse-car. The ambulance arrives, finds nobody and departs. The occurrence occasions no surprise, as the physician, who is to blame, is perhaps a professor of the University of Vienna, and a professor of the University of Vienna is a law unto himself.

I imagine that cases which come under the ban of the department are frequently not reported, and since no opportunities are given for bacteriological examinations that many are never verified. Moreover, there are no forcible removals, and therefore, there is no penalty for the disregard of instructions as to isolation and disinfection during an illness.

Taking it all in all, the practical work in Vienna hardly paid me for the time stolen from my dermatological studies. Their regulations are good, however, and they should get credit for what they preach, even though their practice be imperfect. Yours very truly,

W. G. MACDONALD, M.D.,
Formerly City Physician of Boston.

A POSSIBLE EFFECT OF HIGH VOLTAGE ELECTRIC GENERATORS ON DISEASE GERMS.

Boston, May 10, 1897.

MR. EDITOR:—Since Röntgen's discovery I have been free from what is commonly called a cold. My profession exposes me constantly to contagion of this kind, for I operate at least every two or three days on the teeth of patients suffering from this disease. As I formerly suffered severely in this way, I attribute my present immunity to the fact that whenever I feel a cold beginning I start one of my generators and keep it running, taking the further precaution, when I have a few moments' time, to shut myself in a room with all the generators that happen to be in operative condition. As I feel quite sure there is some remedial action from these machines, I should like to see the air of hospitals charged in this way. Yours truly,

WILLIAM ROLLINS.

METEOROLOGICAL RECORD

For the week ending May 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S... 9	29.96	61	76	46	58	52	55	W.	S.W.	5	12	O.	O.	.53
M... 10	29.78	55	62	48	76	100	88	W.	N.E.	4	5	F.	R.	
T... 11	29.98	61	72	50	91	89	90	S.E.	S.W.	3	11	C.	C.	.15
W... 12	29.92	60	69	52	94	94	94	S.E.	S.W.	3	12	R.	O.	.19
T... 13	29.83	64	70	58	97	92	91	S.	S.W.	10	19	R.	R.	.12
F... 14	29.89	64	70	57	88	97	92	W.	S.	4	9	F.	O.	.05
S... 15	30.00	66	74	58	89	84	84	W.	W.	12	7	T.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; eeing; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 15, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrhœal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,868,000	709	286	14.98	17.92	1.82	6.58	1.96	
Chicago	1,619,266	367	122	9.18	18.09	4.69	2.16	.74	
Philadelphia	1,214,256	443	127	12.88	13.80	1.38	5.98	.32	
Brooklyn	1,160,000	318	124	12.15	14.09	.81	6.75	1.89	
St. Louis	570,000	171	56	8.12	12.76	1.16	1.16	—	
Baltimore	550,000	140	52	9.94	9.23	4.97	3.55	.71	
Boston	517,732	268	82	13.34	12.58	.37	4.81	2.96	
Cincinnati	405,000	—	—	—	—	—	—	—	
Cleveland	350,000	101	33	—	—	—	—	—	
Pittsburg	275,000	87	31	14.28	9.52	4.76	7.14	—	
Washington	277,000	85	16	7.08	8.26	1.18	2.36	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	24	6	4.16	8.32	—	—	—	
Nashville	87,754	25	3	—	12.00	—	—	—	
Charleston	65,165	28	16	3.57	10.71	—	3.57	—	
Portland	40,000	—	—	—	—	—	—	—	
Fall River	95,919	42	15	2.38	16.66	2.38	—	—	
Lowell	87,113	37	20	7.40	27.00	—	5.40	—	
Cambridge	86,812	26	5	3.85	3.85	—	3.85	—	
Lynn	65,220	19	6	5.26	15.78	—	5.26	—	
New Bedford	62,416	26	11	3.85	3.85	—	3.85	—	
Lawrence	55,510	14	5	14.28	21.42	—	7.14	—	
Springfield	54,790	15	5	—	6.66	—	—	—	
Holyoke	42,364	—	—	—	—	—	—	—	
Salem	36,062	13	6	15.38	7.69	7.69	—	7.69	
Brookton	35,753	6	5	16.66	33.33	—	—	16.66	
Malden	32,884	11	5	27.27	27.27	—	—	—	
Chelsea	32,716	11	1	—	9.09	—	—	—	
Haverhill	31,465	8	2	12.50	12.50	—	—	12.50	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	10	1	—	—	—	—	—	
Fitchburg	28,392	5	2	—	20.00	—	—	—	
Taunton	27,812	9	3	11.11	—	—	—	11.11	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	4	1	—	25.00	—	—	—	
Everett	21,575	4	3	50.00	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,168; under five years of age 1,080; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrhœal diseases and fever) 378, acute lung diseases 453, consumption 307, diphtheria and croup 156, diarrhœal diseases 63, scarlet fever 59, cerebro-spinal meningitis 32, whooping-cough 27, measles 21, typhoid fever 21, erysipelas 10, small-pox 5, malarial fever 4.

From cerebro-spinal meningitis Boston 14, New York 8, Washington and Malden 3 each, Somerville 2, St. Louis and Worcester 1 each. From whooping-cough Philadelphia 8, New York 7, Chicago and St. Louis 3 each, Cleveland 1. From measles New York 10, Brooklyn 7, Chicago and Boston 2 each. From typhoid fever Philadelphia 12, St. Louis 3, Pittsburg and New Bedford 2 each, New York and Brooklyn 1 each. From erysipelas New York and Boston 3 each, Chicago, St. Louis, Baltimore and

Somerville 1 each. From small-pox St. Louis 2, New York, Chicago and Brooklyn 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending May 8th, the death-rate was 17.0. Deaths reported 3,585; acute diseases of the respiratory organs (London) 232, measles 100, whooping-cough 96, diphtheria 43, diarrhœa 36, fever 11.

The death-rates ranged from 11.8 in Norwich to 30.4 in Preston; Birmingham 16.0, Bradford 14.0, Cardiff 12.0, Hull 15.8, Leeds 20.2, Leicester 12.8, Liverpool 19.9, London 15.5, Manchester 25.6, Newcastle-on-Tyne 14.6, Nottingham 18.6, Sheffield 19.1, Wolverhampton 19.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 15, 1897, TO MAY 21, 1897.

LIEUT.-COL. WILLIAM E. WATERS, deputy surgeon-general, will be relieved from duty at Columbus Barracks, O., on July 15, 1897, and will then proceed to his home, where, at his own request and for his own convenience, he is authorized to await retirement.

Leave of absence for one month, to take effect May 24, 1897, is granted MAJOR GEORGE W. ADAIR, surgeon, U. S. Army, Washington Barracks, D. C.

CAPTAIN CHARLES E. WOODRUFF, assistant surgeon, is relieved from duty at Fort Sheridan, Ill., to take effect June 1, 1897, and ordered to Fort Custer, Minn., for duty.

FIRST-LIEUT. POWELL C. FAUNTLEROY, assistant surgeon, is relieved from duty at Fort Niobrara, Neb., to take effect upon the arrival at that post of CAPTAIN PHILIP G. WALES, assistant surgeon, and ordered to Fort Robinson, Neb., for duty.

FIRST-LIEUT. CHARLES LYNCH, assistant surgeon, is relieved from duty at Fort Robinson, Neb., to take effect upon the arrival at that post of FIRST-LIEUT. FAUNTLEROY, and ordered to Fort Sheridan, Ill.

The leave of absence granted CAPTAIN EDWARD C. CARTER, assistant surgeon, is extended two months.

PROMOTIONS.

To be assistant surgeons, with rank of Captain, after five years' service. May 5, 1897.

FIRST-LIEUT. CHAMPE C. McCULLOCH, JR.

FIRST-LIEUT. FREDERICK P. REYNOLDS.

FIRST-LIEUT. ISAAC P. WARE.

FIRST-LIEUT. ROBERT S. WOODSON.

FIRST-LIEUT. MADISON M. BREWER.

FIRST-LIEUT. GEORGE D. DE SHON.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MAY 22, 1897.

J. C. WISE, medical inspector, detached from Marine Headquarters, Washington, May 15th, and ordered to Columbus, O., as delegate, Association of Military Surgeons. After duty at Columbus, ordered to the "Philadelphia," as fleet surgeon.

J. A. HAWKE, medical inspector, detached from the "Philadelphia," on relief, and granted three months' leave.

C. H. T. LOWNDES, passed assistant surgeon, ordered to duty at Marine Headquarters.

C. U. GRAYATT, surgeon, ordered to U. S. S. "San Francisco" (fleet), per steamer May 22d.

H. J. BABIN, medical inspector, detached from the "San Francisco," on relief, ordered home and granted three months' leave.

G. T. SMITH, passed assistant surgeon, ordered to the Naval Hospital, New York, temporarily May 15th.

M. S. ELLIOTT, assistant surgeon, detached from the "Columbia" and ordered to the "Indiana."

J. M. FLINT, medical inspector, ordered to examination for promotion, Washington, May 12th.

H. G. BEYER, surgeon, ordered to the Naval Museum of Hygiene for temporary duty in connection with the preparation of new microscopical outfits for ships and hospitals.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING MAY 15, 1897.

WHEELER, W. A., surgeon. Granted leave of absence for four days from May 17, 1897.

BANKS, C. E., surgeon. To inspect Service at New York, N. Y., Boston, Mass., Providence, R. I., New Bedford, Mass., Portland, Me., and Vineyard Haven, Mass. April 27, 1897.

CARRINGTON, P. M., passed assistant surgeon. Granted leave of absence for thirty days from May 26, 1897.

PETTUS, W. J., passed assistant surgeon. Granted leave of absence for seven days from May 11th, with permission to apply for extension. May 10, 1897.

STONER, J. B., passed assistant surgeon. To assume temporary command of Cape Charles Quarantine Station during absence of passed assistant surgeon W. J. PETTUS. May 10, 1897.

GARDNER, C. H., passed assistant surgeon. To proceed from Baltimore, Md., to Norfolk, Va., for temporary duty, upon completion of which to rejoin his station at Baltimore. May 10, 1897.

McMULLEN, JOHN, assistant surgeon. To report to medical officer in command of Service at Baltimore, Md., for duty. May 15, 1897.

APPOINTMENT.

JOHN McMULLEN, of Maryland, commissioned as assistant surgeon. May 12, 1897.

BRITISH MEDICAL ASSOCIATION.

The sixty-fifth annual meeting of this Association will be held at Montreal, on Tuesday, Wednesday, Thursday and Friday, August 31, September 1, 2 and 3, 1897.

The following are the officers of the Association: President, Henry Barnes, M.D., M.R.C.S., F.R.S.E., J.P., Physician, Cumberland Infirmary, Carlisle; President-Elect, T. G. Roddick, M.D., M.P., Professor of Surgery in McGill University, Montreal; President of the Council, Robert Saundby, M.D., F.R.C.P., Physician to the General Hospital, Birmingham, 83A Edmund Street, Birmingham; Treasurer, Charles Parsons, M.D., Dover.

Addresses will be delivered as follows:

MEDICINE.—Dr. W. Osler, F.R.C.P., Professor of Medicine in the Johns Hopkins University, Baltimore, U. S. A.

SURGERY.—Mr. William Mitchell Banks, F.R.C.S., Surgeon to the Liverpool Royal Infirmary.

PUBLIC MEDICINE.—Dr. Herman M. Biggs, New York.

The scientific business of the meeting will be conducted in eleven sections, as follows, namely:

MEDICINE.—President, Dr. Stephen Mackenzie, London.

SURGERY.—President, Mr. Christopher Heath, London.

PUBLIC MEDICINE.—President, Dr. E. P. Lachapelle, Montreal.

OBSTETRICS AND GYNECOLOGY.—President, Dr. William Japp Sinclair, Manchester.

PHARMACOLOGY AND THERAPEUTICS.—President, Dr. D. J. Leech, Manchester.

PATHOLOGY AND BACTERIOLOGY.—President, Mr. Watson Cheyne, F.R.S., London.

PSYCHOLOGY.—President, Dr. R. M. Bucke, London, Ont.

OPHTHALMOLOGY.—President, Mr. Edward Nettleship, F.R.C.S., London.

LARYNGOLOGY AND OTOTOLOGY.—President, Dr. Greville Macdonald, London.

ANATOMY AND PHYSIOLOGY.—President, Dr. Augustus D. Waller, F.R.S., London.

DERMATOLOGY.—President, Mr. Malcolm Morris, London.

PROVISIONAL PROGRAMME.

Wednesday, August 18th to Thursday, August 26th.

Meeting of the British Association for the Advancement of Science, at Toronto.

Thursday, August 26th to Monday, August 30th.

Excursion for Members and Guests of the British Association, from Toronto via Niagara, Kingston, The Thousand Islands, Ottawa, etc., to Montreal.

Monday, August 30th.

Meeting of the Canadian Medical Association at Montreal.

British Medical Association.

Tuesday, August 31st.

12.00 A. M.—Service in the English Cathedral.

2.30 P. M.—Windsor Hall: Opening ceremonies and addresses of welcome.

3.00 P. M.—Address by the President-Elect, T. G. Roddick, M.J., M.P.

4.00 P. M.—Garden parties, excursions, around the mountain, etc.

9.00 P. M.—Soirée at Laval University.

Wednesday, September 1st.

1.00 P. M.—McGill University: Opening of Sections.

3.00 P. M.—Windsor Hall: Address in Medicine, by Dr. Wm. Osler.

4.00 P. M.—Excursion down the St. Lawrence, etc.

9.00 P. M.—Sohmer Park: Conversazione and dance.

Thursday, September 2d.

9.30 A. M.—McGill University: Sectional meetings.

1.30 P. M.—Lunch on the mountain.

3.30 P. M.—Windsor Hall: Address in Surgery, by Mr. T. Mitchell Banks.

4.30 P. M.—Excursion across the Island, etc.

7.45 P. M.—Annual Dinner of the Association, Windsor Hall.

Friday, September 3d.

9.30 A. M.—McGill University: Sectional meetings.

3.00 P. M.—Windsor Hall: Address in Public Medicine by — and concluding General Meeting.

4.15 P. M.—Excursion to St. Anne's and down the Lachine Rapids.

9.00 P. M.—Soirée at McGill University.

Saturday, September 4th.

Excursions to Ottawa, Quebec, Kingston, St. Agathe, Lake Memphremagog, etc.

ARRANGEMENTS FOR AND OPPORTUNITIES AFFORDED TO GUESTS OF THE ASSOCIATION.

American guests attending the meeting of the Association will probably be able to obtain the ticket to Montreal and return at the rate of one fare and one-third, a rebate being given in Montreal upon presentation of the return ticket.

In Canada they will be able to travel to nearly all parts of the Dominion, from Halifax on the one hand, to Victoria, B. C., on the other, at half rates for the single journey, and single rates for the return journey.

During the meeting there will be several afternoon excursions in the neighborhood of Montreal, given to them by the Montreal Branch of the Association.

Fuller particulars as to excursions will be afforded at a later date.

SOCIETY NOTICES.

THE ASSOCIATION OF MILITARY SURGEONS.—The seventh annual meeting of the Association of Military Surgeons of the United States, will be held in Columbus, O., May 25, 26 and 27, 1897.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The initial meeting of this new Association will be held Thursday, June 3, 1897, at the College of Physicians, N. E. cor. 13th and Locust Streets, Philadelphia.

RECENT DEATH.

BENJAMIN EDDY COTTING, M.D., M.M.S.S., died in Roxbury, May 22, 1897, aged eighty-four years.

BOOKS AND PAMPHLETS RECEIVED

When Symptoms are Absent. By Thomas Jameson, M.D., Rochester, N. Y. Reprint. 1897.

Announcement of Summer Courses (1897) to be given at the Massachusetts Institute of Technology.

Two Cases of Early Atrophy of Muscles in Cerebral Disease. By F. G. Finley, M.D., Montreal. Reprint. 1896.

Fracture of the Scapula by Muscular Action Alone. By C. J. Edgar, M.D., North Hatley, P. Q. Reprint. 1897.

On Retroperitoneal and Perirenal Lipomata. By J. George Adami, M.A., M.D., Montreal, Can. Reprint. 1897.

Introductory Lecture on Hygiene, Public Health and Preventive Medicine. By Robert Craik, M.D., LL.D. Reprint. 1896.

Concerning the Present Condition of State Medicine in the United States. By Franklin Staples, M.D., of Winona, Minn. Reprint. 1897.

Results of (Chemical) Electrolysis versus Division or Cutting in the Treatment of Urethral Strictures. By Robert Newman, M.D., New York. Reprint. 1897.

Reports of the Trustees and Superintendent of the Butler Hospital for the Insane. Presented to the Corporation at its Fifty-third Annual Meeting, January 27, 1897.

Congenital Absence of Uterus and Vagina. Plastic Operation for Artificial Vagina, Taking Flaps from Nymphæ and Perineum. By W. L. Burrage, M.D., Boston. Reprint. 1897.

Annual Report of the Supervising Surgeon-General of the Marine-Hospital Service of the United States for the Fiscal Year 1896. Washington: Government Printing Office. 1896.

Three Cases Illustrating the Value of the Bacteriological Diagnosis of Leprosy for Public Health Purposes. By Wyatt Johnston, M.D., and W. H. Jamieson, M.D., both of Montreal, Can. Reprint. 1897.

A Clinical Study of a Case of Double Chorio-Retinitis in the Macular Regions, following a Flash of Lightning and a Flash from Burning Lycepodium. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprint. 1896.

Practical Pathology for Students and Physicians. By Alfred Scott Warthin, Ph.D., M.D., Instructor in Pathology, University of Michigan. A Manual of Laboratory and Post-mortem Technique, designed especially for the Use of Junior and Senior Students in Pathology at the University of Michigan. Martin Vivos Docent. Ann Arbor: George Wahr. 1897.

Original Articles.

A CASE OF BRAIN CYST WITH JACKSONIAN EPILEPSY: OPERATION FOLLOWED BY RELIEF.¹

BY A. T. CABOT, A.M., M.D.,
Surgeon to the Massachusetts General Hospital.

THE following case is reported as a contribution to our knowledge of the pathology and operative treatment of epilepsy. The patient was an intelligent and good observer of his symptoms, thus making the clinical history reliable and full.

F. P. K., aged twenty-three, consulted me in the latter part of September, 1893, and entered the Massachusetts General Hospital for further observation and operation. He there had the advantage of careful consideration of his case by Dr. J. J. Putnam, to whom I am indebted for much assistance in my study of it. His history was as follows:

He had no tuberculous inheritance, but on his father's side there was some neurotic tendency. He had the usual diseases of childhood, having had measles the second time as late as 1891. He always lived in the country, and was a good scholar, leading his class at Exeter in 1889, and standing high in the Class of 1893 at Harvard. He never had a serious injury, but was struck on the top of the head twelve years before by a heavy stick which had been thrown up to knock down chestnuts. He was not stunned, but remembered that his head bled somewhat. He felt no after-effects of this blow.

In January, 1891, he first noticed an occasional feeling of numbness in the middle of the right thigh on the anterior surface. This was accompanied by a tickling sensation, and was so annoying that he would jump from his seat and slap and rub his thigh at the same time laughing in an excited manner; and this would be followed by a feeling of nervousness. These seizures appeared about once in three or four weeks.

In June, 1892, after a hard college year he went to Kansas, where the weather was hot and trying. He here had his attacks almost every day, and they soon began to be accompanied by contractions of the anterior muscles of the thigh and twitching in the abdominal region. His leg would become rigid, and would rotate back and forth involuntarily.

In August of that year he, for the first time, had a severe attack followed by general convulsions and loss of consciousness. This fit started as usual in the right thigh. After pinching and pounding the thigh, he ran a few steps to ward off the cramp, and fell to the ground on his right side. The right leg became rigid, while the foot was drawn sharply inwards (extreme talipes varus), and then the whole leg twitched convulsively. Then his head was drawn over sharply. In the last moment of consciousness he thought his neck and ankle would break, so strongly were they distorted. Consciousness was regained in twenty minutes. The attack was followed by vomiting. The next day he felt perfectly well. Soon after this he began to take bromide of potash, but in spite of this had occasional slight attacks.

On October 1st, after his return to college, he had another general convulsion. Through this winter he was able to keep on with his studies, but with occa-

sional attacks, which were, for the most part, controlled by the inhalation of amyl nitrite. The attacks now began to be followed by a feeling of paralysis and numbness in the right leg.

In the middle of March the paresis following the attack affected not only the leg but the arm and face on the right side. He finished his college course, but continued to have his attacks at intervals through the summer; and in the last one, in which he was prevented from having convulsions only by the prompt use of amyl nitrite, he had paresis of the leg, which came on slowly fifteen minutes after the attack, followed by a similar feeling in the face and then by a quick and complete loss of power in the arm. This condition lasted an hour or so. An hour and a half after the attack he had aphasia come on, lasting ten or fifteen minutes. His general health was good and his intelligence unimpaired.

We had here the history of a disturbance of nerve function beginning two years before, and at first affecting only the leg centre at the upper part of the fissure of Rolando. Gradually the irritation extended down along the fissure of Rolando to the centres of the abdomen, shoulder, arm and face.

The degree of functional interference with these centres was also gradually increasing until he had a temporary paresis of the muscles following each attack. As the irritation began to reach the shoulder centre, it had attained a sufficient degree of intensity to affect the sensorium and led to a general convulsion.

It was evident that some change was taking place in the motor areas indicated by the above symptoms, but it was not clear what the exact nature of the change was likely to be.

We had to consider the possibility of tumor, including cysts, tubercle and gumma, and also of some degenerative change in some way connected with the old injury, either through the irritation caused by a depressed spicula of bone, by an adhesion of the membranes, or by some change originating in an injury of the brain substance itself.

The absence of the severe pain so characteristic of the invasion of brain tissue by a tumor, and the slow development of the symptoms, led us to regard gliomatous or sarcomatous tumor improbable. The history lent no support to the supposition that we had either a gumma or a tubercular tumor. On the other hand, the history of an injury to the head was so clear as to lead us to attach importance to it in seeking a cause for our symptoms.

The localization was so exact that no doubt was felt as to the wisdom of an exploratory operation; and it was decided that, in the event of finding no gross lesion sufficient to account for the symptoms, we should remove the thigh centre, as being the one in which the disturbance had first showed itself.

I had previously written to Mr. Horsley in regard to this patient, and followed the plan suggested by him, by dividing this operation into two stages.

On October 5th, the fissure of Rolando having been mapped out with a cyrtometer, an aperture was made in the skull, nearly square in shape, measuring two and a half inches in each diameter, over the part of the brain believed to be affected.

On October 10th the patient was again etherized, the flap turned back and the dura opened. The brain bulged considerably through the opening and did not pulsate with normal vigor. It was also noticed that

¹ Read before the Boston Society for Medical Improvement, January 11, 1897.

the cortical portion of the brain had a yellowish color towards the upper part of the opening. Some doubt was felt as to which of two parallel sulci were the fissure of Rolando. Dr. Putnam stimulated the brain with a feeble electrical current, but, even after the patient was allowed to come considerably out of his ether, failed to produce any response over the yellow portion where the disease was presumably located. Finally, applying the electrode towards the anterior part of the opening, considerably in front of the presumably affected area, a twitch of the arm and shoulder and then of the thigh followed the stimulation. Puncture was then made with a trocar through the yellow area and a spurt of brownish serum escaped. A small opening was made into a cyst cavity, with a smooth, yellowish brown wall, about the size of a small pullet's egg, extending deeply into the brain towards the centre. No hardening or thickening anywhere could be detected in the walls of this cyst, and there were no papillomatous or other growths into it.

The size of the cyst made a removal of its whole wall a very formidable operation; and in the belief that it was probably a simple cyst, without malignant character, I decided to treat it by drainage in the hope of thus obliterating its cavity. Several large strands of loosely-woven silk were introduced as a drain, being brought out directly through an opening in the middle of the dural and skin flap.

The patient made a good recovery from this operation. The wick was removed on the third day, and he went home sixteen days later with everything solidly healed.

Until the middle of December (one month and a half) he had no epileptic symptoms. Then the aura was felt in the right thigh. From this time he had this sensation occasionally at varying intervals, sometimes as often as once a week and then again not oftener than once in three or four weeks. He continued to take bromide of potash at the rate of 40 to 60 grains a day.

Early in February (three months after recovery from the operation) he felt well enough to go West and begin work. In June he was working hard, and felt so well that he began to cut off the bromide; and when he got down to 35 grains a day, he began to have the aura more frequently. About the middle of the summer he began to notice that each time after the sensation of the aura he had a partial paralysis of the right arm and leg, appearing twenty minutes to half an hour after the aura and lasting about an hour. He now also began to have severe headache about the old scar and frontal region, accompanying the attacks.

In October, having been a month without any epileptic feelings, he was promoted and had harder work. On November 4th, for the first time since September 9th, he had a recurrence of the aura, and between that time and the 15th he had six attacks. He now began to have twitching of the right arm, shoulder, neck and face, and he also experienced a constant numbness in the right hand, foot and leg. In one of the attacks of November the paralysis following the aura lasted from four to five hours. The latter part of November he began to have a very confused feeling about the face during the attacks, and could not move his eyes, they being held rigidly. He now had trouble in noticing persons and things on his right, and some loss of hearing in his right ear. His condition finally compelled him to give up work; and early

in December, 1894, he came East and again consulted me.

It was evident from the nature of his symptoms and their gradual advance that he again had trouble in the old region, and it seemed probable that this was due to a refilling of the cyst.

He re-entered the hospital January 3, 1895. Examination at this time showed no change in the region of the scar. The pulsations of the brain were distinct. He was clumsy and sluggish in the movements of his right foot, but the grasp of his right hand was strong. His pupils were equal and reacted readily to light. The patellar reflexes were normal.

January 7, 1895. Operation under ether. The flap over the skull defect was reflected, and the dura mater was opened along the old incision. It was not adherent. As soon as the dural flap was lifted the brain began to bulge into the opening, and in a moment it gave way in the middle of a yellowish area which marked the site of the cyst. A spurt of thin, brown serum now burst through, the fluid being thrown out with some force. The outer wall of the cavity was freely cut away, and the cyst wall was seen to have the same character as at the last operation.

The size of the cavity seemed distinctly greater than at the previous operation. An attempt was made to separate and remove the cyst wall, which was soft, yellowish, very friable, and about a line thick. In the parts about the opening this thin wall could be readily separated from the brain tissue beneath it; but after the sides of the cyst were reached deeper in the brain, this separation was harder to effect, both on account of the friability of the wall and because it was more adherent to the underlying brain. The attempt was, therefore, abandoned, and a large wick of gauze was introduced for drainage through a good-sized hole in the middle of the skin and dural flaps. This wick was introduced merely as a temporary measure until arrangements could be made for more efficient and long-continued drainage. To provide for this I had some glass tubes made of the shape of a shirt stud, the stem of which was as thick as a No. 20 French catheter and was perforated by an opening of sufficient size for good drainage. One of these, just long enough to reach through the skin and dura into the cyst cavity, was introduced on the third day, when the gauze wick was removed. The escape of fluid was much more free through this tube than it had been along the wick, and it continued to be quite abundant for ten days, after which it began to sensibly diminish, and the cavity as explored by the probe began to grow much smaller.

The patient had no sensation of aura after the operation, and was up on the seventeenth day. He went home on the twenty-sixth day; but the button was not removed until the forty-fourth day, at which time the cavity of the cyst being entirely obliterated, it was taken out and the opening quickly closed.

The subsequent history of the case is perhaps best given by the following abstract from a letter from Mr. K., in December, 1896.

About April 1, 1895, I was appointed to a position as inspector of an extension of the water works in Lincoln—a position which gave me employment for about two months in the open air, and involved no intellectual strain. In June of that year (1895) I was in excellent health, and had felt no suggestion of the old epileptic aura for about

two months, and had taken no bromide or other sedative during that time. I then began to do a little studying preliminary to taking a course in physics at the Harvard Summer School. I almost immediately began to feel a slight return of my former sensations—a crawling numbness, if I may so express it, in my right shoulder and arm, and in the right side of my neck and face. The sensation was so very slight that at first I hoped I could finish the short course of study that I had undertaken in spite of it; but as the sensations rapidly became more frequent and more strongly marked, I concluded that I could not safely continue my work, and so gave it up after about three or four weeks.

Through the month of August I enjoyed absolute rest from mental work, and, as a result, enjoyed absolute immunity from these nervous sensations.

Meanwhile I had secured a position to teach school at Shrewsbury, Mass., and began my work there as principal of the high school, September 2d. For the first two or three weeks all went well, apparently, though the work was hard and the school a rather large one for one teacher. It soon began to tell on me, however, causing a return of the sensations of partial paralysis in my right shoulder, face and neck. With the exception of these sensations I felt very well indeed, and began taking bromide of potassium in the hope that I could keep up my school work till the end of the term at least, and not disappoint the committee. By the aid of the bromide I continued my work as principal for six weeks, and then resigned, as the sensations in the region of my right shoulder had become too decided to be longer disregarded. I returned to my home in Lincoln and worked about my brothers' greenhouses for a little over a month, stopped taking bromide at once, and after a week or two felt no further trouble in the region of my shoulder.

Late in November I took a position in an advertising agency in Boston as a solicitor, work which, though I detested it, kept me out of doors a good deal of the time and seemed to agree with my health very well, except that the continual walking apparently wore out my right foot, which ever since the last operation has not been normally sensitive. If I attempt to use that foot upon the pedal of a piano or upon the step of a carriage it is very liable to slip off, unless I watch it carefully, as I cannot tell by the feeling just where it is. In rising and moving away from a table, sometimes this foot catches against the leg of the table or chair; I am aware that it touches something, but in what direction to move it in order to disengage it I am unable to determine until I look down and see on which side of the table leg my foot is.

Apparently the circulation is slower in this right foot than in the left, for it feels the cold in winter much more keenly than the left one does. As far as I can tell, the condition of this right foot is neither better nor worse than it was when I left the hospital nearly two years ago.

About February 1, 1896, I came to Albany to do some mathematical work, which consisted in the reading, criticism and preparation of manuscripts for a text-book in geometry. It required close application, but involved no responsibility or worry, and I was able to do it successfully, working about seven hours a day from February 1st to the middle of June, and from the middle of August till the last of October. During this period I took no bromide, except a few doses when I was troubled with sleeplessness, and had only an occasional numbness, very slight, in my right arm, perhaps as often as twice a month. In general, since last February, I have enjoyed excellent health and have steadily gained in strength and vigor.

On October 28th I was married. Since my marriage I have been occupying the position of examiner in the office of the regents of the University of the State of New York. This position requires me to do seven hours' mental work daily, but that does not appear to be too much for my strength, as I am feeling better now than at any time for more than four years.

I have quoted this letter at length in order to give

a thorough idea of the condition following the operation, and to enable each reader to judge of the completeness of the cure. While we cannot be certain that future difficulty is not in store for him, it seems fair to accept this two years' immunity from anything approaching a really epileptic seizure as evidence that the cure has been more than temporary.

Cysts of the brain may be either traumatic, hydatid, or associated with the growth of a glioma. This was clearly not a hydatid cyst, as all of the characteristics of that form were wanting. Nothing suggesting the existence of a glioma could be made out in this case, and the duration of the symptoms made it improbable that a growth of that sort lay at the bottom of the pathological process. Unfortunately the bit of cyst wall removed was lost before reaching the pathologist, and was not examined. On the other hand, there was good reason to regard this cyst as of traumatic origin.

The fluid removed at the second operation was carefully examined, and found to consist of "mixed serum and blood." It was highly albuminous, contained much fibrin and was alkaline. The sediment consisted of normal and abnormal blood-corpuscles. Many of the latter had irregular and unusual forms, but their identity was established by their behavior with reagents and staining fluids. There were also many small, white, mononuclear cells (lymphocytes).

This examination shows the fluid to be of the character that would be expected in a traumatic cyst, and confirms that diagnosis.

In cysts of this character a hemorrhage of greater or less extent usually acts as the starting-point of this process, and the pressure of the fluid leads to the slow destruction and softening of the surrounding brain tissue, thus causing a gradual enlargement of the cyst cavity, which may go on for months or years.

It seems probable that the blow received on the head twelve years before may have caused the slight hemorrhage which served as a nucleus for this cyst to form upon. The slow growth of the cyst enabled the brain to adapt itself to the gradually increasing pressure until the motor centres were very considerably pressed upon by it. At the first operation, when their position was tested, they were found considerably anterior to the position where they might have been expected.

The gradual extension of the epileptic symptoms from the right thigh to the right side of the abdomen and finally to the arm and face would indicate that the original site of the cyst was probably near the motor centre for the thigh and gradually extended from there along the fissure of Rolando until it reached the centres for the abdomen, shoulder and face.

The proper surgical treatment of cysts of the brain is undoubtedly that advised by Mr. Victor Horsley in a personal letter to the writer, namely, to thoroughly excise the wall. This is especially true of cysts that have their origin in a gliomatous growth, and in such cases it offers the only hope of a lasting cure. It is almost impossible to determine in many cases whether any part of the cyst wall is gliomatous or not; and in this condition of uncertainty it is doubtless better to cut out the wall of all cysts when this is feasible.

It may sometimes happen that cysts will be encountered too large for such thorough removal of their walls, and in which the probability of a benignant character makes their treatment by drainage desirable. It is well, therefore, that we should learn what can be accomplished by this method.

The case I have reported is especially adapted to throw light upon this question from the fact that after ordinary drainage by wick, maintained for but a few days, had failed to cure it, a more efficient and persistent drainage was followed by apparent success. It would seem important to keep up the drainage until the absolute obliteration of the cavity is accomplished. This obliteration is brought about primarily, I think, by the expansion of the brain when the pressure upon it is relieved. It fills again with blood and tends to return to its normal position. Finally, the healing of the walls together is accomplished by the proliferation of the neuroglia and of the connective tissue about the blood-vessels.

The effort to bring about this kind of healing requires long aseptic drainage, and for this purpose the form of tube used in this case has some advantages. The wide, flat rim rests firmly on the skin and, having no projection, is not disturbed by slight movements of the dressing. Its length can be arranged to just enter the cavity and not to project unnecessarily into it. It can be made of glass or metal, so as to allow of thorough cleansing. The slightly projecting lip on the inner end serves to steady it in the cavity and to prevent its slipping out.

CYST OF THE BRAIN.¹

BY J. W. ELLIOT, M.D.,

Surgeon at the Massachusetts General Hospital.

THE patient, a male negro, aged fifty-nine, was at the Massachusetts General Hospital in 1889 with a cardiac disturbance, which wholly disappeared. He had had syphilis in 1877.

On March 14, 1892, he re-entered the hospital under Dr. R. H. Fitz. The hospital record states that in June, 1891, he began to drop things with his right hand, and that it required great effort and attention to prevent dropping everything. A few days after the onset he found his right thumb and forefinger numb; this lasted seven days. Soon then the hand became decidedly weak. In September began the twitchings which have troubled him ever since. They began in the index finger, and at first were confined to the hand; now they sometimes extend to the shoulder. For the last week the paralysis has been complete below the wrist. At times the palm is sore and painful and sometimes hot. Except for the hand he is perfectly well.

Examination.—The patient is large, well developed and nourished. Pupils react equally. Tongue protrudes in median line. Right hand slightly edematous. No voluntary motions of fingers or wrist. Pronation and supination performed slowly and with little force. Flexion and extension fairly strong. No impairment in sensation. Moderate muscular atrophy in upper and forearm. Examination otherwise negative.

He had one or two attacks of twitching daily, lasting from half a minute to two minutes. The twitchings began with convulsive flexion and extension of the first and second fingers and of the thumb, together with abduction and adduction of the latter. Similar movements spread to the other fingers and then to the wrist. With two to ten quick, partial flexions and

extensions of the forearm (and sometimes of the shoulder), the whole seizure abruptly ended.

March 22d. Two to four attacks daily, more severe than before, involving the right leg and thigh, with jerking. No mental disturbance.

He was seen by Drs. Putnam, Walton and Carter. For about six weeks he was treated with large doses of iodide of potash, which seemed at first to modify the attacks somewhat. But he was discharged on January 4th with spasms but little less than at entrance, as regards frequency and duration.

He then came under the care of Dr. Jas. J. Putnam, as an out-patient; and on February 8th he was sent to the surgical ward for operation, with the diagnosis of a cerebral tumor involving the centre of the right arm. The spasms of the hand and shoulder had continued about twice daily, and he was beginning to stammer and to speak thickly and indistinctly. There was no change in the condition of the arm.

Operation, February 9, 1893.—A trephine was applied at a point calculated to be over the arm centre, and a two-inch button was removed from the left side of the skull. The dura was pale, bulging, but not pulsating. On opening the dura the fissure of Rolando was seen. The ascending frontal and parietal convolutions presented, bulging, as if from pressure from behind, being pale but otherwise normal in appearance. An aspirating-needle was inserted into the most prominent part of the brain; at a depth of about one-fourth of an inch it entered a cavity, and a few drops of rather viscid, clear, brownish fluid containing an occasional whitish flake ran out. A knife was then entered beside the needle, and an incision about one-fourth of an inch long was made in the brain substance, which allowed the escape of more clear fluid. The little finger passed into the opening, felt a cavity about the size of an English-walnut. The walls of the cavity were covered with gelatinous-looking granulations. The surrounding brain-substance seemed healthy. A small drainage-tube was placed in the cyst cavity and brought out through a hole in the flap.

The operation caused some shock, but he was in good condition the next day. The tube discharged clear fluid, and the dressing was done daily.

He continued to have two attacks of twitching daily, but they were less severe than before the operation. The wound did well, and he sat up on the fourteenth day.

On February 28th he was improving in every way; but the tube slipped out of the cyst in the night, and on the following afternoon he began to have difficulty in speaking, and complained of dizziness. The scalp became tense and bulging over the trephine opening. He had a severe spasm, beginning in the arm and extending to the right side. The tube was replaced, allowing the escape of a small quantity of clear fluid. The patient again improved steadily; but it required several days to recover from the effects of leaving the tube out.

March 5th. The patient was up and about and having an occasional spasm. There was no change in the condition of the arm.

March 12th. An attempt was made to remove the tube, but it was followed by the same bad results as are recorded on February 28th. The tube was therefore replaced, and the daily dressing continued.

March 23d. There is considerable improvement. He has one mild spasm every two days.

¹ Read before the Boston Society for Medical Improvement, January 11, 1897.

April 2d. He walks very well. The speech is more distinct. There is less stammering and less dizziness. Has had no spasm for six days. The discharge from the tube remains the same in quantity and character.

It seemed probable that this condition would continue for some time. On this account we determined to make another attempt to obliterate the cyst. Accordingly, a second operation was done on April 5th. The sinus was enlarged by an incision in the scalp about one and one-half inches long. The cyst cavity was found to be about the size of a walnut, lined with whitish, sloughing tissue and granulations. The depth was not accurately made out, from fear of injuring the brain. The sloughing tissue was dissected from the walls, and the cavity thoroughly cleared out. The whole wound was made V-shaped and packed with iodoform gauze.

There was no disturbance following this operation. The patient was up on the second day, and continued to improve. A slight spasm of hand occurred on the sixth day. The dressing was changed daily; and in fifteen days the sloughs had all come away and the cavity was lined with pale granulations.

April 21st. The patient talks well, but drags the right foot in walking. The cavity is packed lightly and is filling up with granulations.

April 26th. Patient had two severe spasms. Talks well, but forgets words.

April 30th. Patient has had one slight spasm in last four days. He was discharged from the hospital, as he desired to go home, and could have the dressing done at home.

I heard from his friends that he failed gradually after leaving the hospital, and died in about three months.

From the fact that this patient gradually failed and died after the cyst was practically cured, I do not feel at all certain that the disease was simply a cyst, but suppose rather that it may have been a cyst in a glioma, although the brain about the cyst seemed to be perfectly normal. One of the most interesting points in the case was the almost immediate recurrence of the symptoms whenever the fluid was allowed to collect in the cyst.

INCREASE OF INSANITY AND CONSUMPTION AMONG THE NEGRO POPULATION OF THE SOUTH SINCE THE WAR.¹

BY THOMAS J. MAYES, A.M., M.D.,

Professor of Diseases of the Chest in the Philadelphia Polyclinic, and Visiting Physician to the Rush Hospital for Consumption in Philadelphia.

DURING the last ten or fifteen years there appeared various contributions on the disproportionate increase of insanity and consumption among the negro population of the South since the close of the Civil War. This literature² emanates from the best minds in the

medical profession of the South; and, believing that it pertains to a question which is of the most vital concern to social science, and also believing that it will enlist the attention of every student who is interested in the physiology of man's development, and in the prevention and cure of disease, I have seen proper to bring it before this meeting for a full and free discussion. I believe that such a consideration of the facts and figures which are here presented will serve to set into a new light the mechanism of some of the most powerful factors which are engaged in the production and perpetuation of two of the most deadly enemies of mankind.

In speaking of the increase of insanity in the colored population of Georgia, Dr. Powell, Superintendent of the Georgia Lunatic Asylum, makes the following comments: "There has been a radical change in the susceptibility to certain diseases, notably insanity, phthisis and similar maladies in this class of our population, from which they were almost entirely exempt up to 1867. . . . The census of 1860 will show that there were only 44 insane negroes in the State of Georgia, or one insane negro in every 10,584 of the population, and consumption in the full-blooded negro was rarely seen. The census of 1870 shows 129 insane negroes in this State, or one to every 4,225 of the population. The census of 1880 gives 411 colored insane, or one to every 1,764 of the population; while in 1890 there were 910 colored insane, or one to every 943 of the population."

Dr. J. F. Miller, Superintendent of the Eastern Hospital of North Carolina, for colored insane, says: "From close personal observation, embracing a professional life of nearly forty years among the negroes, and from data obtained from professional brethren in different sections of the South, I have no hesitancy in declaring that insanity and tuberculosis were rare diseases among the negroes of the South prior to emancipation."

The Eastern Hospital of North Carolina was opened August 1, 1880, for the exclusive accommodation of the colored insane, and this same writer furthermore states that during the first year there were admitted 91 insane negroes, which number represents the accumulation of this class of patients in that State during the first decade and a half after the Civil War. In 1885 there were under treatment in this institution, 144; in 1890, 244; in 1895, 307, and in December, 1896, 377 insane negroes.

Dr. J. W. Babcock, Superintendent of South Carolina Insane Asylum, says: "We cannot lose sight of the fact that on the basis of the census, as compared with insanity in the whites, mental disease in the negro has arisen from one-fifth as common in 1850 to one-half as common in 1880 and in 1890."

Dr. Miller also states that in the hospital in his charge the average mortality from consumption since its opening to 1896 is 25 per cent. of the total number of deaths. However, the death-rate from this disease was much less in its early management. Thus, up to 1884, it caused 14 per cent. of the total number of deaths; while in 1895 it produced 27 per cent. of all the deaths, and this in spite of a reduction of the general mortality-rate.

Dr. Powell (*op. cit.*) says: "From observation and of the Negro of the South. By Dr. J. F. Miller, Superintendent of Eastern Hospital, Goldsboro, N. C. Published in North Carolina Medical Journal, November 20, 1896. Private Correspondence.

¹ Read before the Section of Neurology and Medical Jurisprudence of the American Medical Association, at the Philadelphia Meeting, June 3, 1897.

² Report on the Increase of Insanity and its Supposed Causes. By Dr. T. O. Powell, Superintendent of the Lunatic Asylum of the State of Georgia, October 1, 1886.

Tuberculosis in Asylums. By Dr. J. W. Babcock, Superintendent of State Hospital for the Insane, Columbia, S. C. Published in American Journal of Insanity, October, 1894.

The Increase of Insanity and Tuberculosis in the Southern Negro since 1860; Their Alliance and Supposed Causes. By Dr. T. O. Powell, Superintendent of the Georgia Lunatic Asylum, November 21, 1895.

The Effects of Emancipation upon the Mental and Physical Health

investigation I am forced to believe that insanity and tuberculosis are first cousins, or at least closely allied. The sudden outburst of insanity with the colored race of the South came associated with tuberculosis, hand-in-hand, keeping pace one with the other; hence, in obtaining histories of cases as they are brought to our institution, the hereditary predisposition to consumption is carefully inquired into. The prognosis of phthisical insanity is unfavorable. I am not surprised at any time to find insanity in a family strongly predisposed to phthisis, and phthisis in a family strongly predisposed to insanity."

Dr. T. J. Mitchell, Superintendent of the Mississippi Lunatic Asylum (cited from Dr. Miller's able paper), states that among the negro patients of this institution the following number of deaths occurred in the years named: In 1892 there were 44 deaths, and 14 of these, or about 32 per cent., were caused by consumption. In 1893, there were 29 deaths, and 16 of these, or about 55 per cent., were caused by consumption. In 1894 there were 40 deaths, and 18 of these, or 45 per cent., were caused by consumption. In 1895 there were 35 deaths, and 11 of these, or about 31 per cent., were caused by consumption. In ten months of the fiscal year of 1896 there were 48 deaths, and 20 of these, or about 48 per cent., were caused by consumption. These data show that about 42 per cent. of the total number of deaths in this institution were caused by consumption during these years; and estimating the death-rate among the white population from this disease at 20 per cent., the death-rate among the insane negro population is 22 per cent. greater.

Dr. E. D. Boudurant, Assistant Superintendent of Alabama Insane Hospital (cited from Dr. Miller's paper), says: "During three years and nine months, beginning October 1, 1890, 295 deaths occurred among the 1,700 patients treated in this Hospital. Of the 179 deaths among white patients, 51, or 28 per cent., were due to tuberculosis; of 116 deaths among negro patients, 49, or 42 per cent., were due to tuberculosis. In addition to this, a study of our clinical records discovers the fact that in the colored race the disease assumes a much more active and rapidly progressive form, the average duration of fatal cases being markedly shorter in the negro."

Dr. W. H. Barnes, First Assistant Physician in Arkansas Lunatic Asylum, states, in a private communication, that neither insanity nor pulmonary consumption were especially prevalent among the negroes while they were slaves.

Dr. R. J. Preston, Superintendent of the South-Western Hospital of Virginia, says, in a private communication, that there has been a great increase in both insanity and phthisis among the negro population since emancipation.

Dr. Jas. D. Moncure, Superintendent of the Eastern Hospital of Virginia, informs me, in a private communication, that the health of the negro with regard to insanity and phthisis was very much better before emancipation than since. Before that time there were about 60 insane negroes in the asylums of Virginia. Now (1896) there are over 1,000. In all hospitals the insane seem readily to contract tuberculosis; and this is a frequent cause of death among the insane.

From the foregoing the following conclusions may be safely drawn: (1) that insanity and consumption were comparatively infrequent in the negro race be-

fore the war; (2) that both of these diseases have disproportionately increased in the same race since the war; and (3) that in all probability the causes which give rise to one of these diseases also produce the other.

Now what is the cause for this rapid and remarkable transformation in the health of these people during the short period of three decades? Why should insanity and consumption develop side by side, and at an equal pace, and why should the former frequently precede the latter in the same individual? Are these diseases acquired through contagion, or are they due to other conditions and influences inherent in the changed environment of this race? These are questions which appeal to the very root and marrow of this matter; and until we solve them we cannot hope to grapple successfully with either the cure or prevention of the diseases under consideration.

First, in regard to contagion, it is needless to say that even at present there is not a trace of well-grounded suspicion that insanity is acquired through contagion; and hence nothing need be said on that side of the subject. In the next place, is there any evidence to show that consumption's contagion was lying dormant before the war, and that it sprang into sudden and most virulent activity after the close of this period? So far as I know there is none, and aside from the untenability of such a position Dr. Powell testifies (*op. cit.*) that the opportunity for contagion was most favorable before the war. "It should be remembered," he says, "that up to the war and during the war the negroes were the principal nurses for the consumptives of the South. They washed the spittoons, bedding and clothing of the consumptives, swept and dusted their rooms, and in many instances slept in the rooms with them—literally living with them night and day, and were more exposed to the tubercle bacillus than now as a general thing: still they resisted the disease."

I think the whole question of the origin of consumption will be solved most easily if we study the causes which lead to both insanity and consumption together; for though on superficial inspection these two diseases have nothing in common, yet deeper study teaches us that the former is a perfect analogue of the latter. During the last ten years I have been engaged in collecting material—clinical, experimental and pathological—which demonstrates that pulmonary consumption is not primarily a disease of the lungs, but a secondary manifestation of impaired integrity of the nervous system in general, and of the pneumogastric nerves in particular.

This view did not originate with me, for in 1842 Cheneau attributed this disease to disordered pneumogastric innervation. In 1850 Dr. J. C. Holland defined pulmonary consumption as a disease of the nervous system. In 1862 Dr. Laycock stated that defective pneumogastric innervation consequent upon a loss of cerebro-spinal power was a very common predisposing and exciting cause of phthisis. Dr. Clifford Allbutt said in 1871: "The more I study this, the more I am satisfied that the lung mischief is also a neurosis—by which I mean that the lesion is one not originating in the local tissues, but in the nervous system." In 1891 Dr. T. S. Clouston delivered a course of lectures in which he stated that facts "seem to show that if tuberculosis cannot itself be called a neurosis, it is in most cases dependent for its exist-

ence on a trophic neurosis, or has the closest affinity to it."

There is also a richness of clinical material scattered throughout the literature of medicine which confirms the pathological view that phthisis is a neurotic disease. Thus, in my *brochure*³ on "Pulmonary Consumption a Nervous Disease," I collected and tabulated a large number of cases of phthisis in which the pneumogastric nerves were compressed by tumors, aneurisms, or otherwise disintegrated, prior to the onset of the disease in the lungs. In other papers⁴ since published, I believe that I have succeeded in demonstrating the following propositions concerning the close affiliation that exists between insanity and pulmonary consumption: (1) that both of these diseases are most liable to occur at the same age-period, that is, between twenty and thirty years; (2) that the family which is burdened with one is also liable to produce the other; this liability being greater in the case of insanity than in that of phthisis; (3) that they are both closely related in personal and family history to idiocy, hysteria, epilepsy, asthma, and to other diseases of the brain and the spinal cord; (4) that they are both produced by syphilis, alcohol, overwork, business vicissitudes, domestic trouble, mental anxiety, grief, disappointment and excesses of all sorts — in fact by any agent or influence, such as those named, which vitiate the brain or the nervous system; (5) that the insane, the idiotic, the epileptic, the hysterical, the asthmatic and the members of their families, are from three to eight times more prone to become phthisical than persons who are not burdened in the same way; and (6) that those who are confronted by a new and higher civilization, and who are compelled to adjust themselves to these new relations are excessively liable to fall victims to pulmonary consumption.

Let us now consider the question of the increase of insanity and of pulmonary consumption among the negroes in the light of these deductions, and see what interpretations can be given to the origin of these diseases. And in the first place we will discuss the effects on the nervous system which are wrought by a struggle between a higher and a lower civilization.

At the very outset it must be conceded that a struggle for existence even under the most uniform and favorable conditions is accompanied by considerable wear and tear of the body. What, then, is the outcome, if a lower is precipitated into the midst of a higher civilization? Civilization is an accumulation of force; and the older and higher the civilization the greater is its momentum. It is the meeting of two forces which differ in power and rate of motion. The higher civilization, backed by its many thousand years of organization and experience, cannot, except to its own detriment, change its upward career; and hence the lower must for the sake of self-preservation adapt itself, so far as this is possible, to the course and changes of the higher movement. The effort of adjustment between the two may be compared to an animal which is confronted by a new geological era to which it must either adapt itself or forfeit its existence. The mandates which come from the changed geological environment to the animal are no less real and imper-

ative than those which come to the negro from his changed surroundings.

If we fully realize that the negro came out of the darkness of Egypt and was brought face to face with a civilization — with its education, knowledge and inventions; its advanced sanitation; its innumerable arts, sciences and manufactures; its multiplicity of industries and employments; its burning life-struggles; and its proneness to vices and excesses of all sorts — it cannot surprise any one that in many instances he is unequal to the task of adjusting himself to these, and falls a prey to disease. The point of greatest importance here is the fact that the brunt of the battle in this contest falls on and vitiates the brain and nervous system, since these structures are the instruments through which his efforts are chiefly made to bring himself in harmony with his changed relations. He, therefore, becomes insane and phthisical because his nervous system is undermined by and disintegrates under strains and burdens which he is unable to resist or to counteract.

In regard to the effects of a changed social environment on the negro, Dr. Miller (*op. cit.*) says:

"The untutored savage, owing to a nervous organization less sensitive to his environment, can exist and be healthy in mind and body under conditions that will seriously affect the man of finer sensibilities from culture and education. The negro in slavery had 'no thought for the morrow,' wherewithal he should be fed and clothed. Nor did the claims of family press upon him to worry and affect his mind; no ambitious hopes stirred his brain as to the possibilities of his future; but 'far from the madding crowd's ignoble strife' he spent his quiet, humble life in his little log cabin, with his master to care for every want of self and family, in sickness and in health.

"It is an undisputed fact, known to our Southern people, that no race of men ever lived under better hygienic restraints. . . . Their habits of life were regular; their food and clothing were substantial and sufficient, as a rule; and the edict of the master kept indoors at night and restrained them from promiscuous sexual indulgence and the baneful influences of the liquor saloon. In sickness he was promptly and properly cared for by physician and nurse. Freedom came to him, and a change came over his entire life. Under his former manner of living he enjoyed a wonderful immunity from brain and lung trouble; and I confidently assert that the germs of these troubles came to the same man and race in consequence of his changed environment and the manner of his life which followed.

"In his ignorance of the laws of his being, the functions of citizenship, and the responsibilities and duties which freedom imposed, demands were made upon the negro which his intellectual parts were unable to discharge. In his former condition none of these things disturbed his mind. Immediately the restraining influences which had been such conservators of healthfulness of mind and body were removed, thousands left the quiet homes and regular life of the country for crowded and badly ventilated houses of the towns. These were often located in the midst of unhealthy surroundings, their occupants without regular employment eking out a precarious existence."

Dr. W. B. Barnes (before cited) says that the causes of the increase of insanity and consumption among the negro population are deprivation, exposure,

³ Published by George S. Davis, Detroit, 1891.

⁴ Pulmonary Phthisis in Relation to Insanity, etc. Medical News, July 16, 1892.

Toxicosis of the Nervous System as a Cause of Consumption. Journal Nervous and Mental Diseases, November, 1896.

poor hygiene, difficulty of self-preservation, and mental anxiety.

Dr. R. J. Preston (before cited) states that the increase of these diseases among the negro since emancipation is due to the cares of life which are thrown on them, bad hygienic surroundings, crowding together, and no restraint on dissipation and vice.

Dr. Jas. D. Moncure (before cited) states that this increase is owing to crowding into cities, improvidence in living, and exposure to contagion.

All the testimony goes to show, too, as has been intimated already, that the vices of alcoholism and syphilis are freely acquired by these people; and there is abundant evidence to prove that both of these influences have a special predilection for destroying the integrity of the nervous system, and in this way to bring about insanity and phthisis.

Touching on these infirmities Dr. Powell says (*op. cit.*): "The ultimate results of alcoholic intemperance in this race is to be apprehended, perhaps, more than from any other influence, from the fact that there is a tendency to alcoholic intemperance, not only on the part of the men, but also on that of many women. Could we be justified in expecting a perfect mental and physical organism from parents both of whom were drunkards?"

He also says that "the direct and indirect effects of syphilis constitute one of the leading factors in the causation of insanity in the colored race. The large number that are tainted with syphilis in some sections is really alarming. I have ascertained from reliable sources that on some of the large plantations where there is a great number of negroes, there are few of the adults that are sound or free from the taint of syphilis. I have conferred freely with quite a number of physicians who were actively engaged in general practice before the war, and they seem to be fully agreed in the statement that secondary or tertiary syphilis was almost unknown in the country negro at that time.

He also gives the following very interesting account of the ravages of consumption among a settlement of negroes on three adjacent plantations in the Southern part of Georgia, and which was communicated to him by Dr. J. C. Patterson, in whose experience it occurred. Prior to the war these negroes enjoyed remarkable mental and physical health: Consumption, insanity and similar wasting diseases were altogether unknown among them. At the time of their emancipation there were upon these three plantations, including children, between 400 and 500 as healthy individuals as could be found, and free from all hereditary taint or tendency to any disease whatever. The negroes, as a rule, remained on the plantations where they were born. It was not long, however, before syphilis appeared among them; and it gradually spread over these plantations, the disease in nearly all cases going into the tertiary stage. Some ten or fifteen years later consumption and insanity began among the adults, many of their children died from scrofula and tuberculosis, and it was the exception rather than the rule that the children lived. Bodily deformities and idiocy were frequent among them.

Viewing the present condition of the Southern negro, then, from the standpoint of his changed surroundings, and taking into consideration the structure of the body which is specially implicated in this

change, it is perfectly obvious why insanity should develop as a necessary sequence in this soil. Upon the same ground, and upon no other, can we explain why pulmonary consumption should follow in the wake of insanity, and also increase in frequency. The truth is that those who were able to realize all the factors which would be called into activity by this environmental change of the negro could, at the time it was made, have foretold the inevitable results which are now but too evident to every one. It is a repetition, in part at least, of what happened, and happens now, to the aborigines of North America, Australia, and New Zealand, who, in their unequal warfare with modern civilization, have been, and are being fast decimated and exterminated by pulmonary phthisis.

THE NEW LOCAL ANESTHETIC, HOLOCAIN.

BY HASKET DERBY, M.D., BOSTON.

In an article¹ on "Certain Dangers attending the Use of Atropine," published a few years ago, I endeavored to call attention to the possible danger of increasing intra-ocular pressure connected with the employment of the ordinary mydriatics. The well-known fact that, in glaucoma, dilatation of the pupil increases and contraction of the pupil diminishes intra-ocular pressure long since led to the observation that the instillation of atropine and allied drugs might produce an attack of glaucoma in an eye predisposed to this disease. This observation was also found to hold good in regard to homatropine and even cocaine. But with the latter agent, used as it so generally is for the purpose of producing local anesthesia, the question of possible ill effects assumes peculiar importance. And, in point of fact, its employment for minor operations on the eye, in the case of patients who have arrived at or passed the period of middle age has been seriously hampered by the foregoing consideration.

Other disadvantages are, moreover, found to occasionally attend the instillation of cocaine. General faintness, dizziness, and even vomiting have from time to time been known to occur. Symptoms of cardiac disturbance, depending no doubt on some peculiar idiosyncrasy, are met with in some individuals.

Search has therefore been made for a local anesthetic that should be free from the disadvantages of cocaine. But none of the preparations experimented with have thus far proved wholly satisfactory. For one of the more recent of these, eucaine, it has been claimed that no pupillary enlargement, and therefore no increase in intra-ocular pressure, follows its use. But it causes local irritation, and therefore cannot be employed in inflammatory affections. And its repeated application has been found to finally give rise to pupillary dilatation. It offers no advantages over cocaine, and possesses peculiar drawbacks of its own.

In the January number of his *Centralblatt*, Professor Hirschberg announces the receipt of a new local anesthetic, to which he at first gave the name of "amidin." He found its anesthetic effects on the eyeball to be prompt and entire, no local irritation and no pupillary dilatation following its use. He used it with success in the extraction of a traumatic cataract, the presence of which had already given rise to inflammation.

¹ Boston Medical and Surgical Journal, December 28, 1893, p. 640.

The February number of the same magazine contains a full chemical account of the new substance. Without going into particulars, it is sufficient to say that it is closely allied to phenacetine. It has a powerful local anesthetic action, and is highly poisonous if administered internally, even in minute doses. No local poisonous effect has been noted. It is soluble in boiling water, and should be dissolved in a porcelain vessel, as it causes glass containing an alkali to lose a portion of the latter, which clouds the solution. It has finally been baptized with the name "holocain." The experiments at Hirschberg's clinic were continued, some forty-five cases having been subjected to its action. Anesthesia came on in from fifteen seconds to a minute, and lasted ten minutes. The instillation of holocain was accompanied by a slight burning sensation, no greater than that produced by cocaine. The dryness of the corneal epithelium produced by cocaine was here wanting. No pupillary enlargement and no effect on the accommodation were observed.

It was, moreover, found that holocain could be used in cases where cocaine was either contraindicated or failed to work, as, for instance, where there existed a considerable inflammation of the conjunctiva bulbi, attended by swelling. Its action was here entirely successful.

The solution of holocain needs no sterilization, being in the strength of one per cent. itself bactericidal.

Holocain possesses strongly poisonous properties, acting thus in one-fifth the strength of cocaine. When instilled in the conjunctiva no injurious effects have been observed.

In this new agent, then, we have a remedy that is likely to supplant cocaine in many cases of ophthalmic surgery. Among its advantages may be reckoned the following:

- (1) It does not enlarge the pupil.
- (2) Does not affect the accommodation.
- (3) Does not increase intra-ocular pressure.
- (4) Promotes antiseptis.
- (5) May be used when cocaine is contraindicated.

Per contra, its poisonous nature prevents it from being used subcutaneously. And, as it does not contract the vessels, operations done under its influence are likely to be attended by more hemorrhage than those performed under cocaine.

Dr. Tauber, who was the first to give an account of the chemistry of holocain, says that it belongs to the class of ethenylamidins, its proper cognomen being p-diäthoxyäthenyldiphenylamidin. It is manufactured at the color-works of Meister, Lucius & Brüning, at Höchst-on-Main. Through the kindness of Mr. Davidson of the Theodore Metcalf Company, I was enabled to obtain an early specimen, and at once commenced its use myself, begging at the same time some of my colleagues to employ it and give me the results of their experience.

It has, up to the date of this writing, May 26th, been used in six operative cases and in ten others. The operations embraced three extractions of senile cataract, one of a dislocated lens, and one discission. Anesthesia was rapid and satisfactory in all these cases, the main contrast with cocaine being the slight flushing of the eyeball. In one case of trachoma, in which Dr. Standish did expression, anesthesia did not come on for over seven minutes, but was then complete. In the ten remaining cases holocain acted as cocaine would have done, save that there was no effect on the pupil.

Since writing the above, an article by Drs. Heinz and Schlösser has appeared in the *Klinische Monatsblätter* for April. They have been working with holocain for the past four months. The foregoing statements are, in the main, corroborated. In their experiments one to two drops of a one-per-cent. solution generally brought about entire anesthesia in from forty to fifty seconds. When a second application was made, forty seconds after the first, entire loss of sensation invariably followed in thirty seconds more. The duration of the anesthesia is at least ten minutes. After the opening of the anterior chamber a second application was found to affect both iris and ciliary body, an iridectomy in a case of acute iritis causing no pain. This effect on the iris I, too, have observed. I had used holocain in a simple extraction of senile cataract, but finding it impossible to clear the pupil I was obliged to remove a small piece of the iris after the operation was otherwise completed. No holocain had been instilled since before the operation; and yet the patient, a nervous and apprehensive woman of seventy-two, suffered absolutely no pain.

In view of all this, it would seem that, with our present knowledge, holocain is likely to take the place of cocaine in ophthalmic surgery, except in cases where subcutaneous injection is required.

Clinical Department.

A CASE OF HYPOSPADIAS.¹

BY HOWARD A. LOTHROP, A.M., M.D., BOSTON,
Assistant in Anatomy, Harvard University; Surgeon to Genito-Urinary
Department, Boston Dispensary.

THE condition known as hypospadias is a congenital malformation of the urethra, due to arrested development, whereby there is more or less deficiency of the floor of the urethra. During the first few weeks of the life of the embryo, the sexes cannot be differentiated; in the fifth month, however, not only has the sex been determined, but also have the genital and urinary organs become completely developed. All embryos start with certain common fetal structures, the after development of which, according to the sex, will determine the physiology, and, what concerns us in particular, the morphology of the region in question.

The urethra is formed by the fusion in the median line of two parallel ridges, the free edges of which unite so as to make a canal. As would seem natural, the vesical end of the urethra is formed first, followed in succession by the prostatic, penile and glandular portions. The great bulk of the penis is made up of the corpora cavernosa which are practically never entirely wanting, so that from the position of the corpus spongiosum we can say that the roof of the urethra is always present, or at least what would correspond to it, and our malformation or defect concerns the floor of the canal. Embryology teaches that arrest of development taking place before about the eighth week will give a urethra complete only as far as the membranous portion, and that the glandular portion is completed during the fourth month, hence, in any given case we can determine approximately when the formation of the urethral canal ceased to progress.

¹ Read before the Boston Society for Medical Improvement, January 11, 1897.

These degrees of malformation have been classified by the following self-explanatory terms:

- (1) Glandular or balanic.
- (2) Penile.
- (3) Scrotal: peno-scrotal, perineal.

The anatomical peculiarities of the varieties will be considered only in the merest outline. It will be understood that the glandular variety must be the most frequent, and at the same time the source of the least inconvenience, and, on the other hand, that the scrotal variety is attended with the greatest deformity and most annoying consequences. The scrotal variety has repeatedly given rise to doubt as to the sex in so-called hermaphrodites. Of great practical importance in the consideration of the methods of treatment is the position and development of the rest of the penis. In the *glandular* variety, the most apparent change, aside from the absence of the floor of the urethra, is the breadth of the glans penis, and the redundant prepuce on the dorsum. In addition to the above defects, the *penile* variety presents a more or less marked curve of the penis, concave below so that the glans approaches the scrotum according to the degree of malformation. In the *scrotal* type, the penis is most curved, and often so small as to be concealed between the folds of skin covering it above, and extending to the cleft scrotum below and on either side. This penile curvature is due not only to the absence of a portion of the corpus spongiosum, but also to a lack of development of the lower portion of the corpora cavernosa. Consequently, running along the underside of the penis is a firm band or cord of fibrous tissue, which fails to distend when the organ is filled with blood, and thus the deformity is more marked when erection takes place.

Orth² states that one in every three hundred males is subject to hypospadias, and that many of the commoner variety (glandular) never come to our attention, unless for some other complication, not aware that any deformity exists, for they suffer no inconvenience.

Heredity.—The history of the case here reported would lead us to think that heredity was of some importance in etiology.

Symptoms.—The symptoms relate to the deficiencies and inconveniences in carrying out the functions of *micturition*, *copulation* and *fecundation*.

(1) The glandular type interferes with none of these functions.

(2) The penile type is more or less important, according to the amount of defect. The penis must be raised in order to guide the stream of urine, coitus may be possible if the penis is not too much curved, and the power of fecundation will depend on the location of the urethral orifice. These two types are most amenable to treatment.

(3) The scrotal type precludes the idea of coitus or fecundation, and micturition causes great inconvenience. The patient must squat to perform that function in order not to wet the clothes, and even then the stream is broken into a spray which wets the parts so that frequently a troublesome eczema exists.

Incontinence is not a feature of these lesions, because the urethra is usually completed to a point distal to the constrictor urethrae muscle.

Treatment.—The earlier surgical methods attempted for the cure of hypospadias were absolute

failures. They consisted mainly in efforts to form a canal by means of a trocar or hot iron, passed subcutaneously on the under side of the penis from the glans to the point of urethral opening. Since 1861 the ingenuity of surgeons has been directed toward establishing a urethral canal by means of flaps obtained from various sources. In 1869 Thiersch devised a method for the cure of epispadias, which Anger made use of five years later in a case of hypospadias. The method of Duplay, quoted in most text-books, seems to be the favorite, but it is open to many objections, and failures are common. Flaps from the scrotum are unsatisfactory, both on account of their structure and hairy surface. Abdominal flaps are liable to contain hairs and are difficult to manage. Van Hook³ has recently devised a method of canalization and the introduction of an epithelial lining derived from the prepuce, but this method has not had sufficient trial to recommend it.

It is not easy to decide when it is best to operate. It is difficult to succeed in early operations on account of the diminutive size of the parts, and the almost unavoidable sepsis consequent on urine contamination, but, on the other hand, if a canal is once established, it is said that the organ develops more satisfactorily. Operation on the adult is more frequently attended with success, for it is easier to keep the urine from coming in contact with the field of operation. In children, the course of the urine has been deflected by means of perineal section. The patient or his parents should thoroughly understand beforehand the difficulties of the operation, that treatment will extend over several months, that several operations may be necessary, and even then absolute failure may result.

Of 20 cases operated on in the Czerny clinic by different methods, 52 operations were performed, and then the results were only as follows: cured, 7 cases; partially cured (fistulae remaining), 11 cases; absolute failures, 2 cases.

Cases operated upon at the hospital of the University of Pennsylvania required three or four operations.⁴

In considering these various methods, that devised by Thiersch seems to offer the best chance of success in the penile type. Comparatively extensive raw surfaces are overlapped, and rapid primary union is more apt to follow and remain firm than where smaller surfaces are approximated. It is absolutely essential to maintain asepsis, and to keep the parts dry and at rest. Failures are due to sepsis and swelling of parts, with consequent sloughing of flaps, tearing out of sutures, with consequent fistulae, or even no improvement whatever.

The following case will serve as an example of the peno-scrotal type, treated successfully by the Thiersch method. The operation was performed by Dr. M. H. Richardson, at which I was allowed to assist and then care for the after-treatment.

J. B., twenty-three years of age, clerk, was a young man in perfect health. Concerning the family history, he states that his father has a glandular hypospadias; his cousin, nineteen years of age, and his brother, twenty years of age, have the peno-scrotal type.

Five years ago, an attempt was made to construct a canal through the glans penis by the usual method, but the attempt failed. Two years ago, an operation was performed for straightening the penis, with con-

² Orth: Pathologische Anatomie.

³ Van Hook: Annals of Surgery, 1896, xxiii, 378.

⁴ American Text-Book of Surgery.

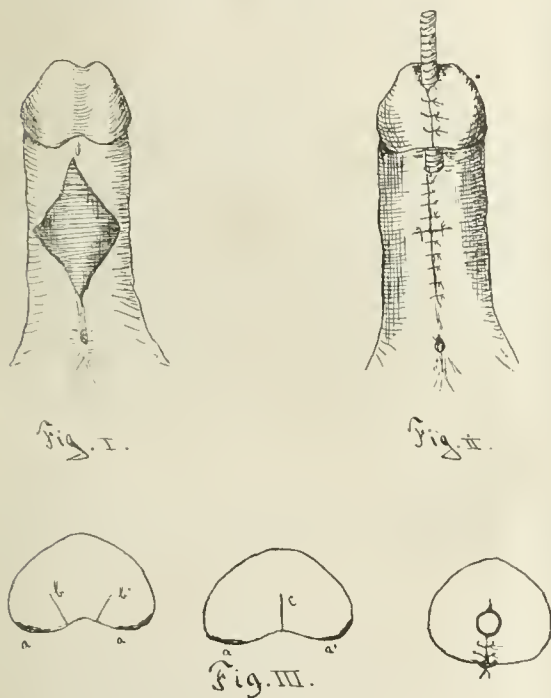
siderable success according to the patient's statement.

At the time of the present operation, the local condition was as follows: On inspection, the penis was somewhat smaller than the average and presented a curvature (convexity upwards) which was a little exaggerated over the normal. This curvature was increased when the organ became erected, but not sufficiently to interfere with coitus. The glans penis was broad and flattened below, and surmounted above and laterally by a redundant prepuce. There was no frænum or prepuce on the under side, but there was a shallow groove, corresponding to the upper wall of the urethra. The skin of the penis was abundantly developed and could be raised in folds. On the under surface, in the median line, was a linear scar about two inches long, across which were several short scars. Corresponding to the dorsal wall of the urethra, the skin was pink in several places, more delicate in struc-

ture, and was probably an altered condition of mucous membrane. The corpora cavernosa were soft and compressible, but in the median line below and between, could be felt a small fibrous cord. The urethral opening was in the median line exactly at the peno-scrotal angle. The scrotum and testicles were normal, as was also the skin about the urethral opening.

(1) To straighten the penis. On the under surface make one, or possibly two, transverse incisions so as to sever the fibrous cord which corresponds to the urethra, and in certain cases this incision must be carried into the substance of the corpora cavernosa. The penis is then forcibly stretched and we thus obtain a diamond-shaped wound (Fig. 1),⁶ which is to be closed longitudinally (Fig. II).

It is best at this step to establish a canal through



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The inconveniences suffered by the patient were slight. At each micturition, the penis had to be raised, and the stream was fairly compact; but if he was not very careful the parts would become wet. Coitus was possible, and the ejaculations took place in the normal way; but the mechanical conditions were such that the seminal fluid could never enter the vagina. With the idea of correcting this deficiency, the patient sought operation.

The problem in these cases is (1) to straighten the penis, and then (2) establish a canal, and, in order to

make the description complete, the accepted method of straightening the penis will be described briefly.

(2) To establish the canal by the Thiersch method. An incision, 1, 2 (Fig. IV), is made, parallel to and about half of an inch from the median line, extending from the glans penis to a point opposite the urethral opening. Incisions 1, 3, and 2, 4, make a rectangular flap of this (a), which is dissected up with the line of the urethra (3, 4) as a base. The second flap b is twice as broad as flap a, with its free edges at 5, 6, parallel and close to the edge of the urethral groove. Incisions 5, 7, and 6, 8, are carried well

⁶ These figures have been suggested by other diagrams, and by the peculiarities of the case in question.

around to the side of the penis. After flaps *a* and *b* have been dissected up, a gum-elastic catheter is to be inserted into the bladder and flap *a* reflected over it so that the cutaneous surface is in contact with it and the raw surface exposed to view. This flap is held in place by five silk sutures passed as follows (Figs. V and VI): The ends of the silk are threaded with small round needles, both of which enter the side of the urethral groove at *c* (Fig. VI), passing from the raw to the cutaneous surface, then transfix flap *a* near its free edges, passing from cutaneous to raw surface, and finally both needles pass through flap *b* at *d* (Fig. VI and V). These sutures are placed close together and rather loosely tied. Flap *b* is then drawn over so as to close the wound (Fig. VI and VII).

It is generally recommended to close the urethral opening, and to connect the distal end of the new canal with the previously formed glandular canal at a subsequent operation; but in this case it was decided to make the proximal connection at once. The edge of the urethral opening was denuded and flap *a* sutured to the free edge of the floor of the urethra and the line of suture covered with flap *b*, so that there was no direct communication. Remembering that glandular hypospadias never interferes with the function of the penis, no attempt was made to restore that part of the canal, although this should be carried out when the penis is straightened.

The catheter was maintained by the "jury-mast" contrivance (Fig. VII), the silk threads running from the tip of the catheter to a circular rubber ring about three inches in diameter fastened at the base of the penis, which also served to retain the dressing in place.

Convalescence. — Before the operation, the bowels were thoroughly evacuated, and then the patient kept on a light diet for nine days, when they were moved for the first time by enema. Opium suppositories and bromide solutions were used with perfect success to avoid erections. The syphon worked perfectly, and at no time was there any escape of urine around the catheter. On the fourth day, the deep sutures were removed. On the sixth day, on account of a slight urethral discharge, the bladder was irrigated with a solution of boric acid so as to cleanse the inside of the catheter, which was then withdrawn just beyond the constrictor urethra muscle, and the urethra irrigated with the catheter in this position. This procedure was repeated on the tenth day. On the seventh day all stitches were removed, and the wound was apparently healed. The catheter was removed for the first time on the sixteenth day, without having caused any particular discomfort. There had been neither pain nor tenderness except at the site of the original opening, where it was slightly tender on the third and fourth days. The wound remained perfectly dry at all times. There was no loss of tissue except a small area of the outer layer of skin at the lower corner of flap *b* near *e* (Fig. VII). There was no pain on micturition. During the first day after the removal of the catheter, a small amount of urine escaped from a minute fistula at *e* (Fig. VII). This must have closed at once, for the patient was directed to hold a small piece of dry gauze over the opening at each micturition for a few days, and there has been no further escape of urine. There was a slight urethral discharge for four weeks, the abundance of which was not influenced by the use of salol, but it entirely dis-

appeared in a week after the use of oil of sandalwood. The pus cells contained no diplococci, and the discharge was undoubtedly due to small granulating areas along the new urethra, together with a certain amount of catarrhal inflammation of the whole urethral mucous membrane from catheter irritation. There were no subjective or objective symptoms of a posterior urethritis.

It is now eight months since the operation, and the new urethra is perfectly competent in all respects.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MOMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, January 11, 1897, DR. C. J. BLAKE in the chair.

ANATOMICAL SPECIMENS.

DR. H. H. A. BEACH: This kidney is that of a man of middle age whose symptoms were anemia, debility and loss of flesh without pain. One examination of the urine showed a very slight trace of blood, and that was microscopic in character. The symptoms existed from June to the present time. The growth first appeared in the lumbar region, extended forward, and had been regarded as splenic in character until Dr. Fitz diagnosed renal growth and sent the man to the hospital. The abdominal operation was performed, first ascertaining that another kidney existed. The growth was a large-celled sarcoma, and weighed three pounds. Dr. Whitney makes the following report upon the growth:

A rounded mass, the size of a child's head, weighing about three pounds, involving about one-third of the upper part of the kidney. The capsule of the kidney blended with the fibrous covering of the growth, which was rough, and upon which was several small, rounded, secondary nodules.

The kidney was quite sharply defined from the growth, and microscopic examination showed evidence of connective-tissue increase, with atrophy of the kidney substance close to it. Elsewhere the kidney was pale, but otherwise normal. On section the greater part of the growth was seen to be of a uniform, opaque, yellow color, and the microscopic examination of this part showed simply fatty degenerated cells and detritus. At the edge this tissue was more translucent, pale, and of a medullary aspect, and a distinct lobulation could be seen. Microscopic examination of this part showed it to be made up of large round cells, among which were scattered irregularly-shaped protoplasmic masses, with very large nuclei, three or four times as large as the average cells. The cells seemed to have a little granular intercellular material, and there were no well-formed blood-vessels. Close to where it joined the kidney was a line of tissue of an old-gold color, recalling that of the suprarenal capsule.

The diagnosis is a large, round-cell sarcoma, rapidly growing and undergoing anemic necrosis. It probably originates from the suprarenal capsule, possibly from a misplaced fragment in the kidney.¹

DR. A. T. CABOT reported a case of
CYST OF THE BRAIN.²

¹ This patient died in the following March of a recurrence of the growth in the brain.

² See page 533 of the Journal.

DR. J. W. ELLIOT reported a similar case.⁸

DR. J. J. PUTNAM: Dr. Cabot's case is one of the most interesting and satisfactory that we have had at the Massachusetts Hospital. He has alluded to the fact that consciousness was rarely lost in these attacks, even in those which were comparatively severe, and that nitrite of amyl seemed singularly efficient in checking them. In the latter attacks, however, in spite of the slight impairment of consciousness, a considerable degree of paresis of the arm and leg was left behind. It is usually supposed that when impairments of motion of this sort followed epileptic attacks it is a sign of exhaustion attending strong muscular spasm; but it is evident that such is a narrow view. A number of cases are on record where paresis has come on without antecedent convulsion. Féré thinks that some of these cerebral seizures may be considered as analogous to dreams, and that the motor weakness may be analogous to that which sometimes follows dreams.

The failure of electrical excitations to excite responses over this cyst was quite striking, although the yellowish color was sufficient to indicate to a trained eye the fact that there was something abnormal. No contractions could be produced there until the electrode passed beyond the limit of the cyst, although this was covered by a layer of brain tissue. The change in the distribution of the sensory symptoms from the neighborhood of the thigh to the side of the neck and the neighborhood of the ear, and also to the arm, was very striking and interesting, and in that connection I would like to mention the fact that I have noticed in several cases, that the peculiar numbness and prickling which sometimes accompanies hemiplegia was most marked in the neighborhood of the ear. In the cases to which I have alluded the symptoms were certainly referable to the internal capsule, and it strikes me as most probable that this cyst did eventually reach far enough to cause pressure on the motor and sensory fibres of the internal capsule. The impairment of hearing and the hemianopsia was also extremely interesting. At first, the hemianopsia came on only after attacks, but afterwards it became more or less persistent. The disturbance of hearing was associated with a sound more or less like that of a shell over the ear. I have seen several cases in which the two ulnar fingers of one hand seemed to be more affected with sensory symptoms than the other fingers, although one would suppose that the index finger and thumb being most used would be most likely to show sensory as well as motor symptoms. In this case there was no distinct differentiation between the fingers except as the paralysis came on as it did after some of these very slight attacks, at the end of five or ten minutes. Under these circumstances it would affect first the fifth and fourth finger, then the third and second and first in turn.

As early as February, 1894, which was a few months after the first operation, there was more or less ataxia and sensory impairment of the hand and foot.

It would be very interesting if there was time, to discuss the pathology of these cysts, because it is not clear how they occur and how the limiting wall is made. Where the tissue is melting down under the pressure of the fluid it would seem doubtful if there is a distinct wall. As regards Dr. Elliot's patient, I saw him many times in the out-patient department and after he went into the hospital, and the gradual spread of the convulsions from the index finger and thumb to

the rest of the fingers and then to the wrist and arm and shoulder was certainly very striking as illustrating what Dr. Hughlings Jackson has pointed out confirming our ideas of the anatomical arrangement of these different centres with relation to development.

DR. BEACH: I have been much interested in the cases of Drs. Cabot and Elliot, for the late histories, after such operations are of the greatest importance. The analysis of 19 cases recently published by Sachs and Gerster of New York, gives a rather gloomy, outlook excepting those where the symptoms are of recent occurrence. They agree with those who insist "that no case of epilepsy can be said to be cured unless the patient has been entirely free from the attacks for a period of at least a year. . . . Possibly this period should be extended to three years." They criticised a case published by me in 1890, and some reports of Horsley, as having been made too soon after the operations. My case was not reported for ten months after the operation, to provide for the possibility of recurrence of symptoms. Fifteen months after the operation, the patient was thrown down violently by her dress catching upon a wagon step while alighting and struck upon the site of the old operation. Convulsions occurred again, and continued until the operation was repeated in the spring of 1892; and a gold plate was then inserted to prevent a re-adhesion of the brain to the skull and to protect the brain from injury. This case was exhibited to the members of the American Surgical Association visiting Boston at their annual meeting in 1892; but the report of the case has been purposely delayed five years to be as sure as possible of the question of recurrence. My case was cured for fifteen months, and without the *accidental* fall might have had immunity from seizures for an indefinite period. As far as one record can supply evidence, it raises a doubt as to the expediency of establishing a rigid rule for the time when these cases may be considered cured, at least for the present.

DR. E. W. TAYLOR: There are a certain number of points, from the pathological point of view, which have been briefly touched upon, of particular and extreme interest, especially since our knowledge of the neuroglia has of late grown to such an extent. Within the last few years we have arrived at certain methods of staining the neuroglia which have thrown new light upon the subject of the pathology of the brain in general, and particularly upon those conditions of which cyst is a very excellent example. The feeling has been growing rapidly that the part which connective tissue plays in reparative processes in the central nervous system is comparatively insignificant. In processes such as cysts of the brain of this non-congenital sort, we unquestionably have the reparative process consisting almost entirely of a reproduction of neuroglial tissue rather than of connective tissue. The term connective tissue should be dropped except in so far as we have to do with its proliferation in relation to the membranes and blood-vessels.

The first point of practical importance is the question of the cyst wall. According to the present view, such a cyst wall would be made up chiefly of neuroglial tissue, consequently the question suggested by Dr. Putnam, as to whether we have a wall at all is certainly *apropos*. Probably we have simply a proliferation of neuroglia, which is to be regarded as a conservative process on the part of nature to fill up the gap occasioned by a previous destructive process. No

⁸ See page 536 of the Journal.

doubt it would be possible to take out a good part of this thickened neuroglia, but the idea of removing the wall as a wall, if this view be correct, would be a physical impossibility. Dr. Horsley's suggestion of excising the entire cyst and considerable tissue about the cyst is of interest, since no doubt he has had successful results from such operation. By this procedure we substitute a clean surgical cut for the rough and irregular wall of the original cyst, which possibly is more irritative than the clean cut would be. There would, no doubt, be a certain degree of reparative process on the part of the neuroglia, but not one that would be of the same irritative character as the original wall, if left intact.

The further question comes up as to how such a cyst becomes obliterated. If obliteration occurs, it must, in great measure, be due to a reactive predisposition on the part of the neuroglia. In cysts of considerable size such obliteration probably would not occur or, at best, imperfectly.

Dr. Elliot brought out the interesting fact, that possibly in this case he had a cyst growing in a glioma or a glioma extending from the cyst. It is probable that further investigation will show that the differences between cysts and gliomatous new growths is not a difference in histological structure, but rather in method of development, so that a glioma may prove to be simply a gliosis which has the power of expansive and continuous growth.

The only other point I should like to mention is the fact of the persistent sensory disturbance from an injury occurring apparently in the motor area, being another observation in support of the now generally accepted view that the motor sphere is a sensory area as well.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-SECOND ANNUAL MEETING, WASHINGTON,
MAY 4, 5, 6, 1897.

FIRST DAY. — TUESDAY.

The Address of Welcome was read by DR. A. F. A. KING, of Washington, who expressed the pleasure he felt in greeting the members of the Society, and hoped the meeting of 1897 might constitute a memorable page in the already distinguished history of the organization.

DR. BACHE MCEWEN EMMET, of New York, read a paper entitled,

MULTIPLE MYOMATA IN THE ABDOMINAL CAVITY.

The author described the pathology of that form of myomata formed of unstriped muscular tissue, and advised a study of their genesis in order to prevent their formation. Although supposed to spring from unstriped muscular tissue only, they are occasionally met with elsewhere, and the author reported an unusual case in which seven of these tumors were removed from the pelvic cavity, all of which were found to have omental attachments and no connection whatever with the uterus.

DR. CHARLES P. NOBLE, of Philadelphia, then read a paper entitled,

THE HISTORY AND PRESENT STATUS OF HYSTERECTOMY FOR FIBROID TUMORS OF THE UTERUS.

He traced the history of the operation from the time it was first performed by Kimball in 1853 to the present day, and dwelt upon the important part played by American surgeons in its development. The operation was an outgrowth of ovariectomy as it was first performed in a case of supposed ovarian tumor, and is therefore of American origin. The various methods of treating the stump were described, and the many advances made in the technique of the operation, all originating in this country, were detailed at length. The paper stated that the mortality of fibroid tumors not operated upon is greater than supposed, while that of supra-vaginal amputation is at present five per cent. In total hysterectomy, the mortality is increased by delay in operating. The author urged early operation, because it insures a low mortality, permits the substitution of myomectomy in women of child-bearing age, and conserves the life and health of the patient.

DR. R. STANSBURY SUTTON, of Pittsburgh, was opposed to operating upon every fibroid tumor of the uterus, and would resort to hysterectomy only when the symptoms urgently demanded it.

DR. ARTHUR T. JOHNSTONE, of Cincinnati, was also in favor of conservative treatment, because in many cases the presence of a fibroid gives no trouble. He had seen good results follow removal of the appendages to arrest the growth of a uterine fibroid. In performing hysterectomy, he leaves part of the cervix whenever this is possible.

DR. B. F. BAER, of Philadelphia, said that, although an advocate of conservative treatment in these cases, he thought this often meant the employment of radical measures. An operation which relieves suffering and saves life is a conservative operation. Supra-vaginal amputation of the uterus is indicated in some cases and myomectomy in others. The menopause rarely arrests the growth of these tumors.

DR. A. PALMER DUDLEY, of New York, laid stress upon the importance of a correct diagnosis before determining upon the operation to be performed, and said that no one method is suitable for all cases.

DR. W. T. LUSK, of New York, advised expectant treatment, as many fibroid tumors exist without producing symptoms. In those cases where operation is demanded, he performs myomectomy whenever possible. Supra-vaginal hysterectomy is preferable to the total extirpation on account of the discomfort produced by sinking of the pelvic contents in the latter operation.

DR. J. M. BALDY, of Philadelphia, said that doing what is best for the patient constitutes conservatism. He therefore performs hysterectomy or myomectomy in such cases as demand it, and treats expectantly those in which it is not indicated. Excessive anemia caused by repeated hemorrhages calls for operation. Removal of the appendages to arrest the growth of a fibroid is rarely successful, because of the difficulty in removing all ovarian tissue.

DR. T. A. REAMY, of Cincinnati, was of the opinion that oöphorectomy has a beneficial effect upon these cases if performed in the early stage; later on neither this nor the menopause will arrest the growth of a uterine fibroid. In view of the fact that these tumors often exist without producing symptoms, he is an advocate of conservative treatment, although he is not opposed to hysterectomy when this is indicated. We should be proud of the fact that surgery has reduced the mortality of this operation to five per cent.

DR. BEVERLY McMONAGLE said that an operation which is conservative in a young woman is not conservative in an old woman. Hysterectomy should be performed in the latter case if pain or discomfort is caused by the tumor. It is better to do myomectomy in women in the child-bearing period, in order that this may not be interfered with. Oophorectomy should not be undertaken for the same reason.

DR. GEORGE J. ENGELMANN, of Boston, was in favor of expectant treatment, because many of these tumors are not dangerous to life and in many cases are harmless. The establishment of the menopause, instead of checking the growth of a uterine fibroid, often causes the condition to become worse.

DR. SETH C. GORDON, of Portland, Me., expressed himself as being most radical in his views on this subject. He removes all fibroid tumors, large and small, because he considers them a menace to the woman's life, and invariably removes the uterus as well as the appendages. If one could be sure that the growth will not recur, myomectomy would be the better operation in young women.

DR. THOMAS ADDIS EMMET, of New York, thought there was no doubt that fibroid tumors which were originally uterine become transplanted elsewhere in some cases, and mentioned a case in which this took place. He was decidedly in favor of conservative treatment, and was especially opposed to hysterectomy. The causation of these tumors should be learned, and treatment directed toward their prevention.

DR. BACHE EMMET, in closing, said fibroid tumors appeared to be due to a diseased condition of the uterus or to a disturbance of the circulation of the organ, and reiterated his opinion that radical measures are indicated only when there are marked symptoms.

DR. NOBLE, in closing, said that his aim had been to make clear the difference between the conservatism which considers the interests of the patient and that which does nothing. The menopause does not check the growth of these tumors, as shown by the fact that twenty-five per cent. of the women he had operated upon had passed this period.

DR. H. J. GARRIGUES, of New York, then read a paper entitled,

SECONDARY OPERATIONS.

The author said that secondary operations often are made necessary by careless and faulty operating, and dwelt upon the importance of leaving no raw peritoneal surfaces in abdominal operations and of gentle handling of the intestines and other organs, in order that no adhesions may subsequently be formed. He also spoke of the necessity of employing strictly aseptic methods. A number of cases were reported.

DR. BACHE McE. EMMET, of New York, indorsed the views of the author, and called attention to the fact that many patients are subjected to secondary operations because of an error in diagnosis. Infection is often caused by ligatures, and care should be exercised to avoid this.

DR. A. LAPTHORN SMITH, of Montreal, mentioned a case in which secondary laparotomy became necessary on account of intestinal obstruction caused by adhesion of the gut to a raw peritoneal surface.

SECOND DAY. — WEDNESDAY.

DR. ANDREW F. CURRIER, of New York, read a paper entitled

SUGGESTIONS CONCERNING VENTRAL HERNIA RESULTING FROM ABDOMINAL SECTION, AND ITS TREATMENT.

The author was of the opinion that ventral hernia after abdominal section is not always due to bad technique, but to many other causes, for example, non-resisting condition of the tissues, lack of proper protection after operation, hard work, and fat. He described the condition under three headings: (1) simple, (2) multiple, (3) massive. Early operation was advised in all cases without reference to the symptoms. The following method of closing the wound was given: After freshening the edges of the tissues, all superfluous peritoneum and fat being removed, two curved needles, threaded on the ends of a strand of silkworm-gut, are introduced just above the upper angle of the wound from without inward, passing through fascia, muscle and peritoneum, and are then brought out and again inserted from above downward on the opposite side, and this is repeated until the lower angle of the wound is reached, in exactly the same manner as a shoe is laced. One suture twelve inches in length is sufficient if the wound is not more than three inches long; otherwise a second suture should be employed, beginning at the lower angle of the wound and meeting the one from above in the middle of the wound. The skin is then united with a continuous suture of silkworm gut, and a thin strip of gauze is slipped under each suture to protect the skin. The superficial sutures are removed in two weeks, the deep ones two weeks later. The patient should be kept in bed for a few days after removal of the stitches and adhesive straps worn to protect the wound for the next week or two.

DR. J. M. BALDY, of Philadelphia, said he has employed a suture of silk for the peritoneum, a similar one for uniting the fascia, and silkworm-gut for the skin, with good results.

DR. A. LAPTHORN SMITH, of Montreal, spoke of the importance of allowing the sutures to remain in the tissues for a long time. Hernia rarely follows operation if this is done. In closing the wound, he employs silkworm-gut sutures, one-third of an inch apart, taking in peritoneum, fascia and skin. In women with fat abdominal walls, a buried suture which includes peritoneum and fascia is employed, and the rest of the wound closed by another row.

DR. JOSEPH TABER JOHNSON, of Washington, thought that most of the methods advised for closure of the abdominal wound occupy more time than the operation itself, and are therefore undesirable. He employs a through-and-through suture, near together and taking up a good deal of the structures, with very good results.

DR. CHARLES P. NOBLE, of Philadelphia, said that for the past five years he has employed buried sutures of silkworm-gut in closing abdominal wounds, and was convinced that the best results are to be obtained by this method. In 400 cases treated in this manner, suppuration occurred in only 10, and hernia followed in but two cases. The speaker was of the opinion that there would be but few ventral herniæ if more time were devoted to closure of the abdominal wound.

DR. A. P. DUDLEY, of New York, said that hernia would not occur if the edges of the linea alba were properly brought together, and he doubted if it were possible to get union by overlapping the fascia, nor

did he approve of any method of suture which united all the structures. To secure a good result it is not only necessary to approximate the different tissues, but they should be held firmly together for some time. He has operated on twelve cases, with very satisfactory results, by the following method: The peritoneum is drawn together with fine catgut; silver-wire sutures are then passed through the muscles and fascia, a small silver canula is then passed over the ends of each suture, and the latter are drawn tight and shouldered as in Emmet's operation for trachelorraphy; no sutures are inserted in the fat and cellular tissue, but between each silver suture the skin is held together with silkworm-gut.

DR. CURRIER, in closing the discussion, said that any method by which the wound could be closed quickly and properly would, indeed, be desirable; but he hardly thought the one advocated in his paper could be said to be complicated. He employs several rows of sutures, for the reason that he does not think it possible to get a good result with a suture which included all the tissues.

The President, DR. JAMES R. CHADWICK, of Boston, then read his Address, which was

AN HISTORICAL SKETCH OF ABDOMINAL SURGERY.¹

DR. THOMAS ADDIS EMMET, of New York, said that the younger members of the Society could have no idea of the opposition offered by the profession to ovariectomy and similar operations when Dr. Sims founded the Woman's Hospital of New York. Surgeons refused to assist, and would not even countenance an operation by seeing a case in consultation, and a man who dared to remove an ovarian tumor was looked upon as a murderer.

DR. EDWARD P. DAVIS, of Philadelphia, read a paper entitled,

PRIMARY TUBERCULOSIS OF THE BREAST COMPLICATING PREGNANCY.

The author said that primary tuberculosis of the breast is a rare condition and that but few cases were found in the literature. He reported a case of a young woman in whom the disease complicated her first pregnancy. The diagnosis was made by microscopical examination of the secretion of the breast and confirmed by the pathologist's report on the tumor when it was removed after delivery. There was no history of injury, no condition of general tuberculosis, and the breast had evidently been infected by the mouth of a tuberculous individual. He also mentioned a case in which a tumor, supposed to be sarcoma, was removed, together with the entire breast, from an unmarried woman, and found to contain multiple tuberculous abscesses. The tumor involved the outer border of the breast and extended into the axilla; the nipple was not affected.

DR. H. T. HANKS, of New York, said he had met with one case of the kind complicating pregnancy. The tumor was diagnosed as cancer of the breast, and the patient was septic when seen. After delivery the breast was amputated; and the woman died three days later of sepsis.

DR. PAUL F. MUNDÉ, of New York, read a paper entitled,

PERITYPHLITIS AND APPENDICITIS IN THEIR RELATIONS TO OBSTETRICS AND GYNECOLOGY.

The author said that as it is only within the past ten years that inflammation of the appendix has been recognized, inflammatory conditions of the right iliac and cecal region were formerly termed "perityphilitis." The disease was also supposed to be confined to the male sex, probably because the many inflammatory conditions of the abdomen in women caused the appendix to be overlooked. He reported a number of cases occurring in women and called attention to the following points: (1) the possibility of the occurrence of appendical inflammation, either as a new disease or as a recurrence of a previous attack, at any time during pregnancy, or even during labor and the puerperal state; (2) the induction of abortion or premature labor by the acute appendicitis, either in consequence of the local irritation or through the fatal effect on the ovum of the general hyperpyrexia; (3) the difficulty of diagnosis of the true nature of the case, especially when the pain in the right iliac region is masked by the natural labor pains, or the attacks occur after delivery, and the high temperature may be mistaken for that of puerperal septic infection; (4) the necessity for prompt surgical interference, whether the attack occur during labor or the puerperal state; (5) the danger of a greater mortality, owing to the possible postponement of the operation in consequence of the difficult diagnosis, or to the risk of genital infection.

DR. FORD mentioned a case of a young girl in whom a large quantity of pus was found in the pelvis and evacuated by vaginal incision, a few days after he had operated upon her for appendicular abscess. He also reported a case where death resulted from iodoform poisoning caused by packing the pelvic cavity with iodoformized gauze after evacuating a very large quantity of pus. The girl had a heart lesion and this, perhaps, was a factor in the case.

DR. A. LAPHORN SMITH, of Montreal, had seen a number of cases in which the appendix was found adherent to the right tube.

DR. E. C. DUDLEY, of Chicago, reported a case of a woman in whom four abscesses developed in the right side at intervals of a few weeks. When the fourth appeared, the speaker was asked to see the case. An appendicular abscess was found and the appendix removed. In another case an abscess of the appendix and a ruptured pus-tube were found.

DR. H. T. HANKS, of New York, said that he had met with many cases of appendicitis and disease of the right tube coexisting.

DR. BAKER remarked that in cases where appendicitis and tubal disease both exist, the former is probably the primary condition.

DR. R. A. MURRAY, of New York, read a paper entitled,

THE TREATMENT OF SYPHILITIC WOMEN IN PREGNANCY AND PARTURITION.

The author said that syphilis is the most common cause of premature birth and abortion, and described the changes which take place in the placenta, endometrium and fetus as a result of this disease. Treatment should be directed toward preventing these changes; and the anemia, which is the main factor in causing the death of the fetus, calls for remedies which will increase the hemoglobin in the blood of mother and child. He has found inunction to be a more satisfactory method of administering mercury than giving it

¹ See Journal of May 6, 1897, p. 429.

by mouth, and, after delivery, employs it in the case of the child. He called attention to the fact that in first pregnancies, where the woman's husband is syphilitic, the disease usually appears first in the throat.

DR. EDWARD P. DAVIS, of Philadelphia, was of the opinion that, in order to make a diagnosis in these cases, an examination of the genital tract should be made.

DR. A. PALMER DUDLEY, of New York, read a paper entitled,

SOME PATHOGNOMONIC PHYSICAL SIGNS OF CHRONIC GONORRHEAL INFECTION IN WOMEN AND THEIR VALUE IN DIAGNOSIS OF PELVIC DISEASE.

The following points in differential diagnosis were given: (1) pathological changes within the urethra, attended by pain at neck of bladder and painful micturition; (2) abscess of the vulvo-vaginal gland; (3) chronic senile vaginitis; (4) pernicious leucorrheal discharge from cervix; (5) dysmenorrhea from stricture of internal os; (6) structure changes in endometrium resulting in menorrhagia; (7) pathological changes in Fallopian tubes; (8) the effect of the gonococcus upon the ovary; (9) the different forms of displacement that accompany this condition; (10) sterility.

(To be continued.)

Recent Literature.

An American Text-Book of Physiology. By Henry P. Bowditch, M.D., John G. Curtis, M.D., Henry H. Donaldson, Ph.D., W. H. Howell, Ph.D., M.D., Frederic S. Lee, Ph.D., Warren P. Lombard, M.D., Graham Lusk, Ph.D., W. T. Porter, M.D., Edward T. Reichert, M.D., and Henry Sewall, Ph.D., M.D. Edited by WILLIAM H. HOWELL, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore, Md. Fully illustrated. Philadelphia: W. B. Saunders. 1896.

In this work it has been attempted to give an account, adequate for the purposes of student and practitioner, of the present position of physiology. The method adopted in the preparation of the work has been that of collaboration by ten authors, to each of whom one division of the subject is allotted. The multiplication of writers no doubt permits, as Professor Howell tells us in his preface, of a more perfect mastery by each of the parts of the field to be described by him. It may be regretted, nevertheless, that the adoption of the principle of the division of labor has only resulted in a rather unwieldy students' text-book, for the preparation of which after all a complete command of the whole of current physiology can hardly be regarded as necessary, and not in a *Handbuch* taking the place in the English language of "Hermann" in the German. From the publisher's point of view, no doubt, the non-attainment of this result is more than compensated for by the probable use of the work by a large number of students, since all the collaborators are well-known teachers of physiology.

Professor Howell has written an admirable general introduction, after which Professor Lombard discusses quite adequately the general physiology of muscle and

nerve, making considerable use of Biedermann's recently published "Electrophysiologie," but at the same time introducing a number of excellent original muscle tracings.

Professor Howell then treats of "Secretion," "The Chemistry of Digestion and Nutrition," "The Movements of the Alimentary Canal, Bladder and Ureter," and "Blood and Lymph." The treatment of all these subjects is excellent, the discussion being very consecutive, clear and complete.

The section on the Circulation is the work of Professors Curtis and Porter. Professor Curtis discusses the mechanical aspect of the circulation of the blood and lymph, while Professor Porter treats the innervation of the heart and blood-vessels and the nutrition of the heart. Both these authors give more references to the literature of their subjects than their collaborators have done. Professor Porter especially has multiplied authorities to an extent which—although most valuable to the advanced worker—may be somewhat embarrassing to the elementary student.

Professor Reichert is responsible for the sections on Respiration and Animal Heat, both of which subjects are adequately treated.

The "Central Nervous System" is the work of Professor Donaldson, and is most excellently done, the latest standpoints being taken in it and all aspects of the subject dealt with.

"The Special Senses" are treated of by Professors Bowditch and Sewall. Professor Bowditch's chapter on Vision is a very good one, the subject being completely and clearly treated. Professor Sewall's account of the other senses is also very well done.

Professors Lombard and Sewall are responsible for the Physiology of the Special Muscular Mechanisms.

Professor Lee has written a very good and up-to-date account of the general physiology of Reproduction.

The section entitled "The Chemistry of the Animal Body" is the work of Prof. Graham Lusk. In it rather a large amount of adventitious matter has been introduced, which hardly belongs to the subject proper, such as very elementary details of inorganic and organic chemistry, and inadequate pharmacological discussions.

Regarded as a whole, it can be said that the book is a success and worthy of its title. The publisher has carried out his share of the undertaking well. A more detailed table of contents and a more careful index would, however, add greatly to the utility of the work.

Genito-Urinary and Venereal Diseases. By WHITE and MARTIN. Philadelphia: J. B. Lippincott Company. 1897.

The need of another work in this department of surgery is questionable. Apart from this, however, the above publication answers very well its purpose, which is stated in the preface to be that of presenting the subjects included in its title in a practical and useful way to both students and practitioners. This end is attained by the clear and concise way in which the book is written, and by the avoidance of discussion of theoretical matters that are *sub judice*.

The portions of the work which seem to us the least well done, are those parts of the first two chapters which deal with the anatomy of the penis and the urethra. These are lacking in illustrations and full-

ness of description. The chapter on the examination of urine is likewise deficient in illustrations; and the pathological significance of certain urinary elements is inadequately presented. The description of the endoscope fails to impress the reader with the importance of its use in chronic inflammations of the urethra.

Among the many good features the following may be noted, as examples: the descriptions of the plastic operations upon the urethra; the chapter upon stricture; the description of syphilis as it affects special organs and tissues, and also the treatment of the disease; the diseases of the prostate; the functional nervous disorders of the sexual organs, and a separate chapter which is devoted to a comparative study of certain symptoms as they occur and vary in connection with different diseases of the urinary organs.

Deutsch's Letters: A Practical Method for Easy and Thorough Self-Instruction in the German Language. By SOLOMON DEUTSCH, A.M., Ph.D. Second and revised edition. New York: J. H. Vail & Co. 1896.

This volume, containing about 500 octavo pages, is a very comprehensive and intelligible text-book for those who wish to study German at their own time and convenience and without the expense of a teacher.

At the start the author makes the encouraging statement that more than half of our common English words are of German origin, and prints lists of some 1,500 German words illustrating the great affinity between the two languages; many of these so closely resemble their English relatives that they are recognized and understood at sight.

Special attention is devoted to pronunciation. In addition to the very full and explicit rules, the correct sound of each word when it first appears in the exercises is accurately indicated. The mysteries of German grammar—with its everlasting declensions, erratic conjugations, and astounding perversities of gender—are also ably elucidated. Colloquial forms of expression are fully exemplified in "conversations" on a great variety of subjects.

A most interesting feature is the "lexicology," a commentary, or analytical explanation of the derivation and meaning of many of the words—often giving one the "reason why," always so welcome to the logical mind.

Typographically the book might be somewhat improved, and a fuller index would add greatly to its value.

Hypnotism and its Application to Practical Medicine.

By OTTO GEORGE WETTERSTRAND, M.D. Authorized translation from the German edition by HENRIK G. PETERSON, M.D. 8vo, pp. xvii, 166. New York and London: G. P. Putnam's Sons. 1897.

The present work was inspired by the teachings of the so-called Nancy school, and it is dedicated to Liébeault. It follows the teachings of that school, to which it adds little that is new except the report of one hundred and twenty-eight cases of different forms of disease treated by suggestion. The translation has been well done, and the translator has added several letters of his own, some of which have already appeared elsewhere, describing the clinique at Nancy and touching upon various matters connected with hypnotism.

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A REPORT ON THE LAST EPIDEMIC OF PLAGUE AT HONG KONG.

THE last annual report of the medical officer of health of Hong Kong, published in the *Hong Kong Daily Press* of April 12th, contains some interesting and instructive statistics and observations in regard to the epidemic of bubonic fever or plague which visited Hong Kong in 1896, following the earlier outbreak of 1894 at Canton and in Hong Kong.

The total number of cases of bubonic fever notified during the year, from the second week in January to November 24th, was 1,204, while the number of deaths registered was 1,078; this is equal to a case mortality of 89.5 per cent. The rate of mortality was, however, not constant throughout the epidemic, for among the 342 cases which occurred during the first quarter of the year it was 82.4 per cent., while among the 727 occurring in the second quarter it rose to 94 per cent., and fell again to 77.5 per cent. of the 89 cases occurring in the third and fourth quarters.

Of the 1,204 cases, 804 were males and 390 were females, while in 10 cases the sex was unrecorded; this gives a percentage of 67.4 males and 32.6 females, while the percentages of population are 70.7 males to 29.3 females, so that women, as far as these figures and conditions go, would appear to suffer from the disease to a greater extent than men.

The number of children (under 10 years of age) who contracted the disease was 194, while of the remainder, 974 were adults, and in 36 cases the ages were unrecorded; this shows that 17.5 per cent. of the cases occurred among children under 10 years of age, while the proportion of such children to adults in the colony certainly does not amount to 10 per cent.

Hence the same conclusion results for children.

The disease showed a far greater tendency to spread among Europeans during this outbreak than it did during the greater epidemic of 1894, and no less than 16 Europeans were attacked, 13 being British, 2 Ital-

ians, and 1 Austrian; of these, 8 succumbed, namely, the two Italians and six British — 50 per cent.

In addition to the 16 European cases, there were 28 cases among Indians and 3 among Eurasians, making a total of 47 cases among the non-Chinese community; 31 of these cases died, giving a case mortality of 66 per cent.

Dr. Clark, from whose report we quote, holds that plague is not spread by inoculation through wounds (except in rare cases), but is contracted rather by breathing a foul atmosphere containing the *materies morbi* of the disease (the plague bacillus of Kitasato) which is given off in practically all the secretions and excretions of the patient. This bacillus will retain its vitality in a damp and filth-laden soil, or upon the damp and dirty walls and floors of the dark and ill-ventilated premises in which many of the Chinese of Hong Kong still live, and under favorable climatic or other circumstances will convey the disease to man, and the only measures that will prevent a recurrence of these epidemics, where the disease has gained a footing, are the admission of light and air to the dwellings, the prevention of overcrowding, and the strict enforcement of cleanliness, both domestic and municipal.

One of the most characteristic features of the outbreaks of bubonic fever is that the disease almost invariably tends to run its course in some six or seven months, and then to disappear, only to reappear again, however, if the infective material has not in the mean time been destroyed and if the climate happens to be favorable; and this feature of the disease was frequently used, during the past year, as an argument against the necessity for the action taken by the Sanitary Board in cleansing and disinfecting Chinese premises. It was pointed out, and with great truth, that the disease ran a precisely similar course in the city of Canton to that experienced in Hong Kong, and yet no action was taken in Canton to stay the epidemic, while in Hong Kong no less than \$42,000 were spent in combating its ravages; but it must be borne in mind that there are other features of an endemic to be regarded besides its duration, and the most important of these are its extent and the probability of its recurrence. The action taken by the Hong Kong sanitary authorities was founded upon such knowledge as is already possessed by the scientific world of the nature of the disease. Every case of the disease is capable of acting as a centre for the production of other cases and also for the contamination of the soil and buildings in its immediate neighborhood.

The bacilli, moreover, unhappily do not cease to exist at the termination of an epidemic, but remain quiescent in the soil and in other situations, until the next season shall come round which is favorable to their growth. Thus upon the thoroughness of the crusade against these germs will largely depend the probability and the extent of a recurrence of the disease.

Another important means of preventing this dis-

semination of infectious disease which has not been applied in Hong Kong, and to which Dr. Clark calls attention, is, the compulsory disinfection, at regular intervals, of all clothing held by pawnbrokers and second-hand dealers. It is, it seems, a common custom among the coolie class of Chinese to pawn their winter clothing at the termination of the winter season, at the same time redeeming any summer clothing they may have previously pawned. It is a well-established fact, according to this report, that personal clothing and bedding will retain the infection of bubonic fever, as of small-pox and other virulent infectious diseases, for an indefinite period. Hence the systematic disinfection of all such articles by steam is advocated.

Dr. Clark holds that plague almost invariably travels overland, and that there is very little risk of its introduction by shipping, provided that the importation of rags, bedding, and soiled linen is controlled, and that a strict medical inspection of passengers and crew, before they are permitted to land, is enforced. He is not inclined to attach very much importance to the theory that the rats which swarm in vessels carrying grain are responsible for the conveyance of the disease from port to port, either in their own bodies or by contamination of the grain; and he states that the consensus of opinion among the medical authorities in Bombay appears to be entirely against the theory that the disease was introduced into that port from Hong Kong by shipping.

MEDICAL NOTES.

THE CZAR AND THE MEDICAL CONGRESS. — The Czar of Russia has consented to allow his name to be placed at the head of the list of patrons of the Twelfth International Medical Congress.

THE "DIVINE HEALER" STONED. — It is reported that Schrader, the "Divine Healer" was driven out of Clayton, a suburb of St. Louis, by a mob who expressed their appreciation of his services to humanity in the shape of a shower of stones and other missiles.

YELLOW FEVER AT NEW YORK QUARANTINE. — The steamer *Allianca* arrived at New York from Havana, with two cases of yellow fever on board, a waiter and a sailor, who were removed to the quarantine hospital. A passenger had died of yellow fever during the trip. The passengers are detained at quarantine.

MOSQUITO BITE DECIDED TO BE AN ACCIDENT. — The Court of Appeals at Louisville, Ky., according to a report in the daily papers, recently decided a suit against an accident insurance company, brought by Mrs. Sallie Amberg of that city for \$50,000 for the death of her husband, which was caused by a mosquito bite. The lower court held that the bite was not an accident in the meaning of the word as used by in-

insurance companies, but upon appeal Mrs. Amberg got peremptory instructions in her favor.

INTERNATIONAL MEDICAL CONGRESS.—At the meeting of the Section on Laryngeal and Nasal Diseases, the following subjects will be discussed: "Suppurations of the Nasal Accessory Sinuses (except the Maxillary), their Diagnosis and Treatment," by Dr. E. Moure, Bordeaux, and Dr. M. Hajek, Vienna. "Cancer of the Larynx, its Diagnosis and Treatment," by Prof. O. Chiari, Vienna, and Dr. G. Catti, Fiume. "The Causes and Treatment of Loss of Voice in Singers," by Prof. H. Krause, Berlin, and Dr. M. Lermoyez, Paris. "The Progress made in the Treatment of Laryngeal Tuberculosis since the Last International Congress," by Dr. Ruault, Paris, and Dr. J. W. Gleitsmann, New York. "Laryngo-Stroboscopy," by Professor Simanowsky, St. Petersburg. "The Use of X-Rays in Laryngo-Rhinology," by Dr. I. Macintyre, Glasgow, and Dr. Mount-Bleyer, New York. "Esophagoscopy," by Prof. V. Hacker, Innsbruck. "The Adoption of Photography to Laryngology," by Dr. I. R. French, Brooklyn, and Dr. Flatau, Berlin. It is proposed in addition to arrange a joint meeting with the other Sections on the question of "Serum Treatment of Diphtheria."

BOSTON AND NEW ENGLAND.

DEATH AT THE AGE OF ONE HUNDRED AND FOUR.—Manuel Oliver Levy, said to be the oldest person in Connecticut, died recently at Stonington, Conn., aged one hundred and four. He was born in Lisbon, Portugal, in 1793. He came to New London, Conn., sixty years ago, and followed the sea during a large part of his life.

PRECAUTIONS AGAINST SMALL-POX.—The Board of Health of Boston have sent out a circular to the physicians of that city requesting especial care in the examination of all cases of chicken-pox, and that they be reported to the board. This precaution is taken owing to the possible danger of a mild case of small-pox (and this is the type of the cases recently discovered in Boston) being mistaken for chicken-pox.

DEATH OF DR. O'LEARY.—Dr. Charles O'Leary died at his home in Providence, R. I., June 1st, of Bright's disease. Dr. O'Leary was formerly president of the Rhode Island Medical Society, and was at one time connected with the faculty of St. Mary's College, Emmetsburg, Md. While there he wrote a Greek grammar that for many years was the standard work in Roman Catholic colleges. He served as surgeon during the Civil War.

THE DANGER FROM BOVINE TUBERCULOSIS.—Dr. W. L. West, of Ellsworth, Me., has reported to Dr. G. H. Bailey that two children of a man named Luther Bridges have recently died of tuberculosis due to drinking milk from a cow which was found when killed to be the subject of extensive tubercular disease, largely localized in the udder. Five of Bridges' nine children are suffering from pulmonary tuberculosis, and several are now, according to the report, fatally ill.

NEW YORK.

FAILURE OF NEW YORK COUNTY MEDICAL SOCIETY'S BILL FOR THE PREVENTION OF THE ABUSE OF MEDICAL CHARITIES.—The meeting of the Medical Society of the County of New York, on May 24th, when the Committee on Abuses of Medical Charity presented its report, was one of the largest in the history of the Society. In the discussion on the report it was claimed that very large amounts were received by certain charitable institutions which charged one dollar a month for treatment of patients and by others from the sale of medicines prescribed by the physicians in attendance. Late in the evening the committee which had been sent to Albany to endeavor to induce the Governor to sign the bill referred to in the report, which had been passed by the Legislature at its recent session, arrived and reported the failure of their mission. Governor Black, they stated, showed in the interview which they had with him some animus against the State Board of Charities, and objected to giving it too much power. The opinion was expressed by one of the speakers at the meeting, Dr. Grandin, that the failure of the bill was due to the hostile influence of the powerful boards of managers of some of the dispensaries and hospitals.

THE NEW YORK STATE MEDICAL ASSOCIATION.—The thirteenth annual meeting of the Fifth District Branch of the New York State Medical Association was held in Brooklyn on May 25th, with the President, Dr. Charles Phelps, of New York, in the chair. The scientific session was opened by a paper by Dr. L. A. W. Alleman, of Brooklyn, on "The Treatment of Convergent Strabismus in Children," in which the subject was treated with special reference to the affection as seen by the general practitioner, and a general discussion followed.

Miscellany.

RECIPROCITY IN MEDICAL LICENSURE.

DR. WILLIAM WARREN POTTER, of Buffalo, President of the National Confederation of State Medical Examining and Licensing Boards, chose this for the subject of his annual address at the seventh annual meeting of that body held at Philadelphia, May 31, 1897. He first paid tribute to the memory of Dr. Perry H. Millard, of St. Paul, then in an introduction reviewed some of the essential points of progress that had been made in State control of medical practice, and finally considered his subject.

THE PROBLEM.—The most important question now to be discussed pertains to the inter-State exchange of licenses, and every friend of State control is interested in establishing this principle. It is one of the objects this confederation is laboring to accomplish, but a most difficult problem for solution. A national registration bureau is desirable, where legally qualified and reputable physicians may be recorded—physicians whose names appear on this register to be

allowed to pass from State to State in the enjoyment of all privileges pertaining to the practice of medicine. Those chiefly agitating the question of reciprocity, however, are specialists who desire to spend profitable vacations at summer resorts, and do not relish the idea of taking State examinations in the localities chosen for their holiday practice. Another class of men, compelled by circumstances to change residence, is more deserving of sympathy; they take the examinations uncomplainingly. Shall a State require of its own citizens a compliance with its practice laws while granting to thrifty summer specialists exemption from their operation? As the State laws forbid discrimination against the inhabitants of each, there is both a legal and a moral bar to such exemptions.

OBSTACLES TO RECIPROCITY.—Equality of standards for admission to the study and practice of medicine is the only enduring basis on which reciprocity can be established. When the several States adopt a uniform level of preliminaries; a uniform period of collegiate training, including uniformity of methods of teaching; and finally, an absolute similarity in the methods of conducting State examinations and granting licenses, then reciprocity will be equitably and permanently established. It is important for the State medical examiners to come to an agreement on these several points, that they may act with intelligence on a common platform. The State imposes a post-graduate examination, and none should be admitted to it who are not holders of diplomas legally obtained from registered and recognized colleges. It is understood, of course, that there must be established a uniform system of recognizing and registering medical schools in the several States.

THE SOLUTION; LEGISLATIVE ENACTMENTS.—The remedies lie in legislative enactments. Those who most loudly and persistently demand inter-State indorsement aim their criticisms at examining boards; whereas these have nothing to do with the question. The statutes in States that have established licensure prohibit inter-State exchange except between such as have equality of standards. The demands of the restless and migratory doctors must be taken to the State legislative halls. Meanwhile, the members of this confederation may assist in bringing the matter to a more speedy conclusion by acquainting their legislatures with the difficulties to be overcome, and by urgently recommending the adoption of such amendments to existing laws as will meet and remove the present defects. Great care must be exercised, however, in the preparation of amendments. The State laws are for the public weal, reciprocity is only for the few. Amendments to existing statutes should be proposed only through State medical examining boards or State medical societies; they are familiar with defects and best know the remedies needed. When legislatures can be persuaded to turn a deaf ear to all amendments that are proposed outside of official sources, it will be a happy day for the friends of State license. The object of this discussion is to divert further criticism of the delay of reciprocity into the proper channel. If legislators could be made to appreciate the fact that public health interests are involved in the question of State license; that every attempt to weaken the principle is a blow at public sanitation; and that higher standards of medical education mean better health for the people, then perhaps it would be easier to obtain and maintain the necessary laws to protect the com-

monwealths against that kind of ignorance, superstition, or super-refinement that always lurks in the environment of quackery.

THE SEMI-CENTENNIAL OF THE AMERICAN MEDICAL ASSOCIATION.

It is fitting that the meeting that will mark the entrance of the Association upon the fiftieth year of its existence should be held in Philadelphia, the city in which it was organized. Next week Philadelphia may be expected to assume the appearance of its old supremacy in medical matters. This it is safe to predict from the labors of the committee of arrangements. The occasion is one to call forth enthusiasm, of which there is seldom any lack at the Association's meetings, but our Philadelphia friends will see to it that that sentiment is not allowed to smother the legitimate work of the meeting. An excellent programme has been arranged, and it will be carried out so far as the time available will permit. In particular, Dr. Senn's presidential address, it may be taken for granted, will be well worthy of close attention. The same may be said of Dr. Davis's address, which is to include an account of the origin of the Association and something of its history. Dr. Roberts, the chairman of the committee on anniversary exercises, expresses the hope that the few other surviving original members besides Dr. Davis—namely, Dr. Stillé, of Philadelphia, Dr. Johnson, of St. Louis, and Dr. Atwater, of Springfield, Mass., will all be present to take part in the meeting—a hope in which every member of the profession should join heartily.

The presence of the presidents of State medical societies and of State boards of medical examiners, who are expected to escort Dr. Davis, "the father of the Association," to the platform, will also, it may well be supposed, lend dignity and solemnity to the spectacle. All things considered, there can be no doubt, we think, that the meeting will be worthy of the occasion, and nobody, we feel sure, will question the wisdom of two successive meetings having been held in the East.—*New York Medical Journal.*

THE RESPIRATORY FORM OF PLAGUE.

THE recent death of Dr. Manser, senior physician to the native hospital in Bombay, which was noticed in our issue of January 21st, has attracted attention to certain forms of the disease which, as the *Medical Press and Circular* remarks, are apt to be overlooked amid the devastations of an epidemic.

Dr. Manser, according to our contemporary, died of pneumonia. "He exhibited none of the ordinary signs of bubonic plague, but a bacteriological examination proved beyond a doubt that his death was caused by the specific organism of the disorder in question. A similar result was obtained in three other cases where hospital patients were reported to have died from pneumonia. In view of these facts, the mortality returns of all places where plague has been epidemic will have to be read by the statistician in a fresh light. In Bombay, for instance, there has been of late an enormous increase in the official list of deaths published under the heading of 'respiratory diseases.' It may fairly be assumed that a proportion of such cases, although diagnosed as pneumonia, fever, or

bronchitis, were really due to bubonic plague of an atypical or ambulant form. The danger of non-recognition of so virulent and eminently contagious a disease is sufficiently obvious to require no more than passing mention. The fact of such an occurrence has long been known to medical writers upon the subject, but it may be doubted if it has gained anything like wide recognition. The reason for this local manifestation offers a problem of great interest and importance to the scientific medical investigator."

Memorial.

DR. BENJAMIN EDDY COTTING.

LIKE those autumn fruits that the frost overtakes, our friend lingered long on the bough, to drop at last silently, but not without leaving pleasant remembrance behind. Experience was his; the experience which lingers in its past, but does not advance in the present. In youth habit graves *sillons*, as of wax, in the brain; in age they become grooves of bronze. He was a vanishing type, but a sturdy example of what created our country and our profession.

Before all he was a doctor. Making his profession his ideal, he identified himself with our Medical Society, of which he was one of the fathers, and with this JOURNAL, which he was largely the means of rescuing from decay, and restoring to a front rank. He was devoted to his humbler patients, and his charity was abused. For many years he carried on a large and laborious practice with success. Diffident as to the effects of drugs, he studied more closely the natural history of disease; he guided the helm, rather than sought to force results by active treatment.

Sensitive, and somewhat controversial, he never outlived the belief that a physician owns a family, and that he must own them alone to have their confidence and care for their health. Hence he was among the most punctilious in medical etiquette; and what he rendered to others he expected of them in return.

He was a good diagnostician, and also had a gift in mechanics. He could invent, adapt and apply. He devised some improvements in surgery, and numerous ingenious apparatus.

Tenacious of his own views, if over-convinced, he remained unconvinced. He believed in the constancy of natural laws, and he argued that what had been, would be again. Such views are well illustrated in his writings of "Nature in Disease," and on "Disease as Part of the Plan of Creation." He was, as to drugs, a therapeutic nihilist; but in hygiene and care, he contended that doctors would still be needed were there no drugs. He early embraced the views of Sir John Forbes and Dr. Jacob Bigelow on the self-limited nature of disease; and he carried those views farther than their authors. A sceptic by disposition, he was yet a practical Christian, carrying out the tenets of brotherly love, even against the dictates of his reason. Faith was small, Charity great.

There was another side to his mind than the medical one; and that was as a lover of science. The companion and friend of Jeffries Wyman and of Agassiz, he was broadened by this contact. In the American Academy, and in the Lowell Institute, the vivifying light of the sciences illumined him. In Brazil, he worshipped the great forces of nature; and in Greece he reviewed and profited by the classic past.

Bright, witty, keen, social, he was the epitome of the charming host. Liberal, too liberal in gifts, he was restrained from no good act by a false economy. He gives us a lesson from the past; and he illustrates many fleeting or forgotten virtues.

Born in West Cambridge in 1812, he entered Harvard College in 1830, without conditions. He graduated with honors in 1834, having taken part in two exhibitions and

having been made a member of the Phi Beta Kappa Society.

In 1835-36, he attended medical lectures. In 1836-37, he was medical attendant, or student, at the House of Industry, South Boston.

In 1837, he received his medical degree, joined the Massachusetts Medical Society, and was made librarian of the Medical School. He began practice in Boston.

In 1843, he moved to Roxbury, by the advice of Drs. Hayward and Perry. He was given medical charge of the Lead Works and of the Roxbury Dispensary. He was for eight years physician of the Almshouse. During this time an epidemic of typhus fever brought him 307 cases in one year.

In 1842, he was made President of the Boylston Medical Society, and assisted in reviving it.

In 1845, he was chosen in the American Academy.

In 1861, he united with others in forming the Obstetrical Society of Boston.

In 1868, he was appointed on the Consulting Board of the Boston City Hospital and retained this office until he died.

In 1843, he became Curator of the Lowell Institute and remained until 1897.

There were two marked events in Dr. Cotting's career which had great influence on our profession in the whole State. The first was the reorganization of the Massachusetts Medical Society in 1870, and afterwards, covering the period of his vice-presidency and his presidency.

He was actively opposed to those who professed any exclusive dogma in medicine, and he was equally unfavorable to the admission of women to the State society. His broad views of rational medicine were necessarily antagonistic to the elusive theories of homeopathy; and he, with many older Fellows, feared that the admission of women would weaken the scientific interest of others in the medical meetings. The Massachusetts Medical Society was to Dr. Cotting his life, and almost his religion. He gave his whole soul to its interests, and he was truly the Father of our Society.

The second event was the securing of the financial, and hence the critical independence of the *Boston Medical and Surgical Journal*.

No one who surveys the solid and harmonious ranks of the high 2,000 members of the Massachusetts Medical Society to-day can doubt its value and its professional status. Nor can any one dispute that our medical mouth-piece, the *Boston Medical and Surgical Journal*, is now a worthy exponent of professional opinion. Let it not be forgotten by the present generation how much we owe to him in these two respects.

Of his services as Curator in the Lowell Courses, let others speak, as they have already done. It is enough for his medical biographer to acknowledge the great debt which we owe him for his steadfast and unselfish interest in his and our profession.

After some years of travels and honors, he settled into a serene old age; always retaining his interests in his brethren, his later days were full of wise counsel and profitable interviews. Nature dealt not unkindly with him at last, and a brief illness, alleviated by opiates, terminated in a coma which closed the scene, at fourscore and four years.

An epitome of dates, events and honors follows.

MASSACHUSETTS MEDICAL SOCIETY.

1837. Member Massachusetts Medical Society.

1852. Assisted in forming Norfolk District Medical Society, and gave the Annual Addresses in 1852 and 1872.

1855-57. Recording Secretary of Massachusetts Medical Society. 1857-64. Corresponding Secretary of Massachusetts Medical Society.

1865. Annual Discourse on "Nature in Disease."

1870. Called by President Fisk to help regenerate the Society.

1872-74. Vice-President.

1874-76. President, and instituted annual visits to the District Societies.

Edited the By-laws, and added a By-law creating a Committee on Ethics.

Wrote a Code of Ethics.

Councillor for a long period.
Chairman of Committee on Publications until the end of his life.

BOSTON MEDICAL AND SURGICAL JOURNAL.

1873. In June determined, with Dr. F. W. Draper, to revive and reorganize the *Boston Medical and Surgical Journal*. Edited the JOURNAL five months.
1874. With five friends bought the JOURNAL, and put it on its present foundation.

GIFTS.

Two prizes for medical essays to members of the Massachusetts Medical Society.
An endowment to provide lunches for the Councillors.
A like sum to assist poor students in the Medical School.
A contribution to the printing fund of the American Academy.
To his native town an endowment for a reference library for its high school.
He was one of six physicians who purchased this JOURNAL and shared in its management.
All these sums were given during a long professional life; and his private charities were, for his means, equally liberal.

TITLES.

A.B., A.M., M.D., Harvard. President of the Massachusetts Medical Society. Consulting Physician and Surgeon of the Boston City Hospital. Member of the Obstetrical Society of Boston. Honorary Member of the Connecticut Medical Society. Associate Member of Society for Medical Improvement. Corresponding Member of the Royal Medical Society of Athens, Greece, and of the Academia dei Quiriti at Rome, Italy. Fellow of the American Academy of Arts and Sciences, etc.

Obituary.

JAMES DUNLAP, M.D.

RESOLUTIONS BY THE HAMPSHIRE DISTRICT MEDICAL SOCIETY.

DIED, on the third day of August, 1896, at the Dickinson Hospital in Northampton, Dr. James Dunlap, the oldest physician in this city, and one of the oldest in Hampshire District Medical Society, of which he had been a member since 1852.

Born in Pelham in 1819, he achieved the means of his education by working on farms in summer, and teaching district school in winter. He entered Williston Seminary in 1842, and Amherst College in 1843, thence going to the office of Drs. Daniel and James Thompson for the study of medicine, and from there to the College of Physicians and Surgeons in New York City. He opened an office for practice in Northampton in company with the late Dr. Peck in 1850, there continuing all his professional life—and all his life was professional.

He was greatly devoted to the interests of his profession, and of this Medical Society in which he held from time to time each office, from secretary to president.


Simple and abstemious in his habits, with little taste for amusements, his whole time and life was devoted to the service of those who called upon him and relied upon him for professional aid and counsel, and the number of these was great, he having had for many years as large a practice as any physician in the county. Who among us had not come to esteem the character of Dr. Dunlap for its intrinsic worth? He was punctual, calm, deliberate, cautious, but independent in opinion, kind, upright, and courteous, above reproach or suspicion in his treatment of his medical brethren, a true gentleman of the old school, in which integrity, urbanity, and the qualities which went to make up the old-time family physician, meant much in the past, and mean as much to the profession to-day. Times may change, and conditions change, but the memory of the family physician of days gone by should be perpetuated. Therefore

Resolved, That we place upon the records of this Society, in terms of unqualified praise, our appreciation of the life and character of our late brother, and recommend to members of to-day and hereafter, emulation of the example which he set before us, of professional devotion, as well as of friendship, morality and brotherly love.

J. A. Houston, M.D., Secretary.

METEOROLOGICAL RECORD

For the week ending May 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direc-tion of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..16	30.20	56	60	51	81	79	80	N.E.	N.E.	9	8	O.	O.	.04
M..17	30.18	58	64	52	89	69	79	N.	S.E.	10	3	O.	C.	
T..18	30.08	66	76	55	47	53	50	N.W.	S.W.	12	12	F.	C.	
W..19	30.25	60	68	52	41	61	51	N.	S.W.	14	12	C.	O.	
T..20	30.02	60	71	49	67	63	65	S.W.	S.W.	16	24	F.	O.	
F..21	29.69	64	75	53	69	69	79	S.W.	W.	19	7	F.	R.	.14
S..22	29.88	58	68	49	56	74	65	N.W.	N.W.	10	5	C.	C.	.01
														.22

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Means for week

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 22, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from						
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Cerebro-spinal mening.		
New York	1,868,060	706	246	13.06	16.52	1.12	6.02	1.12		
Chicago	1,619,226	375	134	12.69	15.12	5.94	4.32			
Philadelphia	1,214,256	413	110	14.40	12.96	1.20	5.52	.24		
Brooklyn	1,160,000	345	116	11.0	12.76	.58	5.51			
St. Louis	570,000	171	48	5.22	13.44	.58	2.32	.58		
Baltimore	550,000	147	50	10.88	10.20	4.08	1.36			
Boston	517,732	197	57	17.34	13.77	1.02	4.08	8.67		
Cincinnati	405,000	108	—	8.28	4.60	.92	1.84			
Cleveland	350,000	75	25	15.96	14.63	5.32	3.99	1.33		
Pittsburg	285,000	—	—	—	—	—	—	—		
Washington	277,000	98	34	7.00	8.00	2.00	—	2.00		
Milwaukee	275,000	—	—	—	—	—	—	—		
Worcester	105,050	23	10	4.34	8.68	—	—	4.34		
Nashville	87,754	22	6	4.15	4.15	4.15	—	—		
Charleston	65,165	—	—	—	—	—	—	—		
Portland	40,000	—	—	—	—	—	—	—		
Fall River	95,919	32	14	—	25.00	—	—	—		
Lowell	87,113	41	20	14.64	12.20	2.44	2.44	4.68		
Cambridge	86,812	23	10	4.35	13.03	—	—	—		
Lynn	65,220	—	—	—	—	—	—	—		
New Bedford	62,416	17	7	11.76	35.24	—	—	5.88		
Lawrence	55,510	20	10	—	20.00	—	—	—		
Springfield	54,790	21	6	19.04	9.52	4.76	—	—		
Holyoke	42,564	—	—	—	—	—	—	—		
Salem	36,062	11	1	—	9.09	—	—	—		
Brockton	35,853	6	2	—	—	—	—	—		
Malden	32,854	6	3	33.33	—	—	—	—		
Chelsea	32,716	18	7	33.33	16.66	—	11.11	—		
Haverhill	31,465	11	2	9.09	9.09	—	—	—		
Gloucester	29,775	—	—	—	—	—	—	—		
Newton	28,990	13	2	7.69	7.69	—	7.69	—		
Fitchburg	28,392	12	5	8.33	8.33	—	—	8.33		
Taunton	27,812	14	5	14.28	7.14	—	7.14	7.14		
Quincy	22,562	6	3	—	50.00	—	—	—		
Pittsfield	21,891	—	—	—	—	—	—	—		
Waltham	21,812	9	3	11.11	—	11.11	—	—		
Everett	21,575	6	1	—	—	—	—	—		
Northampton	17,448	—	—	—	—	—	—	—		
Newburyport	14,794	5	1	—	—	—	—	—		
Amesbury	10,920	—	—	—	—	—	—	—		

Deaths reported 3,043; under five years of age 969; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fever) 371, acute lung diseases 413, consumption 377, diphtheria and croup 129, diarrheal diseases 62, cerebro-spinal meningitis 41, typhoid fever 35, scarlet fever 35, measles 28, whooping-cough 21, erysipelas 11, malarial fever 8, small-pox (St. Louis) 1.

From typhoid fever Philadelphia 11, New York 6, Cincinnati, Cleveland and Washington 3 each, Chicago and Boston 2 each, Brooklyn 1. From scarlet fever Philadelphia 13, Brooklyn 8, New York 5, Chicago 3, Baltimore and Boston 2 each, Hyde Park and Clinton 1 each. From measles New York 12, Brooklyn 6, Chicago, Philadelphia and Cincinnati 3 each, Cleveland 1. From whooping-cough New York 3, Philadelphia, Brooklyn, St. Louis, Baltimore, Boston and Lowell 2 each, Providence,

Cambridge, Springfield and Brockton 1 each. From erysipelas New York 4, Philadelphia 2, Chicago, Boston, New Bedford, Springfield and Haverhill 1 each. From malarial fever New York 5, Brooklyn 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,922,524, for the week ending May 15th, the death-rate was 16.5. Deaths reported 3,469; acute diseases of the respiratory organs (London) 198, whooping-cough 102, measles 96, diphtheria 56, scarlet fever 32, diarrhea 32, fever 22.

The death-rates ranged from 10.4 in Swansea to 23.0 in Salford; Birmingham 16.1, Bradford 16.2, Cardiff 13.5, Gateshead 14.4, Hull 15.3, Leeds 13.5, Leicester 12.0, Liverpool 21.2, London 15.6, Manchester 22.3, Newcastle-on-Tyne 19.9, Nottingham 15.2, Sheffield 21.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 22, 1897, TO MAY 28, 1897.

Leave of absence for three months, to take effect on or about June 1, 1897, is granted CAPTAIN CHAMPE C. McCULLOCH, JR., assistant surgeon, Army and Navy General Hospital, Hot Springs, Ark.

Leave of absence for one month is granted FIRST-LIEUT. WILLIAM F. LEWIS, assistant surgeon, Fort Apache, Ariz.

Leave of absence for three months, to take effect on or about June 15, 1897, is granted MAJOR EDWIN F. GARDNER, surgeon, Fort Grant, Ariz.

CAPTAIN ISAAC P. WARE, assistant surgeon, is relieved from duty at Madison Barracks, N. Y., and ordered to Fort Grant, Ariz., for duty.

Leave of absence for one month, to take effect on or about June 24, 1897, is granted MAJOR HENRY McELDERRY, surgeon, Fort Leavenworth, Kan.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING MAY 22, 1897.

BAILHACHE, P. H., surgeon. Detailed to represent Service at meetings of the American Medical Association to be held in Philadelphia, Pa., June 1 to 4, 1897. May 20, 1897.

STONER, G. W., surgeon. Detailed to attend meetings of American Medical Association. May 20, 1897.

IRWIN, FAIRFAX, surgeon. Detailed to attend meetings of American Medical Association. May 20, 1897.

PROCHAZKA, EMIL, assistant surgeon. When relieved at Reedy Island Quarantine on or about May 28th to report at Bureau for physical examination. May 20, 1897.

THOMAS, A. R., assistant surgeon. To proceed from Boston, Mass., to Reedy Island Quarantine for duty, to arrive there on May 26, 1897.

GREENE, J. B., assistant surgeon. To proceed on May 23d from Detroit, Mich., to Evansville, Ind., for temporary duty. May 18, 1897.

GRUBBS, S. B., assistant surgeon. To report to medical officer in command, New York, N. Y., for temporary duty May 18, 1897. To proceed from New York, N. Y., to Detroit, Mich., for temporary duty. May 22, 1897.

APPOINTMENT.

SAMUEL B. GRUBBS, of New York, commissioned as assistant surgeon. May 17, 1897.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held at the Medical Library, 19 Boylston Place, on Tuesday, June 8th, at 12 M.

Dr. W. F. Whitney will read a paper entitled, "Specimens preserved with their Natural Colors by Kaiserling's Method."

Dr. E. P. Hurd will read a paper entitled, "Sudden Death due to Alcoholism."

Dr. William D. Swan will read a paper entitled, "Gunshot Wound of the Head."

Members of the medical profession are cordially invited.

JULIAN A. MEAD, M.D., Secretary.

RECENT DEATH.

ASA FLANDERS PATTEE, M.D., M.M.S.S., died in Boston, May 31, 1897, aged sixty-two years.

BOOKS AND PAMPHLETS RECEIVED.

Annual Report of the Managers and Officers of the State Hospitals of New Jersey for the Year ending October 31, 1896.

The Therapeutic Value of Hydrobromate of Scopolamine in Plastic Iritis. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprint. 1896.

Warner's Pocket Medical Dictionary of To-day, Comprising Pronunciation and Definition of 10,000 Essential Words and Terms Used in Medicine and Associated Sciences. By William R. Warner. Philadelphia: William R. Warner & Co. 1897.

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Address.

AN EPOCH IN MEDICINE IN AN AGE OF DELUSION.¹

BY ZABDIEL BOYLSTON ADAMS, M.D., FRAMINGHAM, MASS.

Quis deus hanc, musæ, quis nobis extudit artem?
Unde nova ingressus hominum experientia cepit?

MR. PRESIDENT AND FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY. — He is to be accounted most happy who can find the fitting word to speak before this Society to-day, for we have reached, as I conceive, the grandest epoch in the history of medicine; an epoch in which Massachusetts physicians have borne a conspicuous part.

A review of the history of medicine in modern times calls to mind an exclamation of that famous Scotchman, John Hunter: "Of a' things upon the face of the airth a definition is the most carsed." He was addressing his students, it is said, at St. George's Hospital in the city of London more than a century ago. His sane, downright, Scotch spirit was in revolt against a supremacy of words in our science over all the facts of experience and observation.

Nevertheless, it seems a proper and a cheerful thing to offer a definition at the beginning of an address.

Let me, therefore, say, that by the science and art of medicine is meant the science and art of healing the sick. But this definition, as usually construed, deserves all the condemnation which John Hunter bestowed upon its kind; and I shall ask you to taste a "bitters" of the very wormwood and quassia of error and self-deception, but so sweetened and tintured with pleasant condiments, I hope, as to send you to our annual dinner with sharpened appetites and stomachs in good humor.

We would fain believe that credulity and ignorance played upon by dishonesty and deception make up the sum of quackery. This is a mistake.

It is a familiar fact in the history of medicine that in all ages, as well in times of greatest enlightenment and civilization as in those of darkness and barbarism, have been found men accounted wise, with full faith in the healing virtues of charms and amulets, of the magic of a king's touch, of sympathetic powders or salves that were rubbed upon the weapon, of panaceas such as tar-water, of Perkin's tractors, etc. And in this our day, when we look with pride upon the wonderful advances which our profession has made in the century now closing, we see all about us men of wisdom and influence — trusted financiers, great inventors, philosophers, scientists, preachers — who in their time of sickness do not hesitate to use proprietary or secret remedies of which they know nothing, to consult ignorant charlatans and quacks, or perhaps apply to Spiritualism or Christian Science; and even instructed physicians, who declare a belief in the specific virtues of the attenuation of echoes of the explosion of alchemy,² or like miraculous products of a pharmacy of words.

So appalling seems the mystery of life and death, so strange and inexplicable the phenomena of health

and disease, that it is no wonder that superstition has hovered over them and taken these things to its peculiar care. The subtle influence of the passions and emotions, the imagination and even of the will, over the nutrition of our bodies, has all the charm of magic and the supernatural.

Astrology, alchemy, medicine, appear closely associated through all the ages, working for the advantage of humanity; the first, studying the heavens to cast the horoscope of man and reveal his destiny; the second, compounding the elements to bring forth the philosopher's stone to give riches and eternal youth to man; the third, seeking for medicines of the earth to heal his diseases. Medicine has claimed to hold a more exalted position than the others as having dominion over life and death. Alas! not even the revelations of the microscope, "that telescope of the inner firmament," as Dr. Holmes has called it, have been able thus far to justify the claim. Astrology slunk away like a ghost before the dawn of astronomy. Alchemy was exploded, and we have chemistry. But medicine has long wandered groping, enveloped in the fogs and darkness of theories, or stumbling in the quagmires of systems.

All the so-called systems of medicines since the time of Hippocrates have been mere subtleties of the human mind, hypotheses, dogmas, words. These systems have taken a great variety of forms, which resolve themselves mainly under two classes, the material and the spiritual, matter and mind; and medical science may be typified as a huge snake going round and round through the cycle of the ages trying to seize its two tails of many hues, now one and now the other, or frequently both together, as in the spiritual theory and chemical practice of the pseudonym charlatan Bombastes Paracelsus, or in the attempt of Hoffman, of Leyden, to reconcile the material and the spiritual views, or of Cullen, in Scotland, with his "solidism" and "spirituality." Even up to the present time the unhappy snake seems to be trying to swallow himself, finds that he disagrees with himself, and only makes healthy growth in the accumulation of facts and observations. The perennial Goliath of theory has been slain over and over again by the one little stone of fact; the hydra-heads of system have been stricken off, one after another, by the Hercules, Common Sense.

The art of medicine, or of healing the sick, seems to be indissolubly associated in the minds of men with the use of drugs or physic of some sort. The physician is the dispenser of physic. There is a universal feeling that you must take something if you are sick. "You are ill, what are you taking?" is the inevitable question. Now, if we have not learned it by experience, we have been told often enough by our most learned teachers and practised professors, Bigelow, Holmes, Cotting, in this Society, as well as by others of great renown in England and Europe, that there is no such thing as a specific, and that diseases are not cured by drugs. This may not be absolutely true, but it points to a grave defect in our definition of medicine as the "art of healing the sick."

The very protoplasm of quackery, so to speak, exists in the faith in specifics, in systems based upon

¹ The annual discourse delivered at the Annual Meeting of the Massachusetts Medical Society, June 9, 1897.

² A very intelligent homeopath told the writer that the three-hundredth dilution of "natron muriaticum" was a specific for malarial fever.

³ "Astrology, alchemy, the once general belief in the healing effect of the royal touch, are only various exhibitions of one superstition, having for their essence the same little grain of truth, and for the outward expression different forms of error." — A Book about Doctors, by T. Cordy Jeaffreson.

the effect of drugs. The fallacy of the evidence, that is, the so-called "facts of experience and observation," is abundantly shown in the recommendations and certificates of quack medicines. It has been wittily said that to bring forward a hundred cases successfully under the use of some remedy or system "should have no more effect than showing so many fat people in proof of a good government."

In that musty thesaurus of worm-eaten quotations, "The Anatomy of Melancholy," are many passages from forgotten authors showing contempt for doctors and their drugs; "but," says the author, "I will urge these cavilling and contumelious arguments no further, lest some physician should mistake me and deny me physic when I am sick; for my part I am well persuaded of physic. I can distinguish the abuse from the use. I acknowledge it a most noble and divine science. 'The Lord hath created medicines of the earth and he that is wise will not abhor them,' saith Ecclesiasticus."

Now is not this attitude of mind of Robert Burton seen to be similar to that of many of the wisest of mankind, physicians or not?

But there is something still more to my purpose in this unique book. Burton enumerates some fifty or more drugs and simples in which he has faith, including a few which he deems indispensable to the armamentarium of the physician. To-day scarcely one of them is believed to have any special value, or is thought worthy of mention in our pharmacopœias. If the medicines approved by this sagacious, philosophic and erudite author have not borne the test of time, what grounds have we to expect that other and newer remedies may have a more enduring success?

So that we are led to ask, Why do we ever employ anything but simples or expectant remedies, or methods intended to increase the vigor of the body or to restore a disturbed equilibrium? Why do we ever give supposed specifics? First, because our patients wish, may demand, that such remedies shall be tried; and, secondly, in obedience to fashion. For, as you well know, there is a fashion in drugs and modes of practice; and for the doctor to ignore the latest fashionable treatment, or decline to use it, is to run the risk of being thought ignorant, narrow-minded, or wanting in liberality, and thus to lose the respect of the community, and even, let me say it, of his *confrères*. It matters not at all that he has seen remedies and modes of treatment brought forward and advocated in our great societies with scarcely a word of dissent or disapprobation, declared to be almost specific, recommended by high authorities, supported by plausible theories, and yet, after a longer or shorter experience, abandoned as useless or uncertain, and now chiefly remembered as having been sometimes followed by dangerous or alarming symptoms, and even *fatal effects*. There are people in the world who would rather die under "the latest treatment" than get well unfashionably.

The recommendations of a new remedy amount to this: "I was ill, I took something, and now, thank God! I am well." But the success of the specific is always found to be in inverse ratio to the virulence of the epidemic.

If the connection of cause and effect were immediate and certain, the "post hoc propter hoc" as clear and evident, let us say, as a chemical reaction, the use of drugs could no longer be looked upon as empirical.

But, as Dr. David Cheever says in his admirable Boylston Prize Dissertation on "The Value and Fallacy of Statistics,"—which I regard as a distinct dialectic contribution to medical science:

"The mere observation of simultaneous or consecutive occurrences, however great the number of cases, can lead to no definite results which may not be fallacious."

"Effects are ascribed to drugs which really flow from natural causes and are but the usual succession of the morbid phenomena; sequences are taken for consequences and all just conclusions confused."

The first great epoch in the history of medicine in modern times occurred, as I think, in the latter half of the seventeenth and the beginning of the eighteenth century. This may be said to have begun with the discovery of those important white corpuscles of the blood, and the perfecting of the lens of the microscope, by Lenwenhoek.

The other great names of this epoch are Sydenham, who gave us the present method, a rational empiricism; Boerhaave, at Leyden, who introduced the clinic and an eclectic practice; Haller and Morgagni, who taught the pre-eminent importance of the studies of physiology, pathology and anatomy; and others, such as Stahl and Hoffman, who also had clinics at Leyden, "whom human memory need not charge itself with."

Then it was that medicine, both in the schools and the practice, appeared for the first time before the modern world with something of the dignity of true science. Still the reasoning continued to be a fruitless induction, an attempt to explain the inexplicable and think the unthinkable, as was the case with Cullen and Brown. No one surpassed the stature of Herman Boerhaave who, in his farewell address to his pupils, declared "that man to be the first physician who knew how to wait for, and to second, the efforts of nature"—the true doctrine of the father of our art.

But at the close of the eighteenth came the greatest epoch-making single event in the whole history of medicine—vaccination.

I give this the first place among epochs in the history of our science, because then for the first time the fact appeared, that the noblest, the most beneficent, mission of medicine to mankind is in the saving of human life.

No one who will carefully review the frightful history of small-pox and dispassionately weigh the evidence, can hesitate to admit that, during the century of its employment, vaccination has been the indirect means of saving millions of human lives.

Excepting Jenner's own suggestion that this discovery might prove the clue to a new explanation and perhaps a new treatment of many diseases, no deductions of any value were made from it, and it was looked upon as a piece of fortunate empiricism. Jenner planted and died, but two generations and more were needed to ripen the fruit upon his tree.

In the very first years of the present century a new day dawned for the study of medicine when Xavier Bichat, by experiments upon animals, placed on an impregnable basis some most important facts of physiology and pathology, and introduced the subjects of histology and cell-biology. His too early death left the world upon the threshold of what have since proved in the hands of others, especially Virchow, to be most valuable discoveries. The monumental work of Rokitsansky in morbid anatomy should not be overlooked.

But Charles Louis — assisted doubtless by the practice of physical diagnosis and the employment of the stethoscope of Lænnec — made an epoch in medicine by the introduction of a method of precision never attempted before. Genius has been defied as a capacity for taking pains. Louis abandoned a lucrative practice and consecrated seven years to exclusive clinical and anatomical, or pathological, study. He instituted, as it were, a tribunal, before which were brought all the various systems and modes of medical treatment then in vogue.

Nature herself was, so to speak, placed upon the stand and questioned, and her testimony was found to completely refute the often conflicting evidence, often ill-digested, partial or prejudiced, upon which was based the medical practice of the civilized world. The solidism and atony of Cullen, the sthenia and asthenia of Brown, as well as the gastro-enteric theory of Broussais, all had to give way before the precise inquiries of Louis, and his rigid application of the method of statistical enumeration conferred for the first time upon medicine the right to be truly called an inductive science.

Louis was what Carlyle delighted to speak of as "a most lucid, veracious man." He inspired his pupils with his own fervent, unselfish devotion to scientific accuracy and truth; and we were most fortunate in our medical school, and in this Society, in having three splendid examples of his teaching in Shattuck, Bowditch and Holmes.

Louis insisted, and *demonstrated by post-mortems*, that in many, if not in all, maladies, notably in the three great scourges of the civilized world, namely, phthisis, typhoid fever and yellow fever, the course of nature was shown by analysis of the statistics to be uncontrolled by remedies.

But what then becomes of our definition that medicine is the art of healing the sick, which we must admit to contain the chief title which we have to the confidence of our patients? Must we stand hesitating and inactive by the bedside of mortal disease because we have been shown the uselessness of all specific treatment heretofore employed?

Louis himself answers this question when he says, "We can only hope for a moderate success even by the best adapted treatment," but this "does not warrant the rejection of an empirical treatment, however absurd or ridiculous it may appear, since it is against an unknown cause⁴ that our therapeutical agents are employed."

That is the point, "an unknown cause." It bath been as the darkness around Ajax:

"Give me to see, and Ajax asks no more."

When I was a young man the inspiration of the spirit of Louis was fully alive and recognized in the profession here. Jacob Bigelow, Wendell Holmes, and Benjamin Cotting, reverting again to the teaching of the Father of Medicine, and pointing to the excellent motto of this Society, "*Natura duce*," wrote and spoke about the "self-limitation" of diseases, the value of the work of nature in disease, and especially the pre-eminent importance of the study of nature's processes when not interfered with by remedies. Something doubtless of the spirit of Louis was felt in the community. At least persons of intelligence and cult-

ure regarded the autopsy with favor, and the request for a post-mortem was seldom denied except by those of foreign origin. This mode of thought was fostered and encouraged by the zeal of many of the younger men of the profession, who rarely allowed an opportunity to pass without *making an autopsy*, and using every argument to persuade those who were reluctant.

Henry Ingersoll Bowditch was a worthy pupil of a grand master. With the ardent enthusiasm of his nature he brought the spirit of Louis to the investigation of the phenomena of disease; he fired his pupils with his own zeal, as much as he drew them to himself by his benevolence, his devotion to the right and to truth, his generous impulses, his noble, unselfish nature. His absolute faith in the teaching of Louis remained, as I believe, to the last.

John Bernard Swett Jackson, an apostle though not a pupil of Louis, was one to whom many besides myself feel that we owe a debt larger than that to any other man, teacher or friend. For absolute devotion of heart and soul and mind to the study of diseased anatomy, no man ever excelled him. As a macroscopic pathologist he had no equal in this country; as a teacher, his almost boyish eagerness in examining and explaining nature's aberrations, her morbid and abnormal phases, was an inspiration which the most cold-blooded could not resist. He delighted in showing the "characteristic morbid appearances," and in dilating upon the uncertainties of diagnosis. He insisted that symptoms were frequently present and presumed to indicate a disease which could not be found at the autopsy, while, on the other hand, disease might exist of which the pathognomonic symptoms had been absent during life. He never troubled himself or his pupils with theories, having as great contempt for them as Sydenham himself; while, as to the microscope in morbid anatomy, he held similar views to those of Cheselden — William Cheselden, who says in his preface, "The study of anatomy as it leads to the knowledge of nature and the art of healing, needs not many tedious descriptions nor minute dissections; what is most worth knowing is soonest learned and least the subject of disputes; while dividing and describing the parts, more than the knowledge of their use requires, perplexes the learner and makes the science dry and difficult." You will see in Wendell Holmes's address to the students in 1867, that he, an enthusiastic microscopist and a learned anatomist, held much the same views as those of Cheselden.

Calvin Ellis was another earnest, patient follower of Louis. He also belonged to the class of lucid, veracious men. The conscientious thoroughness of his work was the admiration of all who knew him. If genius be indeed a capacity for taking pains, here was a man who possessed that kind of genius. His earnestness in the study of the physical signs and of symptoms, his enthusiasm in the clinic, his faith in the confirmation of the autopsy, his absolute veracity in the registration, these made him respected as a teacher, trusted as a guide. In dying his chief regret, often expressed, was that his immense collection of notes and observations, written in shorthand, could not be made useful to the world. It is to be hoped that the man may yet be found who will draw from this treasury the wealth which it contains for the benefit of science and for the honor of our profession.

"That colossal system of self-deception which has been the disgrace of medicine" must be swept away.

⁴ "It is obvious that we have present in all our formulæ of vital phenomena, in health or disease, an *unknown element*, which no algebra or calculation can resolve." — Boylston Prize Essay for 1860, by David W. Cheever, M.D.

and with untiring zeal and devotion these men and others like them, following in the path marked out by the great master Louis, strove to place medicine in the position of a true inductive science; a science which is "the topography of ignorance."

Thus was laid here in Boston, as it were, the foundation of a temple of medical science. But to further raise this structure there was needed a vast body of painstaking, accurate observers, loyal to the truth at whatever cost, each of whom should place his stone upon the pile.

Thus, and then only, could the present method, the method of Sydenham and Boerhaave, a rational empiricism, be said to stand upon a philosophic basis.

But what is a rational empiricism? Perhaps I cannot better describe it than in the words of Dr. Amos Twitchell, of Keene, N. H., who, in 1807, in a little country village, single-handed, tied the common carotid artery and thus saved his patient's life; and of whom Dr. Bowditch wrote that "he was perhaps the most original mind our profession has produced in New England." Indeed, Dr. Twitchell was a man like Ian Maclaren's Weelum Melure, one to satisfy the panegyrist and historian of Frederick the Great. When asked by one of his admiring pupils as to the cardinal principles of his practice, Dr. Twitchell is said to have replied, "If the patient is cold, I warm him; if he is hot, I cool him, if I can; this is the alpha and omega of my practice."

Such a method may have much to do with the art of healing the sick, but it has nothing whatever to say to the science of medicine. It is rational, but it is also empirical. It is the supreme philosophy of common-sense.

As time has gone on much of the enthusiasm for the method of the famous physician of La Pitié has died out. Almost all that has remained of the idea of Louis, that it was possible out of systematized knowledge to make a science of medicine,⁶ has been the numerical part, which has lost all quality of verity since it has come to depend chiefly upon the observed effects of remedies. The notion still obtains that in some way cure is effected by the art of medical pharmacy; medical experience being one thing, and human belief another. It seems to be ignored that the numerical method of Louis as a test of the value of any mode of practice, is *sterile* without the autopsy.

For obvious reasons the post-mortem has been neglected, at least among general practitioners, and it appears in consequence that the art of healing has sought to be divorced from the science of medicine; the "allegation of the libel" being "desertion and non-support." And what has been the result? Medicine and physicians have forfeited the prestige that once was theirs. Scant respect is paid to the title of "doctor," and the degree of M.D. confers no special distinction. The regular physician is allowed little influence in forming public opinion upon medical matters. There are many men in large practice who do not care to have autopsies, and never publish any valuable notes or observations. There are many medical graduates of our universities who do not seek to connect themselves with this, nor any other, society for the advance of their profession. The conscientious student of the *science* finds little honor or profit in the practice of the *art* of medicine. "The present system

of medical expert testimony has degenerated into something which very much resembles a shameless and degrading farce." The councillors of this Society hold their meetings in a mean, dark, half-subterranean apartment in a narrow court of the city. And as to the progress of medical science, we have had an etiology which could not explain itself, a therapeutic largely dictated by fashion, and a statistic containing returns of "causes of death" which are a confession of ignorance, such as "heart failure," "dropsy," "asthma," "convulsions," and many more, which as you well know are most frequently merely symptoms of some undetected organic disease. Perhaps this is only one of the evils brought upon us by homeopathy, which, according to its inventor and founder, declares that diseases have *no material cause*, but consist in symptoms alone.

After all, what does it matter, since, as it seems, the decree of absolute divorce has been granted between the art and the science? It is not for us to cry "quackery!" upon any system, however absurd. The "tu quoque" confutes us.

More or less, in all ages and states of society, medicine has been the sport of fashion and the prey of delusion. In these days when all the world seems, as it were, to be singing the *ça-ira* in a French Revolution of thought and feeling, medical art has suffered in the general *débâcle*. The spirit of the age being the enjoyment of life and the accumulation of riches, the autopsy, which has only value for science, has become discredited, if not abhorred, by the community. It is a well-recognized fact that the hope of passing laws devised simply and solely for the advantage of medical science, or for protecting the stature of a medical man, spread of epidemic disease, well address to his pupils, cry being "Interference with the physician who knew," though it were possible that there *forts* be any *ch* in such matters.⁶ The search for specifics and panacea has come to resemble that which went on, in the *st* of alchemy, for the philosopher's stone. It *w* seem at times as though men had been hypnotized by riveting the attention upon some shining fallacy of theory or practice. The adoption of specialties, while it has much to recommend it, inclines us to forget that the whole is always more important than any of its parts, and to put the infinitely little above the infinitely great. It is customary among physicians to prescribe in compliance with the prejudices of the time, rather than in accordance with the rational experience or observation of men.

Perhaps I cannot give a better illustration of my meaning here than by referring to the history of venesection. Nature herself in certain disorders indicates the advantage of the letting of blood. The practice has great antiquity to recommend it, having been employed by the "most learned and approved good masters" since, and very likely before, the time of Hippocrates; by Sydenham, Boerhaave, Louis, indeed by all the men who have marked the great advances in the art and science of medicine. At times discredited, again applauded, it has held its own and has outlived all systems and all theories.

In the early part of the present century the gastro-enteric theory of Broussais, who was followed by Rush in this country, lead to the practice of indiscriminate

⁶ "In mathematics, we have the fact that geometrical theorems grew out of empirical methods." — Herbert Spencer.

⁶ In Massachusetts the law does not protect the physician who hesitates to reveal the secrets of the sick chamber when called to give evidence upon the witness-stand.

and free use of the lancet; but Bouillaud, in France, with his bleeding *coup sur coup* in pneumonia, introduced a still worse method, so that Dr. Tully wrote, "the lancet is a weapon which annually slays more than the sword."

Those who were students in the Paris hospitals in the early fifties will remember the pewter porringer on a shelf at the head of every bed to receive the blood of a patient; and if you will examine that admirable work, "Le Guide du Medecin Practicien," of Valleix, Baillière, Paris, 1853, you will find under the head of treatment, "La Saignée" given the first place in nearly every disease in the five volumes. These were bad fashions.

But for more than forty years the practice of venesection has entirely gone out of use in our largest hospitals and among our most distinguished physicians. So much is this the case that the suggestion to "bleed" is met by doctors and patients with incredulous surprise, as though it were question of a capital operation in surgery. Every radical departure in treatment has been supported by some theory. The "change of type" theory, which grew, I believe, out of the Brunonian system, was brought forward to uphold the neglect of venesection. This theory was another of those vague speculations, chiefly dialectic, whose cloudy futilities have from time immemorial obscured the pathway of medical science. It went into the dust-heap long ago, but the practice of bleeding, theory or no theory, has been discredited.

In that most excellent work, "The Principles and Practice of Medicine," by William Osler, New York, 1894, we read, "Pneumonia is one of the diseases in which a timely venesection may save life." And speaking of "Emphysema," he says, "On more than one occasion I have saved the lives of persons in this condition by venesection." And under "Chronic Valvular Disease," "This is the occasion in which a timely venesection may save the patient's life." Also, at page 1019, Osler states that the life of Dr. Weir Mitchell, when a young man was saved by free bleeding in sub-stroke. I can recall in no modern work on "Theory and Practice" or "Therapeutics," a similar statement in regard to the effect of any drug.

I would say to you in the emphatic language of Rufus Choate, "Gentlemen, there is not one jot, not one tittle, not a scintilla of evidence which can impeach the testimony of this witness." In the cases cited by Osler the course of nature tends inevitably and swiftly to death. The effect of the remedy appears as indisputable as that of chemical reaction. For what purpose are we physicians if not to save human life, if it be in our power to do so! Are we to stand by and see our patients dying—as it were drowning, and we refuse to throw the rope which we hold in our hands—in obedience to the dictation of a heartless, senseless fashion!

(To be continued.)

THE NEW WOMAN AND THE WHEEL. — A writer in a St. Louis contemporary says that the bicycle "is equally if not more beneficial to young girls with scanty, delayed or irregular menstruation, who are developing into manhood, than any other deviation from the normal that the female sex is afflicted with." The opponents of the wheel contend that this is just the trouble, that girl riders develop into manhood.—*Medical Record*.

Original Articles.

STANDARDS OF FORM AND COLOR-VISION IN RAILWAY SERVICE.¹

BY CHARLES H. WILLIAMS, M.D., BOSTON.

By normal vision is meant such acuteness of perception of form by the eye that it can recognize letters or symbols which subtend a visual angle of five minutes, and whose breadth is throughout equal to one-fifth of their height. This standard was established years ago by Prof. H. Snellen, of Holland, who found by a large number of experiments that the average healthy eye could easily read such letters. Many eyes, especially those of young people, have a greater acuteness of sight than this, but, on the whole, it fairly represents the average vision of a healthy emmetropic eye, and has been accepted both in Europe and in this country as the standard in general use.

The letters of Snellen's test-types, to be read at a distance of twenty feet, should be three-eighths of an inch² in height, and if the person under examination reads them with each eye separately at that distance without glasses, the other eye being covered by a card held firmly against the nose, we call his vision normal, or $\frac{20}{20}$, in each eye. If he is obliged to approach to ten feet from the letters in order to read them we call the vision one-half of normal, or $\frac{20}{40}$. In practice letters of different sizes are printed on the test-cards and over each line is printed the distance at which it can be seen and read at the standard angle of five minutes, that is by a person having normal acuteness of vision. If we find that at twenty feet the smallest letters which can be easily read are on the forty-foot line the vision will be $\frac{20}{40}$, or one-half. The acuteness of sight is measured by Snellen's formula $V = \frac{d}{D}$, in which V stands for the vision; d , the distance at which the test-types are recognized; D , the distance at which they can be seen by the normal eye under the standard angle of five minutes.

In ordinary disease, or in errors of refraction, we use these test-types to measure the progress of the case, or the best results from glasses; but in certain forms of employment, as in the railway service, in which keen vision is required, they are used to decide whether a person is qualified for the work he will have to do, and in these cases the question at once arises as to what acuteness of vision should be required for such work. A single standard will not answer. A greater acuteness of sight will be necessary on the head end of a train than would suffice for switchmen. Again, when a man applies for work in connection with the operation of railway trains he should be required to have a greater acuteness of vision than the amount which will suffice to allow him to continue the work with which he has become thoroughly familiar after years of service. Thus we should have two standards, the higher for entrance to the service, and the lower, which would be within the safety line, and would be sufficient to allow a continuation of employment.

The principal hardships to employees in vision-tests has come, not from enforcing a high standard for en-

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² The measurements in this paper are given in inches instead of in the metrical form, as the former are in general use among the railroads.

trance into the service, but from discharging men after years of faithful work, for some defect which the railroad company might have discovered at the time they were employed, if a proper examination had been made at that time. Therefore, it is important, both to the company and to the men, that the methods used and the standards adopted should be such as to exclude men who are not fitted for the work, and to prevent their wasting time in learning a business they may have to abandon; also, in cases of defective sight or color-sense acquired in the service, to enable the company to relieve such employees, or transfer them to other duties, before they have become a danger to themselves, their fellow-employees or the travelling public.

If we look through the standards required to-day on various railways and in various countries, we shall at once see in what an unsatisfactory condition this matter now stands. In some countries the government regulates the matter, in others the companies adopt their own rules; and it is noticeable that some of the highest standards are those voluntarily adopted by the roads themselves.

In Holland, these matters have been more carefully worked out than elsewhere, and oculists of the highest standing in their profession have been called on to formulate rules for these examinations and to fix the standards. They require for Class A, enginemen or firemen, with both eyes open, normal vision; with each eye separately, the other being covered, normal vision in one eye and not less than one-half in the other, without glasses; also normal refraction. For Class B, station-masters, conductors, brakemen, switchmen, etc., with both eyes open, normal vision without glasses, free from hypermetropia of more than one dioptre; with each eye separately, in one eye normal vision, in the other not less than one-fourth, without glasses. The vision is measured by Snellen's test-types.

In England, a committee of the British Medical Association, after careful investigation, recommended in their report in 1892, for Class A, engine-drivers, cleaners, firemen, signalmen and pointsmen, in one eye normal vision and refraction, in the other eye not less than one-half of normal vision, without glasses. For Class B, all other situations in the executive service concerned with the moving and signalling of trains, with both eyes open, visual acuteness of not less than two-thirds of normal, without glasses, provided that neither eye has less than one-third of normal vision without glasses, using Snellen's test-types.

In Belgium, for Class A, in one eye $\frac{2}{3}$, in the other not less than $\frac{2}{3}$; for Class B, in one eye $\frac{2}{3}$, in the other not less than $\frac{2}{3}$.

In Bavaria, for Class A, $\frac{2}{3}$, without glasses, is allowed; this class here includes all outdoor employees.

On the New York Central and Hudson River Railroad, for a first-class certificate, vision of at least $\frac{2}{3}$ is required; but if one eye has $\frac{2}{3}$ and the other $\frac{1}{3}$, it will answer. For a second class certificate, for yard service only, not less than $\frac{2}{3}$ is required; but if one eye has $\frac{2}{3}$ and the other $\frac{1}{3}$, it is accepted for a second-class certificate. On the Pennsylvania System $\frac{2}{3}$ in one eye and not less than $\frac{2}{3}$ in the other is considered satisfactory, with or without glasses. On the Burlington System, for entrance into the engine service, $\frac{2}{3}$ in each eye is required; and for the train and yard service $\frac{2}{3}$ in one eye, and not less than $\frac{2}{3}$ in the

other eye, without glasses in all cases; each eye being tested separately.

It will be seen from the above that the standards of vision vary in different places from $\frac{2}{3}$ or normal vision in each eye, down to $\frac{1}{3}$ in each eye for the first class. In some cases provision is made for re-examination, but in many places no separate standard is required for this. The test in general use is Snellen's test-type, although in England some roads use the army test-card, with dots instead of letters.

The principal objection that I have found to the ordinary Snellen letters, for this work, is that they are all printed on one card, and it is not difficult for men who are to be tested to provide themselves with copies of the card in order to memorize the letters. In one case a man read easily the xx foot line at twenty feet who could not read either the xxx or xl line at twenty feet when called on to do so unexpectedly by the examiner. In order to overcome this difficulty, and also to provide a more convenient form of test-card, I had the letters of standard sizes printed on a series of separate cards, one line on each card, and for each distance had three cards with a different arrangement of the letters on each. In testing a person, one of the xx foot cards is placed in a good light twenty feet from him, and he is asked to read it; if he does so correctly, another of the xx foot cards is shown for a second trial. He cannot tell which of the cards he will be asked to read, so that even if he had memorized them all, he would have to see the letters in order to read the cards correctly, and as there are no letters of a larger size on the same card he could not recite from memory the smaller letters by means of the larger letters that he could see. If he cannot read the xx foot line at twenty feet, then the xxx, the xl, the l or the lxx foot cards are shown in succession until letters are found that he can read; or if he cannot read the lxx foot line at twenty feet he is brought nearer until a point is found where it can be read; or if he cannot see it at any distance, the fact is so noted. This test has been in use on the Burlington System since 1893, and has given good satisfaction.

I have recently been experimenting with another test-card with figures made to represent a line of semaphore signals, such as are often placed on a bridge crossing the tracks, as at the entrance to a union station. On this card the length and breadth of the arms correspond to the height and breadth of the Snellen letters for xx feet, and also correspond when looked at from a distance of twenty feet to the size of a standard semaphore arm when seen at a distance of half a mile. I find when the relative visibility of this signal card is compared with the corresponding Snellen letters, that the card of signals the same size as the xx foot letters can be seen clearly as far as the xxx foot letters. For, with signals, the only point is to recognize quickly and surely the position of the semaphore arm, as to whether it stands horizontally at danger, or at an angle with the horizontal at safety; whereas with the letters small differences of shape must be recognized, and the letters C, G, D and O are easily confounded; such mistakes should not reject a candidate. We can therefore safely allow a less degree of vision as tested by letters, especially on re-examination, than $\frac{2}{3}$, and yet be within the safety limit for signals.

A railroad company should require normal vision, $\frac{2}{3}$, in each eye, without glasses, and less than two

dioptries of hypermetropia of all persons seeking employment in its engine service who will be required to act at any time as enginemen or firemen. Plenty of such men can be had, and the company cannot afford to accept and educate men who are lacking in normal vision when they begin their work. After years of service the requirements may be reduced for Class A to not less than $\frac{3}{8}$ of normal vision in one eye and $\frac{2}{8}$ of normal in the other, each eye being tested separately without glasses; but less than this should not be allowed on the head end of a train.

The same standards should be required of men in signal towers and in charge of interlocking signals and switches and drawbridges; but for the general train and yard service lower standards may be allowed. For entrance to the train and yard service $\frac{2}{8}$, or normal vision in one eye, and not less than $\frac{2}{8}$ in the other, without glasses, should be required. After years of service, on re-examination, this might be reduced to not less than $\frac{3}{8}$ in one eye and $\frac{2}{8}$ in the other, without glasses.

In addition to reading the test-letters by candidates for employment, a simple test for refraction should also be used in all cases. We may leave out of the question the conditions of myopia and astigmatism, for, if present in any amount, they would cause enough defect in sight to bring the vision below the required standard; but a young man of twenty-one years of age, or thereabouts, may be able to read easily the XX line at twenty feet with each eye, and yet have a hypermetropia of two dioptries, or more, which by the time he is forty-five years old, or sooner, will reduce his visual acuteness for distant objects below the standard required, and it is not just to such men to accept them for the service and then retire them when they are too old to learn another business, because they cannot come up to the visual standard required without glasses, although they may have had normal vision in each eye when they applied for work. Such hypermetropia can be easily detected by asking the applicant to read the XX line of test-letters on another card at twenty feet, while looking through a convex lens of two dioptries, or eighteen inches focus, each eye being tested separately. If with each eye he can read the letters correctly through this glass, he should be rejected, for it shows he has a hypermetropia of two dioptries, or more, which, when his presbyopia becomes apparent, will be sure to impair his distant vision unless glasses can be used.

I recently had a case to examine where the vision of an engineer had been reduced to three-tenths of normal in each eye. There was no other trouble except a hypermetropia of three dioptries in each eye; and with proper glasses the vision was brought up to normal in one eye, and nine-tenths of normal in the other. He was transferred to other work in which he could use his glasses; but in this case the simple test with a convex glass would probably have shown the trouble at the first examination for entrance to the service, if one had been required at that time.

A periodical re-examination of the vision should be required of all men employed in the operation of trains or signals every three years, for the sight is often impaired by disease of the inner structures of the eye that may show no outward change; and such re-examinations should be made before promotion, after serious illness or injury, after accidents which might have been due to defective sight, or when from exces-

sive use of tobacco or other cause it is deemed necessary. The certificate of examination given to the man should state the date of examination, the occupation which the certificate covers, and whether or not any defect is found in acuteness of vision, color-perception or hearing, and the certificate should be signed both by the examiner and the person examined. If the first examination is made by a competent person, according to approved methods, at the time of employment, no repetition of the tests for color-vision will be needed, unless it is found that the acuteness of form-vision has become impaired; for in the cases of acquired defect in color-sense an accompanying defect in sight is found which will be brought out by a repetition of the test with letters on the test-cards. In such cases it may be well to repeat the color-tests, and to refer any doubtful cases to an approved expert. In cases of congenital defect in color-sense there is generally no impairment of the acuteness of form-vision.

In all examinations for sight, care should be taken to see that uniform and accurate test-letters are used, for within a month my attention has been called to sets of test-letters recently published in which there was a considerable variation in the size of the letters to be used at twenty feet on different cards issued by the same firm. Again, the illumination of the letters should be as clear and constant as possible; the card should be hung where it gets the daylight full upon it, but not in the sunshine or where the person reading it will have to look directly toward a strong light.

As to the relative frequency of defects in sight and in color-sense, we rejected on the Burlington in six years 176 cases for defective color-perception and 344 for defective sight, most of these cases being applicants for positions in the service. In general it may be said that the number of cases of defective sight found on first examination for entrance to the service will be more than twice the number of cases of defective color-sense, but on re-examination defects in form-vision will be found while those for color will be extremely rare.

The instructions of the Pennsylvania Railroad in regard to tests for vision, etc., also provide for an examination of the field of vision and the range of vision. It does not seem to me that these tests are necessary, especially considering the way in which they are usually made; and in the thousands of reports that were sent to me on the Burlington, where somewhat similar tests are used, there was not a single case where a man was rejected for limited range or field of vision, in which the acuteness of sight was up to the required standard. The examination on the New York Central and Hudson River Railroad does not include either a test for the range or field of vision. It is, however, well to have a reading-test in order to make sure that the person examined can read both print and written train orders at the ordinary distance. And I have known an engineer who was found by this test to be unable to read, although he had normal vision, knew his letters and could sign his name; he was in the habit of having his fireman read all train orders to him, but when his condition was discovered he was laid off until he could learn to read, and write more than his signature.

In regard to the use of glasses, the instructions of the Pennsylvania Railroad say, "If one eye has $\frac{2}{8}$ or 1, and the other eye not less than $\frac{3}{8}$, or $\frac{2}{8}$, with or without glasses, the sight may be considered satisfactory"; but no statement is made as to whether this

will be satisfactory for an examination for entrance to the service, or only for re-examination, or whether glasses will be allowed on duty. It will be found in practice that glasses for distant vision cannot be worn on duty by enginemen and others whose duties require them to work out of doors in all kinds of weather; for steam, rain, smoke and snow interfere seriously with their use. For this reason the acuteness of the distant vision for these men should always be tested without glasses. With cases of simple presbyopia it is different; here the distant vision remains unimpaired, and when glasses are needed for occasional use, as in reading, they are not incompatible with good service. The presbyopia will have to be very considerable before it will interfere with the telling of time by the watch or the reading of steam or water gauges, without glasses.

The standard examination for color-vision should include three things: (1) the naming of colored signal flags, and using them as test-objects for the Holmgren worsteds; (2) a test by comparison of colors by the Holmgren worsteds; (3) a test with colored lights as seen through openings of regulated size, which will form small images on the central part of the retina. The acuteness of color-vision varies considerably from a normal standard, as does form-vision. We may have a feeble color-perception, an incomplete loss of color-sense, generally for red and green, or a complete loss of perception for these colors, and in rare cases a complete loss of all color-perception, in which the solar spectrum looks like a gray smear of varying shade but no color. The object of our tests is to discover the extent and character of the defects and whether they are sufficient in amount to disqualify, according to the standards adopted.

The test with flags shows whether the man can give the right name to the flags and can tell their use and meaning. It will also be desirable to use the flags as test-objects with the worsteds. It will often be found that correct names can be given to the flags even when considerable defect of color-perception exists, for such men have learned to give a certain name to a certain perception; but when we come to use each flag, red, green, or white separately as a test-object and request that all colors be selected from the heap of worsteds which look like the flags, we may get among the reds a green or other color selected as looking like the red flag, or *vice versa*, in other words, with colors of certain intensities or shades, there may be an inability to distinguish between the red and green.

The test by comparison of colors, without naming them, selecting from a large number those which appear to the applicant like certain test-skeins, light green, and pink, according to the method proposed by Professor Holmgren, is the most satisfactory and easily applied of all the good qualitative tests; but it does not give a quantitative test, and does not give a sufficient test for small central scotomata such as occur in tobacco cases. The test by Holmgren's worsteds alone will not in every case detect a serious defect in color-perception.

I have had recently a man who passed both the Holmgren and the Thomson tests without making a single mistake and who selected his colors without hesitation, but when examined by colored lights transmitted through small openings, or even with switch-light lenses before the lamp at twenty feet distance, he called a red light white in four different cases; he had a central defect in the retina, probably caused by

the use of tobacco in excess, yet the area of the affected retina was so small that the retinal image of the worsted or the flags fell partly on the affected area and partly outside of it where the color could be at once recognized, but when the retinal image was reduced in size, as with the lights, it fell entirely within the affected portion and red lights were called white and sometimes green.

It will not do, however, to substitute the test with such lights for the Holmgren test, for the lights give little chance for comparison or for the selection of confusion colors; and for ordinary cases of congenital color defect it would take a long and tedious examination to reach the same result that could be arrived at more quickly by the worsted test.

On the other hand, the test with lights, with regulated openings, should be used in addition to the worsteds, as is required in Holland. Their regulations for testing the color-perception of railway employees require a quantitative test in every case by Donders's method. In his instrument the light from a standard candle is allowed to fall on a disc carrying red, green, blue and ground glasses, and in front of this disc is a diaphragm with openings of 1, 2, 5, 10 and 20 millimetres in diameter; the colors can be changed by rotating the disc, and the man is requested to name the colors as seen through the smallest opening placed five metres from him. If he cannot do this, he approaches the instrument until the color can be distinguished, or a larger opening can be used. Professor Donders accepted the formula for the acuteness of color-perception as $= \frac{a}{A}$ in which a is the visual angle at which the person examined sees the colors, and A is the angle at which the examiner sees them. If the examiner can see the red and green lights through the one millimetre opening at a distance of five metres and the person examined only sees them at one metre his color-perception would be one-fifth.

In these cases we have to depend on the acuteness of color-sense in the eye of the examiner as the standard with which the applicant is compared, and this standard may vary considerably in different persons. Again, the distance of the candle from the colored glass is an important factor, and the red can be seen by normal eyes with the candle at a greater distance from the glass than with the green. In all signal lanterns, however, the light must remain at the same distance from the lens, so that in testing railroad employees we may disregard this difference. Instead of taking so small an opening as one millimetre for the standard test, it will be found better to use a two-millimetre hole, or about $\frac{5}{16}$ of an inch, and place the person to be examined at a distance of twenty feet from it. In this case the opening will subtend a visual angle of one minute at the eye, and will correspond to the width of the letters on the xx foot Snellen test-card used for that distance. If we make the other openings in our diaphragm $\frac{7}{16}$, $\frac{9}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, and $\frac{3}{4}$ of an inch in diameter respectively, we shall have a series of diameters that will nearly correspond to the *width* of the series of letters on the Snellen test-card, and which at corresponding distances would subtend the uniform angle of one minute.

If we consider as a sufficient standard for this test the ability to recognize red and green, either alone or combined with London smoke-glass to vary the intensity of the light, and also white light, either alone or combined with the London smoke-glass, all seen

under this standard angle of one minute, we can then use the other openings in the diaphragm to give a fraction which will represent the amount of color-perception as compared with this unit, just as in the case of form-vision. For instance, if the normal eye recognizes easily the colors through the two millimetre (or $\frac{5}{16}$ inch opening) at twenty feet, and the eye examined only distinguishes them when the $\frac{3}{4}$ opening^a is used, we call his color-perception one-half of the standard. This is not exact and we cannot get with color-perception by our ordinary tests the same fine gradations of acuteness that we get with form-vision. We also find many eyes whose color-perception is more acute than this standard, just as we find eyes that can see the XX line of letters at a greater distance than twenty feet. But it furnishes us with an easy test having a direct relation to the standard of form-vision, and one which is useful in detecting defects in the central portion of the retina.

About five years ago I made an instrument on this principle which has given satisfactory results, and with it the standard switch-light lenses and semaphore glasses can also be used as confirmatory tests. In a paper by Dr. Nuel, of Liege, published in 1895, he states that in Belgium in the confirmatory test they consider the color-sense as sufficient if the applicant distinguishes red and green through an opening of two millimetres at five metres distance when lighted by an ordinary kerosene lamp. In Holland, they require for color-sense in enginemen and firemen a power of distinguishing colors with both eyes open, of not less than four-fifths, or, in each eye separately, not less than one-half; and for other specified employments a color-perception of at least three-fifths with both eyes open, or not less than one-fourth in each eye alone. For re-examination, in the first class, the standard is dropped to at least three-fourths with both eyes open, or at least one-third with each separately; and in the second class, with both eyes, to at least two-thirds, or, with each eye separately, to at least one-fourth; and Donders's instrument is required to be used in all these tests. I used a Donders's instrument, made by Kaagenaar in Utrecht for some time, but did not find it so convenient or satisfactory as my instrument with the larger openings and greater number and variety of glasses.

Even with the Holmgren worsteds it is possible to make a distinction between some of the greater variations in color-sense; for if a person is hesitating, picks up some confusion colors and compares them with the test-skein, perhaps selects them and afterward discards them, or picks up some of the true colors and after comparison rejects them, finally selecting none of the confusion colors, it shows that he has a feeble color-perception; if he selects with the greens some of the confusion colors, but with the pink or rose skein makes no mistake, it shows he has an incomplete defect; but if with the green skein he selects confusion colors in addition to the greens, and with the rose skeins selects with the rose colors some blues or violets, it shows he has a complete defect for red; or if with the rose skein he selects in addition to rose colors some greens or grays, it shows he has complete defect for green.

On the Burlington System I found it best to have

^a The sizes of openings in this series were chosen because twist drills of these sizes were easily obtained and gave holes that at the respective distance very nearly subtended the standard angle of one minute.

each of the 117 colors of the Holmgren sets marked with a numbered brass tag, which could be used to make a record of the colors selected by the applicant, just as in the Thomson's test, and each set being carefully prepared in my office the numbers and colors were uniform for the whole system, so that when the results of each examination were forwarded to me for approval they could be easily checked. It is necessary in this work to have the general supervision placed in the hands of some competent person who can see that the examiners are properly instructed, that they carry out their directions, and that the tests they use are uniform and are kept in good condition; otherwise there is danger that the examiners will become careless or that the condition of the cards and colors will deteriorate so that they cannot be relied on to give proper results.

So long as the red and green signals are used for night work (and no other colors are better adapted to this use), no applicant should be accepted for service in a position which will require him to use such signals, who has incomplete or even feeble color-vision, and if these entrance examinations have been thoroughly carried out, according to Holmgren's directions, and also with transmitted lights, there will be no need of a repetition of these color-tests, except as before stated, where the form-vision has become impaired or where for some special reason it seems best to repeat the examination.

The tests for both form and color-vision should be made when the man is not fatigued by a long tour of duty or exposure; for it has been found that the acuteness of both form and color-perception is diminished after two hours or more of engine work; after long runs and unusual exposure this temporary reduction in acuteness may be considerable and it furnishes an additional argument for insisting on a high standard for such service. If one-half of normal vision were to be accepted as a minimum in each eye when the person was rested and in good health, the conditions of service might easily reduce this to far below the danger point, but if a high standard is required the vision may be temporarily reduced by fatigue without becoming dangerous.

In a report on the Sanitary Service of the Railways in Holland, presented to the International Conference in Amsterdam in 1895, it is stated: "Experience has shown that since the examination for admission has been carefully made, the re-examinations have shown scarcely any incapable men. It is also to be noted that the employees themselves in general recognize the utility and importance of these examinations." In a letter from one of the officers of the Burlington System, written to me November 18, 1896, he states that the operating officers of that system thoroughly approve of the examinations for entrance to their service, which include not only the tests for sight, color and hearing, but also a general medical examination, which is made by the medical examiners of the road, who are all well qualified medical men; and he also states that the general character and efficiency of the employees has been improved by these examinations, which are fairly and thoroughly made.

It seems to me that more can be accomplished in the way of improving the standards and methods used for testing sight, etc., by showing the operating officers of the railroads that it is for their own interest and for the interest of their employees to have such tests

carefully made, and to use such methods as shall be just and efficient, rather than by trying to force measures on the railroads through legislation, which is apt to be crude, and is met with opposition on the part of the road, and on the part of the employees, as being directed against their personal interests: whereas proper methods rightly applied should meet with the approval of both officers and men.

THE PROGNOSIS AND DURATION OF ATTACKS OF MENTAL DISEASE.¹

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THERE is no department of mental medicine that more closely concerns the general physician than the prognosis of insanity, as it is upon this point that his advice in such cases is oftenest asked. At the same time there is no other branch of the science with which he is less familiar. In fact, this paper is an endeavor to reply to requests from a number of practitioners for enlightenment in this direction.

Much of what follows is therefore an old story to the alienist, and perhaps to the neurologist. The much-mooted question, however, as to what constitutes acute and what chronic insanity, a matter of practical interest in the treatment, classification and disposition of the insane individually and *en masse*, as well as certain facts relating to the duration of acute attacks, both of which should be subjects of interest to those physicians whose work is more exclusively among the nervous and insane, will also be considered, as they seem not to have received the attention which their importance demands. But little reference will be made to the life-histories of the insane as regards *permanent* curability, as this is chiefly a clinical consideration of the immediate outcome of single and especially initial attacks and only in small part a statistical inquiry.

Statistics, although useful in elucidating other points relating to insanity, are of little help in prognosis. About all that can be gathered from them that is of real value on this point is the duration of hospital cases, and the fact that, as a general rule, those which are of short duration and are admitted early in the disease, are the most likely to recover. There are, to be sure, tables which give the number of recoveries from different forms of insanity; but as their classification is different in each hospital, only the results in the principal varieties form a sufficient aggregate for making an estimate. Hospital statistics, moreover, cover but a part of the ground, and a vastly different idea of the prospect of cure would prevail if the undoubtedly large number of cases (chiefly of melancholia), which recover without going to an asylum or even (as Blandford thinks) to a doctor, could be included.

Another complication which vitiates statistics of reported recoveries is recognized by asylum physicians generally, and that is the personal equation of the observer. One superintendent will fully believe a patient to be cured whom another would regard as simply greatly improved; and it occasionally happens that two hospitals in which the same class of patients are received, both of which are managed in practically the same manner, and in which the treatment and

care of the inmates is materially the same, will show a decided difference in the proportionate amount of reported recoveries, which can only be accounted for in this way.

Again, patients often recover and remain well while in the hospital who break down very soon after their discharge on attempting to take up their old life, thus showing that their recovery was only relative to their surroundings—a hospital recovery. Such patients have not recovered in the true sense of the word, and as it is understood as regards other forms of disease.

The great scientific value of the statistical researches of Thurnam, Hack Tuke and Earle in the curability of insanity cannot be gainsaid, but the small percentage of permanent recoveries in institutions for the insane thereby established, certainly has not stimulated us to work for the cure of separate attacks with the same zeal and interest that have led to decided advances in the treatment of physical disorders, and which alone can make permanent cures more frequent. On the contrary, a somewhat pessimistic attitude toward insanity has resulted, and endeavors for the best provisions for the mass have overshadowed the investigation of separate cases—the study of the needs of the individual and the possibilities in the way of his cure.

Sir Dyce Duckworth, in a recent address² upon “The Prognosis of Disease,” remarks that at the present time, and for many years past, in spite of the extraordinary advances made in all branches of the sciences on which medicine depends—in spite, too, of the high degree of cultivation to which the art of medicine has attained in the last years of this century—the attention of physicians has been somewhat inadequately directed to the subject of prognosis in disease. He might well have added that in no department is prognosis more imperfectly understood than in that of mental disease. The principles—the elements—of prognosis are wanting, and therefore the alienist is practically at sea in many cases of functional mental disorder, and has to fall back upon empirical predictions by symptoms or sets of symptoms, which are often set at naught by some unexpected change in the course of the disease. To be sure, this happens often enough in physical disorders; and to be guarded in one’s prognosis is the A B C of instruction in the practice of medicine. But nowhere is this caution necessary to such an extent as in functional disorders of the mind; and it is safe to say that the longer the alienist lives the more he despairs of making the right prognosis in individual cases, and the more he is inclined to “hedge” and to generalize.³ The chief source of the difficulty is our ignorance of the pathology of insanity, no theory of which has a known demonstrable material basis in actual cerebral lesion, nor in specific physical manifestations, the steps of whose development are indicated by pathognomonic symptoms following a definite course. The array of classifications of insanity to which each new observer adds still another combination, bears witness to this uncertainty.

² Presidential Address before the British Medical Association, British Medical Journal, August, 1895.

³ Since the above was written, the writer chanced to read Clouston’s advice (Mental Diseases, p. 116): “Be guarded in giving a prognosis in almost every case. The greater my experience becomes the more guarded I am. Some of the most favorable cases will deceive you, while some that look the most hopeless will recover, as in the case of B. S. A., a patient of mine who had been seven years melancholic, suicidal and sleepless, and who recovered at seventy-four and is now quite well and doing her household work.”

¹ Read before the Boston Society for Medical Improvement, April 6, 1896, and the American Neurological Association, June 4, 1896.

The pure psychoses are similar in this respect to the neuroses that have no known anatomical lesion. For example, although we know that true epilepsy is not susceptible of permanent cure, and to that extent we can make an accurate prognosis, we can rarely be sure that this or that indiscretion in the way of fatigue, or exposure, errors of diet, etc., will precipitate a seizure, how severe it will be when it comes, how soon or how frequently it will be repeated, and what the indications are of the approach of the epileptic status with its attendant dangers. The course of neurasthenia, also generally chronic, but often varied by alternate improvement and relapse, with occasional cases of recovery, offers us the same temptations to make specific prognoses based upon empirical generalizations.

Far different is the case with structural mental disorders having a known macroscopic lesion, such as general paralysis of the insane or post-paralytic insanity. The confidence with which, when once he has become satisfied of a diagnosis of general paralysis from unmistakable symptoms and clinical history, the alienist can predict from the first in many cases, not only the steps of progress in the disease but its approximate duration, is a refreshing contrast. He is rarely deceived by its decided remissions of almost complete rationality and general good health into making encouraging predictions, as he often is in the intervals of insanity of varying length which occur in acute attacks of ordinary melancholia or mania.

Before proceeding to details, a rough estimate of the probable results in the way of recovery is best taken from Thurnam's statistics which, although small in the number of cases, are considered to be of especial value, as he was able to trace the after-history of each patient who had been at the hospital *in whom death occurred*. They are as follows: "In round numbers, of ten persons attacked by insanity, five recover, and five die sooner or later during the attack. Of the five who recover not more than two remain well during the rest of their lives, the other three sustain subsequent attacks during which at least two of them die."⁴

The powerful influence of heredity was first to be considered. It is a general belief, both among members of the medical profession and the general public, that the inheritance of a tendency to insanity means impossibility of recovery from an attack of that disorder; on the contrary, strongly hereditary cases are often the most curable, but they are more likely to relapse than are those in whom the hereditary tendency is absent. Therefore, we should expect hereditary insanity to be shown chiefly in the recurrent, periodical and alternating forms; and this is the case. A bad family tendency of this sort may be shown in actual and marked insanity of certain members, while the rest are sound and strong and appear to have the normal amount of resistive power to disease. This, however, is a better inheritance than less distinct mental disease and more unsoundness and a low state of mental and bodily health *in the family generally* in the forms, for example, of various neurotic disorders, convulsions in childhood, weak-mindedness, bad habits and propensities and physical defects.

The time of life also modifies the prognosis; as in physical so in mental disease the young, especially females, are far more likely to recover than the mature and the old, setting aside cases of imbecility and constitutional moral obliquity. It has been estimated

that 63 per cent. of the recoveries from insanity take place before the age of twenty-five. At the same time the young are more subject to relapses, owing to the fact that bad heredity is most likely to operate in adolescence.

The menopause is another period of life at which many cases of insanity recover; but the disease is usually of long duration, not ending until the cessation of the menstrual function is complete. It must be borne in mind, however, that genuine climacteric insanity is rare, as cases in which the menopause is unmistakably the sole or even the chief cause of the trouble are far less common than is usually supposed.

Old age, on the contrary, is obviously the most unfavorable time for an attack of insanity; but here it is death from exhaustion that is to be feared rather than death of the mind alone. Even at this time of life, however, there is some risk in predicting that recovery is impossible, as it is among the aged that the marvelous cases are occasionally met with, of complete cure of acute melancholia in which exhaustion seemed inevitable from the extreme agitation, depression, refusal of food and consequent emaciation. Such miracles have few counterparts in physical disease.

A good physical condition just before the trouble is a less favorable sign than might be supposed, as it is usually the mild cases of long standing and slow progress to the active stage of the disease or to the more pronounced symptoms, in which the bodily health is but little disturbed. On the other hand, the acute, severe, rapidly developing, and for the most part presumably curable cases are often preceded by a season of reduced physical health and strength and loss of flesh which continues throughout the acute stage.

The natural mental capacity also makes quite a decided difference in our prognosis, as a person with a strong and active intellect and even keen sensibilities before the attack, seems to offer greater resistive power to disorders of the mind when once established than does an imperfectly developed mind and an insentient nature.

The immediate cause of an attack, when well limited and appreciable, which is not often the case, indicates a good chance of recovery; for example, sudden bereavement, shock, accident, money loss, the puerperal state, lactation, etc.

Treatment affects the prognosis in no small degree, especially the time of its adoption, the patient's chances growing fewer the longer it is delayed. It is needless to emphasize by statistics this well-established and well-known fact of the great importance of early treatment (not necessarily that of an asylum) away from home. The kind of treatment has also a decided influence; and the greater prevalence, both within and outside of institutions for the insane, of care and treatment directed to the needs of the individual patient, is sure to be a most potent factor in increasing the number of cures, preventing relapses and relieving the chronic cases. The practice which is still largely unavoidable in public institutions for the insane, of placing acutely violent patients in a perhaps overcrowded ward for obnoxious and equally excited patients in different stages and forms of insanity, as well as of different classes of society it may be, can but retard, if it does not actually prevent, recovery in many cases.

The form of insanity has a bearing upon the prognosis. Hospital statistics give a wrong impression of the outcome of the principal varieties, as it is chiefly

⁴ Dictionary Psychological Medicine, vol. ii, p. 1200.

severe cases and intractable patients who are sent to institutions for the insane. For example, there were admitted to the Massachusetts hospitals in ten years ending January, 1896, 3,354 cases of acute mania, of which 1,468 cases recovered; also 2,116 cases of acute melancholia, of which 665 cases recovered. From this table it would appear that melancholic patients were considerably less numerous than the maniacal, and that recovery was less frequent in that class; whereas melancholia is actually the commonest form of insanity by far, and the most curable; but, as has been said, only a comparatively small proportion of such cases is sent to the asylum.

Other acute forms which are especially apt to recover are: stuporous insanity, or so-called primary dementia, a disease which belongs exclusively to adolescence; confusional insanity; puerperal and lactational insanity; and that which follows acute physical disorders. But systematized delusional insanity which is of gradual development and is not ushered in by an emotional stage as are ordinary mania and melancholia and the other forms above mentioned, belongs to the chronic class, and is rarely curable. The secondary or terminal state: dementia, as well as recurrent and alternating insanity, are hopelessly incurable. Periodical insanity should be distinguished from simple recurrent insanity, and its prognosis is different. In character, course and severity, each attack of periodical insanity is identical with the others, while the long and fairly regular intervals of sanity which separate them show but little departure from the normal state for the greater part of the patient's life. Ordinary recurrent insanity, however, varies greatly in all these particulars; one attack may be mania, the next one or two melancholia. The length of the attack is also very variable, but grows, on the whole, shorter between each successive relapse; and the mind becomes weaker in the intervals, until terminal dementia closes the scene.

General paralysis of the insane, also known as paretic dementia, general paresis, and popularly as paresis, is, it is hardly necessary to say, a deadly malady, almost inevitably fatal. There are, to be sure, a few, very few, examples of recovery reported by competent observers; but they are not by any means incontestable, while the usual alleged cures are either due to faulty diagnosis or are the result of premature conclusions during some remission in its course. It is a frequent experience of the alienist to find favorable prognoses made in cases of general paresis by general physicians who have mistaken for ordinary insanity attacks of mania or melancholia that are really of paretic origin, and which far from being idiopathic functional psychoses, are simply symptomatic groups or syndromes occurring in the course of this grave structural disorder of the brain (general paresis). As mania, and especially melancholia, whether occurring from ordinary causes or from general paresis, are in many cases the same to all appearances, it is not surprising that such errors occur where the opportunity for observation is necessarily so limited as is the case in general practice. The incipient stage also of general paresis is sometimes thought to be neurasthenia or hypochondriasis, so closely does it simulate these disorders in many cases.

The duration of general paresis is often perplexing; and although we may safely say in the majority of cases that the end may come at any time within three

or four years from the onset of active symptoms at the farthest, according to the kind of care the patient receives, the nature of the attack, or the severity of the intercurrent affections to which it predisposes its victims, there is considerable variation in the length of its different stages, whether of remission or of progress. We are also given surprises occasionally in the way of temporary recuperative changes, both mental and physical, which are little short of startling, and which it would have seemed folly to predict. Ascher⁵ finds the *average* duration of cases of general paresis to rise in the following scale: (1) Cases characterized by excitement, (2) by depression, (3) by uniform dementia, (4) by alternate excitement and depression, (5) by apoplecticiform attacks. When frequent epileptic seizures are a marked feature from the first, there is great danger that the patient will be cut off by a series of them in the form of the epileptic status.

But it is the stage of remission in general paresis which is responsible for most of the mistakes of diagnosis and prognosis that are made in this disorder, as only the trained observer can find evidences of mental failure in many of these patients, who at this stage appear to be entirely well. That, however, an exacerbation is sure to follow sooner or later, in spite of this apparent return to health, and that only by the most careful and quiet living can it be long delayed, is the only opinion to be given that is consistent with fact. It is often months, and occasionally years, before the signs of degeneration recommence and our reiterated prognosis is finally verified.

The minor conditions of an attack of insanity and its individual symptoms often tempt us to predict the outcome; but it is a hazardous practice, akin to inaccuracy to amateur weather predictions. There are many, however, that are useful to know when properly estimated—like minor symptoms of physical disorders—as simply corroborative indications. Of this order is the important prognostic point that is furnished by the way in which an attack begins, as in general a quick onset means a fairly quick recovery; excepting of course cases of *delirium grave*, otherwise known as typho-mania and as acute delirious mania or melancholia, a form which is extremely dangerous to life, especially in old people. *Per contra*, a long antecedent period of mild mental symptoms or peculiar conduct betokens chronicity.

Another indication that is quite reliable is the familiar one, that when improved nutrition keeps pace with the mental gain as evidenced by the patient's weight, the chances of recovery are good, while an improved physical condition unattended by mental improvement, or *vice versa*, is a bad omen. Marked hallucinations of hearing; the creation of new words; the adoption of a pathological language—of a peculiar costume; a tendency to self-decoration; special attitudes; hoarding, etc., mean, as a rule, incurability. Incoherence and persistent delusions without excitement are usually signs of confirmed mental weakness. Absence of the feeling of satiety, eating or drinking nauseous articles, are found almost exclusively in unfavorable cases; but a case of confusional insanity in a lady under the writer's observation in whom this latter propensity was well marked, made an excellent recovery. In continued sexual excitement recovery is rare; but the practice of masturbation, if given up, may not interfere with recovery.

⁵ Allg. Zeitschrift für Psychiatric, Bd. xlv.

The intervals of calm and rationality which suddenly and unexpectedly occur in cases of melancholia and confusional insanity especially, are very deceptive, and often tempt one to make a prognosis of speedy recovery that is soon found to have been premature. It is only when these sudden recoveries of reason follow a period of decided gain in sleep and general health that they are permanent, as a rule. Generally speaking, the mind is speedily clouded over again, and the disease runs its course with renewed intensity. It is safe, nevertheless, to predict that *ultimate* recovery is probable in cases that are characterized by such intervals of rationality. A condition of unbroken excitement or depression, however, if of long duration, lessens the chances of cure. Temporary diminution of the excitement, with a change to a depressed mood, occurring in an attack of violent mania is thought to indicate recovery.

When hypochondriacal delusions are a marked feature of a case, the outlook is bad, especially if the subject be advanced in years. Such patients are apt to believe their throats or bowels are permanently closed. Some think that they have no "insides," that the body is transformed or is rotting, that certain parts are made of glass or metal, that they are being consumed by venereal disease, etc.

Persistent refusal of food, especially when due to hypochondriacal delusions and when prolonged, is an unfavorable sign. Recoveries do occur in such cases, as in other extreme conditions; but they are as rare as they are surprising.

The suicidal tendency is often regarded by people in general as a particularly ominous feature, whereas it is a frequent and logical manifestation of the most curable form of insanity, melancholia. The chief danger is of course to life, before proper measures for the patient's protection have been taken, after which his chance for recovery is quite as good as that of any case of melancholia without such tendencies.

"Mild" cases of melancholia, which are apt to be treated at home, are very deceptive in respect to the probability of suicide; and the more rational the patient the more crafty and deliberate he will often be in carrying out his plans. It not unfrequently happens in such cases that a desperate attempt at self-destruction is the first warning given the family or the physician of the suicidal propensity. Careful and frequent examination of the patient's line of thought will usually reveal the desire for suicide, after which it is a grave risk to attempt to give such a patient proper supervision at home. The desperate and violently determined melancholiac, whose efforts are constant and unremitting owing to the strength of the suicidal impulse and in whom there is little sign of reason, is doomed to dementia unless there be a speedy turn in the disease.

Finally, the best recoveries are seldom perfect, and a large proportion fail to recover their former mental condition in full. As it has been well put by Folsom: "There is left some change of character, no matter how slight, some moral perversion, irritability, impaired will, lessened power of self-control, diminished mental capacity—some lowering of the intellectual or moral standard, some deterioration of some kind."

As regards prognosis as to life, it may be said that, excluding the suicidally inclined in relatively few cases

is death to be feared as a direct consequence of insanity that is not organic. They are largely from one group—the delirious manias—the form of death being exhaustion from continuous intense and often febrile excitement. Death is much more likely to take place in the beginning of an attack, as that is the time of greatest violence and strain. It is then, too, that refusal of food and suicidal attempts are most common.

The difficulty here shown in making correct prognoses, together with the arbitrary time limit which prevails within which a patient shall be considered curable, have resulted in misapplication of the terms "acute" or "chronic" in insanity; and consequently the proper classification, care and treatment of such patients has been interfered with. The general physician finds, as a rule, vastly less difficulty in deciding this question at the outset than does the alienist. Chronic bodily disorders are in the main chronic from the start, so to speak, and follow a characteristic course. Chronic nephritis, for example, is comparatively seldom an extension of the acute variety, but as it is now generally recognized, exhibits a chronic character from the first. True chronic articular rheumatism which ends in arthritis deformans is only in a relatively small proportion of instances a direct sequel of an attack of acute articular rheumatism. Chronic bronchitis follows a similar course, and rarely arises from a genuine acute bronchitis. Then, also, in the cases in which a chronic condition does supervene as a direct outcome of an acute bodily disorder the transition stage often has such distinctive features that the fact of chronicity is soon recognized.

This condition of affairs is reversed in mental disease, although it, too, has many cases which can be recognized as chronic from the start. Such are imbeciles, degenerates, pure paranoiacs ("cranks") and cases of organic brain disease. But all these classes combined form only a minority of the chronic insane, while the bulk are cases of secondary dementia—of loss of mental power, varying in degree in different individuals, which is the direct outcome of an initial brain storm in the form of attacks of acute mania, melancholia, epileptic seizures, etc.

Of these patients, as a whole, we may rightly say at the beginning of their trouble that statistics show that a decided majority will become chronic lunatics; but we cannot point out the individuals who will certainly recover and those who will fail to do so, with by any means the same degree of certainty that is possible in physical disease. It is largely by looking back upon a case of insanity that we can with any certainty pronounce it acute or chronic. Moreover, the initial steps of the transition stage between acute insanity and positive dementia which forebode chronicity, are so very gradual and ill-defined that long observation is often necessary before we can say with certainty that the acute stage has passed and confirmed insanity is established. Another difference in this respect between mental and bodily disease lies in the fact that severity of symptoms in the latter is much more of a factor of the acute, as distinguished from the chronic case, than is the case in mental disorder, in which not unfrequently severe violent maniacal symptoms extend without material modification well into the chronic stage.

The expedient has therefore been resorted to of adopting an arbitrary duration-limit as the division-line

between acute and chronic cases. This method is unsatisfactory and unscientific, but the most practicable one available. By general consent, twelve months has come to be regarded as that limit, a standard based upon the average duration of recovered cases as computed from hospital statistics. This practically makes the terms "acute," "curable" and "recent" synonymous, as distinguished from "chronic" and "incurable" insanity.

But all asylum physicians do not hold the same opinion, some placing the limit as low as six months for curable cases. There is consequently a wide variation occasionally met with when an estimate is to be made of the number of acute and chronic cases in a given collection of insane persons. For example, in reply to a recent inquiry, made with reference to a possible separate provision for the acute insane of the city of Boston, it was found that of 1,170, the entire number of insane patients of all classes supported by that city at her own institutions and at the lunatic hospitals of the State,⁷ but 30, or 2.5 per cent., were of the acute class. This is at variance with the usual rough estimate or guess, of about six or seven per cent., which is none too large an estimate, as is indicated by the fact that the proportion of all the acute cases (mania, melancholia, dementia) to the entire number of patients of all classes remaining in all the State hospitals for insane of Pennsylvania at the end of the years 1890, '91, '92, '93, '94 and '95, ranged from 6.8 per cent. to 12.3 per cent., in an average of 6,207 patients.⁸ Also, of 62,431, the entire number of lunatics remaining in 1890⁹ in all the English asylums, 4,070, or 6.5 per cent., were reported as presumably curable.

Even the duration-limit of a year is too low, and works harm. It is scientifically inaccurate on its face, from the fact that the duration of a person's insanity is almost invariably understated by relatives. But even accepting twelve months as the correct average duration, quite a large number recover in a greater length of time. From the table in twenty-five annual reports since 1891, of five Massachusetts lunatic hospitals, which gives the whole duration of mental disease (exclusive of previous attacks) in the recovered cases, it appears, that, of 1,469 recoveries of known duration, *twenty-one per cent.* occurred after a duration of more than one year and (for the most part) under three years.

This artificial standard of duration, therefore, cannot fail to frequently consign curable cases to the limbo of the chronic class, and thus deprive them of the special care and attention which they demand and which may be essential for recovery. Patients who are thus prematurely labelled "chronic" are often removed from the State Hospitals, with all the advantages there to be had in the way of nursing and skilled medical attendance and supervision, to the town almshouse where they have little or no care, if they are not actually neglected or abused. In private cases also, by reason of the general acceptance of this standard as the limit of the acute condition, changes of treatment are often precipitated which are preju-

dicial to the best interests of patients. It often happens that a patient who is being treated privately away from home is prematurely pronounced a chronic case and hopelessly insane, when a little longer delay might have resulted in cure, and spared him the stigma which unfortunately and absurdly attaches to those who have been committed to an institution. Finally, it is not improbable that too rigid adherence to the twelve-month duration-limit is in a measure responsible for the lack of that great desideratum: separate hospital accommodation for the acute cases, by reason of the fact that it is thus made to appear that too small a proportion of patients would be available to make special and separate construction advisable.

Is it not, then, far more humane to take the small risk of treating a few chronic cases as though they were acute and curable by including in the "acute" category all whose insanity has had a duration of at least one and a half years, than to deprive a fairly large number of curable cases of the benefit of special care and treatment?

Clinical Department.

A HOMICIDAL DEATH FROM SULPHATE OF STRYCHNINE.

BY EDWIN J. BARTLETT, M.D., HANOVER, N. H.

On the 9th of March, 1895, John E. Holloway, of Glover, Vt., was found dead in one of the out-buildings of a dwelling-house in which a dance was going on. The circumstances aroused suspicion of poison; analysis disclosed strychnine. Mrs. Holloway and one William Chase were tried at Newport in the fall of 1895 and the winter of 1896. Mrs. Holloway was acquitted, and Chase was convicted.

Though many desirable details failed to come to light, there are some matters of interest in the case.

The poison was administered in alcohol. Near the scene of the crime a pint whiskey-flask was picked up; there were others, but this one contained one teaspoonful of dilute alcohol and three grains of undissolved crystals of strychnine sulphate. The alcohol when examined by the chemist held 15.2 milligrammes in one centimetre, or about one grain in a teaspoonful. Experiments in the laboratory to gain some idea of the rapidity with which solution could have been effected showed with no shaking (except momentary stirring at the end of the period to secure a uniform sample) 4.5 milligrammes per centimetre, or one grain in four teaspoonfuls, were in solution in fifteen minutes. This and several other experiments proved that there could have been no difficulty in dissolving an ample dose between drinks.

The clinical history is incomplete; the poisoning, sickness and death were all between one and three o'clock in the morning, but how much within those limits cannot be stated with any certainty. It is a reasonable conjecture that the case did not occupy more than three-quarters of an hour from beginning to end. Holloway was seen among the guests who were eating supper between twelve and one. He was seen outside the house in good condition about one. Between one and two he was sitting upon the stairs in the out-building "very sick to his stomach." He talked intelligently, suggested a doctor, then advised waiting, as he might soon feel better. This occupied

⁷ Austin and Pierce Farms in Boston, the State Lunatic Hospitals at Northampton, Worcester, Taunton, Danvers and Westboro, the Worcester Asylum for Chronic Insane and the State Almshouse at Tewksbury. No criminal insane, imbeciles or feeble-minded are included.

⁸ Reports of Committee on Lunacy, of the Board of Lunacy and Charity of the State of Pennsylvania.

⁹ Report of Commissioners in Lunacy, of England.

"about twenty minutes"; suddenly "he fell right back, kicked a little and stopped breathing." Apparently death was caused by the effect of the first convulsion upon the muscles of respiration.

The interval between the time of the death and three o'clock is not satisfactorily accounted for.

The first witness as to post-mortem condition who was entirely clear of any motives for reserve saw the body about three o'clock; the head was on the stairs supported by a butter-tub cover, and the heels were on the floor; the body was arched and rigid as iron, the arms were rigid and extended, the hands cold and clenched and the facial muscles contracted to a grin. When the physicians examined the body at two o'clock in the afternoon, one of them passed his hand between the arched back and any possible support; it rested entirely upon the heels and the head, and when they lifted it it stood upright with a little balancing. An emission of semen had taken place.

The autopsy disclosed no marks of violence. The lungs were congested. The heart contained moderate clots. A tumor, the size of a walnut, was found on the upper surface of the brain, just beneath the dura mater, near the longitudinal fissure, and about midway from before backwards. (This tumor was urged as a cause of death by the defence.) The stomach and heart, in separate jars, were delivered to the chemist for analysis. The interior of the stomach was pinkish, smooth, and normal to inspection. Its contents were ten centimetres (one-third ounce) of colorless, viscid fluid of an alcoholic odor, and two pieces of apple, one of which contained part of the core; no particles of food or other solid matter were present. It was in evidence that the deceased ate supper between twelve and one o'clock; there was, however, no history or sign of vomiting, and no one was able to tell what he ate.

The strychnine obtained was white and imperfectly crystalline; the fractions actually weighed amounted to 3.8 milligrammes of the alkaloid, giving a total of 11.6 milligrammes (two-elevenths of a grain) in the stomach contents. The taste, physical properties, chemical reactions and physiological action were completely identifying. The color reactions were strong and satisfactory with 1.0075 milligrammes (about $\frac{1}{8000}$ of a grain) of the residue. A frog weighing five grammes given by the stomach .045 grammes ($\frac{1}{5000}$ of a grain) showed muscular twitching in ten minutes, followed at once by distinct but not strong spasms for ten minutes, at the end of which period he was apparently dead; another frog weighing fifteen grammes was given the diluted remnant of the first frog's dose — certainly not more than $\frac{1}{15000}$ grain. In five minutes there were indications of the action of the poison; and in twenty minutes exceedingly powerful tetanic convulsions; their onset was accompanied with a croaking sound, and at their maximum the frog was like a tensely strung bow. After twenty-eight hours, during which the least jar or touch or breath was the occasion of a convulsion, the frog recovered.

Later, four and one-half months after death, an attempt was made to recover absorbed strychnine from the heart, which was then in a putrid condition. Forty-two centimetres of fluid were drained from it and worked through, chloroform being used as the final extractive. Thirty drops of the chloroform, evaporated in small space, left a decidedly bitter residue;

this was repeated three times. The fading purple reactions, distinct though fleeting, were obtained from evaporation of four drops, and upward, of chloroform in the same spot, but not from the evaporation of one, two or three drops. This was repeated eight times. One-third of the remaining material, after evaporation, was given to each of two frogs weighing four and five grammes; in fifteen and in eighteen minutes the frogs manifested discomfort and loss of muscular control — the hind legs tended to straighten out; but there were no convulsions. In the course of an hour and a half the frogs resumed their usual condition. The next day the same frogs were taken: to one was given all that was left of the material, and to the other nothing; the dosed frog acted as on the previous day, while the other remained as usual. At the trial no stress was laid upon these results from the heart; the facts were stated with the voluntary comment, that by themselves they were not conclusive of the presence of strychnine. On further consideration, they seem, though tenuous and difficult to maintain, to justify a more positive statement.

The carefully conducted trials of this case, though affording nothing of special importance to the medical or chemical witness, furnished a rather striking combination of what may be styled accidents of the law. At the close of the first trial, after a verdict had been rendered convicting one respondent and acquitting the other, it was brought to light that a juryman had been disqualified from the outset; the acquitted respondent was released, the convicted one was granted a new trial, and the juryman was convicted of perjury. It was thus made practicable — though it did not happen — for the released respondent of the earlier trial to take, as witness in the later, entire responsibility for the crime without legal penalty.

At the second trial, the jury, at first unable to agree, finally brought in the verdict of manslaughter.

An exception carried to the Supreme Court established as the law of evidence in Vermont, that "adulterous relations with wife may be shown as motive for murder of husband."

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, SECRETARY.

REGULAR meeting Monday, February 8, 1897, Dr. A. L. MASON in the chair.

DR. CHARLES H. WILLIAMS read a paper entitled, STANDARDS OF FORM AND COLOR-VISION IN RAILWAY SERVICE.¹

DR. B. JOY JEFFRIES: The paper is interesting to me because just twenty years ago next month I first brought the question of defective form and color sense before the public. I had been at work upon it a year or two before, and then insisted on the necessity of having definite standards fixed, to be carried out by competent experts, both on the railroads, in the merchant marine and in the army and navy, and also the necessity of an international commission to settle on such standards and the carrying out of them; therefore, I entirely agree with all that Dr. Williams said

¹ See page 561 of the Journal.

on these points. There are one or two other points I will speak of.

In using Donders's apparatus, I find it convenient to be able to add different degrees of the London smoked-glass, and have so arranged my apparatus. Then a man looks at one color, and you add one of these, and the change *in amount of light* will make him see and say it is another color. I have always avoided asking whether it is red or green, simply saying *safety* or *danger, port* or *starboard*. As to the Holmgren test, of course I have had a good deal of experience, having made some 35,000 examinations, and therefore perhaps it is hardly fair to ask the gentlemen who start in with it to realize its value at once, or put themselves in the same position that I am from my experience with it. I should rather decide upon whether to drop a man out or take a man on by Holmgren's test than by any other one. I feel that when you have a proper set of worsteds, experience tells you what the *extent* of the trouble is very well indeed. The central scotoma in the tobacco case of Dr. Williams I should have supposed would have been noticed by the failure of form-sense that goes with it, but in general the use of Holmgren's test has been shown to be very reliable, and that is the report of the international conference that took place in Amsterdam in 1895. At this conference all interested desired to have better methods of measuring the amount of the color-sense, so that we could establish a standard. At present I would rather take a good set of worsteds and decide by Holmgren's method whether a man has such color-sense as he ought for his position. I consider, the less his color-blindness the more dangerous the man really is, since he is more apt to escape detection and obtain a certificate of competency.

Of course, to have standards and proper testing is very nice; but you can't get these universally applied. If on the Burlington System Dr. Williams refused men, they naturally went to the next road. When you ask the railroads to do anything which interferes with the patronage of the officials, or interferes with the men, they readily get excited. Their brotherhoods are by interested people induced to make trouble, and the railroad officials are therefore only too willing to accede, and not have anything done they can avoid. A law was passed, yet you will find the test to-day here in Massachusetts made by a master-mechanic or anybody else holding up a flag and asking the employee what the color is. Such a law is not carried out any more than the prohibition of Sunday liquor-selling. Even the Sunday illustrated newspaper has given pictures of such a test in derision of it. It is easy to talk smoothly, and make the people have an idea that men *are* examined and the incompetent ones thrown out; but there is nothing of the kind done.

To accomplish this, namely, the establishment of proper standards and their application by those only who are competent to apply them, is one of the objects of the international conference which is to meet again in Brussels next September. The medical men connected with the railroads and with the army and navy are going to meet. It is a conference of hygiene, but incidentally comes in the examination of men for the army and navy and merchant marine. We have the reports and opinions of what was done in Europe by gentlemen of honest intentions, but they are having as hard a fight there as I am here. Holland, thanks to

Professor Donders, is the only country where the work is properly done. It would have been carried out in Russia also, but for the lack of ophthalmic surgeons to enable them to have such examinations made. The surgeons of the roads do not have as much success as the special ophthalmic surgeons.

In Connecticut they had legal standards in conformity with those recommended by the highest European and English experts; but politics came in. The railroad vote was bid for by both parties. When it was referred to the railroad committee, I went the second time before that committee, with the result of seven out of nine voting to retain it. When it came to the Senate and House of Representatives, it was swept away. Here in Massachusetts, as I have shown, what law there is amounts to nothing. Anybody can be called a "competent person," and be told to keep or turn off any employee they want to. In Ohio and Illinois it was the same. In Alabama a very perfect law was made; politics came in, and it was swept away. That is all that we do with standards and proper expert testing. I agree that it is most desirable to have them, and that they should be employed; but it is a Utopian idea to believe that they are or will be employed. If we free Massachusetts from those who are color-blind and have defective vision, they are merely pushed off into other States around us. That is my position in it, and I have been in it for twenty years. I wish I could make a better report, but I cannot. But I believe that it is only a question of time; for our communities are learning the danger from defective vision and color-blindness, and will finally demand the remedy.

DR. HAY: I know very little practically about this subject. I was much pleased with this paper, and should be glad to see it printed, for I think it would give a good deal of information to oculists and surgeons generally as to what the standards are.

DR. WADSWORTH: I have very little to say. I agree with the previous speakers as to what is needed. As an illustration of the imperfect way in which some examinations are now made I may say that last spring one of the minor officials of a large railroad running out of Boston asked me to examine for color-blindness some half-dozen of their men who were to be entrusted with the examination of the others. He said it was only by his insistence that any such step as that had been taken. It had been proposed to have these men make the examination without any idea of whether they were competent or not, whether they were themselves color-blind or not. One of them proved to be to a considerable extent color-blind. Within a few days I have seen a conductor who only has one eye and only about one-fourth vision in that one.

DR. JEFFRIES: A man came to me—a master-mechanic on the New York and New England Railroad—whose business it was to examine the men. I found that he was completely color-blind. He told me he often sat down by the tracks and watched the changing lights with his boy, and that he never could distinguish the colored lights or notice the change, whilst the lad could do so readily.

DR. STANDISH: I think these examinations ought to be made earlier. A few years ago a man was allowed to get on an engine and run three to six years with the expectation of being engineer, and was then turned down because he was color-blind; and I think

a large part of the opposition comes from the men who are afraid of being turned off because they may be found color-blind. It seems to me that if an examination was made of every man who went on the road, from section-hand up, there would be very much less opposition to the law. In the English marine a man may go to sea at twenty without any examination; yet when he comes up for mate's certificate at thirty-five, be thrown down because he is color-blind.

DR. JEFFRIES: There is no examination under our government for mates or masters. The master or mate of a vessel may be half-blind, or color-blind. The only examination is of pilots. Every possible effort has been made to prevent such examinations being properly carried out, as with the railroads. The marine-hospital surgeons are directed to make them by Holmgren's test. But they succeed in detecting the color-blind pilots, hence in the interest of the latter, the rule last published says that if the pilot is one hundred miles from a United States marine-hospital surgeon, he can apply to "any respectable physician," and his certificate suffices. But a Druid Medical College graduate is legally a respectable physician.

MR. FRENCH: I had not expected to be called upon. I came to listen, at the invitation of Dr. Williams. I have had considerable experience in this matter, and possibly, as being a practical railroad man, it may be of some interest to you. I have been all my life on the railroad. Color-blindness and deficiencies of sight were not brought forcibly to our attention until about 1881, when a law was passed requiring an examination for colors and sight. The law was passed, and we prepared to comply with the law. Dr. Jeffries, I think, thought the examination should be made wholly by medical experts. Some of the roads, like the Pennsylvania, thought it was impracticable and unnecessary to have them all made by a medical expert, and that a layman in the employ of the railroad might be selected and qualified to make them and ascertain those who were deficient, and where there was any doubt or where they did not come up to a certain standard to be prescribed by a competent oculist the case should be referred to the expert. I am now with the New Haven Road; but then we were the Old Colony Road, and I was Superintendent of its Central Division. Our President, Mr. C. F. Choate, and General Manager, the late Mr. J. R. Kendrick, desired me to make the examination of the whole Old Colony Road. I therefore received instructions from a competent oculist (the late Dr. H. W. Williams), and was declared qualified to make the examinations and ascertain those deficient in the employ of our road; and I made them in an honest manner. The law was strictly complied with, and there was no favoritism whatever. I went through the whole list, and had a good many hard cases to deal with.

This was the first examination on the road, and there were many hardships. It was a hardship to the individual who failed to pass; but it would have been a greater hardship to the railroad to have had to continue an employee who proved deficient, and the result was beneficial to the railroad and also to the public. I examined some over three thousand cases, and found about four in a hundred deficient in some way. The instructions of my superior officers were to report to Dr. Williams all cases that did not come up to the specified standard; and we gave every employee who

failed to pass, the opportunity of an examination by Dr. Williams if he wished. I gave this opportunity to every one but two. Two conductors could not see the large C on the card; and Dr. Williams said they would be dangerous as conductors, as a conductor wants a field of vision to see whether any one is getting on or off the length of his train, and that it was useless to send them. In some cases, where I was in doubt and did not understand the case, Dr. Williams made examination and passed them; in other cases his examination failed to pass them. We went through our list in as perfect a manner as possible, and if our old employees were found lacking and unfit for their positions we found other positions for which they were still competent, if possible, and nearly all were provided for in that way.

We took for examination the enginemen, firemen, conductors, stationmen, switchmen, yard-masters and yard-crews, drawtenders, towermen, section-foremen, crossing-men — every one who had to do with colors or signals. With our enginemen, firemen and trainmen, we did not require normal vision in both eyes for the old employees, but in hiring new men we required them to come up to the fullest standard. We did not hire men for these positions who fell short, because we wished to start right and be sure that we would obtain from them a reasonable term of service before deterioration set in; and in the case of firemen, these men fire five or six years, and, if competent, became enginemen, and they should start as enginemen as nearly as possible with normal vision. With the men in our employ at the time of examination, we allowed some latitude, as prescribed by Dr. Williams; and those who did not come up to the full standard we have re-examined from time to time. Lists were made of those approaching the danger-line, and many of them have since been rejected and put in other positions. Some of the enginemen went into the shop to work, etc.

We have kept up our examination since then. The re-examination has not been so fully performed as Dr. Jeffries, Dr. Williams or myself would be glad to see. No relatives are passed on account of their being relatives. When the road increased in size it was divisioned off, and some of the other superintendents were examined and passed as qualified to make these examinations. Applicants who did not come up to the standard were at once rejected. We made a difference in the certificates issued; and, in some cases, and for certain positions, glasses were allowed. In only one instance were glasses allowed an engineman, and this by the oculist's advice. Glasses may make a station-agent perfectly competent for his position. Crossing-men may be located in positions where the view is limited and where hearing is more to be depended upon than sight, and therefore glasses might be allowable. In some other positions glasses have been allowed; but in each case we made a qualified certificate, specifying the particular position or location the man was passed for.

DR. JEFFRIES: I want to say most explicitly that the gentlemen on the other side of the water who have given the best attention practically and scientifically to this subject say these tests should be carried out only by competent experts, and the best men are ophthalmic surgeons. I cannot take as being a competent test what Mr. French did, or as any proof that that road is safe from the color-blind or those having

defect of vision. The test as applied by Dr. Thomson is not a true Holmgren test for color-blindness; and therefore I do not receive its testimony here. The examiners may have been perfectly fair and honest and may have done what they thought all right, as they were told they were competent. The thing should not have been done that way. That there were only four per cent. of the color-blind and those having defects of vision among his men, proves to me very conclusively that the tests were not rigid enough or were not carried out correctly. Even as carried out on the Pennsylvania Railroad, four per cent. of color-blind were found, and ten per cent. with too defective vision for their positions.

DR. WILLIAMS: I want to make just one remark in closing. I think we are all indebted to Dr. Jeffries for the pioneer work which he has done in this direction, and work of such character that it has stood the test of time. My reason for presenting the paper at this time is that we must continue to call attention to the need of better methods of examination and more uniform standards. From my own experience I know that there is more honest effort on the part of railroad officials to improve their service than ever before, and I believe much can be accomplished by having such tests made. I think the only way to do it is to keep urging the matter, and to show the necessity of having careful examinations and sufficiently high standards.

AMERICAN GYNECOLOGICAL SOCIETY.

TWENTY-SECOND ANNUAL MEETING, WASHINGTON,
MAY 4, 5, 6, 1897.

(Concluded from No. 22, p. 549.)

THIRD DAY. — THURSDAY.

DR. THOMAS ADDIS EMMET, of New York, read a paper entitled,

WHEN TO AMPUTATE IN PREFERENCE TO THE USUAL OPERATION FOR LACERATIONS OF THE CERVIX UTERI.

Stress was laid upon the fact that the operation as described in this paper is not intended to take the place of trachelorrhaphy, but is to be employed in those cases in which, by reason of the impaired condition of the tissues, depth and extent of the laceration, or excessive scar tissue in the angle thereof, it is impossible to repair the cervix by the usual method. The operation described consisted of making an excavation in the cervix with curved scissors, removing all unhealthy tissue, and uniting the remaining flaps to the lining of the uterine canal with silver sutures. Strict antiseptic precautions should be observed, and care taken to secure patency of the uterine canal.

DR. H. T. HANKS, of New York, was glad to hear the indications for amputation so clearly defined, because some operators have of late been advocating the operation in place of the bilateral operation.

DR. PAUL F. MUNDÉ, of New York, agreed with the author that it is often impossible to get good results without removing some of the cervical tissue. In cases of elongated cervixes, he amputates the cervix with a knife and, if the uterus is hypertrophied and prolapsed, narrows the vagina and performs Alexander's operation.

DR. J. RIDDLE GOFFE, of New York, took exception to the term "amputation of the cervix," because it might give rise to the impression that the operation is done with the *ecraseur*. He thought that in nearly all cases a good result would follow the Emmet operation for repair of the cervix, and was of the opinion that removal of the cervix destroys the equilibrium of the uterus.

DR. A. PALMER DUDLEY, of New York, was in favor of amputation of the cervix, because in many cases no other operation is applicable.

DR. BACHE McE. EMMET, of New York, considered the operation a good one in such cases as could not be treated by trachelorrhaphy.

DR. E. C. DUDLEY, of Chicago, said he had employed a modification of the Schroeder operation in many cases where the scar tissue in the angle of the wound was inaccessible.

DR. THOMAS ADDIS EMMET, in closing, said the Schroeder operation is identical with the one advocated in the paper, which the speaker has performed since 1866. It was devised by Dr. Sims, but was not successfully performed by him on account of oozing of blood through the flaps and the formation of abscess.

DR. A. LAPHORN SMITH, of Montreal, read a paper entitled,

RESULT OF TWO HUNDRED OPERATIONS FOR THE CURE OF RETRO-DISPLACEMENTS OF THE UTERUS.

Dr. Smith said that ventral fixation, which is considered unjustifiable by many surgeons on account of the dangers attending it, notably obstruction of the bowel, is indicated in those cases where retro-displacement of the uterus is complicated by adhesions. Alexander's operation should be employed in all cases where there are no adhesions, but a simple falling back of the uterus and appendages. The operation is contraindicated when the uterus, after having been brought up to the symphysis pubis, immediately springs back to its former position. The author described a method by which the operation can be performed in a minute or a minute and a half, and said there is no difficulty in finding the round ligaments if this method be employed. The operation is without primary mortality and has none of the disadvantages of ventral fixation.

DR. M. R. MANN, of Buffalo, read a paper entitled,

INTRA-ABDOMINAL SHORTENING OF THE ROUND LIGAMENTS FOR POSTERIOR DISPLACEMENTS OF THE UTERUS.

He gave a report of 58 cases treated by a new method, consisting of shortening the round ligaments by doubling them on themselves in three equal lengths, and stitching them together after making a median abdominal incision.

DR. EDWARD REYNOLDS, of Boston, read a paper entitled,

A PRELIMINARY REPORT ON A NEW METHOD OF VAGINAL FIXATION.

After describing the forces which determine the normal position of the uterus and showing, by means of drawings, how a faulty attachment anteriorly or posteriorly would throw the uterus backward or forward, the author described an operation designed to correct a too low anterior attachment. An anterior vaginal incision, similar to that made in hysterectomy,

is made, and the bladder separated up to the level of the internal os; the uterus is then put in position, and the point at which the bladder separates from the anterior wall is determined by a sound introduced into the bladder; a silver-wire suture in a silk carrier is introduced in the vaginal wall at a point in front of the separation from the bladder, passing obliquely through the tissues and emerging on the cut surface below the junction of the vaginal wall with the bladder, and then drawn through the cervix at the level of the internal os and brought out through the anterior vaginal wall at a similar point on the opposite side. A second suture is placed as near the first as is convenient, care being taken that the uterus is still well forward. The sutures are then twisted and turned down. As the stitches will be exposed to considerable traction, coarse wire should be used. The cut edges of the mucous membrane are then stitched together with fine catgut in such a way as not to increase the tension on the deep sutures.

DR. J. RIDDLE GOFFE, of New York, read a paper entitled,

SHORTENING THE ROUND LIGAMENTS THROUGH THE ANTERIOR VAGINAL FORNIX FOR POSTERIOR DISPLACEMENTS OF THE UTERUS.

The author has employed the method in eight cases with good results, and gave the following description of the technique of the operation: After the uterus is drawn well down to the vaginal outlet, a cross-section is made at the utero-vaginal junction and the vaginal tissues dissected off the bladder down to the peritoneal reflection; the central point of this incision is then caught up and the anterior vaginal wall drawn taut; a longitudinal incision is made down to the neck of the bladder, and the tissues from the urethra to the cross-section are separated by blunt dissection for half an inch on both sides; the peritoneum is then opened, and the finger passed in and hooked over the fundus of the uterus, and the latter brought into the vagina. Any adhesions which may exist are now broken up, and the appendages inspected and removed if necessary. The round ligament of first one side and then the other is picked up with the fingers, the sheath opened with an aneurism needle, the ligament drawn up two or two and a half inches, doubled upon itself, and stitched with two or three fine sutures; the uterus is then replaced, a little gauze is introduced between it and the bladder, and the longitudinal incision closed with a running catgut suture.

DR. PAUL F. MUNDÉ, of New York, was much gratified to see how generally Alexander's operation has been accepted, because he was the first to perform it in this country. The operation is indicated, and results in a permanent cure, in all cases where the retro-displaced uterus is movable and the appendages not diseased.

DR. BEVERLY McMONAGLE, of San Francisco, referred to the frequent occurrence of suppuration following Alexander's operation, and is in favor of opening the abdomen in these cases and suspending the uterus after Kelley's method. He is opposed to ventral fixation on the ground that it interferes with pregnancy, and said that patients upon whom vaginal fixation has been performed often complain of numbness and pain in the vagina.

DR. A. PALMER DUDLEY, of New York, said he had recently lost a patient from obstruction of the

bowel following ventral fixation and would never perform the operation again. He also referred to the pain caused by the uterus rising in the pelvis when pregnancy occurred after the operation. He is in favor of Alexander's operation in cases where a diagnosis of perfect appendages can be made.

DR. CHARLES P. NOBLE, of Philadelphia, cited the case of a woman who had died in labor as a result of ventral fixation, and is opposed to the operation in child-bearing women because it so often interferes with pregnancy. Suspension of the uterus is without this disadvantage, and is to be preferred. He has employed Alexander's operation in suitable cases and with fairly good results. If the wound is closed by the Bassini method, there is but little danger of hernia.

DR. H. J. GARRIGUES, of New York, said he had performed Alexander's operation, combined with removal of the appendages, in several cases with good results, but does not think the operation is of any value if the uterus is hypertrophied and prolapsed. Amputation of the cervix is indicated in such cases to induce involution of the organ and reduce its weight.

DR. E. E. MONTGOMERY, of Philadelphia, read a paper entitled,

PELVIC BLOOD COLLECTIONS, AND THEIR TREATMENT BY VAGINAL INCISION.

Intra-peritoneal and extra-peritoneal hemorrhage, although due to many causes, most frequently occurred as a result of rupture of an ectopic pregnancy, and often is so rapid as to cause speedy death. Hematocele from other causes often remains encysted for a long time without giving trouble, or may become absorbed. In cases where hemorrhage is recent and is believed to have ceased, no attempt at evacuation should be made when the case is first seen, for fear of dislodging a clot and causing a recurrence of the bleeding. In all other cases the blood-collection should be evacuated by vaginal incision, the cavity irrigated with normal salt solution and packed with sterile gauze.

DR. HARRIS mentioned two cases of hematocele which had come under his observation. In the first instance hemorrhage had resulted from torsion of the pedicle of an ovarian cyst. The second case was a woman who had recently been confined. The labor was normal, but soon after an abscess appeared in the vagina which discharged spontaneously. A tumor remained, which the speaker incised, evacuating a large quantity of pure blood.

DR. BACHE McE. EMMET, of New York, agreed with the author that vaginal incision and evacuation is the proper treatment in cases of pelvic blood-collections, and advised exploration of the pelvic cavity to determine, if possible, the source of the hemorrhage.

DR. E. W. CUSHING, of Boston, then read a paper entitled,

SOCIOLOGICAL ASPECTS OF GONORRHEA.

The author dwelt upon the importance of the remote effects of gonorrhea on the human race, and said it was the duty of the physician to endeavor to check the spread of the disease by instructing his patients in regard to its frightful consequences. Legal recognition of the social evil has had but little effect in those countries where it is practised, and the author did not think the remedy lay in this direction.

DR. H. J. GARRIGUES, of New York, spoke of the importance of protecting the future wife and children

by teaching men to avoid the disease. If they will not be chaste, they should at least take precautions against contracting the disease. The speaker was in favor of regulation of the social evil by law, and in this way restricting it.

PROFESSOR HUTCHINSON, of Buffalo, said he had made a study of the subject, and his views were the same as those of the author. He laid stress on the sterility which follows gonorrhea in men as well as in women. He agreed with the author that legal enactment would have no effect in controlling the spread of the disease.

DR. ASHTON, of Philadelphia, pointed out the fact that the disease is generally spread by secret prostitutes, and it is impossible to reach these by legislation. He was also of the opinion that legal recognition of the social evil is demoralizing to a community and lowers its tone. The physician should tell men the terrible results of the disease, and appeal to their self-interest in order to make them avoid it.

DR. A. PALMER DUDLEY, of New York, said that the remote effects of gonorrhea cannot be over-estimated, and that a diagnosis of the disease can always be made from the pathognomonic signs given in this paper. The disease should be treated by heroic measures. He also referred to the value of microscopical examination of discharges and pus, and said he had recently removed a quantity of pus from the pelvis of a young woman which was found to contain gonococci. The husband confessed to having had several attacks of gonorrhea.

The PRESIDENT then introduced the newly-elected president, DR. PAUL F. MUNDÉ, of New York.

Recent Literature.

Anomalies and Curiosities of Medicine. Being an encyclopedic collection of rare and extraordinary cases, and of the most striking instances of abnormality in all branches of medicine and surgery, derived from an exhaustive research of medical literature from its origin to the present day, abstracted, classified, annotated and indexed. By GEORGE M. GOULD, A.M., M.D., and WALTER L. PYLE, A.M., M.D. Imperial octavo, 968 pages, with 295 illustrations in the text, and 12 half-tone and colored plates. Philadelphia: W. B. Saunders, 1897. Sold only by subscription.

In view of the natural interest taken by men of science in the rare and curious manifestations of nature's handiwork, an interest of which the general eagerness on the part of physicians both to publish and read descriptions of rare and unique cases is an indication, the authors of this book have been led to notice and endeavor to supply the need of a general work, devoted to the collection and presentation in compact form for reference of the more interesting anomalies and curiosities of human development. The volume which they have produced is perhaps the first attempt which has been made to classify and epitomize the curious and interesting literature of anomalies, monstrosities and the like.

The result of their work is a handsome, well-illustrated work of nearly a thousand pages, in which the seeker after the quaint and unusual in medicine

will find his curiosity gratified, and any man who has had a "unique" case will probably find another which equals or surpasses his own.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By JAMES NEVINS HYDE, M.D., and FRANK H. MONTGOMERY, M.D. Illustrated with 110 engravings and 12 plates in colors and monochrome. Fourth and revised edition. Philadelphia and New York: Lea Bros. & Co. 1897.

The fact that the fourth edition of this well-known work follows its predecessor in the short time of four years testifies to the success that it has met with at the hands of the medical public. The present edition has been carefully enlarged and many new chapters added. Numerous diseases that have only of late been made the subject of accurate study by dermatologists are here introduced for the first time. Three new plates and five new engravings have been added. It may be fairly considered the best modern treatise on dermatology that has been completed by an American writer.

Essentials of Gynecology. By DR. OSCAR SCHLEFFER. Vol. V, Wood's Medical Hand Atlases. New York: Wm. Wood & Co. 1897.

In this book the author sets before himself the somewhat unique object of presenting to the profession a collection of plates which shall be sufficiently accurate to convey a correct idea of the appearance of the common pathological lesions to those who have never seen the lesion itself. These are added to and explained by a large number of colored and uncolored schematic drawings. The plates throughout are exceptionally fine, reflecting the greatest credit on the industry and accuracy of the author, and the enterprise of the publishers. For the sake of these plates, the book ought to be in every medical library, and will be of considerable value to students. The book differs from most atlases in being of a handy and convenient size.

It is surprising, in so long a series of pictures, to see the subject of salpingitis disposed of in one schematic drawing and a few reproductions of microscopical sections; but when one finds that the author treats the subject of adherent retroversion with scarcely a mention of any possible implication of the tubes therein, and advocates its treatment by the forcible breaking up of these adhesions, one understands better his reasons for this omission, which must nevertheless diminish the value of the book from what it might have been.

The book is divided into two parts: the first consisting of the plates with explanatory text; the second, of a short treatise or text-book. The latter is excellent in so far as the chapters and sections upon malformations and injuries go, the special value of these chapters lying in the extremely extensive enumeration of possible abnormalities, and in the excellent little figures with which they are illustrated. The remainder of the book is little more than an outlined enumeration of certain important points in gynecology. These are hardly complete enough to be of real value to the expert, and are so brief and concentrated that they would be unintelligible to a beginner. The value of the book lies, as has been said, in its plates, and these are most excellent.

Lectures on Renal and Urinary Diseases. By ROBERT SAUNDBY, M.D. (Edin.), etc. With numerous illustrations. Second Edition. Philadelphia: W. B. Saunders. 1897.

Dr. Saundby is professor of medicine in Mason College, Birmingham, England. The first edition of these lectures was published in 1889. A fourth section, on Miscellaneous Affections of the Kidney, has been added to the present volume; the first section treats of Bright's Disease, the second of the Urine and its Clinical Examination, the third of Diabetes.

The book is a small octavo of 420 pages, with a fairly good index of subjects and names.

The Surgery of the Chest. By STEPHEN PAGET, M.A. (Oxon). F.R.C.S., Surgeon to the West London Hospital and to the Metropolitan Hospital. Illustrated. New York: E. B. Treat. Bristol, England: John Wright & Co. Montreal: J. Hood Company. 1897.

Dr. Stephen Paget has written a book in which he has tried to put together the surgery of the chest following injury and in disease. It is divided into two parts: Part I, Injuries of the Chest; Part II, Diseases of the Chest. There are two appendices, one being M. Reclus's Address at the French Surgical Congress, the other being on Bulau's Treatment of Empyema by Continuous Syphon-Drainage.

The author has taken up the subjects in an interesting way and illustrates each subject by recording cases. His work is attractively written, but lacks a judicial spirit. It is a book that the surgeon will turn to for unique cases, but not one which will be useful as a guide to a plan of treatment for an individual injury or disease.

The printing is poor, the illustrations are indifferent, and as a piece of book-making it is not satisfactory.

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes. By RICHARD C. CABOT, M.D. With colored plates and engravings. New York: William Wood & Co., 1897.

This work is the first dealing exclusively with the blood to be published in English. It is entirely devoted to the clinical and practical sides of the subject, special attention being given to the application of the results of the examination of the blood to the differential diagnosis of disease. It is to be hoped that the author will later see his way clear to deal with the theoretical side of the subject also.

The work contains the most complete collection of blood examinations in any language, the majority of them being original. No one who has not done practical work in the examinations of blood can have any idea of the amount of labor which they represent.

The bibliography is most complete, and is admirably arranged. Hence the book cannot but be most useful not only to one who wishes to know at once what has been determined as to the blood in any disease but also to one who wishes to investigate the subject more carefully. In short, the work occupies a unique and extremely useful position.

The description of the technique of blood examination is altogether the best of which we know and, if carefully followed, will enable the beginner to avoid most of the pitfalls into which he is likely to stumble. We are glad to see that the author prefers the blood

counts to the hematocrit and that he emphasizes the inaccuracies of the von Fleischl hemoglobinometer, but are somewhat surprised that he mentions no method of staining beside that with Ehrlich's "triple stain."

Primary "simple anemia" is not mentioned in the classification of the anemias. We doubt if this is an improvement. The article on pernicious anemia is especially good and contains much that is original. Greater stress is laid on the importance of megalo-blasts in the diagnosis of this condition, however, than seems justifiable without further verification.

The main feature of the book is the section on leucocytosis. It is very complete and contains a great many original examinations. The definition of leucocytosis is very careful and conservative and an improvement on any that we have seen. The explanation of "inflammatory leucocytosis" is also worthy of special mention. We feel, however, that the author has exaggerated the value of leucocytosis in differential diagnosis except in certain conditions.

In the article on leukemia attention is called to several points which we have not seen mentioned elsewhere, namely, the marked variation in size of myelocytes, the frequent occurrence of cells intermediate between polymorphonuclear leucocytes and myelocytes and the great number of nucleated red cells.

The blood conditions in infancy have hardly received the notice which they merit, but the difficulty of distinguishing and classifying the blood diseases of childhood is emphasized and the existence of anemia infantum—pseudo-leukemia von Jaksch—is, as we think, justly questioned.

The blood plates are exceptionally fine as regards the red corpuscles and lymphocytes, but are far from satisfactory as regards the various forms of granular leucocytes.

A Treatise on the Surgery of the Alimentary Canal, comprising the Esophagus, the Stomach, the Small and Large Intestines, and the Rectum. By A. ERNEST MAYLARD, M.B., B.S. (Lond.), Surgeon to the Victoria Infirmary, Glasgow; Examiner in Surgery to the Conjoint Board of the Royal College of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow; Late Examiner in Clinical Surgery to the University of Glasgow, etc. Philadelphia: P. Blakiston, Son & Co. 1896.

In this work of 698 pages the author has carefully given the anatomy, pathology, symptoms, diagnosis and treatment of essentially all the diseases of the intestinal canal. He has introduced into the text, wherever it would be of advantage, the history of some case. In this manner he brings the subject home more forcibly to the reader. The work compares very favorably with similar ones. The various operations which are advised for the intestinal tract are well set forth, but we miss an intelligent sifting of the various operations which would add greatly to the value of the book. The reader is left with the impression that any of the operations advised can be attempted, and there is no definite expression of opinion as to their relative value. This may be due to a lack of personal experience on the part of the author; but we trust that in a future edition the author will express his opinion as to the value of various methods of treatment.

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THE FIFTIETH ANNUAL MEETING OF THE
 AMERICAN MEDICAL ASSOCIATION.

THE annual meeting of the American Medical Association at Philadelphia, which marked the fiftieth year of its life as an associated body, was a successful occasion—whether measured by the number of the members who attended, or the enthusiasm of hosts and guests. About nineteen hundred members are said to have been enrolled and about sixteen hundred to have been in actual attendance—the largest number ever gathered at any one meeting. Those in charge of the arrangements deserve much credit for their energy and activity.

Notwithstanding the vast number of titles announced, some very good papers were actually presented, read and intelligently discussed. This was especially true of the Section on General Medicine, one of the most difficult to keep within the bounds of scientific discretion. In his address as President of the Association, Dr. Seun was glowing as to the past and most sanguine as to the future. He foresees the time, before the expiration of another fifty years, when the course of search for advanced scientific medical study and training will be reversed, and will have taken its way westward from the European continent to the United States, and the membership of the Association will reach one-hundred thousand. He proffered his fellow members some wholesome advice on the subject of medical politics.

Dr. W. W. Keen delivered a scholarly and critical address on Surgery, nor did he refrain from the rôle of the prophet. He anticipated the singing of a glorious surgical *Te Deum* in 1947, when in a surgical paradise the knife will be laid aside, and by means of suitable toxins or antitoxins, drugs or other methods of treatment, inflammation will be controlled, suppuration arrested, the ravages of tuberculosis or of syphilis stayed, tumors and cancers aborted or dispersed, and human life be so prolonged that all of

the then audience will die either of accident or of old age. He paid a timely tribute to the value of animal experimentation, and in this was vigorously supported by Dr. H. C. Wood. Dr. Keen is of the belief that, "Bacteriology would not now exist as a science, nor would accurate modern surgery and a large part of modern medicine be possible, had experiments upon animals been prohibited, as some zoöphilus women who love dogs better than men and women, and even little children, desire."

The Association adopted a resolution presented by Dr. Wood, protesting against the passage by Congress of the bill now pending to regulate the practice of vivisection in the District of Columbia.

The Association was welcomed by the Mayor of the city of Philadelphia and by the Governor of the State of Pennsylvania, and was honored for a brief period on the second day by the presence of the President of the United States.

For the week preceding and following this meeting the zealous committee of arrangements arranged for clinical courses open to all physicians visiting the city, that all might have an opportunity of seeing the active clinical work of all the great teachers of Philadelphia, and be impressed with its importance as a medical centre.

Numerous luncheons and receptions were tendered by residents of Philadelphia, and the different sections all had their stated dinners on Tuesday evening.

The next place of meeting will be Denver.

CANCER OF THE PANCREAS.

CANCER of the pancreas is by no means as infrequent as the really sparse literature of this disease might lead one to suppose. The busy practitioner is continually meeting with cases of either primary or secondary carcinoma of this organ, and many obscure cases diagnosticated during life as gastro-hepatic disease are found at the autopsy to be primary cancer of the pancreas. Dr. Hale White, after looking through the records of Guy's Hospital for the twelve years 1883-1894, both inclusive, found that 6,000 post-mortem examinations had been made; of this number, there were 19 cases of primary cancer of the pancreas and 11 of secondary malignant deposits in that organ.¹ In a clinical study Segré found in 11,492 cases followed by autopsy, 132 tumors of the pancreas, of which 127 were carcinoma.² In only 12 of these cases the pancreas was alone the seat of cancer. There were in all, 627 cases of abdominal cancer.

In a memoir by Bard and Pic,³ we find that cancer of the pancreas is much more frequent in men than in women, and is for the most part prevalent between the ages of fifty-eight and seventy-four years.

Despite the relatively early monographs on cancer of the pancreas by Aucelet and Da Costa, we are in-

¹ Lancet, December 26, 1896, p. 1806.

² Sajous' Annual, 1889, C. 50.

³ Revue de Méd., April and May, 1888.

debted to Dr. Bright in 1832 for the first careful study of this disease.⁴ He first called attention to the presence of fatty matters in the stools in patients afflicted with destructive disease of the pancreas. Bright noted in many of his cases scirrhus of the head of the pancreas, a thickened, contracted and caucerosus duodenum and obliteration of the common bile duct at its duodenal extremity. There were jaundice and clay-colored stools. Dr. Bright laid more stress on the presence of fatty stools as a criterion than subsequent observers have done.

Gross in the earlier as well as later editions of his "Pathological Anatomy" well describes the post-mortem appearances in cancer of the pancreas. He had observed the disease affecting the entire gland; in other cases only portions of it. The head is most frequently implicated. The disease completely destroys the glandular parenchyma. It very frequently coexists with scirrhus of the stomach, duodenum and liver. The pancreas generally becomes irregularly lobulated and enlarged. When the disease is chiefly confined to the head of the organ, it compresses the choledoch duct, causing jaundice. Encephaloid disease is exceedingly rare.

Da Costa⁵ analyzed forty cases of cancer of the pancreas. He regards as the most trustworthy symptoms: a tumor in the epigastric region; pain there or in the back, not increased by the taking of food, but usually augmented by the erect posture, progressive emaciation and debility; an appetite capricious rather than diminished; constipation, and at times, but far from invariably, fatty stools.

Bard and Pic,⁶ from careful observation of seven well-marked cases of primary cancer of the pancreas, draw the following conclusions: The patients are usually past middle life. Jaundice generally sets in gradually, occasionally suddenly, and once present, it never disappears, but increases in intensity. It is accompanied by severe digestive troubles. The gall bladder is distended, the tumor may sometimes be felt against the vertebral column in the situation of the pancreas. All the signs of biliary retention are present. Cachexia and emaciation are well marked and progress rapidly. Hemorrhages occasionally occur. The onset of the disease is frequently characterized by the sudden development of gastric disturbance with vomiting and diarrhea followed by jaundice. The liver is generally small and hard, rarely slightly enlarged, never "mammillated" as in secondary hepatic cancer. Epigastric or dorsal pain is a fairly constant symptom. The vomited matter is never bilious. The stools are often fatty. The urine is almost always albuminous, and occasionally contains sugar. The temperature is habitually subnormal. The most frequent form is epithelial cancer of the glandular type; secondary cancer-nodules generally occur in the liver, presenting the same characters. The compression of

the bile ducts sets up changes in the liver resembling biliary cirrhosis. Secondary cancer of the pancreas differs radically from primary cancer, the structure varying according to the nature of the original neoplasm.

Mirallié, who published an exhaustive study of the literature of cancer of the pancreas in 1893,⁷ assigns to primary cancer two stages: a first characterized by glycosuria with symptoms of wasting diabetes and stearrhea; and a second in which there is no glycosuria, but icterus and cachexia. The glycosuria is the *diabète maigre* of the French, which however, may attend any destructive disease of the pancreas. The duration of the disease is from four to six months. As to diagnosis, no single sign or symptom is pathognomonic: epigastric pains, icterus, dilatation of the gall bladder, anorexia, cachexia and stearrhea should suggest disease of the pancreas. He found the disease twice as frequent in men as in women, and nearly always located in the head of the gland.

In Lennec's case of primary carcinoma of the pancreas without secondary involvements, the symptoms presented were dyspepsia, anorexia, diarrhea and profound emaciation. A small, hard tumor was felt by deep pressure at the left angle of the colon. Cachexia appeared and gradually increased. Sugar was not found in the urine during life.⁸

Dr. W. Hale White⁹ in a very valuable "Clinical Lecture on Carcinoma of the Pancreas," emphasizes as diagnostic signs the wasting, rigidity of the abdominal muscles, severe deep-seated pain, and tenderness and vomiting. The rigidity of the abdominal muscles always means organic disease underneath them. It is necessary in these cases to give an anesthetic before a satisfactory examination can be made. When the pancreas is the seat of secondary deposits or there are hard growths of other organs adherent to it, the symptoms of the primary disease quite overshadow those due to the affection of the pancreas. The malignant growth is almost always scirrhus. Sometimes the fat in the stools forms a thick scum about the edges of the vessel containing the feces. Of course the treatment of this disease is purely symptomatic. But little can be hoped from hygiene, medicine or surgery. The pancreas is an organ of such importance in the human economy that the suppression of its function entails the most serious consequences to digestion and nutrition. At a recent Congress of German Surgeons, the surgery of the pancreas was discussed by Krönlén. He regarded primary cancer of the pancreas as much less frequent than secondary cancer, due (generally) to propagation of cancer of the pylorus. This carcinomatous affection is, doubtless, a contraindication to resection of the stomach. Must we also renounce extirpation of primary cancer of the pancreas? Experiments on animals have shown that the total ablation of the pancreas may be attempted with success and without any serious consequences to the general

⁴ Braithwaite's Retrospect, Part xxviii, p. 120.

⁵ Medical Diagnosis, second edition, p. 540.

⁶ Revue de Médecine, Paris, April 10, 1888. (Quoted from Sajous' Annual, 1889.)

⁷ Gazette des Hôpitaux, August 19, 1893.

⁸ Gazette Médicale de Nantes, May 12, 1892.

⁹ Lancet, December 26, 1896.

nutrition. Unfortunately, the habitual seat of primary cancer is the head of the pancreas, in a region where the lesion of the organs in the vicinity may be speedily fatal. The diagnosis is impossible at the onset when there might be some chance of success. The symptoms indicated by the authors as characteristic are due in reality to extension of the neoplasm to the neighboring organs. The operation is then impossible. In primary cancer of the head of the pancreas our treatment can be only palliative; we aim as far as possible to remedy the consequences of the occlusion of the common bile duct by the neoplasm. On the other hand, the radical operation is perfectly indicated in carcinomata of the body or tail of the pancreas, and it has already been once performed with success.¹⁰

MEDICAL NOTES.

WEARING OF CORSETS FORBIDDEN. — The female employees of many German factories are forbidden to wear corsets during working hours.

THE DUCHESS OF TECK. — The Duchess of Teck was recently operated upon by Mr. Herbert Allingham for strangulated umbilical hernia, and is now well advanced in convalescence.

DR. SAJOUS TO RETURN TO PHILADELPHIA. — Dr. Charles E. Sajous, editor of the "Annals of the Universal Medical Sciences," has been appointed professor of laryngology and dean of the faculty of the Medico-Chirurgical College of Philadelphia, and will return from Paris to Philadelphia to take up his new duties.

A GRANDMOTHER AT TWENTY-SIX. — Dr. H. O. Hyatt reports, in the *Philadelphia Polyclinic*, the case of a girl who had an illegitimate daughter a month before her thirteenth birthday. This daughter was married at twelve years of age, and had a son when twelve years and eleven months old. She has since had seven children, is in fair health and does not look prematurely aged. She grew four inches after the birth of her first child.

TWO VERMIFORM APPENDICES FOUND. — The following telegraphic report recently appeared in the daily papers:

New York, June 3d. — Coroner's physician Hanlon, in making an autopsy on the body of James Malone, who was found dead in the hallway of his residence yesterday, discovered two vermiform appendices, which is said by the medical profession to be the only case of the kind on record. One was formed in the large intestine and the other in the smaller intestine.

In publishing the accounts of a vermiform appendix connecting with the small intestine, and pronouncing it the only case of the kind on record, it would be well for "the medical profession" to show why their second vermiform appendix was not the rather common developmental anomaly known as Meckel's diverticulum.

¹⁰ *Semaine Médicale*, 1896, p. 178.

THE AMERICAN MEDICAL ASSOCIATION ACCEPTS DENVER'S INVITATION. — Denver has been selected as the next place of meeting, and Dr. George M. Sternberg of Washington has been elected President of the Association. The other officers elected are as follows: Dr. J. M. Matthews, Kentucky, First Vice-President; Dr. W. H. Thompson, Indianapolis, Second Vice-President; Dr. F. H. Wiggins, New York, Third Vice-President; Dr. T. J. Happel, Tennessee, Fourth Vice-President; Dr. Henry P. Newman, Illinois, Treasurer; Dr. William B. Atkinson, Philadelphia, Secretary; Dr. W. A. Jayne, Colorado, Assistant Secretary; Dr. George W. Webster, Illinois, Librarian; Dr. J. W. Graham, Denver, chairman of the Committee on Arrangements.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, June 2, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 96, scarlet fever 54, typhoid fever 4, small-pox 1. For the week ending June 9th, the following cases were reported: diphtheria 76, scarlet fever 66, typhoid fever 1.

A DEATH FROM SMALL-POX IN CAMBRIDGE. — A man who had recently come to Cambridge from East Boston, and who was working on an estate in North Cambridge, died in that city last week of small-pox. He was quarantined in a cottage on the almshouse grounds.

THE BOSTON FLOATING HOSPITAL. — It is expected that the Floating Hospital, for which, as our readers will remember, a barge was purchased and thoroughly refitted last year, will make twice as many trips this year as last. A sick-ward with twelve beds has been fitted up on one of the decks.

SOLDIERS' FIELD FREE FROM MALARIA. — The investigation by the Massachusetts State Board of Health, instigated by the rumors that Soldiers' Field in Cambridge was malarial, has resulted in finding that the reports were without foundation. No illness occurred among some forty-five men who were employed in trenching the field and preparing it for athletic purposes.

DEATHS OF CENTENARIANS. — Mrs. Charity Green, who is believed to have been one hundred and five years old, an inmate of the home for Aged Colored Women, Myrtle Street, Boston, recently died from old age. She was probably the oldest woman in Boston, and was without kith or kindred, and dependent entirely upon friends. She was born a slave, was sold away from her husband, and had lived in Boston since 1854. She had been an inmate of the home for twenty-five years.

Joseph Gabaree died recently at West Georgia, Vt., at the age of one hundred and one years. He was probably the oldest man in the State. He was born

in St. Johns, P. Q., July 8, 1796, and removed to Georgia in 1823. He leaves ten children, the eldest of which is past seventy.

A DECISION OF IMPORTANCE TO PHYSICIANS.—A case of interest to physicians generally was decided by Judge Dunbar, at Boston, last week. The circumstances of the case, as reported, were that previous to May 1, 1896, Dr. Oscar F. George had a lucrative practice in Lynn. On that date he sold it to Dr. Edward B. Herrick, who came from Amherst, Mass., signing an agreement not to practice in the city as long as Dr. Herrick remained there. He then went to Newburyport and later to Vermont, and about March 1, 1897, came to Swampscott, where he located and resumed practice, and, as he admitted upon the witness-stand, again began practice among his old patients in Lynn. Dr. Herrick brought a bill in equity in the Superior Court against Dr. George, to have him restrained from practising in Lynn. As a result Judge Dunbar enjoined the defendant from practising in Lynn in violation of his promise. The decision is important from the fact that, while the defendant admitted that morally he was bound to keep his agreement, legally he was not so bound. The judge, however, decided that he was both legally and morally bound to keep his agreement, and enjoined the defendant from further trespassing upon the ground to which he had signed away all claim.

DEATH OF DR. HENRY E. TURNER.—Dr. Henry E. Turner, one of the oldest practising physicians in Rhode Island, who had recently observed his sixtieth anniversary as a doctor, died in Newport June 4th, after a brief illness. He was born in Greenwich, R. I., eighty-one years ago, and early went to Newport, where he at once identified himself with local affairs. He was for many years city physician of Newport.

AN IMPORTANT DECISION IN FAVOR OF THE MAINE EYE AND EAR INFIRMARY.—The late Ira P. Farrington, of Portland, Me., left two-thirds of his residuary estate to the Maine Eye and Ear Infirmary, to be devoted to charitable purposes. Mr. Farrington's heirs-at-law brought a bill in equity to restrain the executors from paying the legacy to the infirmary, on the ground chiefly that by law the infirmary could not hold property in excess of \$100,000. They asked that the property so devised be distributed among the heirs. The defence contended that no one but the State could raise the point, and that the heirs had no standing in court in this matter. The court has just rendered a decision sustaining the contention of the defence. The amount involved is about \$200,000. The opinion was drawn by Chief Justice Peters.

NEW YORK.

COMMENCEMENT OF THE NEW YORK CITY TRAINING-SCHOOL FOR NURSES.—Mayor Strong presided at the twenty-second annual commencement of the New York City Training-School for Nurses at the

City (formerly Charity) Hospital on Blackwell's Island. There were thirty graduates who had pursued the regular two years' course at the City Hospital, and eleven others who had taken the six months' post-graduate course in the Maternity, Gouverneur, Harlem or Fordham Hospitals. The principal address to the class was made by Charities Commissioner John P. Faure.

OPENING OF THE FREE CITY BATHS.—The fifteen free city baths at various points along the East and Hudson Rivers were opened to the public on June 7th. At the last meeting of the Academy of Medicine a special committee was appointed to urge the Mayor to begin at once the erection of the public baths to be open throughout the year, for which the Legislature in 1895 appropriated the sum of \$200,000.

SMALL-POX STILL PRESENT.—The Board of Health has not as yet succeeded in its efforts to stamp out small-pox, and during the week ending June 5th four deaths were reported from the disease, against one in the preceding week. It is probable that a considerable number of cases will result from a young woman who on June 3d sat for two hours among the patients at the Vanderbilt Clinic, waiting her turn for treatment. When she finally came to be examined by the physician in charge it was found that she was suffering from small-pox. It is said that there were at least two hundred people in the rooms while she was waiting.

INFLUENZA AND GENERAL MORTALITY.—Last week there were no deaths from influenza, for the first time since the latter part of the winter, and the mortality from pneumonia and pulmonary tuberculosis, 73 and 83 respectively, was also the lowest of the season thus far. In the week ending May 29th there were reported 2 deaths from influenza, 79 from pneumonia, and 83 from consumption. The total number of deaths in the city was 703, representing an annual death-rate of 18.47 per thousand of the estimated population.

Miscellany.

THE HEALTH OF THE BRITISH TROOPS IN INDIA.

Our British contemporaries have recently devoted a good deal of space to a discussion of the alarming prevalence of venereal diseases among the troops in India, and the marked increase which has taken place since the abolition of the Contagious Diseases Acts in 1888. These acts, which were an endeavor to regulate prostitution, were objected to as immoral from the fact that they recognized and licensed prostitutes, from the fact that they did injury to women by isolating them when diseased, and from their alleged failure as remedial measures. Nevertheless, the fact remains that since their repeal venereal diseases have enormously increased. Surgeon-Major J. B. Hamilton,¹ who has seen thirty-seven years' service in India, estimates that

¹ British Medical Journal, February 27, 1897.

on an average about 5,000 men are incapacitated by this disease.

At a recent meeting of the Royal College of Physicians, a committee which had been appointed to consider the advisability of approaching the government on the subject of the increase of venereal disease in India, reported that the extent of syphilis in the British army in India and its rapidly increasing prevalence are most serious. A visit to the Royal Victoria Hospital at Netley showed that on the day of the visit there were 752 patients in that institution, of whom 219 were cases of syphilis, many of them pitiable examples of virulent forms of this disease. The last troop-ship brought 312 invalids, of whom 76 were cases of syphilis. About 13,000 soldiers return to England from India every year, and about 60 per cent. of them have had venereal disease. The following extracts from the report show its general tenor:

The far-reaching effects of syphilis are so serious that it is of the first importance that the earliest indications of the disease should be medically treated without any loss of time; neglect of this measure tends to increase its virulence in all its stages.

As regards the unfortunate women who pursue their calling in a diseased condition, it is simply a matter of humanity to them that they should have the benefit of medical treatment, with rest and care in hospital, until they are cured.

In view of this lamentable prevalence of disease, your Committee makes the following recommendations and suggestions:

That as the civil, military, and medical officers in India are best acquainted with the local conditions now existing, and affecting this prevalence of venereal disease, so they are the best judges of the most efficient means of dealing with it. Your Committee, therefore, suggests that power be given to the Government of India to take such steps for the mitigation of this evil as these officers may advise.

That, for the protection of the healthy population, venereal diseases in both sexes—in the soldiers as well as the women—be subjected to the same restrictions as are other contagious diseases; such restrictions having for their object the detection and prevention of such diseases.

With regard to the unfortunate women, such measures necessarily include examination as well as treatment; and it may be desirable in India that the examination should be performed by persons of their own sex, who have been sufficiently trained and educated for the efficient discharge of this duty.

In making these recommendations your Committee considers that they should apply not only to the women, but also to the men with whom they consort; and is of opinion that it would be highly advantageous if medical officers in the army found some means, by elementary reading-room lectures or otherwise, of acquainting young and inexperienced soldiers with the grave and far-reaching consequences that are likely to result from immoral conduct, as well as from the concealment of the primary symptoms of the disease, the early treatment of which is of the utmost importance.

As a result of the attention called to the subject by the Royal College of Physicians and Surgeons, Lord George Hamilton, the Secretary of State for the Colonies has, in a dispatch to the Government of India, recognizing the extent of the evil, its appalling increase in late years, and the way in which the health of the civil population and of subsequent generations in England is imperilled thereby, urged that the canonment rules laid down in the Act of 1889 should not merely be applicable to "cholera, small-pox, diphtheria, or typhoid fever," but to all contagious and infectious diseases, including venereal disease. He mainly

adopts and follows the recommendations of the memorandum of the Army Sanitary Commission on the subject, and calls upon the Government of India to consider the whole question and to forward a copy of the draft rules proposed to be issued in order to give effect to the decision of Her Majesty's Government. The need which exists for the government proceeding warily if they are to avoid giving "occasion for the enemy to blaspheme" in a matter about which so much ignorance, prejudice, and false sentiment prevail, is emphasized in a recent editorial in the *Lancet*, which states that the government has safeguarded the moral aspect of the question.

The measures proposed, however, are so moderate and reasonable that the correspondent of the *London Times* at Simla voices the general opinion in India, that they will probably prove inadequate, and lays especial stress upon the clause in the despatch which directs that "no measure must be adopted capable of being represented as encouraging vice." It is rightly argued that no measures of repression of any kind could be devised which might not be misrepresented to be of a nature to encourage vice by the extreme opponents of all legislation or regulation. It is urged that the present concessions cannot prove that the final settlement of the question, and that the evils of the situation cannot be dealt with effectively until the Government of India is reinvested with full discretionary powers and allowed to adopt such measures, in concert with their medical and sanitary advisers, as commend themselves to practical men.

This question has very recently been the subject of a two days' debate in the House of Lords, in the course of which Lord Lister made his maiden speech.

A BACTERIOLOGICAL OBSERVATORY.

Science reports that the University of St. Petersburg has received a gift of 100,000 roubles from M. Ssimin for a bacteriological observatory.

This apparently unintended substitution of the word *observatory* for *laboratory* by our contemporary may be one of those chance mistakes in phraseology which accidentally emphasize important relations and resemblances between the meanings of the word which was meant and the one substituted.

Why could not a building devoted to the study of bacteriology be termed an observatory, with as much appropriateness as one devoted to astronomy? In both we have to do with the observation of natural objects by means of optical instruments of great power. One class of these is as far removed from the appreciation of our senses by the almost infinitesimal size of its components, as the other is by the almost infinite distances which intervene between the student and the subjects of his study.

The arts of photography and spectroscopy and the science of higher mathematics are called to aid the student of the one science, as chemistry, photography and pathology must aid in the study of the other. Yet accurate observation, controlled and checked by all the aids which can be brought to bear upon the subject, is as essentially the basis of bacteriological as it is of astronomical work. The student of one observes bacteria through a microscope, while the devotee of the other observes the stars through a

telescope. Why should the building where one line of study is pursued not be termed an observatory as well as that devoted to the other.

Obituary.

DR. BENJAMIN E. COTTING.

RESOLUTIONS OF THE VISITING STAFF OF THE BOSTON CITY HOSPITAL.

At a meeting of the Visiting Staff of the Boston City Hospital, held June 2, 1897, the following was presented:

In the death of Dr. Benjamin Eddy Cotting, The Boston City Hospital has lost the senior member of its Consulting Board, a place which he has held since 1868, a period of almost thirty years.

Always devoted to the interests of the profession he loved, he gave to this hospital his excellent judgment, which was cherished by his colleagues, not alone on account of his exceptional medical attainments, but also because it was broadened by wide travel and a deep interest in science, in advance of most of his contemporaries.

In him the hospital and the profession have lost one of the best examples of a broad, wise counsellor, typical of the best of his generation and rare in this.

Voted: That the above be entered upon the records, and that a copy be sent to the family of Dr. Cotting, and to the *Boston Medical and Surgical Journal* for publication.

Correspondence.

DRY FORMALDEHYDE GAS IN THE TREATMENT OF NASAL DIPHThERIA.

BOSTON, June 4, 1897.

MR. EDITOR:—I desire to call attention to the use of an agent in the treatment of diphtheria, especially in locations not easily accessible to the ordinary topical applications for the disinfection or sterilization of local foci of the disease, or for prevention of its extension to other points. I allude to the employment of dry formaldehyde gas. I have not seen any account of its use in our vicinity, and have no other experience than that in one or two cases in which I have recently employed it. This is quite insufficient as a basis for more than a suggestion, and as such only I offer it.

The patient was a child of three and one-half years, very short and fat, who was observed to be ill on May 9th last, while in the country. She was brought to town the next day, before the disease had fully declared itself, and I saw her within an hour after her arrival. There was then extensive typical exudation over both tonsils, which were greatly swollen, completely occluding the upper part of the pharynx. A culture was immediately taken, although it was late at night, and by good fortune had so far progressed in the incubator by the next day that the diagnosis was made. Soon after this an injection of five cubic centimetres of antitoxin, from the supply furnished by the Boston Board of Health, was made in the left lumbar region. The younger brother of the patient, aged two years, was also given a protective inoculation of two and one-half cubic centimetres, as he had been exposed to the same chances of contagion as his sister (in which, so far as can be determined, the vehicle of infection was a pet rabbit of the neighborhood, with which many children had played a few days previously). He neither then nor subsequently presented any symptoms of diphtheria, or of any untoward effect from the antitoxin.

The patient had, on the whole, a fairly mild run of the disease, was treated in her own house, which was admirably adapted for isolation, and the spots disappeared from the throat in a few days; but the disease invaded the nose, and there persisted, being out of reach of any topical treatment. Repeated cultures always resulted in the presence of the Klebs-Löffler bacillus. After about sixteen days, an apparatus for the production of formaldehyde gas was obtained, and set up in a small room adjoining the sickroom, and the patient was exposed to daily inhalations of the gas in such strength that it caused abundant lachrymation, though it had no irritating effect upon the respiratory apparatus. From this time the patient improved rapidly, and after a few days bacilli entirely disappeared from the cultures and have not since been detected. I cannot but think that the inhalations were instrumental in this effect and that it was not simply a coincidence.

I report my result in the hope that the same means may be of service to others in the treatment of diphtheria. It seems to me quite the ideal treatment in infection of the nasal cavities, which are entirely inaccessible to management by most of the ordinary methods of treatment. A solution of formaldehyde had also been used as a gargle, and by evaporation over flame, but had no appreciable effect upon the disease. The change effected by the gas, however, was immediate and evident. I trust that others may be inclined to employ this agent, and report further experience.

Yours truly, ALBERT N. BLODGETT, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 29, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrhical diseases.	Diphtheria and croup.	Scarlet fever.	
New York . .	1,868,000	703	248	13.10	13.58	1.12	5.88	2.38	
Chicago . .	1,619,226	390	119	13.00	14.30	5.20	5.76	.52	
Philadelphia . .	1,214,256	428	114	17.25	9.66	1.38	7.36	2.99	
Brooklyn . .	1,160,000	320	102	11.16	12.40	.31	7.13	.62	
St. Louis . .	570,000	159	37	6.30	13.86	1.89	1.89	—	
Baltimore . .	550,000	169	48	14.75	8.75	7.08	3.54	1.77	
Boston . .	517,732	206	66	16.17	12.25	—	8.06	2.45	
Cincinnati . .	405,000	99	—	6.06	9.49	—	4.02	—	
Cleveland . .	350,000	74	—	5.10	8.10	—	4.05	—	
Pittsburg . .	285,000	64	21	17.16	6.24	3.12	3.12	—	
Washington . .	277,000	91	26	6.54	13.08	—	5.45	—	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Worcester . .	105,050	23	10	4.35	21.75	4.35	—	—	
Nashville . .	87,754	26	5	11.55	7.70	3.85	3.85	—	
Charleston . .	65,165	34	16	23.52	2.94	17.84	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Fall River . .	35,919	27	17	22.22	14.80	18.50	—	—	
Lowell . .	37,133	20	5	—	20.00	—	—	—	
Cambridge . .	86,812	20	8	15.00	10.00	—	10.00	5.00	
Lynn . .	65,220	16	3	12.50	—	—	6.25	—	
New Bedford . .	62,416	24	17	29.12	16.66	—	8.32	12.48	
Lawrence . .	55,510	22	11	—	20.75	—	—	—	
Springfield . .	54,790	11	4	18.18	—	—	18.18	—	
Holyoke . .	42,364	—	—	—	—	—	—	—	
Salem . .	36,062	9	1	11.11	22.22	—	—	11.11	
Brockton . .	35,853	10	—	—	—	—	—	—	
Malden . .	32,894	6	2	—	33.33	—	—	—	
Chelsea . .	32,716	—	—	—	—	—	—	—	
Haverhill . .	31,405	9	3	—	22.22	—	—	—	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton . .	28,990	7	3	28.56	14.28	—	14.28	—	
Fitchburg . .	28,392	5	0	—	—	—	—	—	
Taunton . .	27,812	6	1	—	—	—	—	—	
Quincy . .	22,562	7	3	14.28	28.56	—	—	—	
Pittsfield . .	21,891	—	—	—	—	—	—	—	
Waltham . .	21,812	4	0	—	—	—	—	—	
Everett . .	21,575	5	3	20.00	20.00	—	20.00	—	
Northampton . .	17,448	—	—	—	—	—	—	—	
Newburyport . .	14,794	4	0	25.00	—	—	25.00	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,086; under five years of age 913; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping-cough, erysipelas, diarrhical diseases and fever) 399, acute lung diseases 340, consumption 340, diphtheria and croup 170, diarrhical diseases 65, scarlet fever 47, typhoid fever 33,

measles 25, cerebro-spinal meningitis 23, whooping-cough 19, erysipelas 10.

From typhoid fever Philadelphia 16, Chicago 5, New York and Brooklyn 4 each, Boston and Cincinnati 3 each. From measles New York and Pittsburgh 7 each, Brooklyn 5, Chicago, Baltimore, Boston, Nashville, Fall River and New Bedford 1 each. From cerebro-spinal meningitis New York 8, Boston 6, Somerville 4, Baltimore, New Bedford, Malden, Newton and Quincy 1 each. From whooping-cough New York 5, Philadelphia 4, St. Louis 3, Brooklyn, Baltimore, Boston, Cincinnati, Washington, Charleston and Somerville 1 each. From erysipelas Philadelphia 4, Boston 2, New York, St. Louis, Cleveland and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,922,524, for the week ending May 22d, the death-rate was 17.2. Deaths reported 3,617; acute diseases of the respiratory organs (London) 220, whooping-cough 102, measles 97, diarrhea 43, diphtheria 42, scarlet fever 38, fever 34, small-pox (London) 1.

The death-rates ranged from 12.9 in Croydon to 23.3 in Liverpool; Birmingham 17.7, Bolton 16.3, Bradford 13.1, Cardiff 15.9, Gateshead 18.6, Huddersfield 17.5, Leeds 18.3, London 15.4, Manchester 22.0, Newcastle-on-Tyne 16.8, Nottingham 19.0, Portsmouth 20.3, Sheffield 20.9, West Ham 13.7, Wolverhampton 16.7.

METEOROLOGICAL RECORD

For the week ending May 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S. 23	30.02	60	70	51	63	68	66	S.W.	S.	7	22	C.	C.
M. 24	29.96	64	68	59	74	83	80	S.	S.	18	11	O.	F.
T. 25	29.94	62	71	54	59	81	70	S.W.	S.W.	12	6	O.	O.
W. 26	30.05	54	60	49	89	81	85	N.W.	N.	16	8	F.	O.
T. 27	29.84	52	54	48	66	92	79	N.	N.	13	8	O.	R.
F. 28	29.72	58	66	49	75	71	73	N.W.	E.	13	3	R.	C.
S. 29	29.67	62	70	54	86	58	72	S.	W.	13	10	C.	C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 28, 1897, TO JUNE 4, 1897.

Leave of absence for one month, to take effect on or about June 15, 1897, is granted MAJOR JOSEPH K. CONSON, surgeon, U. S. Army, Fort D. A. Russell, Wyo.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 7, 1897.

T. N. PENROSE, medical director, retired from June 6th.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING MAY 29, 1897.

MURRAY, R. D., surgeon. Granted leave of absence for four days from June 1, 1897.

PETTS, W. J., passed assistant surgeon. Granted leave of absence for twenty-three days from May 18, 1897.

STEWART, W. J. S., passed assistant surgeon. Granted leave of absence for three days from May 26, 1897.

BOARD CONVENED.

Board convened to meet in Washington, D. C., for physical examination of assistant surgeon EMIL PROCHAZKA, C. E. BANKS, surgeon, Chairman; G. T. VAUGHAN, E. K. SPRAGUE, passed assistant surgeons, Recorders.

RECENT DEATH.

DR. GEORGE THOMAS, professor of laryngology and physical diagnosis at the College of Physicians and Surgeons, Baltimore, died in that city recently. He was thirty-eight years old and a native of Maryland. He graduated from the Maryland Agricultural College and College of Physicians. Four years ago he was elected secretary of the faculty of the latter college. He was a member of the Maryland Clinical Society, and American Laryngological Society.

BOOKS AND PAMPHLETS RECEIVED.

Twenty-seventh Annual Report of the Superintendent of the St. Louis Insane Asylum. St. Louis, 1897.

Facts and Fancies in our Work. By Joseph Eastman, M.D., LL.D., Indianapolis, Ind. Reprint. 1897.

The Seventy-third Annual Report of the Officers of the Retreat for the Insane at Hartford, Conn. April, 1897.

The Biological Basis of Menstruation. By J. C. Webster, M.D. (Edin.), F.R.C.P.E., F.R.S.E. Reprint. 1897.

On So-called Idiopathic Dilatation of the Large Intestine. By C. F. Martin, B.A., M.D., Montreal. Reprint. 1897.

Primary Cancer of the Naso-pharynx Cured by Injections of Alcohol. By Edwin J. Kuh, M.D., Chicago, Ill. Reprint. 1897.

A Peculiar Form of Family "Tic Convulsif," with Nocturnal Exacerbations and Epileptic Attacks. By F. G. Finley, M.D., Montreal. Reprint. 1897.

On the Treatment of Fractured Shafts of Bone in Children; Simple, Complicated and Compound. By Thomas H. Manley, M.D., New York. Reprint. 1896.

Röntgen-Ray Skiagraphs. Surgical and Mechanical Relief of So-called Hopeless Paralytic Cripples. By DeForest Willard, M.D., Philadelphia. Reprints. 1896.

The Professional and Technical Schools, Especially those of Medicine, in their Relation to the College Course. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1897.

The Annexation of Hawaii. An Address delivered before the National Geographic Society, at Washington, D. C., March 26, 1897. By Hon. John W. Foster, Ex-Secretary of State.

Report of a Case of Ectopic Gestation Associated with Tuberculosis of the Tubes, Placenta and Fetus. Fibro-Lipoma of the Kidney. By Alfred Scott Warthin, Ph.D., M.D., Ann Arbor, Mich. Reprints. 1896-97.

The Technique of Blood Study and Experiments in the Physiological Chemistry of Leucocytes. A Study in Cell Tissues and their Significance in Tuberculosis. By A. Mansfield Holmes, A.M., M.D., Denver, Col. Reprint. 1897.

A System of Medicine by Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College. Vol. II. New York: The MacMillan Company. 1897.

Another Hitherto Undescribed Disease of the Ovaries. Anomalous Menstrual Bodies. Diagnosis and Some of the Clinical Aspects of Gyroma and Endothelioma of the Ovary. Carcinoma on the Floor of the Pelvis. By Mary A. Dixon Jones, M.D., Brooklyn, N. Y. Reprints. 1890-92-93.

A System of Practical Therapeutics. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, Physician to the Jefferson Medical College Hospital. Vol. IV, with illustrations. Philadelphia and New York. 1897.

La condition nécessaire de la vie et de l'évolution considérée comme condition de la maladie et du dépérissement sémé de l'organisme. Introduction aux études cliniques. Par le Dr. C. Pawlinow, Professeur de clinique thérapeutique à la faculté de médecine de l'université de Moscou. Moscou, Alexandre Lang. 1897.

A Handbook of Medical Climatology. Embodying its Principles and Therapeutic Application, with Scientific Data of the Chief Health-Resorts of the World. By S. Edwin Solly, M.D., M.R.C.S., late President of the American Climatological Association. Illustrated in black and colors. Philadelphia: Lea Brothers & Co. 1897.

Lippincott's Medical Dictionary. A Complete Vocabulary of the Terms Used in Medicine and the Allied Sciences, with their Pronunciation, Etymology and Signification, including Much Collaboration of a Descriptive and Encyclopedic Character. Prepared on the basis of Thomas's Complete Medical Dictionary. By Ryland W. Greene, A.B.; with the Editorial Collaboration of John Ashurst, Jr., M.D., LL.D., Barton Professor of Surgery and Professor of Clinical Surgery in the University of Pennsylvania; George A. Piersol, M.D., Professor of Anatomy in the University of Pennsylvania; Joseph P. Remington, Ph.M., F.C.S., Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy. Philadelphia: J. B. Lippincott Co. 1897.

Address.

AN EPOCH IN MEDICINE IN AN AGE OF DELUSION.¹

BY ZABDIEL BOYLSTON ADAMS, M.D., FRAMINGHAM, MASS.

(Concluded from No. 23, p. 561.)

It is humiliating! It is exasperating, to see how, in these times in which we live, fashion has become almost omnipotent in the realm of science and of ideas, and that it assumes to itself the same control over philosophic thought which it may properly claim to hold over the cut of our clothing, the decoration of our houses, or the manners of good society. In face of the impertinent interference of this tyrant in matters with which it has no concern, we seem to find but one comfort: We are living in an age of delusion which must pass away and give place to wiser counsels. I believe it to be a delusion which has crept into our universities in some measure, and also into the community at large, that the college is not a place exclusively designed to form the habit of scholarship, that young men enter it not alone nor principally to strive for high ideals, not to find the riches of literature, nor to encourage a love of knowledge for itself—in short, not more to train the intellect, than to train the muscles, to become proficient in various sports, or to excel in contests of strength or skill in gymnastics. I believe it to be a delusion to maintain that experimental biology (upon the lower animals) is cruel, and has never given to mankind any valuable knowledge; or that the phenomena of disease and health are controlled by psychical, or mental, influences entirely. I believe these things to be delusions, as it is a delusion to suppose that the unlimited coinage of a debased currency will bring about the prosperity of a nation.

The truth of the matter is this: The age of machinery and of cheap production has made it easy for all to supply the wants of food, clothing and shelter. We are paying the penalty of those who live in times of general prosperity and ease. The discovery of ether has robbed surgery of nearly all its horrors; while Christian charity and benevolence have increased the number and capacity of our free hospitals and provided for the poor, until no one needs to fear poverty or suffering. The creature forgets his creator. Industry, thrift and economy, have almost disappeared in the land. Irreligion, luxury and extravagance prevail in all classes of society. We are oppressed by the tyranny of "the common-schooled millions who have been taught to read but not to discriminate." There is a contempt for authority, almost no respect being paid to age, tradition or office. The faculty of independent judgment is weakened, "the acquiescent temper being cheaper than thinking," and popular success is made the criterion of merit. The virile power of the imagination is lost when we hear men sneer at chivalry and patriotism.

There may be something of the Anglo-Saxon love of fair play—the desire to side with the under dog—in all this. Nature's plan of evolution by the survival of the fittest is unjust and cruel to the weak. We must feel for whatever is low or depraved in humanity. Criminals should be looked upon and treated as the moral scrofulæ, the unfortunate, deformed children of men; and our sympathy should be given to them, and

not wasted on their uninteresting victims. The wise must not control the foolish any more than the rich the poor. In politics mediocrity comes to the top, bringing with it the dregs of communism. In art vulgarity is glorified, and is given the halo of veracity in contempt of all that is sincere and noble. Men and women live a hot-house life, and propagate and encourage the abnormal growths, the moral and intellectual "sports" of our nature.⁷

Indeed, we may say that society seems to be dancing *La Carmagnole*, while common-sense and good taste are "sneezing into the basket." Why should we have a cult of such dubious things as "the music of the future," the repulsive freaks of Japanese sculpture, dialectic poetry coarse and profane, or the drama and novels of "realism" which paint

"Coarse lusts of habitude,
Prurient yet passionless, cold studied lewdness
Depraving nature's frailty to an art!"

Fashion demands that we have new altars and new science. The worship of God as ordinarily understood being unfashionable, the very instinct of reverence apparently gone out of us, we have Theosophy or Rationalism; and in medicine we have "Christian Science" presented to us in a dish of the very froth of Bishop Berkeley's metaphysics, stirred into "clotted nonsense," and garnished with mottoes of Scripture and flowers of poetry. This has its churches and its gospel. It is a religion which with much justice claims to itself the soul of homeopathy; it is a science of medicine which, as some one has said, "deals with people's insides from the point of view of men who have no stomachs."⁸

Are there any who will say this picture is overdrawn, or that nearly the same state of things has existed before? Pardon me! This is not merely a case of the follies of an age confounding its wisdom. The vagaries of human thought have little to do with it. We may discard all that pertains to the supernatural as well as all the ferments of popular discontent, but the discoveries of modern science are simply incredible. The advance of surgery under asepsis excites the wonder of the world. Nothing now seems impossible. "The thing that could not have occurred." We feel as if invention had ceased to respect the mechanical paradox. The Ferris wheel and the ubiquitous bicycle are examples of this. Look at the seeming miracles of electricity! It has "put a girdle round about the earth in forty minutes"; it has, as it were, annihilated time and space. Listen at the telephone and phonograph! Examine the kinetoscope and skia-graph! See the bright light that burns without oxygen! See yonder loaded car drawn along our streets by no other apparent agency than a little wheel rolling upon a wire! The *fin-de-siècle* is to soar with the birds and to harness the lightning of the clouds! Are we not indeed encompassed by illusion more than ever before in the world's history?

Doubtless there have been physicians who have felt disheartened at the humiliation of our noble profession in this age of delusion. They may well have cried to God:

⁷ "The marriage vows are looked upon as grotesque, and it is considered ridiculous that little children should stretch out their arms to embrace a father and a mother."—The Great Physician, by François Coppée.

⁸ "It is instructive to reflect that the Paris which made Mesmer its idol was not far distant from the Paris of the reign of terror." A Book about Doctors.

¹ The annual discourse delivered at the Annual Meeting of the Massachusetts Medical Society, June 9, 1897.

"We look to thee; thy truth is still the light
Which guides the nations groping on their way,
Stumbling and falling in disastrous night,
Yet hoping ever for the perfect day."

There is yet another definition of our science, namely, that it is the theory of diseases and of their treatment. But among all the theories how to know the true one is the question. The only solid basis for a theory must be found in the facts of physiology and pathology. But beyond the pale of pathology there exists a *something* which cannot be accounted for, and must be reckoned with. No! what medicine has sorely needed has not been dialectics nor definitions, not theories nor systems, not even a greater mass of accumulated observations, classified, analyzed, made the basis of a true inductive science. Two things have been eternally wanting: first, the discovery of an efficient cause; second, the saving of human life and the cure of diseases through that discovery.

The evolution of the soul of a science is a slow process. Ages of time and many minds are necessary. The science of medicine has been a body without a soul.

When Newton saw the apple fall, and recognized and developed by an admirable deduction the great principle of gravitation, he gave to astronomy the soul that was wanting to a body of incongruous knowledge largely tainted with astrological superstition.

"Nature and nature's law, lay hid in night;
God said, 'Let Newton be,' and all was light."

When Lavoisier weighed the oxygen of the air he made the balance the ruling instrument of his science, and proved that all chemical action is only substitution. Thus was alchemy exploded and a soul given to chemistry, which then for the first time threw off the thralldom of magic, and took its appointed place as a noble and divine science.

In like manner when Louis Pasteur, perceiving that the essential element of fermentation was a living organism, disproved the doctrine of autogenesis, and by a bold deduction declared that all infectious diseases were caused by germs, he did for medicine what Newton did for astronomy and Lavoisier for chemistry. He emancipated it from empiricism, and gave to a body of unexplained and inexplicable phenomena which constituted the art of healing, the soul that was wanting to make a science of medicine. He had discovered an efficient cause.

The plan of my discourse leaves me no room to speak the eulogy of Louis Pasteur. The subject is a grand one. I confine myself to my topic, which is "An Epoch in Medicine in an Age of Delusion."

Let us briefly review the history.

Since the earliest dawn of civilization, and among savage and barbarous peoples, there has always existed the belief in some malign influence, some evil spirit or devil, which entered into the body, or dwelt in the body, and was the cause of sickness. All the theories and systems of medicine have recognized the existence of this "infection," sometimes supposed to be material, sometimes wholly or partly spiritual. The Egyptians, Greeks, or Romans, did nothing to advance our knowledge on this subject. The idea of minute animal or vegetable organisms as the cause of disease is not new;⁹ but, since the revival of learning in Europe, the nearest approach to the true explanation

was found in the doctrine of ferments. Until 1839, fermentation, however, was believed to be a *chemical* process.

The first halting step in this grand discovery was made when, in the early part of the last century, Lady Mary Wortley Montague brought the practice of inoculation from the East and Richard Mead inoculated the royal princesses of England with the small-pox; and, as far as this country is concerned, when Zabdiel Boylston and Cotton Mather introduced the practice in this State of Massachusetts. From two points of view this is now seen to be important. It was the first attempt, ignorantly and empirically made it is true, to create an immunity to disease by the artificial introduction of disease germs, or their products, into the human body. And secondly, when Jenner, in 1796, brought forward vaccination, the practice of inoculation with the small-pox virus was in vogue in England and readily accepted. Thus Jenner, veracious man that he was, was enabled to apply the *experimentum crucis* of small-pox inoculation to all those (or to many of those) upon whom he had tried his new process; and others followed his example. Doubtless "but for this fact, and this means of testing its efficacy, the practice of vaccination to prevent small-pox would not have found such ready and thorough acceptance by the world." This should never be forgotten. It is apt to be ignored by physicians, as well as others, who, trusting to the inadequate knowledge and experience of the present age in regard to small-pox, do not hesitate to question the value to the world of the practice of vaccination. The crucial test can no longer be applied, at least in civilized countries, but it is impossible to impeach the testimony of Edward Jenner in England, or of Benjamin Waterhouse in Massachusetts.

The next step, the discovery of Jenner, seems to have been only a happy inspiration which had a base no more solid than an observation of milk-maids.¹⁰ Here, again, we find a value not at first perceived. The facts disclosed by the practice of vaccination doubtless suggested the question of the true nature of susceptibility and immunity. The examination of this question led to another bold deduction by Pasteur, and brought about the discovery of the antitoxins.

In 1836, Dr. Oliver Wendell Holmes in a memoir on "The Contagiousness of Puerperal Fever," pointed out that infection could be carried on the hands or on the person of the physician from one patient to another.¹¹

In 1839, Schwann first clearly demonstrated the essential relation of the yeast plant to the process of fermentation, and Schönlein in the same year discovered the parasitic origin of favus.

Still these discoveries produced no valuable results to science, and it remained for Pasteur, in 1860, to conceive the idea that the acute infectious diseases were caused by the growth of microscopic parasites; a bold deduction which experimental biology has since proved to be correct. There now remained only the important question of the practical application of this discovery in saving human life and in curing human diseases.

The next step, and by no means the least important

⁹ *Vide* Medical Notes and Reflexions, by Sir Henry Holland, chap. xxxi, third London edition.

¹⁰ There is evidence to show that vaccination, or something like it, was practised before the time of Jenner, but the modern civilized world owes its introduction as a reliable method of preventing the spread of small-pox to Jenner alone.

¹¹ This was disputed by some of the highest authorities in this country.

one, was the introduction of antiseptic surgery in England by Lister.

Looking back as far as we may in the history of surgery we find that there was a *something* which nobody could explain, that caused surgical fever, and made the fatality of wounds and of surgical operations. That wise old surgeon, Ambroise Paré, declared that it was "miasms in the air which made wounds infect." Percival Pott, who had Wm. Cheselden for a pupil, is said to have employed a pretty fair antiseptic dressing; and others have used a variety of methods to prevent the access of air to wounds. But John Hunter declared that "we do not know, and probably never shall know, the cause of the fatality after wounds and operations." Simpson, of Edinburgh, in 1846, wrote, "It is only by employing the numerical or statistical method of examination that a perfect degree of accuracy of judgment can be possibly attained in such matters." So eminent a surgeon as the late Dr. Henry J. Bigelow told me, in 1866, that he had failed in every case of ovariectomy he had tried, and should never attempt those operations again; "but you, as others have done, will succeed," said he. The wonderful insight of that remarkable man was perhaps never better displayed than in this remark. It meant that there was "a something" which we did not know which made these operations fatal, and that "something" was to be found in the person of the operator.

Lister was not the first to suggest the notion of miasms in the air; nor of something in the hands or person of the surgeon, or in the instruments, or dressings which were used; Lister did not invent the antiseptics which he employed; least of all did he discover the fact that surgical fever, sepsis, or necrotic processes in the tissues, are caused by microbes. Yet, "as the originator of a system of wound treatment, his name will go down to posterity as having rendered incalculable service to humanity." His method has been essentially modified in nearly every particular, but "the great principle upon which it is founded will endure so long as a system of surgery exists."

It is to the investigations of Pasteur, Koch, and other bacteriologists, that we owe all that was new in Lister's method. These men proved by cultures, by vivisections and inoculations practised upon the lower animals, that sepsis, or surgical fever, the bugbear of John Hunter and of all surgeons up to that time, is caused by the growth of a microbe, a streptococcus, or staphylococcus, found upon the skin and mucous membranes of surgeon and patient, and also in air and water, which infects the wound during operation, or finds its way into the wound through the dressings; that these microbes exhale an odor resembling sour paste, that they do not require the presence of oxygen for their growth, that they are killed by a temperature above 150° of Fahrenheit, and also by contact with various substances now known as "antiseptics."

On the occasion of the "Fiftieth Anniversary of the First Public Demonstration of Surgical Anesthesia," Dr. McBurney said, "Bacteriology has penetrated with its brilliant light a darkness which our predecessors believed would last forever." And again he speaks of the wonderful discovery of aseptic treatment of wounds, "through whose agency countless thousands of human lives have been preserved."

And on the same occasion, Dr. Cheever said, "Hand-in-hand, equal benefactors, anesthesia and asepsis march calm and triumphant."

Yes! the saving of thousands upon thousands of lives, and "The future of surgery without limit," these are the gifts of asepsis to our science. We can say as Warren said of ether, "This is no humbug."

There now remained only the question of applying these discoveries to the cure of diseases.

Following out the suggestion of Jenner's discovery, many attempts have been made, chiefly upon cattle and sheep, to create an immunity to disease by inoculations, "but it is especially to the experimental researches of Pasteur that we are indebted for the development of practical methods." Pasteur made the discovery that susceptible animals, inoculated, or, as he said, *vaccinated*, with attenuated cultures of microbes, become immune to those microbes; that by a graduated series of inoculations a susceptible animal becomes fitted to receive without injury a pure culture of a virulent microbe, the effect being cumulative. The practical application of all this was made later in anthrax and hydrophobia, and it was shown that an animal can be made immune to the infection of these diseases, even when the poison has been carried into the body before beginning the protective inoculations; many experimenters working upon these discoveries. The next step was to find that this power resided in the blood-serum of animals which had been made artificially immune, and that this serum, filtered, sterilized, and thus rendered perfectly harmless, was not only protective, like vaccine, but in some cases also curative. Out of these facts came the invention of serum-therapy, with which you are all more or less familiar. These facts, of the highest importance to mankind, were demonstrated by vivisection and other experiments upon the brute creation, and they could be proved in no other way.

Thus it was that the discovery of the efficient cause was brought to the point of curing human diseases.

In spite of the convincing character of the evidence afforded by the facts of antiseptic surgery, there will be those who, persisting in the delusions of medical pharmacy, will question the value of Pasteur's discoveries, as was the case with inoculation in 1720, with vaccination in 1796, and with ether in 1846. The antitoxin treatment is only in its infancy, but of its ultimate victory over the minds of men there is no room to doubt. It is certainly unphilosophical, unreasonable, irrational, to contend that facts of this nature, which have been proved upon the lower animals, do not apply to man.

The invasion of the microbe into the body of pathology has raised many interesting questions. That of the true nature of racial, or family, or individual, susceptibility and immunity to certain diseases, remains, and probably ever will remain, unsolved.¹² We may expect to find that the antitoxins will not succeed in every case, for this is true of vaccination, and is suggested in the history of epidemics; but the cases of insuccess will be individual and exceptional. That the remedy will be found to apply to the great bulk of mankind may be safely asserted.

To repeat Dr. Warren's words again, "Gentlemen, this is no humbug."

Sternberg enumerates several hundred microbes which have been already obtained by bacteriologists and grown in cultures. Not all of these are found in man; but among them are the germs of nearly all the

¹² The personal equation can never be entirely eliminated from the problems of the physician.

most frequent and fatal maladies to which human beings are subject. Tuberculosis (consumption), cholera, the plague, typhus, typhoid and yellow fever, erysipelas, diphtheria, croupous pneumonia, meningitis, endocarditis, influenza, infantile diarrhea, besides the rare, but fatal diseases, anthrax, tetanus and hydrophobia, are among those found to be due to germs. The treatment by antitoxins has not been successfully applied in most of these, and the fact must be emphasized that much, we may almost say *everything*, is yet to be learned concerning the practical application of Pasteur's and Koch's discoveries.¹³

It is unbecoming in one who like myself is not a bacteriologist, nor even a microscopist, to enter upon the discussion of this intricate subject. The trend of biological opinion seems to be towards a vital, rather than a chemical or structural, explanation of immunity to disease. The vital properties of the proteids, of nuclein, globulin, etc., are beyond our chemistry, their molecular structure beyond the powers of the microscope, and it may be that too exclusive reliance has been placed upon the sense of sight in questions of germ pathology.¹⁴ We can set no bounds to the enlargement of our mental horizon by the revelations of physical science. Human ingenuity will doubtless find ways to enlarge the powers of our other senses. That which has been called "the sixth sense," and which has been nearly civilized out of existence in man, may, in ways not yet revealed, be made to assist in the examination of phenomena which are, like instinct itself, vital and functional rather than chemical or structural, and "other beneficent discoveries in the future may lead up to unimagined possibilities."¹⁵

There are perhaps enthusiasts who will exclaim that all this will revolutionize medical practice. I do not share in this feeling. It has been discovered that the specific action of quinine in malaria is due to the power of this drug to destroy the corpuscles of Laveran in the blood of the patient. It needs no seer to tell us that, as there are many surgical antiseptics, so there must be many remedies whose acknowledged therapeutic value will be found to lie in their power to destroy or expel pathogenic microbes, or to so immunize our bodies as to render these parasites inert and harmless in the fluids and tissues.

Dr. Roswell Park, of Buffalo, has indicated certain

¹³ One needs only to study the chapters on Pathogenic Bacteria in Sternberg's superb Text-Book of Bacteriology, to become aware of the fact that, indeed, we have no more than entered upon the investigation of this intricate subject, and must perhaps await the coming of another Pasteur to bring to fruition the wonderful discovery of the antitoxin treatment.

¹⁴ "The polymorphism of microbes finds analogy among the fungi, in which the 'pro-embryo' of Hofmeister often appears under many forms, 'always unlike the parent,' and the various orders of cryptogamia are seen to present remarkable differences in this respect."—Gray's Botanical Text Book, fourth edition, p. 341.

¹⁵ There are many interesting and suggestive analogies, or seeming analogies, between horticulture and medicine. The bacteriologist Toussaint—who was probably the first to show the practicability of conferring immunity upon animals by protective inoculations—discovered the fact that the bacillus of anthrax does not form spores in the body of an infected animal, but multiplies only by binary division of the mycelium. Thus when this microbe grows in a susceptible animal—as it were in a favorable soil where it flourishes most abundantly—it spreads by fission (increasing as fungi frequently do by multiplication of their vegetative cells, or as plants often do by offshoots or divisions of their roots and branches), and not by producing spores, which are the culmination of its vegetation, just as flowers (or embryos of the flowers) are the final product of the life of flowering plants. Now it is a fact familiar to the florist that many plants if grown in rich soil and thriving vigorously, run to wood, or leaf, or root, but do not flower. Again it is interesting to note that certain fungi which cause vegetable blight have a heteroecious development (for example, pear-leaf blight, the spores of which are the product of an apparently different fungus found upon the juniper), and that we have here an analogy to the supposed origin of vaccinia in "the grease" of the horse,—in which Jenner believed. These analogies may perhaps throw light on the origin of epidemic diseases, and explain the periods of interval or disappearance.

conditions of the system which tend to impair or destroy immunity or the power to resist microbic infection, and, therefore, may increase the liability to disease from this cause. These are toxemia and anemia, the presence of foreign bodies, paralysis of nerve influence, obstruction to circulation, to secretion or to excretion, hemorrhages, freezing, degeneration, etc.

It is also thought that resistance is diminished in parts where retrograde metamorphosis is going on, and that this explains the frequency of appendicitis, and of germ infection in the lymphoid tissues about the pharynx. Whatever tends to impair the natural vitality (such as neglect of hygiene and sanitation, crowding, privations and excesses, various poisons, exhaustion, the depressing passions, etc., and certain climatic, telluric or electric influences) encourages the growth of those microbes which are found within the human body, and which under favorable conditions may take on the character of virulence. The clinical symptoms of disease, then, are the signs of the struggle of nature to rid itself by the ordinary physiological processes of a parasitic pest, either by destroying it or neutralizing it. Thus we find ourselves again on the old Hippocratic ground. The first physician will be he "who knows how to wait for and to second the efforts of nature," as Herman Boerhaave declared nearly two centuries ago.

The prolonging of life is a boon only on the condition of relief from suffering; the field of symptomatic treatment is always open to the physician, and the grateful work is his of smoothing the pathway which all must tread to ineluctable death.

The department of the public health affords a natural field for the bacteriologist. But I do not propose to dwell upon this branch of the subject.

The value of serum inoculation as an aid to diagnosis has been shown by the employment of tuberculin in cattle. It seems to be now admitted on all hands that the rise of temperature which follows its use in diseased cows, is an established fact, and is a certain indication of the presence of tubercle in these animals. Other ways suggest themselves in which the autotoxin serum can be made useful in diagnosis and prognosis in man, and some have already been tried.

The work of Dr. Ferrán in Spain and of Haffkine in India, with anti-cholera vaccine, marks the first great step since Jenner's time in the direction of stamping out other epidemic diseases, as has been done with the small-pox.

Experiments in the Children's Hospital in this city by Dr. F. Gordon Morrill in the use of diphtheria antitoxin as a prophylactic, or an immunizing agent, have had encouraging success. But perhaps little can be accomplished in this way except in times of virulent epidemics. The inoculations seem to give a temporary increase of the power of resistance, but do not confer a vital immunity; and this is in accordance with the observation of other experimenters.

There may be diseases which are not due to microbes. Whether these are many or few, they cannot be included among those most dreaded and fatal. A development of virulent bacteria is almost invariably accompanied by a rise of temperature and other clinical signs of fever and inflammation; whenever there is contagion or infection, we must infer the existence of a germ.

But there is a class of disorders to which Sydenham

applied the name of "hysterical diseases." They furnish perhaps the major part of the daily practice of physicians. As the name implies they belong principally to women, but as man is born of woman he inherits her diseases.

It may be doubted if these disorders depend upon the growth of the parasites. They are peculiar to man, and have not been produced or studied in the lower animals. Hard-handed and primitive-living peoples are little liable to them. They are apparently weeds, or by-products, of the garden of civilization and refinement, anomalies, "sports" forced under steam culture, as it were; or they may be the *inheritance of the unnatural selection of the unfittest*, and such patients are prone to become victims of every form of medical delusion.

Generations may pass before the fruit will be fully ripe upon the tree which Pasteur has planted, but I believe the time will come when no instructed physician will talk of "healing the sick" by any other methods than those which shall grow out of these discoveries; and that he who continues to believe in so-called specifics, or who holds that the art of medical pharmacy is superior to all knowledge of the causes of disease, to the revelations of bacteriology, or the facts of germ-pathogeny—and ignores these things, must stand "marking time" in the ignoble army of charlatans and quacks.

Experimental biology and the bacteriological laboratory have become an integral part of our medical schools; for here is no theory and no delusion. The analogy between the phenomena of disease in the lower animals and those in man, will be found to be complete. The student is working not with *words*, but with *facts* of experiment and observation.

Let me recall to your minds the part which Massachusetts physicians have taken in these discoveries. Zabdiel Boylston, of Brookline, inoculated his only son and suffered social ostracism, in the cause of small-pox immunity. Benjamin Waterhouse, of Cambridge, introduced vaccination into this country, and proved its efficacy by small-pox inoculation in this vicinity. Oliver Wendell Holmes first pointed out the fact of personal infection. Here anesthesia was first practised, without which antiseptic surgery would be well-nigh impossible. Reference has already been made to various dialectic contributions by Fellows of this Society, pointing to these discoveries. These things are part of our history. To-day we find a hearty acclaim accorded by the profession here to the serum treatment, so that we may say with pride that, even in this age of delusion, this Society of Massachusetts physicians stands at the fore-front of scientific progress.

Gentlemen, we can but imagine the feelings of such men as Herman Boerhaave, Edward Jenner, Charles Louis, James Jackson, and others long dead, could they have seen their science brought through the slough of despond, and led to the gates of truth and light.

Without reservation we may now exclaim in the words of Bowditch, "The profession of medicine is man's noblest work, and the physician is God's vice-regent upon earth."

NOTE.—The course of the argument in this paper has called for a rehearsal—which must needs appear "stale, flat, and unprofitable"—of trite facts in the history of medicine, which otherwise should not be presented before the Massachusetts Medical Society without apology.

Original Articles.

RELATION OF NEURASTHENIC SYMPTOMS TO THE GENERAL NUTRITION.¹

BY ROBERT T. EDES, M.D.

THE opportunity offered by having under observation for periods often covering several months, a considerable number of patients with symptoms chiefly of the depressive type and for the most part not connected with known organic disease, has induced me to compare their progress with certain theories, or, perhaps I should rather say, feelings or assumptions, not always definitely stated but as it were "in the air"; to the general effect that these symptoms are largely or wholly dependent on insufficient or unsuitable nutrition, as displayed either by a certain amount of emaciation or anemia, or upon autogenetic toxic influences.

These impressions have in their support the highly important fact that no plan of treatment which affords a prospect of anything like enduring success can afford to leave them wholly out of sight.

So far as body weight, which of course depends on the harmonious working of more than one function, is concerned, by far the greater number of my cases seem to fully confirm the popular view. In the great majority a steady gain in body weight went hand-in-hand with improvement in nervous symptoms; sleep was better, general depression and nervous restlessness and local pain were less, and the brain increased its capacity for normal action without exhaustion. Little need be said about these. The results are what we expect and fortunately usually find.

Some special groups, however, may be selected which are partly confirmatory and partly incompatible with these ideas, which go to show that although the two processes of improved general nutrition and returning nervous strength do go so nearly hand in hand, they are not one and the same, and it is not always easy to say which leads. The first group consists of a certain number of cases, fortunately not large in proportion, which confirm the rule upon the other side, and go to show that a persistent refusal to take on flesh, notwithstanding rest and careful feeding with its adjuncts, is of decidedly unfavorable prognosis as regards speedy recovery, even when no other organic change can be discovered.

Miss D., age twenty-two, tall, with a delicate rosy complexion, lost weight from 148 to 125 pounds during eleven months, interrupted during one month by a slight gain. She had persistent backache and headache and frequent gastric disturbance. Since leaving the asylum she has had several severe turns of gastric disturbance originating at the time of menstruation but much outlasting it. Menstrual pain and backache have been somewhat better since the uterus was curetted, and her family recognize a decided improvement in the two years that have elapsed since her discharge.

Miss D., age thirty-eight, had tumors (supposed to be malignant, but after removal found tubercular), removed from one breast and axilla. A year later she entered the asylum, chiefly on account of general weakness and headache. She was of a singularly cheerful and hopeful disposition, but lost weight steadily though slowly from 113 to 104. There have been

¹ Read to the Association of American Physicians, Washington, D. C., May 6, 1897.

enlarged glands upon the other side, but no manifestations of tuberculosis elsewhere; and she remains an invalid.

Miss F., age twenty-eight, a chronic (probably congenital) neurasthenic, with choreic movements much aggravated by any mental disturbance, lost weight from 103 to 83 in a year. She is now supposed to be slowly improving.

Miss B., age twenty-five, lost seven pounds in nine months, and got back five of them in the next four. She improved greatly after a considerable time partly under the auspices of a faith-cure.

Miss H., age forty-five. Alternations of gain and loss for seven months, with a maximum variation of five pounds, and final loss of a pound and a half. Had severe neuralgic pains, chiefly sciatic. A short time after leaving the asylum she was sent to an insane hospital, but is now comparatively well.

Miss C., age thirty-three, had ups and downs of weight for nine months, at the end of which time she was half a pound lighter than when she began. She improved very slowly, and has continued to do so; but still she is not strong and does not sleep well.

Miss McC., age twenty-seven. Weight fluctuated for six months, ending with a total gain of half a pound. She is better, but not well.

Mrs. H., after a stay during which she was greatly improved, but unfortunately for my present purpose not weighed, was with us again for six months, during which her weight varied from 119½ to 122 pounds, but began and ended at 120. She developed distinct mental symptoms, and died some months later in an insane hospital.

Miss B., age thirty-eight, lost five pounds in four months. Her disposition was of the reticent, worrying and morose kind, which is not likely to be radically changed, and which continues to vary in its manifestations rather in accordance with the pressure of her responsibilities than with the state of her nutrition.

Miss G., age thirty, gained a pound or two in nine months, then lost six and gained four. There was no very decided improvement; but I have been unable to hear from her since.

Mrs. D., a large, flabby, pale woman, exhausted by large family, had ups and downs of weight for nine months, with a final loss of three pounds. She is in essentially the same condition.

Miss T., age thirty-seven, tall and thin, with a complexion of almost doughy whiteness and a low blood-color, has had a headache so persistent that the suspicion of an intracranial growth as well as of interstitial nephritis, has been often entertained but never justified. She has at times, but not constantly, gastric disturbance. She lost six pounds between July and August, which she made up again by November (during the gaining season); but since that time she has steadily lost again, and is now 9½ pounds lighter than when she entered. Her prospects of recovery at best seem very remote, although just now she seems to be gaining a little strength.

A catalogue of cases in which gain in weight took place with very decided but only temporary improvement would prove nothing but the too obvious fact that a fair degree of bodily and mental comfort may be maintained in the shelter of a hospital which cannot be continued after the patient has been again brought into contact with the labors and trials of everyday life.

In some cases the apparent improvement in nervous

strength lags so far behind that in weight, that the connection between them, even if real, is not very obvious. Mere timidity or lack of confidence resulting from too long a disuse of the powers actually present may restrain the patient from tests to which she responds well enough when the attempt is made with determination. If a faith-cure interfere at this stage, the bodily condition which makes it possible is very likely to be overlooked in wonder at the miracle. The following cases, however, were instances of a discrepancy more decided than mere delay between the bodily and mentally improved condition:

Miss E., age fifty-two, was the more than faithful and overzealous head nurse at a hospital. She experienced some sudden cerebral sensation, not attended with paralysis, from which she dated her illness. She gained ten pounds in four months, and improved greatly in bodily appearance, but remained in a condition of more hopeless despair without a trace of a delusion than is often seen outside the limits of melancholic insanity. Nearly two years later there had been no change for the better.

Mrs. S., age fifty-four, has gained twenty pounds in eight months, and has an excellent blood-color, but she sleeps hardly better than when she entered, and complains constantly of distressing thoracic sensations for which no anatomical basis can be found.

Miss R., age thirty-one, reticent and suspicious, had gained from 104 to 111, when her suspiciousness was noted as on the increase and becoming more definite. A few days later it was noted that her delusions were increasing, and she was discharged to the McLean Hospital.

Many other cases might be added, somewhat less striking, but going to show that the proportion of potential energy obtained by the nervous centres from a given amount of fat and blood may vary from almost nothing, as in the three instances just given, up to the normal as seen in the great majority.

A second group is composed of the cases where the gain in nervous strength takes place without any important gain in weight and is, when represented by what might be called acute cases, naturally enough not a large one in hospital practice. It is, however, amply supplemented by the very large number of such cases observed in everyday life, where normal and even excessive nervous and intellectual function is carried on with a degree of general nutrition below the average — cases which come under medical observation only incidentally or manifest such rapid recuperative powers that they do not become invalids at all. The hospital physician does not so frequently have the pleasure of seeing them recover, because they do not remain sick long enough to come under his care, and because also when they are submitted to a treatment directed toward this object they, too, can take on flesh, and thus seem to be specially good examples of the rule, while in reality this gain is only an accidental adjunct and in no way essential to recovery.

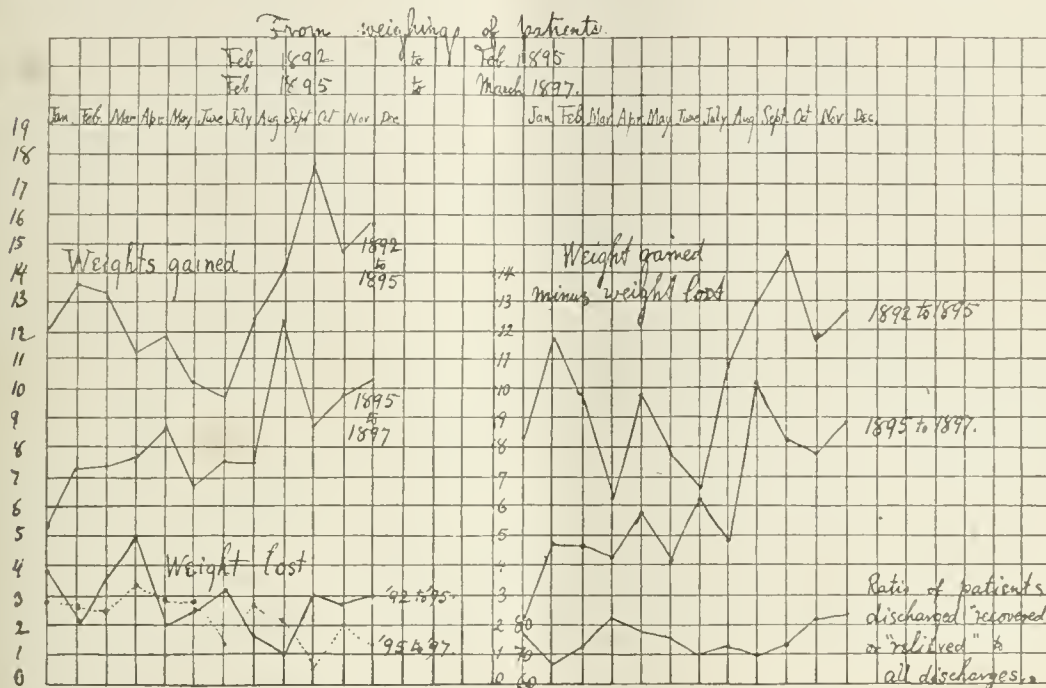
An easily recognizable subdivision of this group is found in the cases of normal weight, or perhaps even a little overweight, when a change in habits of life or of treatment may reduce it somewhat. An interesting instance of this occurred in Miss P., who gained six pounds in weight, but nothing in symptoms, during the four months in which she was treated for simple anemia and debility; but when her case was

recognized, somewhat tardily, as one of myxedema and treated by thyroid, she lost ten and a half pounds, with recovery. She was twenty-four years old, the youngest case I have ever seen of this affection.

A few cases of a more chronic character illustrate further the fact that the interdependence of the two sets of phenomena is not absolute, and, on the other hand, the great desirability of a somatic basis to ensure the success and permanency of psychic therapeutics.

than during the winter and spring. This has been before remarked of the growth of children.

I have placed underneath, as a matter of curiosity, a line representing the ratio of cases "discharged, recovered or relieved" to all discharges for five years. This is, of course, extremely vague, but might perhaps be interpreted to show a certain amount of correspondence between improvement in nervous symptoms and gain in weight, the latter showing its effect after a month or two. The fall and rise in the early



Miss C., age twenty-eight, brunette, lost two pounds in seven months (from 98 to 96), having in the interval gone for one month above 100 pounds. Her improvement in strength was steady and has continued.

Miss H., age twenty-six, with a complete paraplegia (undoubtedly of hysterical character) and obstinate resulting contracture, had not walked for eight years. She was not weighed for many months, but certainly did not gain greatly in flesh. She then lost steadily, from 91 to 87. After long-continued massage, passive motion and so on, she began to walk; and when discharged she could traverse the length of a long entry unassisted. Soon after her return to her home she was alarmed by a fire and relapsed, just how completely I do not know. She has made a second recovery under some form of faith-cure, which might easily have been more speedy than the first, as the contracture and the eight years' inertia no longer had to be overcome.

Miss M., age about thirty-five, increased from 132 to 160 in five months, and then gradually fell off to 150 without interruption in the progress of improvement.

An interesting incidental fact noticed when looking over the weight-records has been put in the form of curves, based upon three-year and two-year observations, that is, that the general gain in weight is considerably more in the later summer and early autumn

part of the year may depend upon the seasonal effect in preventing changes during the severe weather and a consequent removal to the country as the warmer months approach.

In speaking of the correspondence of nervous symptoms with anemia it is very necessary to take into account the ambiguity of the word, which is used on the one hand to mean a diminished blood-supply, and on the other a proportion of corpuscles or hemoglobin, or of both, diminished below a more or less arbitrary standard, or below the average.

When a local anemia is spoken of, it is usually the former, that is, a deficient supply, that is intended, for although it has long been known that the chemical composition of the blood varies within different portions of the arterial circulation, and recently the counts of J. K. Mitchell have shown that the corpuscles also cannot be distributed with absolute uniformity, it has not been usual to take cognizance of these facts in clinical language. The greater or less amount of blood in a given region can sometimes be estimated with some approach to accuracy, but it cannot be expressed in figures.

On the other hand, anemia, as a name of a disease or symptom without any anatomical limitation, is generally taken to refer to the latter condition, that is, deficiency of the blood in corpuscles or color which can be measured with a degree of accuracy not at all

commensurate with the apparent delicacy of the readings, but still sufficient to be of some value.

The total amount of blood in a given body it is quite impossible to measure without withdrawing a quantity inadmissible in modern therapeutics, and it can only be roughly estimated by comparisons of complexion, color of mucous membranes and blood-pressure, with measurements of hemoglobin or corpuscles. Facial complexion is specially fallacious as a measure of the amount of hemoglobin, and is much more dependent upon a proper degree of general and local vascular tension and cardiac vigor as well as upon individual differences in the capillary supply of the skin. The mucous membranes, especially the conjunctivæ, bring us somewhat nearer to a roughly correct estimate on the latter points.

So far as I have seen, an estimate of anemia based upon the general look of a patient is quite as likely to coincide with the severity of nervous symptoms as the measurements of the hemometer; but it is much less easy to put in figures. I am fully aware of the considerable limits of error in the latter instrument, even when used with great care, and I think I have ventured on no deductions drawn from small differences of individual readings.

The following table gives the blood measurements of a number of patients and employees, mostly females, divided into groups corresponding to each five degrees of Fleischl.

	Female Patients.	Female Employees.	Male Patients.	Male Employees.	
1	1	.....	1	.....	100 or more
2	4	1	2	.....	95 to 100
2	3	1	.....	.....	90 to 95
3	10	2	1	1	85 to 90
3	14	6	....	1	80 to 85
4	29	8	1	1	75 to 80
4	22	5	.....	2	70 to 75
5	15	7	.....	.....	65 to 70
5	5	0	.....	.....	60 to 65
6	7	1	.....	.....	55 to 60
6	2	0	.....	.....	50 to 55
7	3	1	.....	.....	45 to 50
7	0	0	.....	.....	40 to 45
8	4*	1†	.....	.....	Below 40

* One each of 39, 36, 35, one below 15.

† One of 25.

It will be noticed that the highest numbers of cases among the patients come between 70 and 80, and among the employees no higher; so that it is fair to consider a color of 75, as measured by the Fleischl, a normal color among women who are not invalids but are not exceptionally robust.

It is impossible to draw any line which would distinctly separate the severe from the mild cases; but on going carefully over the list I am unable to detect any close correspondence of severity of symptoms with poverty in hemoglobin. On the contrary, it is easy to pick out from the higher classes several cases distinguished by especial severity and persistence of functional nervous disturbance, and among the very lowest the reverse.

Of five persons with a count below 40, two patients had hemorrhage from fibroids and suffered from some secondary symptoms, one from neuralgia, but were far from being of the nervous invalid type. Another was, to be sure, a hypochondriac, but of the comparatively cheerful type, if such a description be allowable.

One patient with pernicious anemia, having a blood-color less than 15, a count of less than a million, with extreme poikilocytosis, was indeed extremely nervous; but a laundress with color 25, a count of 700,000 and a complexion to correspond, hardly considered herself sick, and was entirely free from any nervous symptoms. A laundress with 55 and a table-girl with 45 are attending to their work.

A small woman with a pale and worn countenance, who was never weighed because she was supposed to be too weak to be put on the scales, and used to pour forth the longest and most voluble complaints of universal pains to which I ever listened, with complicated descriptions of paresthesiæ, nervous vomiting and sleeplessness, had a color of 75 and a count of 4,650,000. She was discharged not relieved. Another pale woman, with successive color-tests at intervals of a little over a month of 63, 61, 62 and 75, failed to gain weight, but was discharged relieved. She soon afterward became worse, and later insane, with final recovery.

Other similar cases might be found, but I will only mention three:

Mrs. M. has a somewhat sodden complexion, is weak, low-spirited and subject to gastric disturbance. Her blood-color, several times verified, is 86, which certainly seems to call for a more rapid recovery than she is making.

Mrs. S. has a complexion not pale but grayish, and without any flush. She has gained twenty pounds in weight, and her blood, which has been examined several times on account of the curious want of agreement with her appearance, always gives a color above 80. Her troublesome, but not absolutely constant, insomnia is not materially improved, nor the pain without discoverable basis, from which she constantly suffers.

Miss S. was sent in as a well-marked case of traumatic neurosis. She is distinctly of the hypochondriacal type. Her (legal) case has been settled. Her complexion would be described as pallid or perhaps even doughy; but her blood-color, although the estimates have varied somewhat, has usually been found over 80. She is, however, losing instead of gaining flesh, and there is no decided improvement in her symptoms.

(To be continued.)

MEETING OF THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION. — The next meeting of this Society will take place on Tuesday, Wednesday and Thursday, September 21, 22 and 23, 1897, at Harrisburg, Pa. The Harrisburg Academy of Medicine has offered the use of its building, and the Dauphin County Medical Society has appointed a special committee of arrangements to act for the Association. There is a promise of a fine display of electrical instruments and their practical operation. Secretary, Max Einhorn, M.D., No. 20 East Sixty-third Street, New York.

SPRAINS AND THEIR TREATMENT.¹

BY DOUGLAS GRAHAM, M.D., BOSTON.

My tailor is a very athletic fellow. He makes a specialty of spraining and bruising his joints; and I make a specialty of getting them well. He says he wishes that every doctor could have a sprain and have it treated by absolute rest and fixed dressings alone, and then that he could have another sprain and have it treated by means of massage and bandaging. This would be much more convincing than volumes of talking and writing, and would be almost the only way of converting the sceptical, who are dominated by the dogmatism of centuries, that immobilization is the best and only way of treating sprains.

The public in general have a very good idea of what a sprain is in speaking of it as a wrench or twist of a joint; but they have not a very clear idea of what it is *not*, in confounding it with a simple strain of muscle or fracture into a joint without displacement, or the first sign of weakness of a joint due to other causes.

What is a sprain? I was once present at a medico-legal examination where the attorney asked a very distinguished surgeon this question. He was so taken aback that I begged leave to answer it for him, which I did in the following words: "A sprain is a sudden, partial displacement of two joint-surfaces followed by immediate replacement; and if the patient has fallen from a height, there will be contusion of the joint surfaces as well. The attachments of the joint on one side are stretched beyond their natural limit; and on the other unduly compressed. If the patient has fallen squarely on a joint, there may be only contusion of its surfaces without strain of its attachments; and in this event the external symptoms may be slight or absent, while the discomfort is very great."²

My distinguished friend looked at me with a smile of relief and congratulation, evidently crediting me with the elucidation of a sprain on the spur of the moment. In this he was mistaken, for I had been studying it for some time, and had just constructed the above definition to suit myself, having previously searched the text-books in vain for anything like a satisfactory definition of the word "sprain." This was in 1888, and I have since had the pleasure of seeing this definition cribbed by good authority.

A few words with regard to influences predisposing to sprains may not be amiss. In some people I believe that there is a want of involuntary control in the nerve centres that preside over the muscles of the lower extremities. How else can we explain why some lackadaisical people frequently turn their ankles while walking on an even surface. In others, according to my own observations, high ankles are undoubtedly a predisposing influence. I have told many well people with high ankles that they frequently sprain them; and rarely have I been mistaken. The higher an ankle the more a lateral force at the edge of the foot will act upon it. The ankle admits of flexion and extension, and not of lateral motion, as many suppose. It might have been better if nature had allowed it some lateral motion, as this would probably have lessened the frequency of its being sprained. Indeed, some loose-jointed people have the faculty of turning

their ankles sideways to quite an extent without injury. But it may well be asked: How is it, then, that ankles are seldom sprained while skating? When skating the will, nerves and muscles are on guard over the ankle; at other times they are less likely to be so concentrated.

We need not spend much time with the symptoms and diagnosis of a sprain. When a patient complains of a joint, saying he does not know whether he has a sprain or not, we may be pretty sure that he has not sprained it; for a sprain makes itself known with tremendous rapidity, and always before a patient is quite ready for it. When it is accompanied with nausea and faintness as well as pain, it is apt to be pretty severe; and when, in the case of the ankle-joint, the patient cannot walk, we may suspect fracture.

The pain is attributed to stretching or tearing of the nerves, and its continuance to pressure of the effusion upon the ends of the nerves. Swelling, heat and discoloration are usually present. The least important of these is discoloration, for rupture of a very small vessel may cause a great deal of ecchymosis, giving the patient much alarm, in which the physician sometimes shares unnecessarily.

Immediately after a sprain there is often so much swelling, ecchymosis and general pain that a man with a brilliant imagination can diagnosticate anything he pleases — rupture of tendons, ligaments or fracture; the graver the diagnosis the better for the physician and the worse for the patient. A few massages properly given — by relieving the heat, the pain and the swelling — will often clear up the diagnosis wonderfully, and show whether there is a cracked bone or not. When the swelling does not disappear quickly under massage and bandaging, it is a pretty sure sign that we have something more than a sprain to deal with, probably a fracture without displacement of fragments, or possibly something worse, as I shall tell you farther on.

Opportunities for the examination of sprains after death are few, and these are probably of the most severe character. Literature on this subject is scarce and hard to find. Dr. Georges Berne, of Paris, has made some valuable researches, and to him I am indebted for much information about the nature of the injury. Sometimes the ligaments have been found broken, sometimes torn from their attachments. Moutard-Martin, at the autopsy of a man who had shortly before death sprained his knee, found rupture of the internal lateral ligament.³

The muscles are sometimes ruptured, and this usually occurs at their junction with the tendinous fibres. The tendons may be lacerated, luxated or expelled from their sheaths. Sedillot, in a sprain of the knee, found, after death, rupture of the muscles of the *patte d'oie* (aponeurotic expansion formed by the tendons of the sartorius, gracilis and semi-tendinosus at the upper and inner aspect of the tibia).

The synovial membrane has been found red and vascularized, sometimes thickened and covered by false membrane. There may be an effusion of fluid — serous, sero-fibrinous or sero-sanguinolent; at times, it has been found hemorrhagic. Unless the injurious force has been of a bruising nature, the larger vessels and nerves are seldom the seat of injury, as their yielding character protects them from rupture by traction or elongation.

¹ Read at the Surgical Section of the Suffolk District Medical Society, February 3, 1897.

² Treatise on Massage, by Douglas Graham, p. 261, 1890.

³ Société Anatomique, 1876.

It has long been a mystery to many of us why sprains of the fingers do so badly, as they have no weight to carry. This is well accounted for by the investigations of M. Ségond, who has found in these cases a constant lesion, namely, tearing of the two slips of insertion of the extensor tendon of the last phalanx, carrying away a small *sliver* (lamella) of bone, the terminal phalanx being flexed at a right angle. There was also dorsal ecchymosis.⁴

M. Lagrange has observed in his experiments on the cadaver, that after lateral forced flexion of the fingers, combined with slight rotation, there was tearing of the lateral ligaments not accompanied by any lesion of bone. When the finger was turned backwards in forced extension upon the dorsal aspect of the hand by a brisk push, a little cracking was heard. Dissection constantly revealed the avulsion by the anterior ligament of a slight linear transverse band of bone from either the proximal or distal side of the articulation. The areola of the spongy tissue were opened. In sprain of the metacarpo-phalangeal joint of the thumb, no lesion of bone was found. There was tearing or detachment of the external metacarpo-phalangeal ligament. Arthritis, or ankylosis is to be feared in these sprains of the fingers.

It is generally agreed that it is almost impossible, on account of swelling and thickening of the tissues, to make out an exact diagnosis in these cases. Time and treatment might help to clear it up, unless the treatments were of such a nature as to make the joint stiff. In due course of time, when it became evident that the tendon had become completely ruptured, suturing has been successfully performed. But this we have nothing to do with here.

According to old Nélaton, the best treatment for such cases consists in putting the finger in a palmar splint for eight or ten days, in order to favor repair; and after this massage and passive motion, thus hoping to avoid too prolonged immobility which might cause ankylosis. Better advice could not have been given.

A very little contemplation of such disastrous results as these would soon lead us to the conclusion that absolute rest and do nothing would probably be the best kind of treatment. And this reminds us of what Dr. Oliver Wendell Holmes used to say of the study of pathological anatomy, that it is a good deal like the study of the fireworks after the Fourth of July. It does not seem to us that complete separation of ligaments or tearing away of a piece of bone ought to be included under the head of the sprain. It rather conveys to us the idea that there may be sprain *plus* break of ligaments or detachment of a piece of bone, when the diagnosis can be made out. The old writers used to speak of "sprain fracture," which is an expression well put.

M. Castex sprained, bruised and dislocated the corresponding joints of dogs with equal severity. The muscles were also bruised. The injured limbs on one side of the animal were *masséed*, but on the other side they were not. In a few days the doggies that had been *masséed* could use their limbs freely while those which had not been *masséed* were stiff and lame and sore for many weeks. At the end of five or six months the dogs were killed, and the tissues of both sides were examined under the microscope. The muscular tissue of the side that had not been

masséed presented a diffuse sclerosis; the connective tissue intervening between the fibres and bundles of fibres was thickened; there were interstitial hemorrhages in the cellular tissue around the muscles; the internal and external coverings of the bundles of fibres were infiltrated with blood, and also the fascia outside of this. The transverse markings of the muscular fibres were effaced in many places, whilst the longitudinal striation or marking, which is not usually seen, was very distinct. The muscular tissue from the regions that had been *masséed* was found to be natural in every respect.⁵ M. Castex has forgotten to mention the appearance of the sarcolemma. In all probability this also was hardened, thickened and infiltrated with blood, as were the outer and larger coverings. The blood-vessels appeared perfectly normal from the *masséed* side, but from the other side that had not been manipulated they presented a hyperplasia of their external coat. The nerve filaments were found to be normal in the *masséed* side, whilst in the *non-masséed* side there were abundant evidences of perineuritis and interstitial neuritis, exerting destructive compression upon the nerve fibres. The perineurium was at least three times as thick in the *non-masséed* side, and the connective tissue around the perineurium was also thickened with numerous new-formed cells. The small vessels in the perineurium were also the seat of a peripheral hyperplasia. The changes in the nerves were more marked than those of the blood-vessels.

(To be continued.)

Clinical Department.

THE TREATMENT OF SPRAINS.

BY R. W. LOVETT, M.D., BOSTON.

INJURIES classified as sprains fall on closer inspection under one or more of four headings: these are contusions, ligamentous injuries, synovitis of the joint, and teno-synovitis of the muscles near the injured joint. So far as possible in my hospital work, I avoid the use of the word sprain, and aim rather at designating the particular injury as described above. In this way a step is made toward the more accurate study of these injuries.

The treatment which has been pursued is as follows: The mildest cases have been satisfactorily treated by daily massage and bandaging. I have never used immediate massage in severe sprains, perhaps from a feeling of timidity, but partly because I have seen cases of recent sprain made decidedly more acute from the application of massage in presumably competent hands. At the City Hospital we have facilities for massage; but in my term of service I have limited it wholly in the severer cases to the time when heat and excessive sensitiveness have disappeared, and when it seems to me desirable to stimulate the local circulation.

Our hospital out-patients recover more quickly and more completely than before we had massage facilities.

Taking the ankle-joint as a type in acute sprains, I have been able to obtain the best results by the immediate application of wet mill-board strips applied over several layers of sheet wadding, and bandaged tightly

⁴ Bulletin de la Société Anatomique, 1879.

⁵ Archives Générales de Médecine, 1891, 1892.

but evenly. This dressing is left undisturbed, except for additional roller bandages applied outside, for two or three days. At the end of this time, if the swelling has disappeared for the most part, if the sprain was a severe one, a circular plaster-of-Paris bandage is applied from the toes to below the knee. This bandage is split and removed every two or three days to note the progress of the joint. With the subsidence of the acute symptoms massage is begun, and the plaster at once reapplied for twenty-four hours. The plaster is discontinued gradually, to be replaced by a flannel bandage. Douches of hot and cold water are used in connection with massage.

The aim of the treatment is at first to quiet the general and local circulation by general and local rest, and thus to limit the effusion and joint irritation, and then at the earliest moment to revert to stimulating measures and restricted use of the recovering joint.

The immediate application of plaster-of-Paris is objectionable, because in twenty-four hours the swelling subsides somewhat, and leaves the plaster loose; or, if the swelling increases, discomfort or constriction may occur.

Half-way measures have little to commend them. Cotton bandages and hot water, however faithfully applied, are but poor makeshifts. Sticking-plaster is better, but lacks precision, although affording partial fixation; and in the ankle, applied as a figure-of-eight bandage, it often affords excellent support. But, in general, it may be said that a sprain is either slight enough to be treated by massage from the first, or severe enough to receive for a day or two, at least, the most complete and efficient fixation.

THE TREATMENT OF SPRAINS BY MASSAGE.

BY J. G. MUMFORD, M.D., BOSTON.

THE profession doubtless owes no slight debt to Dr. Graham for his enthusiastic devotion to massage and his aid in the revival of that ancient procedure based on logical and scientific principles.

Such treatment of sprains is probably the oldest in surgery. It has always been practised among the Orientals and was used by the ancients.

More recently Le Dran, early in the last century, wrote: "Impending inflammations about sprains may be checked and dispersed by the use of massage and kneading."

Sir Astley Cooper taught: "When there is much dispersed inflammatory exudate after fractures and dislocations use electricity and rubbings. It is the rubbings that do the work, and they should be deep and thorough."

Modern text-books scarcely mention massage of dislocations, and certainly do not give to it its proper importance.

For several years it has been my custom in both hospital and private practice to employ massage on sprains and dislocations as well as in certain fractures. Most surgeons are doing so to-day, I believe; and the results are interesting.

The old practice of immobilization of sprains is now generally conceded to be improper, for more than a few days. My routine practice, even in those cases in which there is considerable laceration, is to first use the hot and cold alternating douche for ten minutes to

allay pain, then to gently rub and knead about the injured joint for some fifteen minutes, and to apply a flannel bandage. Perfect rest for twenty-four hours is enjoined. On the second day more thorough kneading and stroking is done and a little passive motion is employed; and this is followed up daily.

As explained here the other night by Dr. H. P. Bowditch, it is in maintaining the proper nutrition of the parts by keeping up the flow of lymph that massage and passive motion act most effectively. Inflammatory exudate is thus carried off; but, more important still, proper nutrition of the parts is supplied by a passive motion substituted for the active motions of health.

In the case of a "sprained ankle" in which there is much extravasation of blood, teno-synovitis and escape of synovial fluid, the immobilizing treatment is most objectionable. By its use adhesions are apt to form, impairment of function with pain results, and where there is a tubercular taint proper conditions for a localized tuberculosis are established. The same is true of the wrist, knee, shoulder and other joints. By the use of properly applied massage these complications are obviated or overcome, and commonly a sound joint quickly results. I use the words "properly applied massage" advisedly, for this community abounds in illy instructed operators.

I believe the use of a skilfully applied flannel bandage is a very important and often neglected adjunct to this treatment. The surgeon should see to this himself. I have never found a masseur who was familiar with the proper principles of bandaging. The bandage should be broad, cut on the bias, and should cover with firm and evenly distributed elastic pressure all the parts as far as the adjacent joints on either side, with an extra pad over the injured joint itself.

After the first day I have the patient go about on crutches, in the case of a sprained ankle; and after the third day I encourage him to begin bearing a little weight on the foot. Two to three weeks often suffice to put such a sprained joint in a condition for careful use. We have all seen cases in which the immobilizing treatment resulted in an eueebled limb after two or three months.

It is in the case of young and vigorous persons, football and tennis players and such others, that this treatment is most gratifying; and I have seen such men about their sports again after eight or ten days. In the case of sprained knees, with acute synovitis, these same statements are true.

With sprained wrists, in which there is a teno-synovitis, my experience with massage is not so happy. How often these cases develop tuberculosis, in comparison with similar injuries to the ankle I do not know. There are no statistics, I fancy; but I have seen a number of cases that went on to serious chronic disease under both methods of treatment.

I recognize the fact that statistics as to time of convalescence in all cases of sprains are of no great value, for convalescence must depend greatly on the character and extent of the injury; but I believe I am in accord with all who use massage in saying that clinical experience convinces one of the great usefulness of this method of treatment in properly selected cases.

A BILL has been introduced in the English House of Commons to legalize the Metric System.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

ONE HUNDRED AND SIXTEENTH ANNUAL MEETING.

The meetings of the Sections in Medicine and Surgery were held in Mechanic Building on Tuesday afternoon, June 8th.

The Shattuck Lecture was given on Tuesday afternoon, by Dr. David W. Cheever, of Boston, on

THE NEW SURGERY.

The exhibits of apparatus and appliances shown this year were unusually good; and the x-ray photographs showed the marked progress in accuracy of delineation and definiteness of outline which has been made since the exhibit a year ago.

The practical demonstrations of fluoroscopy, under the charge of Dr. E. A. Codman, were very successful and excited a great deal of interest.

The exhibit of water-color sketches of pathological specimens, by Miss Byrnes, was remarkably fine, and the large colored anatomical drawings by Miss Saunders, made a notably good exhibit.

The One Hundred and Sixteenth Annual Meeting was held at Mechanic Building, Boston, Wednesday, June 9, 1897.

The following papers were read:

"The Diagnostic Value of the Examination of the Blood Serum," by DR. R. C. CABOT, of Boston.

"Fistula in Ano; Its Palliative and Operative Treatment," by DR. J. B. BLAKE, of Boston.

"Some of the Uses of the Röntgen Rays in Medicine," by DR. F. H. WILLIAMS, of Boston.

"Medical Inspection of Schools," by DR. S. H. DURGIN, of Boston.

THE ANNUAL DISCOURSE

was delivered at twelve o'clock by DR. Z. B. ADAMS, of Framingham, whose subject was "An Epoch of Medicine in an Age of Delusion."¹

THE ANNUAL DINNER.

PRESIDENT H. P. WALCOTT, in presenting the first speaker, Governor Wolcott, made the following address:

The medical year which draws to a close with this social meeting has been a notable one by reason of the great anniversaries which have been celebrated in it.

Our year began with the commemoration, after one hundred years, of the greatest discovery in the science of medicine, when Jenner on July 1, 1796, fully demonstrated the power of vaccination to withstand the poison of small-pox; and at the end of a century we hardly yet understand the mighty influence on medical practice of this and related methods for the control of disease.

Later in the year came the fiftieth anniversary of the discovery of surgical anesthesia, proved to be a fact by the use of sulphuric ether at the Massachusetts General Hospital on the 16th of October, 1846—the greatest discovery in the art of medicine; and, if second to any discovery in civilized times, it is inferior only to the art of printing. Again, the greatness of the invention has diminished sensibly our capacity to estimate its value, for hardly a man in this audience now

knows what the mental no less than the bodily tortures of surgery actually were in the days before anesthesia by ether.

If in the immediate history of this Society during the past year I find no events to be compared in startling importance with these two which have just been mentioned, let it not be understood that the progress of either the science or the art of medicine has come to a standstill.

In the opportunity for a wider acquaintance with the individuals who constitute this body throughout the State, which is one of the happiest privileges of your president, I have been struck with the lively interest everywhere displayed in the purely scientific aspects of our work; and it seems to me that there has never been a time in the history of medicine when there have been so many trained observers with such favorable conditions for good work as now.

The great discoveries will not always come when men most earnestly seek for them, but they very surely will not come unless men do seek for them; and so it is well for suffering humanity that our hospitals and medical schools are steadily improving in the means offered for scientific work, and nowhere is the prospect brighter than within the borders of our own State. If it were ever true, as some have imagined, that the more scientific study of the human body might lead to a degree of indifference as to the sufferings of the patient, it is surely not now true, when we have only to call the attention of the public to the evidences that surround us of the ever-growing care of the community for all of its component parts. The pauper receives a more effectual care at the State almshouse at Tewksbury to-day than the wealthiest man in Boston could have purchased a generation ago.

One beneficent result of the better science of medicine has been that we hear so much less nowadays of the schools of medicine or of doctrines in medicine. The wards of the modern hospital offer conditions for humane and profitable experiment which are but little, if at all, inferior to those of the biological laboratory; and there is, in consequence of all this, the usual disinclination on the part of a collection of scientific men to waste time on the idle declamations of those who never expect to give any scientific evidence of the truth of their assertions and would suffer a dogma to set the limits to scientific research.

True humanity has lost no portion of its divine quality in our efforts to extend the control of medicine over disease by laboratory methods of investigation; and it is not true that those who have carried on these investigations are inferior to their neighbors in their regard for suffering in man or brute.

Quite lately a president of the United States who on more than one occasion seized the opportunity to advocate the claims of scientific medicine, declared that the profession neglected a manifest duty in not insisting, as they easily might do, that legislative bodies should pay greater heed to their advice upon the questions essential to the health of the people.

Some of us have had opportunity enough to lament the ignorance of legislative bodies upon medical topics; but I should, for one, be sorry to see that ignorance removed by any other process than that of education, and the legitimate influence which each one of us can exert within his own limited circle of activity. I can imagine no greater engine of political influence than the associated members of this body if used in the

¹ See pages 557, 585 of the Journal.

ways taught us by demagogues; but, on the other hand, this Society never can be so used, for the individuals composing it have been so freely trusted with all that men hold sacred, that a breach of that trust would shake the very foundations upon which the honorable practice of medicine rests, and I know of hardly an instance where a breach of that trust has been rightly charged to a member of the Massachusetts Medical Society.

Combinations within the Society for any other purposes than those of improvement and social enjoyment seem to me a source of danger, greater than the good that might result therefrom. But the physician should always remember that he is, upon many questions, the most competent person in his community to give an opinion, and that he should never fail to exert in those matters the whole of the influence which belongs to an enlightened citizen of the State.

The Massachusetts Medical Society was incorporated under the laws of the Commonwealth in 1781. It has never been unmindful of the obligations imposed upon it by that charter, and is quite willing to submit its record to any investigation. The present chief magistrate was first our guest, if I am not mistaken, while a trustee of the Massachusetts General Hospital, and spoke to us in that capacity.

It is an especial gratification, then, to the Society to receive His Excellency, for we know that whatever judgment he may pass upon us, it will be founded upon an adequate knowledge of the task which medicine has undertaken and of the success of the performance. But there are other questions beside those that belong to medicine pressing upon the head of the State, and this Society rejoices in the opportunity to assure His Excellency of its absolute trust in his administration of them.

GOVERNOR WOLCOTT, who was greeted with hearty cheers, thanked the Society kindly for applauding him at the beginning of his speech instead of the end, for he feared that he must apologize for having so little to say on account of the pressure of official business to which he was required to attend during the closing days of the present legislative session. In reference to President Walcott's remark respecting the various capacities in which he had appeared and addressed the Massachusetts Medical Society, he said that he reminded himself of a prescription given him by a member of the Society for a box of pills, of which he was to take two every hour until the ears rung. He had had to be taken annually by the Society, for four or five years, until their ears rung. He spoke of the importance of the members of the Society doing that part which they alone were qualified to perform in the furtherance of legislation for the promotion of the public health, and concluded as follows:

It is an interesting thing, to stand before this gathering. When a great body like this comes together the small, mean man is lost. The typical man, who approaches the ideal of the physician, is looked upon and examined. I will not attempt to say what, in form and feature and expression, is the type of the physician or lawyer or business man; but such meetings as this inspire all who attend with closer observation of that type. In it always two functions must be found in the same brain, in the same character—a broad, generous humanity, as well as the spirit of scientific investigation. To encourage this type your organization exists. And so the Commonwealth bids future pros-

perity and God-speed to the Massachusetts Medical Society.

The PRESIDENT then introduced the next speaker, Rev. Dr. George A. Gordon, of the Old South Church, Boston, as follows:

The practice and teaching of medicine began in the places consecrated to religious observances. The earliest hospitals were founded and maintained by the monastic orders, and this intricate relation of the care of the body to the care of the soul still exists, though the visible bonds have long since disappeared. In how simple and touching language a plain practitioner of our art in a Scotch hamlet has been drawn to the life by a Scotch clergyman you all know. This degree of appreciation could only come from one in the family, as it were. Dr. Gordon of the Old South cannot be out of place here.

DR. GORDON: In seeking to compare the medical profession with that to which I belong, I have learned that the medical profession have understood the use of anesthetics for no longer than the last fifty years. In my profession, for a thousand years we have been accustomed to put our patients to sleep before we operated upon them. It is possible that the thorough understanding which medical men have of the effects of anesthetics is the reason why we so seldom see them among our patients.

I am glad to hear again of the epoch-making discoveries in medicine to which your president has referred, and learn of the enthusiasm with which they are welcomed and put in practice by the medical profession.

When a new discovery is made in my profession there are always some among us who exclaim at first "It is blasphemous"; then, "It is against the Scriptures"; and last, "We have always believed it."

As your President has said, a Scotch minister has given the best and truest portrait of the virtues of the country doctor, the man who makes up the rank and file of the profession; and when Ian McLaren's book came out, it was easy to see how true it was to nature, for I observed that every physician with whom I was acquainted considered it an accurate portrait of himself. He considered it so for the reason that Dr. McClure was occasionally a little profane, because he was a hero among his patients, and because he pretended to care little for religion; yet on his death-bed what this physician wished to hear was the prayer he had heard at his mother's knee.

The training of the physician tends so strongly to develop efficient sympathy, and kindly, helpful relations with others, that a good physician cannot help being, in the best sense of the word, religious. I have noticed that while certain men are religious in spite of their profession, physicians are religious in virtue of their profession, and in spite of themselves!

I remember that, when I was a lad in Scotland, there were three men in the village to whom I was instructed to take off my hat: first, the parish minister; second, the parish school-master; and, third, the parish doctor. It is but natural, therefore, that I should find it easy to assume an attitude of reverence for the physician and I am proud to stand before this gathering of the Massachusetts Medical Society *with my hat off!*

The PRESIDENT then introduced Prof. J. B. Thayer of the Harvard Law School in the following terms:

Without the law, civilization would be impossible; and to this statement the medical profession willingly

assents, even though the law has at times undertaken to promote good surgery by the indirect and somewhat officious method of a suit for malpractice. Our guest, to-day, however, represents the law in its most benignant aspect, for no struggle of humanity has failed to receive his aid.

PROFESSOR THAYER alluded to the lack of proper respect on the part of Scotchmen for the legal profession, as shown by the fact that Dr. Gordon in his youth was taught to respect the other dignitaries of the village, while he was not instructed to take off his hat to the parish lawyer. While lawyers were, perhaps, according to the statement of the Scriptures, generally believed to subsist chiefly on widows' houses, he was glad to find that the President of the Massachusetts Medical Society recognized that the law had a benignant side.

Professor Thayer spoke of an attribute which he had noticed as common to physicians and lawyers, namely, the interest that each took in what was called a "pretty" case, which case, however "pretty" it might be from a scientific point of view, was seldom such from the standpoint of the patient or of his friends. He remembered hearing Emerson tell a story of the illness of an old friend of his, who was a prominent man in the country town where he was living, and relate how while on the way to his house to inquire for him, he met the doctor coming back smiling, rubbing his hands, and apparently in great glee. "And how is my old friend So and So?" Emerson said. "The prettiest case of apoplexy you ever saw," answered the doctor; "all the symptoms are absolutely typical, paralysis of the right arm and leg, livid skin, stertorous respiration, etc. It is seldom in a country practice that we see a case that comes up to the diagnosis in the books." All of which may have been very delightful for the doctor, but was rather sad news to the friends of the patient.

He then spoke of the limited extent of the associations of lawyers which he had been in the habit of addressing, such as the Boston Bar Association, etc., as compared with the extent and membership of the Massachusetts Medical Society, and said that not being a Methodist, it was very hard for him to address a regiment without embarrassment. He could hardly think of anything better for him to say than the words of the Texas murderer who had been sentenced to be hung, and was allowed before he was swung up to address the mob who had gathered to witness his execution. He warned his hearers against the sins of gambling and horse-racing. He said that he was innocent of the crime with which he was charged; and that he expected to go to heaven. Professor Thayer thought that in his position to-day he could hardly do better than warn his hearers against gambling and horse-racing.

He then went on to speak of a subject of great importance to physicians, a subject of which Judge Barker had treated in his address to the Society a year ago, namely, the necessity for improvement in the present system of medical expert testimony. He stated, as Judge Barker had done, that the chief difficulty in the way of having experts summoned only by the court, was the fundamental right of a litigant under our system of law, in trials by jury, to summon an expert who would present his side of the case. He could not be prevented from summoning any expert whom he pleased. A law, however, sanctioning

the summoning of experts by the court, who should adjudge the testimony of the experts summoned by the plaintiff and defendant, would in no way interfere with the rights of either, while it would do much to purify medical testimony and promote the ends of justice. He hoped that the members of the Society would use every proper means to secure the passage of legislation to this end, and believed their earnest efforts would be successful.

He then spoke of privileged communications to physicians, and the fact that in this State physicians on the stand were obliged to reveal all previous communications of their patients, while communications to lawyers the litigant had the privilege of revealing or not as he chose. He said that there was no real reason why a physician should be compelled to reveal the secrets of his patients on the witness-stand, unless the patient gave his consent. In various countries on the continent of Europe, the patient had the privilege of allowing his communications to his physician to be revealed or not, as he chose, and such a privilege in no way hindered the administrations of justice. The present law in Massachusetts ought to be amended so as to make this change.

After Professor Thayer's address, which, as well as Dr. Gordon's, received the interest and applause of the members, President Walcott introduced Dr. Henry S. Durand, of Rochester, N. Y., who read a poem.

A vote of thanks moved by the President to the Committee of Arrangements and its efficient chairman, Dr. A. K. Stone, for the remarkably successful management of the meeting and dinner, closed the exercises of the day.

The Harvard Graduates Glee Club, under the direction of Dr. Richard C. Cabot, sung several selections during the dinner, which were warmly applauded.

A pouring rain unfortunately prevented the participation of more than a very few of the members in the harbor excursion and visit to the battleship *Massachusetts*, which had been planned by the Committee of Arrangements.

MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

THE annual meeting was held at the Medical Library, Boston, on Tuesday, June 8, 1897.

The meeting was called to order at seven p. m. by the President, Dr. Henry P. Walcott. Ninety-eight Councillors indicated their presence by signing the roll.

The Secretary read the names of 152 Fellows admitted since the last annual meeting, and of 30 whose deaths had been recorded.

It was voted, on recommendation of the Committee on Membership and Finance, that \$3,000 of the surplus in the treasury be distributed among the district societies.

Voted, That the Treasurer be authorized to invest, or reinvest, the funds of the Society from time to time, as its needs and best interests shall seem to require, and in a manner approved by the Committee on Membership and Finance.

The Committee on Publications reported that Sir Wm. H. Hargston, M.D., of Montreal, Canada, has

been appointed to deliver the Shattuck Lecture at the annual meeting of the Society in 1898.

DR. J. J. PUTNAM offered the following, which was adopted:

Resolved, That the Massachusetts Medical Society, recognizing the great value of the suggestions embodied in the report of the Commission appointed to investigate the public charitable and reformatory interests and institutions of the Commonwealth, hereby votes to petition the members of the next Legislature that these recommendations shall receive their careful and favorable attention.

DR. FITZ-HUGH presented the following, which was passed:

That the several District Societies be instructed at their annual meetings to elect one of their Councillors to be an alternate nominating Councillor.

The Committee on Nominations reported, and the following were chosen officers of the Society for the ensuing year: President, Dr. Henry P. Walcott, of Cambridge; Vice-President, Dr. Samuel W. Abbott, of Wakefield; Treasurer, Dr. Edward M. Buckingham, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Boston; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Boston. Dr. William T. Councilman, of Boston, was chosen Orator for the annual meeting of the Society in 1898.

Voted, That the next annual meeting of the Society be held in Boston on the second Wednesday in June, 1898.

The following Standing Committees were appointed: On Arrangements, Drs. M. V. Pierce, P. Thorndike, J. E. Goldthwait, M. Storer, W. H. Prescott, S. Crowell.

On Publications, Drs. O. F. Wadsworth, G. B. Shattuck, H. L. Burrell.

On Membership and Finances, Drs. F. W. Draper, J. Stedman, E. G. Cutler, L. R. Stone, F. W. Goss.

To Procure Scientific Papers, Drs. H. P. Bowditch, F. H. Zabriskie, H. L. Burrell, F. W. Chapin, C. W. Townsend.

On Ethics and Discipline, Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas, Drs. H. E. Marion, E. N. Whittier, O. F. Rogers.

On State and National Legislation, Drs. H. P. Walcott, H. P. Bowditch, T. H. Gage, S. D. Presbrey, E. B. Harvey.

AMERICAN MEDICAL ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE GENERAL SESSIONS OF THE FORTY-EIGHTH ANNUAL MEETING, PHILADELPHIA, PA., JUNE 1-4, 1897.

FIRST DAY.—TUESDAY.

THE Association met in the Academy of Music, and was called to order at 10 A. M. by the President, DR. NICHOLAS SENN, of Chicago.

Prayer was offered by the REV. L. BRADLEY, D.D. Addresses of Welcome were delivered by the HON. C. F. WARWICK, Mayor of Philadelphia, and HON. CHAS. EMORY SMITH.

DR. H. A. HARE, of Philadelphia, Chairman of the Committee of Arrangements, announced the receptions and entertainments.

The First Vice-President, DR. GEO. M. STERNBERG,

of Washington, D. C., took the chair, and PRESIDENT SENN delivered his Annual Address. He selected for his subject

THE AMERICAN MEDICAL ASSOCIATION: ITS PAST, PRESENT AND FUTURE.

He began by saying that the American Medical Association was born at the dawn of a great era in the history of medicine. Only a few years before its organization was effected anesthesia, which has robbed the operating-room of its greatest terrors, came into general use, and at once opened up new fields of usefulness for the surgeon. The new science of bacteriology, upon which is based our modern views regarding the etiology and prevention of disease, has been founded and firmly established since that time. The principles which govern the present treatment of wounds, conceived by the immortal Lister and developed to the existing state of perfection by a host of his enthusiastic followers, have revolutionized the practice of surgery during the last quarter of a century. Normal and pathologic microscopic anatomy are recent acquisitions to our knowledge of living tissues in health and disease. Aseptic midwifery is the direct descendant of aseptic surgery and has secured for the lying-in-woman the same protection against puerperal complications as the employment of aseptic precautions will prevent largely the occurrence of suppuration, sepsis and pyemia in the treatment of the injured and patients requiring operative treatment. Anesthesia and asepsis have created visceral surgery. Our knowledge of chemistry and physiology has been vastly increased during the last fifty years by thousands of earnest and devoted students in possession of improved instruments and apparatuses for accurate investigations. During the same time great strides have been made in the practice of medicine and the preparation and methods of administration of drugs. In the light of many of these recent advancements we have at least learned that disease is influenced for the better by aiding and assisting, rather than by combating and opposing nature's resources. Transillumination of the body by the wonderful Röntgen ray is the last and most important addition to our diagnostic resources in medicine and surgery. In those stirring events which have startled the medical world in such rapid succession during the last half of this century many members of our Association, dead and living, have taken a prominent and often leading part. In looking about for an appropriate subject for his address at this meeting he had deemed it expedient to utilize his time and this unusual opportunity in discussing as briefly as possible "The American Medical Association: its Past, Present and Future."

History has demonstrated the necessity of associated action in advancing the interests of the arts and sciences, commerce and the learned professions. The origin and the success of the American Medical Association have demonstrated the full meaning and force of this statement. Individual efforts accomplish but little in the correction of long-standing and widely disseminated evils. In 1835 the faculty of the Medical College of Georgia proposed the holding of a convention of delegates from all the medical colleges of the Union. This proposition met with little encouragement on the part of the remaining medical schools; and the first movement, which contemplated a convention of delegates, not only from all the medical colleges,

but also from the regularly organized medical societies throughout the New Republic, was made in the Medical Society of the State of New York, at the annual session in February, 1839. At this meeting, upon motion of Dr. John McCall, it was decided to hold a National Convention in the city of Philadelphia in 1840. The movement did not meet with sufficient encouragement to carry out the desired object. In the mean time the cause of medical education received a new and vigorous champion in the person of young Dr. N. S. Davis. He was born in the State of New York, January 9, 1817. Until sixteen years of age he assisted his father in managing a farm. After receiving the limited advantages of a rural-district school training he attended for six months Cazenovia Seminary. With this scanty preliminary education he entered upon his professional duties at Fairfield, in the old College of Physicians and Surgeons of the Western District of New York, and graduated with the Class of 1837, being then but a few days over twenty years of age. Endowed with a logical mind and great power of discrimination, he became impressed during his college life with the importance of a systematic graded course of instruction. His attendance upon lectures was arranged with such an object in view, and he is probably the first graduate of an American medical college who enjoyed the benefits of a graded course of instruction, which was arranged by himself and not by his Alma Mater. Ever since his graduation as a member of the American medical profession, and as a teacher, he has been an ardent advocate of systematic graded medical instruction; and the medical college which he later founded was the first one in this country to formulate and carry out his ideas. At the time he entered upon the practice of his profession in New York, the Medical Society of that State was fostered and guided by Dr. John Stearns. Almost from the beginning of his professional career Dr. Davis became a leader among his colleagues, and a strong advocate of much needed reforms in medical education.

Medical Education.—One of the principal subjects in view of the founders of the American Medical Association was to effect a much needed reform in medical education, looking toward a higher standard of preliminary preparation, lengthening of the lecture course and a systematic graded course of instruction. These objects have been nearly attained, and largely through the influence of the Association. Nearly all of our medical schools, large and small, now require four years' attendance, of eight months each, of a systematic graded course, and with few exceptions furnish adequate laboratory and clinical facilities. Our printed transactions, from the beginning of the Association until the present time, are loaded down with matter pertaining to medical education. This mission of the Association is about fulfilled. We have medical schools that are on a par with those of the older nations. There is no further excuse for our medical students to seek foreign universities to obtain a thorough medical education. Some of the very best practitioners of the United States are men who graduated in our own schools and who have never left their native soil. It requires no stretch of imagination to predict with certainty that our country will become the centre of medical education within twenty-five years and that our medical institutions will be sought by foreign nations, as they will in the course of that time furnish facilities for teaching far in advance of

those of any other country. Our medical schools are not tampered with by politics; and they are undergoing a rapid evolution by acquiring unlimited financial resources and by the ceaseless activity of the wide-awake, energetic and enthusiastic practitioners who by hard work and frequent intercourse with representative medical men at home and abroad become model practical teachers. The next function of the Association, as far as medical education is concerned, lies in another direction—post-graduate education.

Scientific Work of the Association.—The published "Transactions" and the volumes of the *Journal of the American Medical Association* are a mine of information for the general practitioner as well as the specialist, as they contain valuable contributions to medical literature, embracing all the departments of the healing art and the allied sciences. Many of the contributions have found a permanent place in our general literature and must be referred to by authors who write on the subjects of which they treat. It is a source of regret that many of the most important and interesting papers read during the early history of the Association have been buried in the volumes of the "Transactions." The value of these compendious volumes are, as a rule, underestimated by medical literary men, and are not consulted and quoted with the frequency they deserve.

Prize Essays.—Literary work in this country is appreciated only by the profession, and the only prospective reward is a consciousness of a duty performed and the recognition it may receive from the profession. Government recognition, such a strong stimulus to hard work in many of the countries abroad, is out of the question here. For the purpose of stimulating original research the American Medical Association during the first few years of its existence took the necessary steps to establish prizes for meritorious literary productions. The origin of awarding prizes for essays was from the following resolution offered by Dr. Alfred Stillé, while Chairman of the Standing Committee on Medical Literature at the Annual Meeting in Cincinnati, in May, 1850:

Resolved, That the sum of one hundred dollars, raised by voluntary contributions be offered in the name of the Association, to the best experimental essay on a subject connected either with physiology or medical chemistry, and that a committee of seven be appointed to carry out the objects of this resolution; said committee to receive the competing memoirs until the first day of March, 1851, the author's name to be concealed from the committee, and the name of the successful competitor alone to be announced after the publication of the decision.

It will be seen from what has been said that the prize essays of the American Medical Association take a high place in American medical literature, and it must appear plain to every one that the practice should be resuscitated. Authors and investigators should be encouraged in their work. The awarding of medals and prizes will encourage the younger members of our profession to apply their talent and energy in a proper direction. The recognition by the American profession of the merits of a literary production is a source of greater satisfaction to the author than the gratification afforded by the intrinsic value of the prize.

He would recommend as the greatest stimulus to original research the awarding of an Association gold medal for the best essay on any subject pertaining to the healing art. The gold medal to be offered by

and at the expense of the Association. He would suggest that one side of the medal should bear the bas-relief of the father of the Association, Dr. N. S. Davis, and the name of the American Medical Association; the other to be inscribed with the name of the successful competitor, the date of the award, with an Æsculapius staff in the centre. The ceremony of awarding the medal should be in public on the last day of the meeting of the Association, preceded by an appropriate speech by the presiding officer. The competitive essays should be placed in the hands of a special committee on prize essays three months before the date of the meeting, in the same manner as was customary in competing for prizes in the past.

It is time that the profession of this city, the home of the distinguished Benjamin Rush, should do something substantial to commemorate his memory. They can do nothing better than to establish at once, before this meeting adjourns, a Rush Memorial Prize, to be awarded for the best treatise on any subject relating to the science or practice of medicine. This city has an enviable reputation for its distinguished, enthusiastic and wealthy physicians, and he was confident they need only to be reminded of this late obligation to their most eminent colleague of the past, to step forward and subscribe the necessary fund of five or six thousand dollars. He was sure, if Benjamin Rush had a voice in this matter, he would prefer such a monument to one of marble or bronze. He hoped that in the near future every section will establish an annual prize. If this is done, we may expect a rich harvest of the most valuable contributions to indigenous medical literature.

American Medical Literature.—During the early history of our country students and physicians had to depend upon foreign authors for their text-books. With the Declaration of Independence came a sense of responsibility to our representative medical men to create a literature of our own. The first timid attempts consisted in translating or editing foreign books. The great evil of this then, and to a certain extent even now, too general a practice, did not escape the good sense and keen eye of one of the early members of this Association, whose name has become a household word throughout the civilized world—Oliver Wendell Holmes—who alludes to this subject in the following plain but significant language: "It cannot be denied that the great *forte* of American medical scholarship has hitherto consisted in 'editing' the works of British authors. The committee are not disposed to disguise the fact that this business has been carried on in a very cheap and labor-saving fashion. A tacit alliance between writers and publishers has infused the spirit of trade into the very heart of our native literature. The gilt letters of the bookbinder play no inconsiderable part in the creation of our literary celebrities. Sometimes the additions by the 'American editor' have been real and important, often nominal and insignificant." Dr. S. D. Gross, the Nestor of American surgery, and the foremost medical author this country has produced, raised his voice against such a parasitic literature at the meeting of the American Medical Association in 1850 by offering the following preamble and resolutions, which were unanimously adopted:

Whereas, The interests and dignity of the medical profession of the United States, as well as the true spirit of patriotism and a love of independence, demand that we

should use all proper and honorable means for the establishment of a National Medical Literature, and

Whereas, We have hitherto paid too blind and discriminate a deference and devotion to European authority;

Resolved, That this Association earnestly and respectfully recommend to the medical profession generally, and to the various medical schools in particular, the employment of native works as text-books for their pupils, instead of the productions of foreign writers.

Resolved, That the editing of English works by American physicians has a tendency to repress native literary and scientific authorship, and ought therefore to be discouraged by all who have at heart the object contemplated in this preamble.

Resolved, That this Association will always hail with satisfaction the reprints in their original and un mutilated form, of any meritorious works that may emanate from the British press.

Rush Monument.—He had mentioned Benjamin Rush in his address in various connections, but he felt constrained to refer to him once more regarding a movement initiated by Dr. A. L. Gibbon, to erect to his memory a suitable monument in the city of Washington. The city of Washington is embellished and graced by many statues of the men whose lives are part of the nation's history. The services of presidents, heroes and patriots have been commemorated by the erection of statues of marble and bronze, the gift of an appreciative and grateful people. Law and science have been recognized in a similar manner by the erection of monuments, or costly oil-paintings, to the memory of the leaders in the legal profession, and the exponents of science and art, as a token of respect by the legal profession and the devotees to art. He hoped the Association would erect a suitable monument to Benjamin Rush.

Association Dinner.—The Committee of Arrangements are always severely taxed in procuring suitable entertainments for the members at each annual meeting. Much time and money have been spent for this purpose; and all of us can testify to the lavish hospitality extended year after year by the local physicians and public-spirited citizens. The evening receptions have been enjoyable, and conducive in bringing the delegates and members in closer contact. But he was sure they could not take the place of an Association dinner in making strangers friends, and in affording the best possible opportunities for an interchange of ideas and experiences, often of much more value than in listening to the reading of a scientific paper. Let us relieve our Committee of Arrangements of the greatest burden of their work and take the necessary steps to become independent, as far as our social enjoyments are concerned, by gathering around the festive board at our own expense. Section dinners have been a failure, and should be abolished. Let us have a dinner where the sturdy country physician can sit with his more nervous and excitable colleague from the city, where the surgeon can meet the physician, the physician with the specialists of all kinds,—that is, an easy, informal commingling of the different professional elements.

Evening Demonstrations.—It has occurred to him that the third evening of each session should be devoted strictly to scientific work of a special character. It seemed to him that nothing would prove more profitable and attractive than a lecture on bacteriology, histology (normal or morbid), illustrated by magic-lantern pictures from photomicrographs projected upon a screen. The lecturer should be chosen by the Nom-

inating Committee from year to year. We have an abundance of men well qualified for such a task within the ranks of our Association. A lecture of this nature, with numerous illustrations, would secure a large attendance, and would be one of the means of keeping our members informed of what pure science is doing for the healing art.

Permanent Home of the Association.—One of the present needs of the Association is a permanent home, with an editorial office and press-room for its official organ, a hall for the meetings (to be held at least every three years), which could also be utilized for the meetings of local societies, a library-room for American medical literature, and a memorial hall for paintings, busts of distinguished members of the Association, and a room for a collection of indigenous medical plants and surgical instruments, the invention of American physicians and surgeons. The site for such a home should be decided by vote of all members of the Association. The present financial status of the Association justifies the taking of the necessary steps to bring such a project into effect at an early date. He was sure the profession of the city that will be honored by becoming the site of such a wonderful institution will contribute liberally toward erecting and maintaining it. Such a modern Esculapian temple would soon become the Mecca for those in search of American medical literature, and a rich storehouse for everything pertaining to the medical history of this country.

Upon motion, the thanks of the Association were extended to Dr. Senn for his instructive address, and the recommendations were referred to the Executive Committee for action.

DR. A. L. GHON read the report of the Committee on Rush Monument, in which he said that the amount on hand was only \$4,016.19. The speaker considered Benjamin Rush one of the greatest American physicians that ever lived, one to whom American physicians owed the greatest gratitude, and who was deserving of the homage of every lover of his country because of the courage he had always exhibited and because of his martyrdom.

DR. CUTTER, of New York, moved that the Association appropriate each year \$1,000 until the requisite amount was raised.

DR. GRAHAM, of Denver, offered an amendment that the sum of \$100,000 be raised by members of the Association, and he pledged Colorado for \$2,000.

This amendment was carried, after which delegates from several States pledged \$2,000 each for their respective States.

DR. HENRY P. NEWMAN, of Chicago, read his report as Treasurer, in which he said that during the past year the Association had been very prosperous, in that its membership was steadily growing. There was now on hand a balance of nearly \$6,000.

AMENDMENTS TO THE CONSTITUTION

were then taken up and voted upon.

ARTICLE IV. — Officers. Amend to read, "each officer shall hold his appointment for one year, and until another is elected to succeed him."

On motion, this amendment was indefinitely postponed.

Executive Council. "That there be made an Executive Council of five, consisting of three officers of the Executive

Committee and two officers chosen by election. Of this council of five, one must belong to the Section on Practice of Medicine, and one to the Section on Surgery and Anatomy. To this Executive Council shall be delegated all the duties of the Executive Committee during the intervals between the meetings."

On motion, this amendment was adopted.

ARTICLE IX. — Conditions for further representation. "Any State or local medical society, or other organized institution whose rules, regulations and code of ethics agree in principle with those of this Association may be entitled to representation on the advice or agreement of the Judicial Council."

Indefinitely postponed.

To change the name of the Section on Dermatology and Syphilography to that of "Cutaneous Medicine and Surgery."

Adopted.

SECOND DAY. — WEDNESDAY.

The meeting was called to order by PRESIDENT SENN at 10 A. M.

The Address in Medicine was delivered by DR. AUSTIN FLINT, of New York City, who selected for his theme

STERCORIN AND CHOLESTEREMIA.

In Hoppe-Seyler's *Zeitschrift für Physiologische Chemie*, Strassburg, 1896, is a paper by Bondzynski and Humnicki entitled "The Destination of Cholesterol in the Animal Organism." The authors profess to have discovered a new constituent of the human feces, which they call *koprosterin*. This substance is identical with stercorin, fully described in 1862. The reading of this article led the speaker to repeat the original researches of 1862, carrying them out by the methods then employed, at the same time repeating the observations of Bondzynski and Humnicki with the methods and appliances used in their work. It was mainly an account of these new observations that he gave. The chemical manipulations were done by Dr. H. A. Hanbold, assistant to the chair of physiology in the Bellevue Hospital Medical College, and J. A. Mandel, assistant in the department of chemistry in the College of the City of New York and to the chair of chemistry in the Bellevue Hospital Medical College. To these two skilful assistants he was indebted for most painstaking and accurate work, extending over a period of several months.

The original stercorin, of which specimens obtained in 1862 were in his possession, was extracted from the human feces by the following process: The dried and pulverized feces were extracted with ether. The ethereal extract was passed through animal charcoal and afterward evaporated. The residue was then extracted with boiling alcohol. The alcoholic extract was treated with potassium hydrate solution, at a temperature near the boiling point of water, in order to remove the fats by saponification, which were washed out with water until the filtrate was neutral and perfectly clear. The filter was dried, extracted with ether, and the ethereal extract evaporated to dryness and extracted with boiling alcohol. The stercorin was obtained from the alcoholic extract by repeated crystallization.

This process was exactly repeated in their recent observations, and, at the same time, stercorin was extracted by the process described by Bondzynski and

Humnicki. Normal human feces were obtained to the amount of about fifty pounds. After drying, the feces were divided. Two analyses each were made by Hanbold and Mandel, each one extracting stercorin in one portion by the original method, and in the other by the new method. All the extracts obtained were identical in their composition, reactions and the form of crystals. It was fortunate that he had for comparison a fairly large specimen of stercorin extracted in 1862, and a microscopic slide bearing the date of June, 1862, in which the crystals were perfect. The product obtained by his process was a little more abundant and crystallized rather more readily than that obtained by the later method.

In the process employed by Bondzynski and Humnicki, the dried feces were extracted with ether, using Soxhlet's extraction apparatus. The fats were saponified with sodium alcoholate. No animal charcoal was used. The substance was purified by repeated crystallizations. These variations from the original method were unimportant, except in so far as they expedited the process of extraction. The form of the crystals and the reactions were identical with those which he obtained for stercorin in 1862. Analyses of the products obtained by them, full details of which were given in a paper sent to Hoppe-Seyler's *Zeitschrift*, gave, for stercorin, the formula, $C_{27}H_{48}O$, the formula found for cholesterol being $C_{27}H_{46}O$. The change of cholesterol into stercorin was effected by the addition to the former of two atoms of hydrogen. A close comparison of the results of their ultimate analyses with those obtained by Bondzynski and Humnicki showed conclusively that *koprosterin* and stercorin were identical, and that stercorin was not an impure cholesterol, as is held by some eminent investigators, such as Hoppe-Seyler, K. B. Hofmann, and others. Stercorin crystallizes in long, fine needles which radiate from a centre, forming tufts, and which cannot be confounded with the characteristic crystals of cholesterol. In a chloroform solution, stercorin gives, with an equal volume of concentrated sulphuric acid, first a yellow color and then a gradual change to orange, red and finally dark red. Treated in the same way, cholesterol promptly gives a blood-red reaction without these intermediate tints.

It is now generally admitted that the bile, in addition to its function connected with digestion, contains one or more excrementitious matters. Taking into consideration the various ingredients of the bile, there seems to be but one which can logically be compared to urea. Cholesterol is found in many of the tissues and organs of the body and exists in the blood. Likening it to urea, it becomes a question whether it is formed in the liver and discharged in the bile or is merely separated from the blood by the liver and excreted. As it is constantly found in notable quantity in the nervous tissue, in the proportion of eight to twelve parts in a thousand, it occurred to him to examine the blood of the internal jugular, and compare the proportion of cholesterol with that found in arterial blood. In one experiment, on a dog, the blood being taken without using an anesthetic, he found an increase in the jugular over the carotid of nearly 60 per cent. In an etherized animal the increase was only about 3.5 per cent. In another dog, not etherized, the increase was about 23 per cent. There was also an increase of from four to six per cent. in the blood of the femoral vein over arterial blood. In

three cases of hemiplegia, the blood from the arm of the sound side contained about the normal proportion of cholesterol, while blood from the affected side contained no cholesterol.

Passing from these observations to the pathological relations of cholesterol, after examining three specimens of normal blood, and finding the proportion of cholesterol from 0.445 to 0.751 of a part in a thousand, examinations were made of the blood of patients with simple jaundice and those with what is called *icterus gravis*, the cases terminating fatally with grave nervous symptoms. In a case of simple jaundice, terminating in recovery at the end of about four weeks, the blood contained 0.508 of a part in a thousand, well within the limits in normal blood. In a case of jaundice with cirrhosis, terminating fatally with serious nervous disturbance, the blood taken six days before death contained 1.850 parts in a thousand of cholesterol, an immense increase over the normal proportion. In this case, on post-mortem examination, the liver was found contracted, and the gall-bladder was shrunken, containing only about seven cubic centimetres of bile.

The question of cholesteremia has been much discussed since 1862, for the most part with scant approval or without acceptance. However, Picot, in 1872, reported a fatal case of "grave jaundice," in which he determined a great increase in the proportion of cholesterol in the blood, 1.804 parts in a thousand. Many attempts have been made, also, to produce toxic effects by injecting cholesterol into the blood, but most of them have been unsuccessful on account of mechanical obstruction of the blood-vessels. In 1873, however, Koloman Müller succeeded by injecting cholesterol rubber with glycerin and mixed with soap and water. In five experiments on dogs, injecting in each 0.045 gramme of cholesterol, he produced a complete representation of the phenomena of "grave jaundice."

In repeating the original researches of 1861, the observations, as regards analysis of feces, etc., were somewhat extended. With modern apparatus, the manipulations may be freed from many disagreeable features which heretofore, probably, have interfered with this line of investigation. In extracting stercorin, various volatile fatty acids and other substances were removed, the constitution and relations of which are unknown. They studied, in this connection, some of the products of bacterial action, obtaining, by the action of fecal bacteria on proteids, skatol and indol, both substances containing nitrogen. It is well known that phenol and cresol also exist in the feces. These nitrogenized matters are putrefactive products; nothing is known of their physiological or pathological relations; and up to this time stercorin is the only excrementitious matter yet found in the feces the origin and relations of which are at all understood. Our knowledge, indeed, of the physiological chemistry of the feces is only just begun; and we may look to future investigations for much that will be most important as well as interesting. The same might be said, in a measure, of the bile and of the true pathology of certain functional and structural diseases of the liver. How long shall we continue to speak of biliousness, congestion or torpor of the liver, the classic "liver complaint," *et id genus omne*, using terms which have no scientific meaning? Undoubtedly there are general disturbances, dependent upon some disorder in the functions of the liver, which occur without jaundice; and this fact has long been recognized.

In a case of cirrhosis with considerable constitutional disturbance but no jaundice, the blood was found to contain an excess of cholesterin 0.922 of a part in a thousand. In what is termed acholia, there may be grave nervous symptoms without jaundice; and the pathology of such cases is unknown. The biliary salts are not found in the blood, and the symptoms cannot be accounted for by disturbances in digestion. It is possible that light will be shed upon their pathology if it is admitted that there is a condition called cholesteremia. As yet this is but speculation; but if the theory of cholesteremia is accepted, a wide field of inquiry is opened in this direction, and ere long we may speak of "biliousness" and "liver complaint" with some definite ideas of their pathology.

With this paper he presented photographs of cholesterin, stercorin extracted by the original method, and stercorin extracted by the method of Bondzyski and Humnicki, all in 1897, with a photograph of crystals obtained in 1897 from a specimen of stercorin extracted in 1862.

PRESIDENT MCKINLEY was then introduced, and addressed the Association for one or two minutes. He said he could not refrain from pausing a moment that he might come into this brilliant presence to meet the learned gentlemen assembled, and to pay his respectful homage to the noble profession which they so worthily represented.

GOVERNOR HASTINGS followed with a few remarks in which he considered that the development of medicine had been greater than that of any other science. He thought it a mistake that monuments were not erected to the great masters of medical science in this country.

DR. H. C. WOOD, of Philadelphia, spoke forcibly on the Anti-vivisection Bill, and after giving a brief history of past legislation on the subject he emphasized the necessity of each member taking a personal interest in opposing the sinister and persistent efforts of the anti-vivisectionists. He offered a resolution against the passage of Senate Bill No. 1063, which was unanimously adopted.

THIRD DAY. — THURSDAY.

The Association was called to order by President Senn at 1 o'clock.

DR. FREDERICK HORNER presented a Report from the Committee on Organization of a Relief Association, and it was moved that the President appoint a committee of one from each State to establish such an association.

The Report of the Board of Trustees showed a satisfactory condition of the treasury, and also a steady increase in the circulation of the *Journal*.

DR. W. W. KEEN, of Philadelphia, was then introduced, and delivered the

ADDRESS IN SURGERY.

He said: As we celebrate on this occasion the semi-centennial of the organization of the American Medical Association in this city in 1847, it is very natural and proper that the Address in Surgery should be a review of the work done in the last fifty years, and by contrasting the state of surgery and of surgical teaching in 1847 with that which exists in 1897, to see what progress has been made. To account what had been achieved in these "fifty years of science," far better than a "cycle of Cathay," is not only a

pleasure, but it is an immense incentive, since, by the progress made in the last fifty years, we can in some measure anticipate the enormous and probably even still greater progress that will be made in the next half-century.

A most important factor in the improvement, not only in surgery but in all departments of medicine, has been the immense advance made in medical teaching. The educational plane of the profession has been steadily elevated. If the teachers of fifty years ago were to revisit the scenes of their early labors, they would scarcely recognize the medical colleges in which in their day and generation and with the meagre appliances then at their command, they did what we must still recognize as yeoman's work in education. Apparently at that time the entire instruction consisted in lectures, no text-book being even advised. In reply to the letter addressed to the deans of the Jefferson Medical College, the University of Pennsylvania, Harvard University, and the Medical Department of Columbia University, I am told that no lists of text-books whatever appear on the catalogues of fifty years ago.

Now, we may congratulate ourselves that the majority of the medical schools of the country have a graded course of four years, each covering not less than six and often eight months; not only lectures, but in many instances constant and searching recitations; almost a score of laboratories, in which each student actually does the work of observation and experiment; ward classes, in which every man is obliged to train his eyes, his ears, his fingers, and his judgment in the examination of patients in every department of medicine, to ferret out the history of the cases brought before him, ascertain symptoms, seek for physical signs, reach a diagnosis, determine the treatment, and often actually to prescribe and to assist at operations.

Allied to medical teaching and the most important adjunct to medical literature is the establishment of extensive medical libraries. In this, as an American, I am proud of my own country. No foreign nation can point with equal pride to any such medical libraries as the last thirty years have developed in this country. Foremost, not only among American libraries but in the world, is that of the Surgeon-General's Office of the United States Army in Washington. Not only has it gathered thousands of medical books and the 1,100 medical journals (the estimate of Dr. Fletcher) from all over the world, but the entire library is managed with a liberality which makes it the admiration and the envy of foreigners. Its treasures are freely at the service of the entire profession of the country; and the publication, under the editorship of Dr. John S. Billings, of its magnificent "Index Catalogue" has made the whole world debtors to America. We trust that a more liberal Congress may see that if even the small amounts thus far given to it have made it of such immense value, still larger and more generous appropriations would keep it ever in the van.

Dr. Keen then proceeded to dilate upon other noteworthy features upon which the development of modern surgery is dependent, declaring, among other things, that without anesthesia and antisepsis, modern surgery would be an impossibility. Animal experimentation, he said, had had also a very large share in the development of modern surgery. The whole question of the

introduction of animal ligatures was begun in America by Physick, who used buckskin; his follower, Dorsey, used kid, and cut both ends short; Hartshorne used parchment, and Belleuger and Eve used the tendon of the deer. The problem has been solved principally by experiment upon animals in order to determine accurately the behavior of such ligatures in the tissues. Only professional readers can appreciate what a boon to humanity this simple achievement has been. Modern cerebral surgery also owes its exactness and success almost wholly to cerebral localization and antiseptics, both of which were first studied by experiment upon animals, and later by the application of the knowledge so gained to man. Bacteriology would not now exist as a science, nor would accurate, modern surgery and a large part of modern medicine be possible had experiments upon animals been prohibited, as some zoophilist women, who love dogs better than men and women and even little children, desire.

Dr. Keen reviewed the surgical treatment of various cancerous diseases of the organs; and of appendicitis he said: The appendix, that meagre but most troublesome ancestral vestige, which with the bicycle has been the faithful friend of the surgeon through the past four years of commercial depression, has been recognized within the last few years as the real origin of the so frequent abscesses in the right iliac fossa. Beginning with Willard Parker's paper in 1867 and Fitz's memorable paper in 1886, the treatment of appendicitis, and even its much abused name, are distinctly of American origin and an immense credit to American surgery.

A hasty review, such as has been given of the improvements in surgery within the last fifty years, does much more than show us the adroitness, audacity and success of the modern surgeon.

That is the thing which strikes us most as surgeons; but we must regard all these improvements also from the side of the patient and the family, and see what it means. It means a prolongation of life by operations which, while not without pain and suffering during recovery, have been robbed of all their primary terrors by anesthesia, and of most of their subsequent pain and suffering by antiseptics; it means that patients who in 1847 were hopelessly consigned to the grave after weeks and months of suffering are now, in the vast majority of cases, rescued from death; it means that families formerly bereft of husband or wife, parent or child, and left to spend years of sorrow, of suffering, and, in many cases, of poverty because the breadwinners were taken away, have now restored to them their loved ones in health and strength and usefulness; it means that the hecatombs of a Caesar, of an Alexander, a Napoleon, are offset by the beneficent labors of a Morton, a Warren, a Lister, who are — and who for all time will be — blessed by many a poor patient who never heard of them, instead of being cursed as the destroyers of nations and of homes innumerable; it means that man's inhumanity to man shall be replaced by a scientific and Christian altruism which sheds blessings and benefits on the whole human race, seeing in the patient, whether saint or sinner, only a human being who is suffering from accident or disease, whom it is the province of the surgeon, in imitation of Him who went about doing good, to restore to health and happiness. Even where life cannot be prolonged, the agonies of death itself can be soothed by his hand and fruitful skill.

What the future has in store for us we can only dream. Two diametrically opposing tendencies are prominent in modern surgery: radical interference with disease, so that there is scarcely now a single organ or portion of the body not within our reach; yet, on the other hand, a remarkably conservative tendency in cultivating remedial rather than radical surgery. Joints so diseased as once to require amputation are now treated conservatively with the best results. Ovaries, a portion of which can be preserved, are kept in the abdomen; kidneys once doomed to extirpation are now partially removed, and bones so diseased that they then required amputation are now excised and the limb preserved. Experiments upon animals have recently given us wholly new views of infection and of the origin of many diseases, and also the little knowledge that we yet have as to either natural or acquired immunity and to a consequent orthotherapy.

It is, he believes, on these lines that our more immediate future triumphs will be achieved. We have discovered the actual cause of tetanus, tuberculosis, erysipelas, suppuration, and a host of other diseases and conditions, of the causes of which we were wholly ignorant a few years ago. The causes of many other disorders, both medical and surgical, still remain hidden from our view. We know almost nothing of the origin of benign tumors, and are groping to discover the origin of cancer, sarcoma, and other malignant growths. When we have discovered the cause we are nearly half-way, or at least a long way, on the road to the discovery of the cure; and I think it not unlikely that in 1947 your then orator will be able to point to the time when a definite knowledge of the causes of these diseases was attained, and probably to a time when their cure was first instituted.

That will be a surgical paradise when we can lay aside the knife and by means of suitable toxins or antitoxins, drugs, or other methods of treatment, control inflammation, arrest suppuration, stay the ravages of tuberculosis or of syphilis, abort or disperse tumors, cure cancer, and, it may be, so prolong human life that all of one's then audience will die either of accident or of old age. Would that you and I could be alive in 1947 to join in the glorious surgical *Te Deum*.

JUBILEE EXERCISES.

The founder of the Association, Dr. N. S. Davis, of Chicago, then made his appearance on the stage, escorted by the Presidents of the various State Medical Societies and of the State Boards of Medical Examiners.

DR. JOHN B. ROBERTS, Chairman of the Committee on Anniversary Exercises, in a very appropriate speech presented Dr. Davis to President Senn.

DR. DAVIS was very warmly received on rising to speak. He read an address entitled

A BRIEF HISTORY OF THE ORIGIN OF THE AMERICAN MEDICAL ASSOCIATION, THE PRINCIPLES ON WHICH IT WAS ORGANIZED, THE OBJECTS IT WAS DESIGNED TO ACCOMPLISH, AND HOW FAR THEY HAVE BEEN ATTAINED DURING THE HALF CENTURY OF ITS EXISTENCE.

DR. JOHN B. ROBERTS said that diligent search had revealed that there were only four of the original members of the Association still living.

DR. GEO. BEN JOHNSTON, of Richmond, Va., followed with an address entitled

WHAT THE STATE MEDICAL SOCIETIES HAVE DONE FOR THE PEOPLE.

He said it was worthy of note that every State in the Union had to-day its medical society, and that, although their ages differed, all were filled with the same spirit and vigor of youth. In most States, there was formerly no requirement for a license to practise beyond the mere payment of a tax; but to-day all was changed, and now there was scarcely a State in which there was not a sufficient and well-executed law by which only qualified men were admitted to practise. The enactment of such laws as now exist was procured through the efforts of the State societies acting independently of each other; and there never was any well-directed attempt at co-operation, which accounted for the dissimilar character of the various statutes and the varying nature of the prescribed machinery for executing them.

DEATH OF DR. COCHRAN.

Resolutions were read and adopted regarding the death of Dr. Jerome Cochran, of Alabama.

FOURTH DAY. — FRIDAY.

The Association met at 10 A. M., and was called to order by PRESIDENT SENN.

DR. JOHN B. HAMILTON, of Chicago, delivered the address in State Medicine. He selected for his subject,

THE PREVENTION OF TUBERCULOSIS.

He stood, he said, by appointment in the place of the late Dr. Jerome Cochran, of Montgomery, Ala., whose pre-eminence in the science of preventive medicine easily singled him out from among his fellows as peculiarly fitted to deliver the Annual Address in State Medicine. His vast erudition, extended experience, and long public service made him *facile princeps* in all matters relating to sanitary work. Dr. Hamilton then paid a glowing tribute to the life and work of Dr. Cochran.

Coming to the subject of his address, he said that pulmonary tuberculosis alone took 345,963 lives in the five years, 1850, 1860, 1870, 1880 and 1890. These were the years in which the United States census was compiled.

In the 28 largest cities of the German empire, the number of deaths from consumption per 100,000 of the aggregate population during the year 1890 was 299, ranging from 453 in Nuremberg, 367 in Dortmund, 357 in Frankfort-on-the-Main, 388 in Crefeld and 353 in Elberfeld to 236 in Königsberg, 249 in Strassburg, 239 in Halle and 247 in Chemnitz.

The average annual number of deaths from consumption per 100,000 of inhabitants for the ten years, 1881 to 1890, was, for Paris, 463; Nuremberg, 457; Dortmund, 417; Barmen, 381; Aachen, 377; Frankfort-on-the-Main, 373; Crefeld, 373; Bremen, 392, and London, 206. The death-rates from consumption in most of the large cities diminished during the ten years 1881 to 1890. The difference in the mortality from consumption in the large cities of the United States depend largely upon differences in the proportion of different races in the several cities, and, also, to some extent, upon the age, distribution and density of population, on the depth of the level of subsoil

water, and on the dryness and uniformity of temperature of the climate. As a rule, the death rate from this cause in large cities is greater than it is in the small towns and rural districts.

General Measures of Relief.—The humanitarian turns to science for relief from this "great white plague," so destructive, so elusive, and so calamitous; and it is now the province of State Medicine alone to point out the methods by which we may put this plague "upon a basis of gradual extinction."

The prevention of tuberculosis cannot be accomplished in a day, but its ravages may be made less by such prompt measures on the part of our boards of health as may easily be taken, provided the laity are taken into confidence. The public must be fully educated to an understanding of the causes and method of propagation.

Heredity.—The heredity of the disease has been established by Baraud and Rénon, who reported to the Société de Biologie of Paris, in June, 1895, that they had investigated the question of the direct transmissibility of the bacillus through the placenta to the human fetus. In five cases they took a quantity of blood from the umbilical vein, and injected it under the skin of the abdomen of guinea-pigs, immediately after the birth of the child. In three of the cases the guinea-pigs did not become tuberculous, while in two they did. In the first case the mother was in the first stage of phthisis, the sputa containing bacilli. There were no lesions of the placenta present, apparently. The guinea-pig which was injected developed a chancreous ulcer at the point of inoculation, and died with tuberculosis of the liver and spleen at the end of two months. The bacilli were found in the spleen, pulp and in the caseous masses of the chancreous ulcer. An autopsy performed on the still-born infant gave negative results. Three guinea-pigs were injected with the juice of the pulp of the lung, liver and peritoneal serum, and two of them died. In the second case, the mother had pulmonary cavities, but no examination of the sputa was made. The child died of broncho-pneumonia on the fortieth day. The placenta presented a normal appearance. At the moment of birth, blood from the umbilical vein was injected into two guinea-pigs; one pig died of generalized tuberculosis, the other lived.

Solly, of Colorado, holds that a connection between phthisis in an individual and phthisis in the family may be exercised in one of three ways, namely, by inheritance of bacilli, by inheritance of susceptibility, or by contagion.

Lehman has reported a case of congenital tuberculosis, where a mother died three days after the birth of the child, of tuberculous meningitis. The child lived but twenty-four hours. In its spleen, lungs and liver were found nodules resembling tubercles and containing tubercle bacilli in large numbers.

Mahn has collected and reviewed some cases of tuberculosis where they were undoubtedly congenital. The semen may also become infected and thus transmit the disease to the fetus. Gärtner caused tuberculosis in young mice by injecting the mother with tubercle, either into the peritoneal cavity or into the blood stream.

Baumgarten detected the tubercle bacillus in the ovum of a female rabbit which he had artificially fecundated with tuberculous semen.

Infection by Milk.—There is no longer any ques-

tion of the possibility of infecting the lower animals by the injection of tuberculous milk, but direct evidence of transmission of tuberculosis by milk in man by ingestion is not yet positive, except in cases of udder tuberculosis.

In cows with tubercular disease of the udder, the Royal Commission found that the milk was in every case infective, and the experiments made by inoculation in every case gave positive results. As regards feeding, 27 animals were fed with varying quantities of milk from cows with tubercular udders. Of these 27 animals, 19 developed tuberculosis. The brunt of the disease in these cases fell on the abdominal organs, showing the alimentary origin, but in some cases also there was a more generalized infection. The glands about the mouth and angle of the jaw were also found sometimes tubercular.

Dr. Martin, in speaking of these experiments, says: "The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary. In those cows where the tubercle bacilli were found in the milk, the feeding experiments were uniformly positive as well as the inoculation experiments. It is noticeable, too, that a small dose of the milk diluted four times gave tuberculosis to all the animals fed, and that a dose of even .05 to .1 cubic centimetre diluted with non-infective milk was sufficient to produce tuberculosis."²

It is well known that many cattle are affected with tuberculosis in this country, that the milk goes into the general supply, and that tubercle bacilli may be found in the milk in cases of udder tuberculosis, and that rabbits inoculated with infected milk or fed upon infected milk, become tuberculous. Dilution with non-infected milk attenuates the bacilli, and the dishonest practice of watering is therefore not without its compensation.

Dr. Gehrman, of the Chicago Health Department, after testing the milk from tuberculous cows, writes: "In only one specimen of milk was it possible to demonstrate the presence of the tubercle bacillus microscopically, but in thirty-eight injections of the milk in animals we had the transmission of tuberculosis demonstrated six times."

Infection by Tuberculous Meat.—Tubercle bacilli have been found in the flesh of horses, cattle and swine. Birds and fowls also become infected, and when dogs and cats become infected it is said that they become so by reason of eating flesh of tuberculous animals, but this lacks corroboration by extended experiment.

The review of the recent reports on this branch of the subject corroborates the former view that careful cooking of meat and boiling of milk before eating or drinking these articles will prevent them from doing positive harm, but few would relish food if it were known to be tuberculous, even if cooked by a Lucullus. An act passed this year, by the Maine Legislature, provides for the killing of all diseased animals, the injection of kerosene oil into their carotid arteries, and the burial of the carcasses within twenty-four hours or their reduction to fertilizing material within forty-eight hours.

To sum up, it appears that the greatest danger is from the dried sputum, and that other causes, while they exist, are of much less importance. The local infections that are found in the bones and internal

viscera are produced by invasion through the circulation, while the infection of lymphatic glands doubtless takes place by direct absorption through the lymph channels. Every surgeon has noticed without doubt that tuberculous glands become successively affected; it is the exception to find a whole chain of glands simultaneously affected. When the tubercular lesion is found in the skin the point of invasion is an abrasion; or a centre beginning in the hair follicle.

The means of prevention of the spread of tuberculosis are then sufficiently apparent after we have taken our observations on the methods of infection. The factors in successful prophylaxis are: (1) The guarding against infectious food or drink being issued to the people anywhere. (2) The prompt destruction of cattle proved to be tuberculous. (3) Proper notification to the sanitary officer of the occurrence of cases of pulmonary consumption.

Marriage of the Tuberculous should be Opposed.—

The law prevents marriage within certain degrees of consanguinity; no account is taken of the physical state of the contracting parties, although in many States certain physical causes are sufficient reason for divorce. If chronic and incurable disease be sufficient ground for separation, how much more reason is there for the prohibition of the marriage rite. The insane and incurably diseased should not be allowed to propagate their species, unless we confine our sympathy to the individual instead of the whole people. The heredity of the disease has at last been fairly proved by scientific investigation. Public opinion should now do the rest.

Richardson's "City of Hygeia," that beautiful fabric of a vision, as one of our countrymen has said, "was blown away by the winds, but they blew it all over the earth." So the wide dissemination of correct knowledge concerning the cause and propagation of tuberculosis cannot but tend to still further restrict its ravages, and thus add to the sum of human happiness and the prolongation of human life.

The following officers were elected for the ensuing year:

President, Dr. George M. Sternberg, Washington, D. C. First Vice-President, Dr. Joseph M. Mathews, Louisville, Ky. Second Vice-President, Dr. J. L. Thompson, Indianapolis, Ind. Third Vice-President, Dr. J. W. Wiggin, New York, N. Y. Fourth Vice-President, Dr. T. J. Happel, Trenton, Tenn. Treasurer, Dr. Henry P. Newman, Chicago, Ill. Assistant Secretary, Dr. W. A. Jayne, Denver, Col. Librarian, Dr. Geo. W. Webster, Chicago, Ill. Chairman, Committee of Arrangements, Dr. J. W. Graham, Denver, Col.

Board of Trustees: Dr. J. T. Priestley, Des Moines, Ia.; Dr. Joseph Eastman, Indianapolis, Ind.; Dr. Truman W. Miller, Chicago, Ill.

Judicial Council: Dr. D. W. Crouse, Waterloo, Ia.; Dr. T. D. Crothers, Hartford, Conn.; Dr. Wm. T. Bishop, Harrisburg, Pa.; Dr. R. C. Moore, Omaha, Neb.; Dr. G. B. Gillespie, Covington, Tenn.; Dr. C. H. Hughes, St. Louis, Mo.; Dr. Ida J. Hieberger, District of Columbia.

The Annual Addresses were allotted as follows: On General Medicine, Dr. J. H. Musser, Philadelphia, Pa.; On General Surgery, Dr. J. B. Murphy, Chicago, Ill.; On State Medicine, Dr. S. C. Busey, Washington, D. C.

Adjourned to meet in Denver, Col., in 1898.

² T. P. C. Kirkpatrick: The Spread of Tuberculosis by the Milk Supply, Dublin Journal Medical Science, May, 1897.

THE BOSTON
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EIGHTY-THIRD ANNUAL REPORT OF THE
MASSACHUSETTS GENERAL HOSPITAL.

THE Annual Report of the Massachusetts General Hospital for the year 1896 has recently appeared.

The most striking event of the year in the history of the hospital was the celebration at the General Hospital, of "The Semi-Centennial of Anesthesia," October 16, 1896, that day being the fiftieth anniversary of the day on which occurred at the Massachusetts General Hospital, the first public demonstration of surgical anesthesia, an event which settled for all time the future of anesthesia. The addresses and poem, it will be remembered, were published in full in our issue of October, 1896. The poem, addresses and other details of the proceedings have been embodied in a handsome memorial volume lately issued.

On October 9th, the gift to the corporation, by Dr. Wm. S. Bigelow, of a bust of his late father, Dr. Henry J. Bigelow, was announced and the following vote was adopted:

Voted, That the thanks of the Corporation be given, through the Trustees, to Dr. Wm. S. Bigelow for his most acceptable gift of his father's bust; that it be placed in the Bigelow Amphitheatre, and that Dr. Wm. S. Bigelow be invited to act as a committee in selecting its position.

The tables of Medical and Surgical Statistics, which were omitted in 1895, are here continued, this report containing the tables for 1895 and 1896. They show a large amount of medical and surgical work with excellent result.

It appears from the surgical tables that in 1895 there were 131 cases of appendicitis operated on, of whom 16 died—a mortality of 12 per cent. Of those, 106 were acute cases, with 16 deaths; 25 were chronic and recurrent, with no deaths.

In 1896, 157 cases of appendicitis were operated on, 15 of whom died—a mortality of only 9.5 per cent.; 94 of these were acute, with 15 deaths; 63 were chronic or recurrent, with no deaths.

In 1895, there were 37 patients operated on for

"radical cure" of hernia, without a single death (this is, of course, exclusive of strangulated and incarcerated hernia). In 1896, there were 98 cases operated on for "radical cure" of hernia, with one death. In the three years during which these tables have been published there have been 184 operations for radical cure of hernia, with only one death, a mortality of a little more than one-half of one per cent. During the same period there have been done 119 hysterectomies for cancer and fibroid tumors of the uterus, with 12 deaths, or 10 per cent.

The cases most largely represented in the medical wards have been typhoid fever, pneumonia, Bright's disease and heart disease, the above diseases constituting 34 per cent. of the medical admissions in 1895, and 29 per cent. in 1896.

In the Out-Patient Department during 1896, 29,867 new patients were treated.

The Training-School for Nurses, which a year ago was transferred by its managers and made a part of the Massachusetts General Hospital, has, as in the past, done admirable work. During the year 72 nurses were in regular training and 32 were graduated. Many of the physicians and surgeons of the hospital staff lectured to the nurses, and regular instruction in massage, cooking and dietetics was given. The value attached to the instruction given in this training-school is indicated by the fact that there were 836 applicants.

During 1896 Hon. Roger Wolcott and Mr. Thornton K. Lothrop resigned their membership in the Board of Trustees, and Messrs. George Wigglesworth and Samuel D. Warren were elected to fill their places.

Dr. J. W. Pratt, who for ten years has filled the position of Resident Physician of the General Hospital, and who, during that time, has won the cordial goodwill of all his associates, resigned June 1, 1897. In accepting his resignation, the trustees express their appreciation of the admirable qualities which Dr. Pratt has displayed during his long term of service, and their wishes for his future success.

The Report of the Superintendent of the McLean Hospital shows that 258 cases were treated during 1896, and 125 new cases were admitted, of whom 80 were regarded as recent cases, and 45 as chronic or incurable.

The average duration of illness from the beginning of attack in all cases recovered was 7.28 months, and the average duration of their residence in the hospital was 4.32 months. The percentage of recoveries on all admissions, for the year 1896, was 18.9.

The 49 voluntary cases admitted during the year, with 32 such cases remaining from previous years, furnished 10 recoveries. The voluntary patients have yielded 20.41 per cent. of recoveries on the admissions of that class for 1896, thus furnishing a little more than their due proportion of all the recoveries. Of this class, 6 other cases were discharged much improved, 12 improved, 15 not improved, 1 dead and 2 not insane.

Excellent work has been done in the laboratory

which has been recently established, under the direction of Dr. August Hoch; and some progress has been made in developing the methods of clinical work in connection with that of the laboratory with its facilities for investigation.

Exercise for its direct remedial effects in the form of physical training, by general and medical gymnastics, including outdoor exercises, has been under supervision of the instructors in physical training. The indoor facilities for gymnastics were limited, being confined to the occasional use of the new entertainment hall for the men, so that much attention was given to outdoor exercise for them. In one of the gardens there was arranged what was practically an open-air gymnasium. The gymnasiums for men and women will soon be occupied for recreation, exercise, and work in the shops.

The report of the McLean Hospital concludes as follows:

The experiences of the first year in the new hospital were attended by many causes for care, and even anxiety in its practical affairs. But the natural difficulties due to the new conditions have been overcome so far as to give assurance of harmonious results in the working together of all parts of the institution. With much improvement still to be expected in things that are essential to the higher attainments which constitute the ultimate purpose, there is already the realization of even more than was foreseen in the beneficent influences that are here being revealed.

The report is illustrated by several excellent photographs of the new McLean buildings at Waverley.

MEDICAL NOTES.

BALTIMORE EYE, EAR AND THROAT HOSPITAL.—The directors of the Baltimore Eye, Ear and Throat Hospital intend to tear down the present building used by the hospital, and erect a new and handsome structure.

ANTITOXIN IN LONDON.—The report of the Medical Superintendent to the London Metropolitan Asylums Board on the use of antitoxin and the treatment of diphtheria during the year 1896 confirms the favorable results reached the previous year, the percentage of mortality being reduced from 29.6 in 1894 to 20.8 in 1896.

THE JUBILEE NUMBER OF THE "PRACTITIONER."—The *Practitioner* for June appears as a handsomely illustrated Jubilee Number, in commemoration of Queen Victoria's Diamond Jubilee, the whole number being devoted to an account of the advances which have been made in medicine, surgery and the allied sciences during the sixty years of her reign.

BOSTON AND NEW ENGLAND.

TRUSTEES OF INSTITUTIONS APPOINTED.—The Mayor of Boston has announced his appointments of trustees of the newly created Pauper Institutions Department, Children's Institutions Department and Insane Hospital Department, under the provisions of Chapter 395 and Chapter 451 of the Acts of the cur-

rent year, which have just gone into effect. Under the provisions of these acts each of these boards of trustees consists of seven members, two of whom must be women; and of the appointments first made on each board one is for the term of five years, two for the term of four years, one for the term of three years, two for the term of two years and one for the term of one year, all of such terms dating from the 1st day of May of the present year. While the law only requires the appointment of two women on each board, the mayor deemed it advisable to appoint three women as trustees of the Pauper Institutions Department and three as trustees for children. Of the twenty-one trustees appointed eight are women. Of the thirteen men, six are in business, four are physicians, one is a lawyer, one is a professor, one is a builder. Most of these appointments are excellent; all seem to be unobjectionable; and all the appointees seem to have had more or less interest or experience in the affairs which are to be under their charge.

THE BOSTON CITY HOSPITAL.—The action of the Boston Board of Aldermen in ignoring the appropriation asked for by the Board of Trustees, for much-needed improvements, is greatly to be regretted. Great improvements have been recently made in the hospital, and it has been brought to a very high state of efficiency. The present request for an appropriation of \$74,129 is based on an economical estimate of the cost of certain changes which are absolutely needed in order to efficiently carry on the work of this great charity. Money is already on hand for the construction of a suitable laundry building; but it is extremely difficult to see what advantage there is in a laundry building without proper heating apparatus, which is one of the items asked for by the trustees. The requirements of modern aseptic surgical work demand very extensive laundry facilities, and without them such work cannot be performed. The gynecological wards and operating-room also are in pressing need of improvement in order to be brought to a proper standard of efficiency. The electric-lighting plant is also defective, and the necessity for properly lighting a hospital is not difficult to see. The care of the sick poor is a duty which should be one of the first to appeal to those entrusted with the government of the city, and it is certainly to be hoped that the shortsighted policy of neglecting to attend to the very reasonable requests of a careful and economical board of trustees will not be persisted in.

A DINNER OF THE CLASS OF 1893, HARVARD MEDICAL SCHOOL.—The first dinner of the Harvard Medical School, Class of 1893, was held at Young's Hotel on June 8th, with thirty members present. Dr. J. W. Courtney, of Boston, was toastmaster. Drs. C. G. Page, J. E. Rourke, J. P. Treanor, of Boston, Dr. R. F. Cody, of New Bedford, Dr. W. M. Jones, of Lowell, and Dr. W. C. Boyd, of Linnaeus, Me., spoke. Dr. H. H. Haskell, of Boston, was chosen president. The Secretary, Dr. G. L. West, of Newton Centre, issued his first report, a pamphlet of over fifty pages.

EFFECTS OF THE ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY. — A large number of cases of gastro-enteritis were reported among the members of the Massachusetts Medical Society following their annual dinner.

DR. ELY APPOINTED PROFESSOR AT YALE. — Dr. J. Slade Ely, of the College of Physicians and Surgeons of New York, has been appointed Professor of Theory and Practice of Medicine in Yale University.

NEW YORK.

COMMENCEMENT AT COLUMBIA UNIVERSITY. — The one hundred and forty-third annual commencement of Columbia University was held at the Carnegie Music Hall on June 9th. The degree of M.D. was conferred upon forty candidates, but there was no regular class of the medical department (the College of Physicians and Surgeons) graduated, owing to the new curriculum requiring a four years' course, introduced three years ago. At the next commencement the graduating class, the first to complete the course, will probably be an unusually large one. Among the winners of prizes announced were the following: the Cartwright prize of \$500 for the best medical essay, Dr. George W. Pride, Cleveland, O.; Stevens triennial prize of \$200 for the best medical essay, Dr. Erwin A. Tucker, New York; Joseph Mather Smith prize of \$100 for the best essay on a medical subject by an alumnus of the College of Physicians and Surgeons, Dr. Pearce Bailey, New York; Prize lectureship, valued at \$500 and tenable for three years, Dr. George J. Bayles, Philadelphia, Pa.

A DISAGREEMENT IN THE CONSOLIDATED MEDICAL SCHOOL. — An unfortunate disagreement has developed in the completion of the arrangements for the consolidation of Bellevue Hospital Medical College with the medical department of the University of the City of New York, owing, it is said, to the dissatisfaction of certain members of the faculties of the two schools with the distribution of the various professorships and lectureships announced a short time since. At a meeting of the Council of the University held June 10th, it was given out that a final decision in the matter would be made; but it is now stated that, after a long discussion, no decision was arrived at, and the question of the proposed consolidation was postponed until the next meeting. Prospects of union however, were rendered brighter by the conciliatory manner in which the opposing views were presented.

TWO NEW PROFESSORSHIPS AT COLUMBIA. — At a meeting of the Trustees of Columbia University held June 8th, two new professors in the medical department, Dr. James Ewen, in clinical microscopy, and Dr. A. Brayton Ball, in clinical medicine, were appointed. Among the gifts to the university acknowledged, was a bronze tablet, six by four feet, from the Sons of the Revolution, commemorating the battle of Harlem and the death of Lieutenant Knowlton on the site of the new buildings on Morningside Heights.

Miscellany.

AN ENGLISH ACCOUNT OF THE DISCOVERY OF ANESTHESIA.

DANIEL JOHN LEECH, M.D., F.R.C.P., in an article on "The Progress of Therapeutics during the Victorian Period" in the current number of *The Practitioner*, gives the following account of the discovery of anesthesia:

The anesthetic effects of nitrous oxide gas had been indicated by Davy at the beginning of the century, but it was first made use of by an American dentist named Wells in 1844, who himself took it and gave it for the purpose of extracting teeth without pain. It did not at this time come into general use, because, before its value could be established, two other substances, ether and chloroform, were introduced, which for most purposes had advantages over the gas.

Ether had been known for more than a century before its value as an anesthetic was recognized. As long ago as 1842 it had been administered by a medical man in the United States, W. C. Long, and a little later it was given for the extraction of teeth. It was not, however, until near the end of 1846 that there is a record of an operation performed on a patient under ether, and it was only after a communication made to the Academy of Sciences in January, 1847, that its effects as an anesthetic were generally known. Simpson adopted it to relieve the pains of childbirth in January, 1847; but in November of the same year he introduced a new anesthetic — chloroform — which had been discovered by Soubeyran in 1831. This had some advantages over ether, and its use rapidly spread, whilst that of ether was, in Great Britain at least, arrested for many years.

There certainly is, as he writes, "a record of an operation performed on a patient under ether" near the end of 1846, and it would seem only fair to mention the man who made the record and the place where it was made in an article of this sort.

Simpson's introduction of chloroform is hardly more important than that of ether. Dr. "W. C. Long," as every one knows, should read Dr. Crawford W. Long.

Obituary.

WILLIAM T. LUSK, M.D.

SELDOM has the profession and public received a severer shock than in the news of the sudden death of Dr. Lusk, in the full tide of his usefulness and the splendid zenith of his rare powers and extraordinary professional success. He died at his residence in New York on June 12th, of cerebral apoplexy.

William Thompson Lusk was born in Norwich, Conn., in 1839, and was a student of medicine when the late war broke out in 1861. Filled with patriotic ardor, he enlisted in a regiment of New York Volunteers, and within two years rose successively to the rank of lieutenant, captain and adjutant-general. In 1863 he left the army and resumed his studies, and in 1864 was graduated from Bellevue Hospital Medical College. From 1864 to 1868 he was engaged in professional study abroad, visiting Paris, Edinburgh, Vienna, Berlin, Heidelberg and other medical centres.

In 1872 he received the degree of M.A., and in 1893 that of LL.D., from Yale University. On his return from Europe he was for a time Lecturer on Physiology at Harvard, and afterwards accepted the Professorship of Physiology in the Long Island College Hospital, Brooklyn. In

1871 he was made Professor of Obstetrics and Gynecology in Bellevue Hospital Medical College; and seven years ago, on the death of Dr. Isaac E. Taylor, became President of the College.

At the time of his death he was a visiting gynecologist to Bellevue and St. Vincent's Hospitals, and consulting surgeon to the Maternity Hospital, the Skin and Cancer Hospital, and the New York Foundling Asylum. In 1889 he was elected President of the New York State Medical Association, and he was also at one time President of the American Gynecological Society and of the New York Obstetrical Society.

His contributions to the work of societies and to current medical literature were always of the highest order of excellence, and for several years he was editor of the *New York Medical Journal*. In 1881 he published his treatise on "The Science and Art of Midwifery," the extraordinary merits of which were promptly recognized by the profession. It at once took its position as a classic, quickly passed through a number of editions, and was early translated into French, Italian and Spanish. Dr. Lusk will perhaps be best remembered for his work in the prevention and treatment of puerperal fever.

As a teacher he had few equals, and as an obstetric and gynecological surgeon he achieved the most brilliant success. His results in Cæsarean section were especially noteworthy. While always in the forefront of scientific progress, he was eminently judicious and conservative in his methods and teachings; and he was among the first and most emphatic to protest against the almost indiscriminate practice of ovariectomy, which a few years ago threatened to bring widespread discredit upon the profession.

Though one of the most modest of men, he had a rare fascination of person and manner, and was deservedly among the most popular practitioners of the time. Notwithstanding the vast amount of work that he accomplished and the grave responsibilities continually resting upon him, he was always affable and considerate; and in his hours of relaxation no more genial and cheerful-hearted companion could be found. Gifted with an abounding vitality, he retained his youthful figure and appearance in the most remarkable degree, and scarcely any one would have guessed his age within ten or fifteen years.

With a career of such exceptional brilliancy, universally esteemed, respected and beloved, and fairly idolized by those who knew him intimately, the loss of such a man is indeed great.

Dr. Lusk was married twice and leaves two sons and three daughters. In memory of his first wife, her father, the Hon. S. V. Chittenden, of Brooklyn, erected a beautiful building at Yale University. Dr. Lusk's oldest son, Dr. Wm. Chittenden Lusk, although still very young, is Chief of the Surgical Clinic at Bellevue Medical School.

J. LEWIS SMITH, M.D.

Dr. J. LEWIS SMITH, the eminent authority on pediatrics, died at his residence in New York on June 9th. For several years his health had been far from robust, and two or three months ago he received a severe shock in a runaway accident. Still, he was able to attend to his practice until within a short time of his death, when he met with another accident, on a cable car, which confined him to bed. His death was due to exhaustion and cardiac disease.

Dr. Smith was born at Spafford, Onondaga County, N. Y., October 15, 1827, and was graduated from Yale College in 1849. He studied medicine with the late Drs. Caleb Green and Frederick Hyde, of Cortland County, and attended lectures at the Buffalo Medical College in 1851 and 1852. He completed his medical studies in New York City, and was graduated from the College of Physicians and Surgeons in 1853.

From an early period in his professional career he de-

voted himself particularly to the study of the diseases of children, and in 1869 published his well-known treatise on that subject, which has passed through many editions and proved one of the most successful works ever written by an American medical author. In addition he was for many years a voluminous contributor to current medical literature, especially to such works as the "Annual of the Universal Medical Sciences"; and he wrote many articles on diseases of children in various encyclopedias and systems of medicine. What rendered his writing particularly valuable was his great industry and painstaking in making notes of the cases observed in his vast experience and his careful study of the pathological conditions presented by those proving fatal. He was, too, a diligent student of the advances made in the various departments of medical science, and was always among the first to put to a practical test any discovery which promised to add to the therapeutic resources of the profession.

For many years he was Professor of Diseases of Children in Bellevue Hospital Medical College; and he was also Attending Physician to Charity Hospital, the New York Foundling Asylum, and the New York Infant Asylum, and Consulting Physician to the Bellevue Bureau for the Relief of Out-door Poor, Department for Diseases of Children.

Dr. Smith was a brother of Dr. Stephen Smith, the well-known surgeon.

Correspondence.

TWELFTH INTERNATIONAL MEDICAL CONGRESS.

110 WEST THIRTY-FOURTH STREET,
NEW YORK, June 14, 1897.

MR. EDITOR:—The undersigned, Chairman of the American National Committee which was established at the request and under the authority of the General Committee of the Twelfth International Medical Congress, begs to inform the numerous gentlemen who are constantly applying for information concerning certificates, trips, fares, hotels, etc., that he has none to give, not having heard from the general committee these two months.

Very respectfully,

A. JACOBI, M.D.

CANCER OF THE BREAST IN A CHILD.

BOSTON, June 12, 1897.

MR. EDITOR:—Attention has been recently called to the occurrence of cancer of the breast in children, and several cases have been reported. I desire to place on record a case of this disease which has been for some time under my observation. The patient is a youth, who was born of healthy parents in whom no suspicion of malignant heredity can rest. The father has been at times grossly intemperate. Up to the age of twelve years this boy presented no appearance of glandular or other disease. Soon after this time a swelling was noticed in the left breast, beneath and attached to the nipple, which was slightly reddened and harder than its fellow: the swelling and induration gradually increased in size during the succeeding months, and the skin became more extensively adherent. At this time the lad was placed under my care, and after a short period of observation, an operation was advised, and performed. The growth, on microscopical examination, presented the typical structure of carcinoma, and had invaded all visible glandular tissue of the breast. The wound healed by first intention, and there has been no indication of recurrence or metastasis. The operation was performed five years ago.

Very respectfully,

ALBERT N. BLODGETT, M.D.

METEOROLOGICAL RECORD

For the week ending June 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
					8.00 A. M.	8.00 P. M.								
S. 30	29.90	64	75	52	62	62	62	W.	S.	9	12	C.	O.	.54
M. 31	29.78	61	68	54	94	12	93	N.W.	N.W.	2	8	C.	F.	
T. 1	29.89	54	60	49	52	62	56	W.	N.W.	12	16	C.	F.	
W. 2	30.22	59	71	47	40	34	37	N.W.	W.	19	7	C.	C.	
T. 3	29.96	64	74	54	69	80	74	S.	S.W.	10	20	C.	O.	
F. 4	29.86	62	72	52	85	97	91	W.	N.E.	12	8	C.	O.	
S. 5	29.92	54	58	51	88	98	93	N.	N.E.	7	5	R.	O.	.05

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall. — Mean for week

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 5, 1897.

Cities.	Estimated popu-lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,868,060	681	240	15.60	12.90	1.95	5.85	3.30	
Chicago	1,639,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	367	123	15.37	11.34	1.62	8.10	1.35	
Brooklyn	1,160,000	319	107	13.64	7.77	.93	6.51	2.17	
St. Louis	570,000	168	54	5.90	10.03	1.77	1.77	—	
Baltimore	550,000	145	39	8.28	11.04	2.76	1.38	.69	
Boston	517,732	205	61	13.23	21.07	—	5.88	1.96	
Cincinnati	405,000	75	—	7.98	9.31	2.66	—	—	
Cleveland	350,000	96	30	2.08	10.40	1.04	—	—	
Pittsburg	225,000	—	—	—	—	—	—	—	
Washington	277,000	94	32	10.00	9.54	4.24	2.12	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	19	8	10.52	15.78	5.26	—	—	
Fall River	95,919	28	8	28.56	7.14	21.42	—	—	
Nashville	87,764	33	7	6.06	12.12	6.06	—	—	
Lowell	87,133	41	11	2.44	17.08	—	—	—	
Cambridge	86,812	18	5	27.77	—	5.55	11.11	—	
Charleston	65,165	31	15	9.69	3.23	9.69	—	—	
Lynn	65,220	12	0	8.33	16.66	—	—	—	
New Bedford	62,416	19	8	15.88	10.52	5.26	—	5.26	
Lawrence	55,510	12	6	8.33	33.33	8.33	—	—	
Springfield	54,790	26	5	11.55	6.85	—	—	3.85	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	6	1	16.66	—	—	16.66	—	
Brockton	35,853	—	—	—	—	—	—	—	
Malden	32,894	10	0	—	20.00	—	—	—	
Chelsea	32,716	—	—	—	—	—	—	—	
Haverhill	31,465	8	0	—	25.00	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	8	0	12.50	12.50	—	—	—	
Fitchburg	28,302	10	—	20.00	10.00	—	—	—	
Taunton	27,812	8	2	—	12.50	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	2	0	—	—	—	—	—	
Everett	21,575	2	2	—	28.56	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,541: under five years of age 806; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping-cough, erysipelas, diarrheal diseases and fever) 315, acute lung diseases 310, consumption 281, diphtheria and croup 116, diarrheal diseases 56, scarlet fever 41, cerebro-spinal meningitis 28, typhoid fever 25, measles 23, whooping-cough 16, erysipelas 6, small-pox 4.

From cerebro-spinal meningitis Boston 10, New York 5, Somerville 4, Cambridge and Cambridge 2 each, Worcester, Lowell, New Bedford, Newton and Hyde Park 1 each. From typhoid fever Philadelphia 9, New York and Washington 3 each, St. Louis 2, Baltimore, Boston, Cleveland, Fall River, Lynn, Springfield and Fitchburg 1 each. From measles Brooklyn 11, New York 6, Philadelphia, Baltimore and Cincinnati 2 each. From

whooping-cough Philadelphia 5, New York 4, Cincinnati 2, Brooklyn, St. Louis, Washington, Providence and Somerville 1 each. From erysipelas New York 4, St. Louis and Somerville 1 each. From small-pox New York 4.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending May 29th, the death-rate was 16.6. Deaths reported 3,492; acute diseases of the respiratory organs (London) 196, whooping-cough 111, measles 97, diphtheria 57, diarrhea 39, scarlet fever 32, fever 19.

The death-rates ranged from 6.9 in Croydon to 28.6 in Salford; Birmingham 17.2, Bradford 15.1, Burnley 22.1, Gateshead 23.2, Hull 14.4, Leeds 18.3, Leicester 14.6, Liverpool 22.0, London 14.9, Manchester 20.6, Newcastle-on-Tyne 17.5, Nottingham 16.1, Oldham 20.0, Portsmouth 12.9, Sheffield 24.0, Sunderland 14.7, West Ham 13.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 5, 1897, TO JUNE 11, 1897.

The leave of absence granted CAPTAIN ROBERT R. BALL, assistant surgeon, is extended two months.

RESIGNATIONS AND APPOINTMENTS AT THE CARNEY HOSPITAL.

The following changes have been made in the Staff of the Carney Hospital bearing the date of June 7, 1897:

RESIGNED.—Dr. Myles Standish, ophthalmic surgeon. Dr. S. J. Mixer, surgeon. Dr. G. A. Webster, assistant aural department.

APPOINTED.—Dr. Myles Standish, consulting ophthalmic surgeon. Dr. Henry W. Kilbarn, ophthalmic surgeon. Dr. William J. Daly, assistant ophthalmic surgeon. Dr. James G. Mumford, surgeon. Dr. George W. W. Brewster, surgeon to out-patients.

RECENT DEATHS.

FREDERIC JOSEPH McNULTY, M.D., M.M.S.S., died in Roxbury, June 13, 1897, aged sixty-two years.

JAMES GREIG SMITH, M.A., M.B., C.M. (Aber.), F.R.S. (Edin.), the well-known surgeon of Bristol, Eng., died recently of pneumonia. In the department of surgery, namely, abdominal operations, to which he mainly devoted himself, his successes were great, and he was recognized as one of the authorities upon the subject. His book upon "Abdominal Surgery," now in its fifth edition, is one of the best-known treatises of the kind, and has attained to the position of a classic. He received his medical education at the University of Aberdeen, and was surgeon to Bristol Royal Infirmary, and professor of surgery in University College, Bristol, at the time of his death. At the annual meeting of the British Medical Association at Bristol, in 1894, he delivered the address on surgery.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the New York State Medical Association for the year 1896. Volume XIII. Edited for the Association by E. D. Ferguson, M.D., of Rensselaer County. New York City: Published by the Association.

Reference Book of Practical Therapeutics. By various authors. Edited by Frank P. Foster, M.D., Editor of the *New York Medical Journal* and of "Foster's Encyclopedic Medical Dictionary." In two volumes. Volume II. New York: D. Appleton & Co. 1897.

A New Classification of the Motor Anomalies of the Eye based upon Physiological Principles, together with their Symptoms, Diagnosis and Treatment. The Prize Essay of the Alumni Association of the College of Physicians and Surgeons, New York, for 1896. By Alexander Duane, M.D., Assistant Surgeon to the Ophthalmic and Aural Institute, New York. New York: J. H. Vall & Co. 1897.

Hysteria and Certain Allied Conditions, their Nature and Treatment, with Special Reference to the Application of the Rest Cure, Massage, Electro-therapy, Hypnotism, etc. By George J. Preston, M.D., Professor of Diseases of the Nervous System, College of Physicians and Surgeons, Baltimore; Visiting Physician to the City Hospital; Member of the American Neurological Association, etc. Illustrated. Philadelphia: P. Blakiston, Son & Co. 1897.

The Liver of Dyspeptics, and particularly the Cirrhosis produced by Auto-Intoxication of Gastro-Intestinal Origin. (Clinical, Anatomical, Pathological, Pathogenic and Experimental Study.) By Dr. Emile Brix, Interne Lauriat des Hôpitaux de Paris (Médaille d'or, Concours de 1893; Médaille d'or des Epidémies, Cholera, 1884). Authorized translation from the latest French edition by Paul Richard Brown, M.D., Major and Surgeon, U. S. Army. New York and London: G. P. Putnam's Sons. 1897.

Address.

SPECIALISM, THE LABORATORY, AND PRACTICAL MEDICINE.¹

BY F. C. SHATTUCK, M.D., BOSTON,

Jackson Professor Clinical Medicine in the Harvard Medical School.

IN 1891 Dr. Weir Mitchell chose as the theme for his Presidential Address at the Congress of American Physicians and Surgeons, "The Early History of Instrumental Precision in Medicine." Most of you, doubtless, are familiar with the address and recall the wise remarks and suggestions which preface and are scattered through the story of the evolution of the thermometer in medicine. When the most flattering invitation of your officers reached me to address you to-day, I first accepted, and then cast about for a subject; and although neither the mind nor the hand of the master are mine, I thought I could take a suggestion from him, and try to bring before you some considerations which are in the minds of all of us to-day on subjects of great practical importance, subjects which are the direct outgrowth of the rapid development of instrumental and scientific methods in medicine, and which bid fair to revolutionize its practice.

You remember Gerard Dow's picture of the Doctor in his delightfully comfortable fur-trimmed robe holding the flask of his patient's urine up to the light. What would he think, or make out, of the report of an analysis of a twenty-four-hour urine coming from one of our modern laboratories? What would he do with the stethoscope, the ophthalmoscope, the laryngoscope and all the other 'scopes which bring into actual sight more or less hidden parts of the human body? He did wash out the stomachs of his patients, though somewhat indiscriminately as well as crudely, but he would be puzzled to make out or draw any inferences from an analysis of the gastric contents after a test-meal. If ovariectomy was characterized as murder within fifty years, what would he have thought of opening the abdomen simply to make a diagnosis, or of trephining for headache? How would a technical report of the electrical reactions in health and disease strike him? Would he accuse of witchcraft the person who showed him one of his fractures under the Röntgen rays? All these and many similar means are laid under contribution by the clinician in his strivings toward exactness in diagnosis and toward a therapy somewhat more than empirical.

That wise man, Dr. James Jackson, of Boston, is said to have remarked, perhaps fifty years ago, that there was at that time more absolutely known about medicine and its practice than the mind of any one man could grasp. How many minds are required to-day?

Specialism is a natural and necessary result of the growth of accurate knowledge, inseparably connected with the multiplication and perfection of instruments of precision. It has its drawbacks, absurdities even. We have an Association of *Official Surgeons* in this country. A few years ago a recent graduate and ex-hospital interne asked me, apparently seriously, to give him the name of a specialist in rheumatism. We can afford to laugh at these things. We can assent to the truth contained in the remark made to me by a shrewd and broad-minded country doctor, as

he called himself: "It takes an almighty bright man to be a specialist." We all feel at times that most of our energies are spent in telling our patients what specialist to consult; but at the same time we fully recognize the great debt which special workers are rolling up on the human race. The specialist can match the stories of the general practitioner who finds that some whom he supposed to be his patients are receiving local when it is general treatment which is required, by instances of the neglect of a local mischief which is really at the root of the ill health. The specialist and generalist, if you will permit me to coin a word, are complementary and time may safely be trusted to perfect their relations to one another. This time adjustment has already taken place in great measure with regard to the older specialties. These are nearly all clinical, *stricto nomine*. The ophthalmologist, otologist, dermatologist is still a practising physician, and is none the worse specialist if in his early years he had, even if he did not enjoy, a general experience.

But within a few years a marked change has come over the relation of pathology to practice. Until recently the pathologist had but little to do with the living. He carefully sought for the cause of death, studied the ravages of disease, and immensely strengthened the hands of the clinician whether the latter was right or wrong. But his work was still comparable, as Dr. Holmes wittily put it, to the inspection of the fireworks the morning after the Fourth of July. He saw the result; he saw many of the steps by which the result was brought about; but the underlying cause eluded him. Consequently pure pathologists were in this practical country few. But a change was wrought by the demonstration of the close connection between many diseases and minute living organisms; by the immense aid furnished to the study of these creatures by their experimental growth on solid media; by the application of stains; and by the improvement of the microscope. Bacteriology has thus immensely clarified pathology, enlarged its scope, and brought it into closer connection with clinical work than it had ever occupied before. But the enlargement of the pathological field involves, as it seems to me, centrifugal as well as centripetal forces. It appears to be almost inevitable that laboratory specialism must be added to clinical specialism and must enlist a considerable body of men in its ranks. The day is not far distant when every large hospital must have its pathological laboratory as much as its operating-room, with a trained and well-paid head, busied as much with the solution of problems arising in the living as with the determination of the cause of death. At the same time that the pathologist comes into closer relation with the living in one way than he has done before, in another he becomes more widely separated. There is ample opportunity for the use of all his time and all his faculties in one branch of medicine. He thus becomes a specialist; and a specialist he is likely to remain as, doubtless on the whole for good, the practice of pathology will be less frequently a mere stepping-stone to the practice of medicine in the future than it has been in the past.

In thus trying to forecast the future I think I realize that we are in a transition state; but when was the world not in a transition state? The germ of progress has spread even into Africa. The bacteriological side of pathology has all been developed since

¹ An address delivered before the Rhode Island Medical Society at its Annual Meeting, June 3, 1897.

those of us who are in middle life finished our school education, and we are now both too old and too busy to learn and carry out ourselves many of the practical details which the best care of our patients demands. For these we must rely on others, whom in our turn we help by supplying the material for investigation and farther discovery, as well as by adding the reagent of practical experience to the products of laboratory research. But it is my belief that our successors will be less rather than more independent of the laboratory specialist than even we are. Physiological and pathological chemistry have scarcely chipped out of the egg. Better knowledge of bacterial products bids fair to influence therapeutics as profoundly as that of bacteria has influenced pathology.

I have made the highly original remarks that specialism has its drawbacks, that we are in a transition period, and that time—which means fuller knowledge—will reconcile the seeming opposition between clinical and pathological facts with which we sometimes have to contend to-day. Allow me briefly to touch on some of the difficulties which we have to meet, armed with such a measure of knowledge and common-sense as we are at present seized and possessed of. We have reason to believe that diphtheria is a bacillary disease; nay more, that we are acquainted with and can recognize its bacillus, which we call the "Klebs-Löffler"; that the disease is communicable by the transference of the bacillus more or less directly from one person to another. Logic would seem to demand that diphtheria should cease were the bacillus as extinct as the great auk, also that meanwhile every person harboring its bacillus in the live state is in danger himself and a menace to others. At first the discovery of the Klebs-Löffler bacillus seemed an unmixed blessing, as it appeared to make it possible within twenty-four hours at most to differentiate diphtheria absolutely from all other forms of sore throat. And we were painfully conscious that the naked eye alone in some cases was not competent to enable us to make this differentiation, however important it might be. A mild and unrecognized case might spread fatal disease, though never causing any anxiety itself. But we soon found that it was not all plain sailing. In the first place, the throats of patients who have been through the disease and are in every other respect perfectly well and safe to mix with the world are found to harbor the Klebs-Löffler bacillus for days and weeks. Secondly, it is found that inmates of a general hospital ward, free from signs or symptoms of diphtheria or any other disease localizing itself in the throat, not infrequently have in their fauces organisms which answer to every criterion of the Klebs-Löffler bacillus at present known. Thirdly, of all children admitted to the Children's Hospital in Boston from December, 1895 to April, 1897, 7.9 per cent. had the Klebs-Löffler bacillus in the throat, though none of them had any other evidence of diphtheria. These facts in conjunction seem to me to show one of two things: either that the Klebs-Löffler bacillus is innocuous to its host and apparently to others under certain conditions, or else that there is some other organism which closely resembles it—so closely that at present we cannot tell them apart. If the former is true, we must ascertain what the conditions are that determine virulency or non-virulency: if the latter, the sheep must be separated from the goats.

Still another difficulty may be mentioned. We hoped at first that twenty-four hours would remove all doubt from a doubtful case and shorten our suspense. So it does if the culture is positive. But a single negative culture offers a double possibility of error—lack of skill on the part of the practitioner and a failure of technique or observation on the part of the bacteriologist. And if we must wait for two or three cultures before we reach a decision, we and our patients are not much better off than in ante-bacillary days.

For the present it seems to me that we should not be guided purely by laboratory considerations in deciding when our convalescent diphtherics may be turned loose with safety. The court of final appeal must always be the general practitioner, whose business it is to adjust scientific knowledge to the complicated conditions of human life.

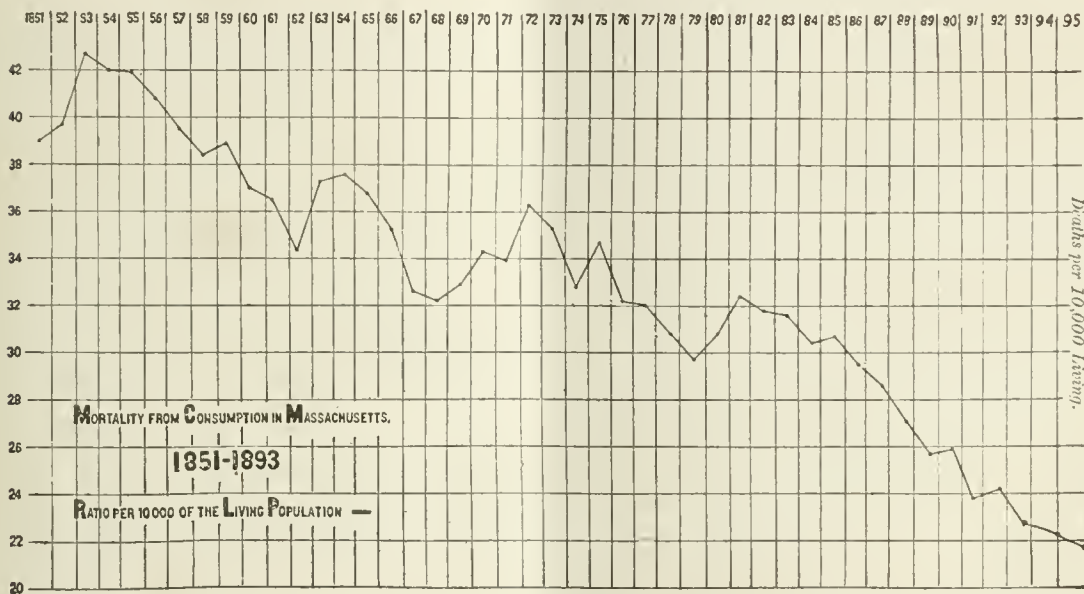
Modern research, again, has shown us that tuberculosis is spread mainly from the sputum of consumptives, though the milk of diseased cattle may be apparently partly responsible. It is probably wise economy, as well as logical, to detect and destroy tuberculous cattle. Not even the sentimentalists, as far as I know, have protested against this course, though doubtless, had the animals a choice, they would prefer to live.

Nobody has as yet proposed in the interest of preventive medicine that we should test the whole community with tuberculin, like a herd of cattle, and kill the disease. But what seems to me mental astigmatism has incited or aided attempts at legislation, the wisdom and necessity for which the facts of practical observation within the reach of all strongly contravene. This winter a bill was introduced into the Legislature of the State of Massachusetts, which I do not hesitate to characterize as monstrous. If passed, it would have closed the doors of every private hospital, home or institution against consumptives, unless such hospitals, etc., received a license by the *unanimous*—mark the word—vote of the aldermen or selectmen with the approval of the mayor and board of health. Section 4 provided that, "any individual person, or any official, trustee, director, agent or servant of a corporation, who violates, or aids or abets in violating, any of the provisions of this act, shall be punished by imprisonment in the jail or house of correction not exceeding two years." Consumption in this bill is classed with small-pox, diphtheria, membranous croup, measles, scarlet fever, typhus fever, yellow fever and cholera. This bill received such feeble professional support and was so manifestly absurd, that after several hearings, the Committee on Public Health reported in favor of a bill from which the worst features of the original bill were removed. Public and private institutions were still to remain on a different footing; existing institutions were not to be meddled with; but extensions to them, or the establishment of new institutions, would require licenses granted by three-fourths of the aldermen, or a majority of the selectmen, as well as the approval of the mayor and board of health, with provisions for the revoking of such licenses. A fine of \$100 to \$500 a month was substituted for imprisonment in jail as a penalty for the violation of the provisions in the act. I rejoice to say that even in this milder form the bill failed by a considerable majority to receive the approval of the House of Representatives. I said before the Committee, and I repeat here, that legislation does not seem to me to be called

for in this direction at present. Boards of health have the power now to regulate or even close institutions which are a menace to the public health. It is an easy matter to frame, and should not be difficult to enforce, regulations which make such institutions practically safe to the surrounding neighborhood. As far as danger of infection goes, I should have no anxiety for my family or myself were a properly managed consumptive hospital next door to me, though I might not consider its presence as indicative that real estate in my neighborhood was rising in value.

The early and accurate diagnosis of consumption is greatly facilitated by sputum examination. All classes of the community must be taught that the sputum is dangerous, and how it is to be robbed of danger. We are a spitting people, but we are quick-witted and can be taught to spit with discretion. It would be well to

ployee of any kind has been infected, as far as is known. The same gracious lady who started the hospital is still resident and at its head, and assures me that no person admitted for other disease has acquired consumption to her knowledge. Six others have been in residence from eleven to thirty-three years, among them a ward-maid for thirty-one years, and a night-nurse for seventeen years. The whole number of patients admitted from January 1, 1861, to January 1, 1897, is 4,254. Much labor would be required to determine exactly how many of them were cases of phthisis; but I have been able to get the exact figures for the years 1888-1891, both inclusive. Of 1,043 admissions during this period, no special precautions being taken as regards the sputum, 297 were consumptive. Many of them stayed for months. Cleanliness, free ventilation and sunlight have always been consid-



provide more institutions for the care of those consumptives whose circumstances do not permit proper care at home. But it does not seem necessary, in accordance with recommendations lately made, that such institutions should be rigorously confined to more or less remote and inaccessible hilltops. The oft-quoted experience of the great Brompton Hospital for Consumptives in London—experience gathered, it should always be remembered, in pre-bacillary days when no special precautions were taken as to the sputum—proves to any unbiased mind that even confined spaces where consumptives are closely aggregated, live, move and have their being, are practically innocuous to the attendants and employees. This experience is supplemented, though in a smaller way, by that of the House of the Good Samaritan, of Boston, a small hospital of twenty-eight beds, nearly one-third of which are occupied by consumptives, the rest by patients with diseases of various kinds too chronic in character for the larger hospitals. For many years I made daily visits through six months annually, and am now consulting physician to this institution. In the thirty-six years since that hospital was opened one nurse has contracted consumption. No other attendant or em-

ployed of prime importance. Trudeau's experience at Saranac, and that at Falkenstein and Görbersdorf in Germany, are corroborative. The vital statistics of the State of Massachusetts show a constantly declining death-rate from consumption, in spite of the growth of cities and an increase in the density of the tenement-house population. In 1853 the rate was 42.7 per 10,000; in 1895 it was 21.8 per 10,000 living.

The chart² shows that this diminution in consumptive mortality is practically continuous, and there is no reason to believe that it materially differs from the facts. It will be noted that the diminution in the last is no greater than in previous decades. Probably proper precautions as to sputum have not as yet been widely enough observed to count for much in the mortality returns. It is certainly reasonable to hope that we shall soon begin to see the good effects of the destruction of the seed. The results up to the present time can be fairly attributed only to attention to the soil—that is, the tissues of the body—which is becoming constantly less favorable to tubercular growth through a higher average of general hygiene, better food and houses, better ventilation and plumbing, more

² Vital Statistics of Massachusetts, 1893, with 1894 and 1895 added.

seusible clothing, more active exercise and outdoor life. England has no quarantine, believing it to be more practical to keep clean than to exclude the germ.

Laboratory evidence is of inestimable value already, although its present services are probably only an earnest of what is to come in the future; but it is not and never will be *all* the evidence. Truescience takes cognizance of all the facts, clinical as well as pathological, chemical, physiological or what you will; and when the deductions from all the facts are applied to the complicated conditions of modern civilization with a view to action, that highest wisdom which may be called uncommon sense must be exercised if the best results are to be obtained in the prevention and limitation of disease.

There may be no pathological difference between two samples of pus containing gonococci, one derived from the genital tract of a man about town, the other from that of a little girl; but it does not follow that the disease was contracted in the same manner in the two cases. Indeed, the vulvo-vaginal catarrhs of little girls, even with gonococci, are almost always morally innocent. We can go farther, and say that no pathogenic germ is *the* cause of a given disease; it is only a cause, or one of the causes, or there would be no such thing as immunity, means for the cultivation and artificial production of which must and will be most carefully studied. Why are the colon bacillus and the pneumococcus usually innocuous in the colon and in the mouth, while so virulent there or elsewhere in the same person under other conditions? Nay, we must go farther still, and never forget the teachings of history which show that the fact of yesterday may be shown to be no fact to-day or to-morrow. Finite minds are dealing with infinitely complex conditions, and the only wonder is that true progress is as rapid as it is. I earnestly hope that no one will misunderstand me as in word or thought slighting the laboratory specialist or his work. As actions speak louder than words, I may perhaps be permitted to mention that, when about a year ago I had the opportunity to influence the direction which a large gift to medicine should take, I urged the endowment of a chair of Comparative Pathology. Not that clinical teaching is amply provided for now and for all time. But the wisdom of most hospital trustees in encouraging clinical teaching in the institutions under their charge leaves us free for the present to promote the establishment of the more purely scientific laboratories which must be maintained, and presided over by specialists. No medical school can ever attain the highest ideals without a commanding voice in the selection of the staff of a good-sized general hospital, and in the regulation of the terms of service. The functions of a laboratory are threefold: research, integral parts of ordinary medical education, and indispensable aids of the practitioner of medicine and surgery, general or special, who would do full justice to his patients, the community and himself. We need instruments of precision, laboratories to put them in, and highly trained men to make the plant fruitful, remembering always that behind all his works is man himself.

An immense strain has come upon medical schools of late years. The didactic lecture to large classes gradually yields to or is supplemented more and more by clinical teaching in small divisions; and this means great multiplication of teachers. But this strain is as

nothing to that of the establishment and maintenance of laboratories. The salary of the clinical teacher is incidental. To be a good clinical teacher he must keep in touch with disease outside as well as inside the hospital. But the head of a laboratory, and also some at least of his subordinates, must be independent of practice. Fortunately for the world there are men of the first ability who are willing to live frugally for the kingdom of science's sake. "There is one God, and Science is the Knowledge of Him," is the closing sentence in the "Analytic Mechanics" by the late Prof. Benjamin Peirce. But we must not demand too much of these men or the supply will fail.

One after another we see the leading medical schools of this country ceasing to be proprietary and getting under the wing of a university. Only there is dignity — life, even — to be preserved. The fees of students alone cannot support a modern medical school, and gifts and endowments will not flow to the proprietary school. The spirit of our institutions commands that, while the State must provide for the lower, the higher education is to be left to private munificence. The experience of the past justifies confidence in the future; but the medical profession must not remain entirely passive in the matter. There are many persons in this country who recognize their trusteeship of wealth and are anxious to benefit the community. Some of them share the feelings of a rich Bostonian who left a sum to be divided by his trustees among such charitable institutions as did not make two paupers where there was one before. Some do not know exactly what form their generosity should take, and seek advice or follow casual suggestion. But few understand what preventive medicine and the study of the causes of disease do for mankind; and yet it seems to me that any person with ordinary apprehension must understand the facts if put before him. How can a person more benefit his kind, with less danger of immediate or remote ill consequences, than by promoting the possibility of such studies? How can he be so sure that he is building for all time as in laying foundations for research into the causes, prevention and treatment of diseases? For disease must be coeval with man's mortality. The endowment of theological study is manifold that of medical study, although the number of theological students is far less and the necessary expenses of education are comparatively insignificant. The possible benefits to be conferred on men by astronomical would seem to be small as compared with those to be attained by medical research. And yet the former appears to excite more enthusiasm, relatively at least, among donors than the latter.

The medical profession — individually in its relation with patients, more or less collectively through its associations, geographical or other — has many opportunities for influencing gifts and bequests. Do we exercise this influence as much as we ought to? I am tempted to ask myself whether we may not show an excess of professional delicacy — leaning over backwards as the modern phrase is — with regard to our patients. It is one thing to ask for ourselves, another to point out opportunities for usefulness to descendants, neighbors and friends, to the whole human race, nay to all living beings; for human and animal pathology are becoming more and more closely intertwined.

The higher we mount the more extended is the view. Through the harmonious co-operation of specialists, each in his special line, and of general practitioners,

all mutually interdependent, our imagination probably cannot outstrip the realities of the future progress of the profession to which it is our pride to belong and which we love so well.

I thank you, Fellows of the Rhode Island Medical Society, for your kind attention, and you, Mr. President, for this great privilege which you have accorded me.

Original Articles.

RELATION OF NEURASTHENIC SYMPTOMS TO THE GENERAL NUTRITION.¹

BY ROBERT T. EDES, M.D.

(Concluded from No. 24, p. 592.)

THE nerve centres have a nutrition of their own, and receive according to their own requirements a larger or smaller share of the nutriment offered by the general circulation. It cannot, of course, be perfect unless a sufficient amount of appropriate nutriment be carried to them; but it is evident from the state of the blood in many persons who have nervous systems in good working order that quite a wide limit is permissible in the concentration of the fluid which bears it; that is, that the nervous substance can select and utilize from a solution bearing the appropriate pabulum in quite widely varying degrees of dilution, enough to carry on its ordinary functions without exhaustion. I am not sure, though this is not easy to demonstrate by figures, that this does not apply equally well to the ability to store a reserve force for extraordinary demands.

The rapidity of the circulation, as influenced by cardiac vigor and vascular tension, may be able to compensate for deficiency in composition, since the same amount of blood, if it contains a little smaller percentage of oxygen and peptone may, by making the circuit more rapidly, convey in a given time the same amount as a richer fluid in more sluggish motion.

On the other hand, a nerve centre which is incapacitated from selecting and assimilating its appropriate pabulum cannot be forced to do so. We can force food into the stomach and usually fat under the skin, and to a certain extent hemoglobin into the blood; but it is by no means easy to force potential energy into the neuron and the muscle fibre, unless there exist upon the other side a harmoniously acting stimulus.

The restitution of the normal structure of the exhausted neuron is a process of growth, demanding time, rest, and also that unknown element which makes all growth to a great extent qualitatively independent of its surroundings and not a mere process of osmosis dependent upon a balance of pressures or relative concentration of salts.

When we get beyond mere exhaustion and have to deal, not with a temporary deficiency of force, but with acquired abnormalities in its manifestation, or, further still, with congenital peculiarities, varying in each case from the mild hypochondriasis of the chronic invalid to the fixed idea of the delusional insane or

the paranoiac, the therapeutic value of nutrition alone decreases in proportional importance, although, of course, it is still the basis upon which other and more specific treatment must rest.

Cultivation in plants and education in animals can in a single generation increase the useful output up to a certain limit, and in many generations, aided by selection, can greatly improve the quality of the product; but no amount of fertilizer can make the stunted pine of the pasture, gnawed and trampled on by cattle and hacked by boys, grow into the stately column of the forest, or the cabbage to secrete cinchona alkaloids or exhale the perfume of the rose. No amount of oats will make the draught-horse into a racer, and neither beef-steak nor "nerve foods" will make the chronic neurasthenic capable of easy and efficient work. What removal of special obstacles and the adjustment of the work to be done to the best nutrition possible in each individual case, may do in securing the maximum efficiency and comfort in productive labor of the nervous system is another matter entirely.

If there were any way of measuring the potential energy of the neuron, and especially its storage capacity, without exhausting it, we could then directly and accurately get at what we now try to do by inference, and could study the phenomenon of fatigue side by side with the means of repairing it. But trying the experiment of exhaustion, however interesting it might be and instructive as regards theory, would be therapeutically hazardous as regards the individual patient, emptying the reservoir we are trying slowly and laboriously to fill in order to find out exactly how much it holds.

A study of this class of cases in the psychological laboratory, and especially by the continuous method of Kräpelin and his school, could hardly fail to give results not only of interest but of great value, but would require to be made with great care. I have found in a very few instances that the effort of attention necessary to a trial of simple reaction-time was felt as a serious strain, and I think that many of us would recoil from frequently repeating such an experiment as trying to commit to memory in the shortest possible time a set of nonsense syllables while some one was reading an interesting book within hearing.

Many papers have been written about the nervous symptoms of "lithemia" or uric acid in the blood, and indeed this condition figures among the many comprehensive theories of neurasthenia. But the literature is out of all proportion to the amount of proof that any relation of causation exists between them, or even that uric acid exists in excess at all in the blood in cases marked by neurasthenic symptoms. This acid was found by Garrod many years ago in cases of gout, by an approximate method; but exact quantitative methods for its measurement in the blood are fitted only for the laboratory and not for ordinary clinical work, demanding quantities of blood not afforded by modern therapeutics. These methods have found it in cases other than gout: as in several forms of anemia, leucocythemia, as well as in some diseases causing dyspnea. Neither of them, so far as I am aware, has detected it in neurasthenia. The whole doctrine indeed rests on plenty of testimony but very little evidence.

A quantity of uric acid in the renal excretion, varying in either direction from an average or assumed normal, either in twenty-four hours' amount or in proportion to

¹ Read to the Association of American Physicians, Washington, D. C., May 6, 1897.

urea, can, of course, be readily demonstrated in these as in other cases; but it has been chiefly since the laborious observations and ingenious speculations of Haig that attention has been strongly directed toward uric acid as the special poison causing many nervous symptoms. Before him it did not have even the indirect support of quantitative urinary analysis, but rested merely upon the presence, in connection with certain symptoms, of an increased deposit of urates, a phenomenon which, as is well known, depends upon many other conditions than an increased amount in the circulation or even an increased elimination. Hence the principal objection to the word lithemia as a name for a group of symptoms of a more or less neurotic character and probably dyspeptic origin, is that it assumes a definiteness of knowledge which does not exist. If, as seems highly probable, these symptoms are really of toxic origin, it is by no means proved that uric acid is the only or even the usual poison.

Whether this poison is to be found within the uric-acid group, as is supposed by Rachford, or whether it is a single or more probably a group of products of intestinal decomposition, further examinations must show. The tenacity with which the urinary coloring matters cling to uric acid through all the vicissitudes of chemical manipulation may suggest that here perhaps is some explanation of the bad repute of the latter, and that the apparent accessory may be the real principal.

The recent theories of Haig, based upon a large number of careful observations, have been woven into a doctrine so complicated and involving so many suppositions which cannot be either proved or disproved, that it is almost impossible to criticise them fairly without going exactly over his ground and making continuous observations every few hours for many days. His fundamental assumption, that the rate of formation of uric acid to urea is a nearly constant one of 1 to 35, I have found very little to confirm, though I have not followed any one person long enough to justify me in claiming to have established the habit and rate of a lifetime. Among about 100 persons examined once or more, I have found this ratio, or very near it, in twenty persons; and in somewhat more than 200 examinations about 31 times. More than, or equalling 1 in 55, the proportion suggested by Herter as more usual, I have found about 90 times in forty-five persons including the above.

In going over the records of these cases in the endeavor to find some correspondence approaching constancy between either an excess or diminution of uric-acid excretion and the severity of the other nervous symptoms, or of any special symptoms, the result is far from satisfactory; and this is true both as to the total twenty-four hours' output and the proportion to urea.

The nearest to such a correspondence is to be found in some cases of severe headache where, by assuming as a normal maximum the fraction one fifty-fifth, there appears to be an excess of uric acid excreted. But the number of such cases is not large, and with them are others where this proportion is to be found without the headache, and, on the other hand, the headache with a proportion of uric acid considerably below this; so that it is forcing matters very much to assume a relation of causation in the remainder. It is, of course, true that, in order to controvert the views of Haig, his methods should have been strictly followed and exam-

inations made at more frequent intervals than was done in any case.

Hence there is nothing in these observations to disprove the possibility of a paroxysmal uric-acid headache, but they certainly seem to show that a constant neurasthenic headache is not of this character.

Miss P., in seven times out of ten examinations, had a proportion of uric acid in excess of one fifty-fifth, and twice of one-thirtieth or more. The quantities of urine and of urea were about normal, and the total uric acid usually above 500 mgr. She complained of constant headache; but her general appearance, her gain in weight and her subsequent history lead me to doubt very much the severity, if not the existence, of extreme suffering.

Miss D., with a quantity usually below 1,500, and urea below 20, had a proportion of uric acid more than one forty-fifth, five times in five observations. She had a nearly constant headache, and has already been mentioned as having steadily lost weight, and being now in a condition of very slow and tedious recovery.

Miss G. used to have attacks of severe hemicrania, beginning with zigzags before one eye, succeeded by headache upon the opposite side. She gained weight, and improved. Toward the end of her stay she lost weight a little, but continued to improve; and a year or two later she called to see me, and said she had been constantly better. During the time that she was losing a part of the weight that she had gained, the following observation was made (see page 619).

Two others follow, in which the excretion of uric acid does not have any special relation to the symptoms. In one of these (Miss T.) the remarks taken from the record do not correctly express the constancy of the headache, which was practically continuous, hardly intermitting for more than an hour or two at once. It might seem that here, with a constant proportion of the acid beyond that which has been found more nearly the usual with us than Dr. Haig's one thirty-fifth, that is, one-fiftieth or thereabouts, we have a strong case in favor of his theory as modified to suit our conditions. In reality, however, it is hardly so at all. Although these observations were made chiefly within two months, the time during which the patient was under treatment—never able to take a full meat-diet, and having not infrequent gastric attacks, having taken eliminatives, with a fair elimination of water all the time and a quantity of urea quite as large as could be expected with her moderate diet—was much longer. The continuance of the headache up to the present time, then, if caused by a constant flow of uric acid, would argue a previous accumulation of great magnitude. Her headache has been relieved neither by acids nor alkalies. The existence of such a fund, although it cannot be absolutely disproved, is certainly in the highest degree improbable. There were no indications other than have been mentioned of a gouty diathesis; and in a tall, thin, pale woman, with a blood-color of below 50, losing weight, whose previous history was that of a country school-mistress, supporting herself and her father, we certainly have conditions as little favorable for acquiring lithemia as can well be imagined.

Dr. Haig's theories are provided with so many ingenious adjustments that it is almost useless to deny their applicability to any case when the attempt is made by willing hands. The assumption of a reserve of unknown quantities of uric acid accumulated under

the most adverse circumstances and stored where it is inaccessible to chemistry and betrays itself by no symptoms, places the advocate of the theory in a position practically unassailable.

Date.	Quantity.	Specific Gravity.	Urea total.	Uric Acid total.	Proportion.	Indican.	
<i>Miss G.</i>							
Aug. 16	500	..	14.	*	..	Excess.	
Dec. 22	725	1.027	20.	.310	1-64	No exc.	Headache not noted.
Jan. 18	700	1.025	13.6	.374	1-36	..	
Mar. 16	350	..	16.	.213	1-75	Exc.	Severe headache, 16 hours' excretion.
Mar. 19 (No. 2)	600	1.030	15.	.417	1-36	..	Headache less severe, 16 hours' excretion.
Mar. 19 (No. 3)	450	1.031	12.2	.227	1-53	No Exc.	No headache, 16 hours' excretion.
<i>Miss S.</i>							Stout, florid.
Dec. 31	950	1.023	20.	..	..	..
Jan. 1	850+	1.024	24.	.327	1-72	Incr. (?)	
" 2	1100	..	28.5	.638	1-44	Incr. (?)	Headache.
" 5	1200+	1.021	23.4	.282	1-82	Not Incr.	Very nervous.
" 6	1650	1.020	30.	.569	1-53	Not Incr.	Very nervous.
" 7	1600	1.020	31.	.224	1-139	Not Incr.	Very nervous, headache nearly all the month.
Feb. 28	1350	..	..	..	..	..
Mar. 1	1600	1.020	23.5	.288	1-81	Not Incr.	Headache.
" 2	1650	1.019	..	..	..	..	Headache.
Apr. 15	1500	1.017	21.5	.217	1-99	..	Headache for three days previously.
<i>Miss T.</i>							
July (?)	1125	1.013	..	..	..	..
Jan. 4	1650	1.017	(?)	.775	..	Not Incr.	Salicylate of sodium.
" 6	1250	1.013	17.5	.456	1-38	Not Incr.	
" 7	1450	1.015	19.25	.602	1-32	Not Incr.	8th, stopped salicylate.
" 18	1250	1.011	11.25	.131	1-44	Not Incr.	
" 29	2050	1.015	20.5	.512	1-40	..	27th, severe headache yesterday P. M., vomited.
" 30	2150	1.010	..	..	..	..
Feb. 1	2050	1.008	..	..	..	..	Headache.
" 5	1300	1.020	28.8	.639	1-46	Incr. (?)	
" 6	1450	1.011	18.	.450	1-40	Not Incr.	
" 7	1200	1.012	16.8	.479	1-31	Not Incr.	8th, head better.
" 14	800	1.012	8.20	.188	1-43	Not Incr.	
" Spec.	10.29	..	..	..	1-37	Much Incr.	
" 15	1200	1.012	15.6	.270	1-57	..	
" Spec.	1.007	..	..	..	1-8	Not Incr.	16th, head better, slept better.
May 2	Spec.	1.022	..	..	..	..	No albumin or casis.
" 24	"	..	..	..	..	..	" " " "

*No increase apparent.

In a paper by Dr. Gertrude Van Pelt,² there are a number of cases reported with nervous symptoms supposed to be connected with uric acid. In one of these, a chronic invalid "who had been all over the world in search of health and had had all kinds of treatment," the nervous symptoms included neuralgia, headache, insomnia, and dysmenorrhea. Her urine was always very scanty, and often loaded with urates. Now, if

such symptoms as these are due to uric acid in the circulation, it seems as if this patient must have been getting rid of it for many years instead of accumulating, for Haig takes the quantity in the urine as an index of the quantity in the blood. It is not a very far-fetched supposition either, that such a patient had drunk no inconsiderable amounts of alkaline mineral waters in her day, which could hardly have allowed the process of accumulation to date back to childhood. It thus becomes very interesting to know how, after taking salicylate of sodium for two and a half months, she could have had a total twenty-four hours' amount of uric acid very considerably in excess of the normal, and a proportion to urea even more so. The exact figures were .90 and one-eleventh. The former of these is larger than the average for strong and healthy persons on a full diet; more than I found in my own case; with a single exception, more than given by Luff³ among 50 determinations in a healthy man on a mixed diet; and more than I have ever found in about 100 persons, many of whom had symptoms not unlike the case described.

Date.	Quantity.	Specific Gravity.	Urea total.	Uric Acid total.	Proportion.	Indican.	
Oct. 25 ¹⁸⁹⁴	..	1.024	..	..	1-43	..	
Apr. 13	1177	..	..	..	..	Incr.	
" 14	1324	..	36.	.688	1-53	..	
" 15	1340	..	29.	.777	1-39	..	
Mar. 21 1897.	..	1.030	..	..	..	..	Urea per litre, 23.00.
Apr. 11	1200	1.026	30.	.768	1-38	Incr.	
" 12	1000	1.027	27.	.755	1-36	Incr.	
" 13	1060	1.027	33.	.826	1-39	Incr.	
" 14	1300	1.026	31.	1.007	1-31	Incr.	Sed. uric-acid crystals. Took about .220 white uric-acid crystals.
" 15	1280	1.030	30.	.787	1-38	Incr.	
" 16	1000	..	30.3	6.05	1-50	Incr.	Took .500 colored uric acid in capsule.
" 17	1050	1.028	28.3	.766	1-37	Incr.	No sediment of uric acid.
" 18	940	1.029	35.	.714	1-49	+	
" 19	1300	1.027	29.	.760	1-38	= or +	
" 20	1200	1.025	27.	.732	1-30	= or +	Alb. trace?
" 21	1250	1.026	26.	.669	1-32	(?) +	
" 22	1020	..	27.8	.527	1-52	+	Club dinner, with some wine.
" 23	1340	1.027	36.2	.904	1-40	+	Took .500 uric acid dissolved in potassa, by enema.
" 24	610	1.027	15.8	.399	1-40	..	
" 24	820	1.027	16.7	.347	1-48	..	
" 25	1150	1.023	27.	.667	1-40	..	Took 1. uric acid dissolved in potassa, by enema.
" 26	1175	1.029	25.4	.564	1-45	..	
" 27	1375	1.025	32.7	.701	1-46	..	
" 28	..	..	..	..	..	..
" 29	..	..	..	..	..	..	Moderate headache of few hours' duration.

The last observation consists in an experiment upon myself, to determine whether the passage of uric acid through my circulation would produce a headache. It will be seen at once that in this point of view it was a

² Boston Medical and Surgical Journal, vol. cxxxiv, p. 129.

³ London Lancet, 1897, p. 947.

failure, since the acid, either solid in the stomach or in the form of urate of potassium in the rectum, must have failed of absorption. It is introduced, however, for purposes of comparison, and with the remark that neither on the days when the total was less than usual (22d), or high (14th and 23d), or when the proportion was at its lowest (22d), or highest (14th, 20th, 21st), or on any other day was there any headache.

The neurasthenic condition is quite as likely to be connected with an amount of uric-acid elimination below the average as up to it, and much more so than with an excess. This, however, is connected not with any storage or special condition of this substance, but is simply a part of a general sluggishness or inhibition of metamorphosis, as shown by diminution in the total amount of urine and of urea.

The phosphates have not been examined often enough to give any important indication, and the same must be said with reference to indican considered as an indicator of intestinal putrefaction.

SPRAINS AND THEIR TREATMENT.¹

BY DOUGLAS GRAHAM, M.D., BOSTON.

(Concluded from No. 24, p. 594.)

TREATMENT OF SPRAINS.

AN eminent surgeon once remarked to me, "What you do, doctor, with your massage and movements, is to cure the patients of the results of our treatment." The customary treatment of sprains and its results are well known—absolute rest in a fixed dressing, resulting often in recovery, but too frequently in stiff, weak and irritable joints. Sometimes these joints are deliberately sprained over again by the surgeon, with a view to loosening adhesions and overcoming the stiffness. But, unfortunately, this plan may cause the adhesions to reform stronger than ever.

A form of treatment that is no doubt well adapted for sprains of slight or moderate severity of the outer aspect of the ankle has recently been revived by Dr. V. P. Gibney, of New York. It is strapping with strips of rubber plaster alternately at right angles to each other over the outer and lower third of the leg, ankle and foot. Elevation of the foot over night or for a few hours, and immediate massage, are advised as good preliminary measures before applying the plaster. This treatment is said to involve no loss of time, requires no crutches, and not to be attended with any ultimate impairment of motion. This plan of strapping sprained ankles with adhesive plaster was used with brilliant success by Dr. Wharton P. Hood's father on himself fifty years ago. It is well to call attention to these matters occasionally.

I wish now to propose a better, simpler and quicker way of carrying out this same plan of treatment, as it is applicable at one and the same time to all mild sprains of foot and ankle. If the patient is wearing a well-fitting boot at the time of spraining foot or ankle, let him keep it on and walk about moderately. If the boot is not quickly snug by reason of the swelling, it should be laced tighter. I have twice walked off a mild sprain in this way myself. The pressure of the leather and the motion of walking give a sort of auto-

matic massage. And when we think of it, this is not so very wonderful after all, for it is safe and salutary to allow motion in sprains that does not cause pain. It is unnatural motion that has caused the injury, and even after this, natural motion can often be immediately indulged in to a greater extent than either physician or patient take the trouble to find out.

A plan of treatment that seems to be well suited to sprains of all degrees of severity, and which can be used with or without fixed dressings and bandages, according to the indications, is massage properly applied. Massage should not be begun immediately over a recently injured joint; neither should passive nor active motion be encouraged in spite of pain caused thereby, whatever others may say to the contrary. After a recent injury, to my mind, pain is the cry of nature for rest to allow repair. And it is quite possible in sprain, and even in fractures without displacements, to keep the injured parts at rest while the surrounding tissues are preserved in health and activity, the circulation kept active and absorption hastened by means of massage.

A snug bandage is usually sufficient to afford rest and support, and to press the swelling out in the intervals between the massages. But if the bandage does not give sufficient support, then an easily removable splint or plaster may be applied. Joints tender and swollen, that do not admit of massage being applied directly upon them, can be approached by commencing on the healthy tissues some distance above them and nearer to the trunk, by gentle stroking or effleurage in the direction of the returning currents of lymph and blood, and gradually proceeding downwards. The healthy tissues beyond the seat of the injury should also be similarly treated, as the circulation is hindered in getting to and from them by reason of the swelling. Besides the soothing effect of this, which enables one to gradually encroach upon painful parts, the returning currents are pushed along more rapidly, making room for exudations to be carried off. For this purpose each hand should make alternate strokes, using the greatest possible extent of the palmar surface whilst the limb is in a comfortable position.

After working a few minutes in this manner, deep manipulation, or massage properly so-called, may be brought into play, beginning as before above the painful joint by adapting the greatest possible extent of hand and fingers, one hand contracting and making the greatest push upwards as the other relaxes while gradually approaching the objective point. The effect of this is agreeably benumbing or analgesic, lessening pain without decreasing ordinary sensations, besides pushing along the deeper circulation more vigorously. The parts beyond the sprain should be treated likewise. By alternately stroking and kneading in this manner we can soon make gentle, firm pressure over the but recently painful and swollen joint. If sufficient tact be used this pressure may not hurt, but be positively agreeable; and very soon it can have motion added to it, thus constituting massage by which the effusion and exudation are spread over greater surfaces and brought into more points of contact with veins and lymphatics, absorption by which is materially aided by the pressure of massage.

It should not be forgotten that when a light touch is disagreeable, firm pressure often affords relief, so that the whole hand is better than the finger-tips where it can be used for massage. Recent periarticular exud-

¹ Read at the Surgical Section of the Suffolk District Medical Society, February 3, 1897.

ations are thus speedily dispersed and absorbed, which might in time have become organized, while superabundance of intra-capsular fluid is pressed into the absorbents, the function of which within the joint is increased by the pressure from without and by the acceleration of their current from the massage above the joint.

In recent sprains and synovitis this method is rational, for it quickly relieves the heat, the pain and the swelling, and takes the pressure off the nerve filaments. The comfort to a joint, even after a single sitting, cannot be believed unless felt. The good effects of the massage are continued by means of a bandage well applied; but the pressure of a bandage alone, though it affords support, hinders the circulation by its continuous pressure, and will not take the place of massage, which, when rightly applied, is an intermittent pressure and an aid to the circulation.

Kraske has demonstrated that the application of a rubber bandage to the leg of a rabbit for six hours has produced hyaline degeneration of the muscle, from which they do not recover. If we want weak and atrophied muscles, let the bandage be continued after the swelling has disappeared. Rubber bandages I never advise except for temporary use, as when a patient with a weak joint wants to go sea-bathing. They are intensely disagreeable on account of the smell of the rubber combined with the perspiration which they produce. They are dangerous by literally strangling the tissues, for each turn, by its elastic tension and hug, represents much more compression than the force used in putting them on. Often I have taken them off and applied a domett (or cotton flannel) bandage, and always to the great delight and comfort of the patient. Bandages cut across the bias I used for a dozen years before I came unbiassed towards them. Take one in your two hands, and give it a pull, and reflect for a moment, and you will see that it stretches much more at the edges than it does in the middle; so that when it is applied it presses unequally; and soon after it is put on it is as loose and lacking in support as a rubber bandage is tight and uncomfortable. A domett bandage is firm, soft, warm and comfortable; and when you have put one on, you know what you have done, and a few extra layers of this will often take the place of splint and plaster.

Every man thinks his own method of massage and bandaging the best, as every housekeeper who cooks her own beans thinks they are the best. Under the plan which I have just outlined we will be agreeably surprised and somewhat disappointed to find that most sprains of even more than ordinary severity will get away from us inside of a week or ten days. The vast number of sprains of all degrees of severity that have recovered in from seven to nine days under massage would seem to prove either that rupture of ligaments and tendons, and laceration of muscles occur much less frequently than is supposed, or else that they are of much less serious import when treated by massage.

In 1877 I published the results of massage in 300 cases of sprains, and in 1884 of 400 more of all degrees of severity, treated by many different observers (most of whom were French, German, and Scandinavian army surgeons), in order to confirm the experience which I obtained in some of my cases. The invariable result in each and every case was that such injuries thus treated got well in one-third of the

time that similar cases did under absolute rest and fixation. Experience teaches that the sooner after a sprain massage is begun the quicker does recovery take place, and the less the tendency to subsequent weakness, pain and stiffness, which almost invariably follow after immobilization without massage.

Some careful physicians who are in favor of massage in sprains think it well to wait a few days while using hot and cold water or some other treatment before beginning massage. In this event I am not sure that the effects of massage are not more striking in arousing the limb from the lethargy and stupor into which it has been plunged by the shock of the accident. When this local lethargy and stupor have been prolonged for a month or six weeks, as must necessarily be the case when a limb is done up for a fracture, the immediate effects of massage in bringing the limb back from death to life, in starting anew the circulation, in awaking sensation and motion, are often remarkable. But sometimes—and alas! too frequently—under a plaster-of-Paris dressing, the connective tissue proliferates and assumes a plank-like hardness, a literal deadness, that is most discouraging to an intelligent masseur and which is a sure sign of tedious recovery. I believe it is possible to prevent this by having the cast removed occasionally and the limb *masséed* without disturbing the fragments. Rest is necessary to produce ankylosis, and I do not see the need of allowing well joints to be imprisoned to such an extent that they will become stiff while a fracture above or below them is uniting, when a little precaution in the way of massage and passive motion might preserve the function of the limbs.

My distinguished confrères, Drs. Van Arsdale and Gallant, of New York, have treated 1,231 cases of recent sprains by means of massage, with better recovery in as many days as it took weeks under fixed dressings without massage. They obtained complete restoration of the functions of the limb with no subsequent weakness, stiffness or pain. Some of their cases were so severely injured that the massage had to begin under an anesthetic. They also obtained the best and quickest results in those cases in which massage was begun immediately after the injury, so that the patients did not know what they had missed in the way of prolonged recovery. Neglected cases, and cases in which splints had been used, gave very satisfactory results, but took much longer. Van Arsdale and Gallant, after *masséing* a sprain, have the limb rest for half an hour and then urge the patient to use it, presumably in spite of pain, after which it is kept elevated between the *séances* of massage, which are given twice a day.⁶ I prefer to put on a snug bandage and keep the limb at rest for a few days, unless the sprain be a slight one.

Patients are generally quick to recognize improved power of motion and to make use of it. If they do not, the manipulator can judge for himself by passive and resistive movements how much or how little the joint is capable of, and encourage or restrain motion accordingly. In recent cases it is preferable that the patients manifest the first desire to make use of the joint, for it is often impossible to tell how severe the injury may have been; and if patients are not of nervous temperaments, sensations and inclinations can generally be trusted. After due time for repair

⁶ Medical News, April 20, 1895.

has elapsed (in order to gradually increase the strength of the muscles as well as the confidence of the patient to use them), there is nothing better than resistive motion, alternately resisting flexion and extension or other natural movements of the weakened joint, while carefully keeping the resistance less than the strength of the contracting muscles, so that the patient may not recognize any weakness. It is rank nonsense to tell a patient to walk or use a limb that has been weakened by injury and long confinement in splint or plaster without gradually training the strength of it in the way just pointed out.

Sprains of the ankle, instep and knee seem to recover more quickly under massage than do sprains of the joints of the upper extremities. The fact that the joints of the lower extremities have to carry considerable weight while those of the upper do not, would seem to argue in favor of massage, for the use of a joint with pressure from above is a sort of automatic massage, which in the case of slight sprains of foot and ankle with a snug boot on may be quite sufficient to expedite recovery.

A curious feature that I have lately observed in several cases of sprains, muscular rheumatism and stiffness after fractures, is that coincident with improvement, there is an increase of tenderness on pressure around the joints and over the muscles. This is different from the acute pain caused by pressing over a joint but recently injured, or over muscles indurated with muscular rheumatism. I think it may safely be disregarded, or perhaps considered a good sign; for those cases in which I have seen it, all had returning suppleness of tissue and did well.

Do not think that any one can *masser* a sprain. No two cases of injured joints are exactly alike. The treatment must be varied to suit the case, the rudder must be turned so that the sails will catch the breeze in order that the port of recovery may be quickly reached.

CASE I. M. M., forty-five years of age, strong and muscular, while playing golf one Sunday afternoon, slipped and gave his right ankle a double twist. He immediately felt nauseated and had to lie down. He was in much pain all night, and sent for me early in the morning. I found much swelling, pain and discoloration below and around both malleoli. A hot bath, massage and a snug bandage was applied twice a day; and on the fourth day after the accident he went to business without crutch or cane, and walked up two flights of stairs to his lunch. He was not, of course, by this time entirely well, but so far recovered that only occasional massages were necessary afterwards. He made a good recovery notwithstanding that the same ankle had been sprained about a year before.

CASE II. Mrs. W. L., an active lady of strong muscles, fifty-six years of age, in descending the stairs of a hotel caught the heel of her foot on the brass cover, turned herself over on her foot and fell sideways downstairs. I saw her within one hour after the injury. The capsule of the ankle-joint was intensely swollen, and protruded in front of the external malleolus, and the patient had no control over her foot. The ankle was severely sprained, and it was impossible for her to walk or even put her foot on the floor. The tissues around the joint were extremely sensitive, and could not bear the contact of either hot or cold water. No evidence of fracture could be made out. I predicted greater swelling and a six weeks' stay in

the house, as the injury was certainly of such a nature from its mode of occurrence as to produce all the evils that are credited to a severe sprain. Massage was applied twice daily, and after this a snug bandage, and over this a splint. At the end of a week she could walk a little, and in ten days was going about freely.

CASE III. Mrs. W. B., fifty-five years of age, slipped on a curbstone and came down heavily, turning her foot inwards. She was in great pain, but managed to hobble home, a distance of twenty rods, with the assistance of two people. Eight days after this she was first seen by me. She had not been able to bear any weight on the ankle since the accident, and had worn a rubber bandage. There was great discoloration and swelling, most marked around the outer malleolus, and extending half-way up the leg. Absence of pain while the foot was at rest was marked at this time. Massage was given twice daily at first, which made the ankle comfortable and the patient grateful; and after the massage a cotton bandage was applied (with absorbent cotton under it) over the most swollen parts. At the end of eleven days she began to take a few steps, leaning on the back of a chair, having been in preparation for this for a few days by means of passive and resistive motion while lying down. She made daily progress in walking.

But in the meantime the swelling had been unusually slow to decrease, and it was not until the fifteenth day after I first saw her (the twenty-third day after the accident) that it was sufficiently abated so that the outer malleolus could be made out. This was found to be wider and flatter than the other, to spring on pressure, and was very sensitive, but there was no crepitus. Suspecting fracture without displacement, I called to see the late Dr. R. M. Hodges, who then lived quite near to the patient. After my description of the case he thought my diagnosis was correct, and we set a time for consultation. "How much can she use her ankle," he asked. "Walk about indoors," I replied. "Then you are doing first-rate; keep on, you do not need me." He was a man, we shall not look upon his like again.

The patient was kept awake a great deal by the illness of her husband. By and by symptoms of neuritis set in, and she had pain, burning and tingling, extending from the ankle up the outer aspect of the leg, which was worse at night. This was much relieved by massage as well as by a walk in the evening followed by an alternate hot and cold bath. Her disagreeable symptoms all improved, and at the end of twenty-five days she could go up and down stairs naturally.

Without splints or plaster cast this patient made a good recovery from a sprain with a crack in the external malleolus, and from a subsequent attack of neuritis while under great anxiety and losing much sleep.

CASE IV. I was called to the following case by his physician, Dr. Henry W. Broughton, on the 15th of November, 1894. The patient, Mr. P. F. L., was then eighteen years old, weighed 142 pounds and was of a highly nervous temperament. Six days before I saw him, while playing ball, he was pushed down and sprained his right knee, but could not tell which way the leg turned. He had been in great discomfort ever since, and unable to sleep, though he did not complain of pain so much as restlessness. The leg had been put in a plaster-of-Paris dressing, which he could not

tolerate; and this was laid aside, for a curved ham-splint. Moderate attempts at flexion or extension, bending the leg in and out, did not cause pain. The range of motion was very slight. Stronger attempts to move it passively and especially to bend the leg in at the foot and out at the knee, caused pain, which was referred to the outer aspect of the knee and to the insertion of the outer hamstring muscles; from which we inferred that the knee had probably been sprained by the leg turning inwards and the knee out. There was much discomfort in the muscles on the outer aspect of the thigh and pressure on the condyles of the femur caused pain.

We learned that within the previous three months he had given his knee several jerks so that it was still in an irritable condition when he hurt it this last time. There was much heat and a great deal of effusion, tense and fluctuating, which was most marked above the knee, distending the synovial sac on the front of the femur beneath the tendon of the quadriceps extensor muscle. Under daily massage and bandaging the effusion went down and the circumferences rapidly decreased as a few measurements taken from my notebook show.

	Centre Patella.	Above Patella.	Below Patella.
Well knee	14 in.	13½ in.	12¾ in.
Nov. 15, 1894, injured knee	16	15½	13½
After 30 minutes' massage	15½	15½	13¾
Nov. 18th, before massage	15	15½	13¾
Nov. 18th, after massage	14½	15	13
Dec. 1st.	14½	14½	12¾

Further decrease of circumference did not take place. Morphia and phenacetine seemed to have no effect in quieting the patient. Large doses of sulphonal succeeded a little better. Three days after massage was begun he rested well without any hypnotics; and by the fourth day the improvement in the knee was so marked in the diminution of the swelling and the feeling of the tissues, that pushing the leg against resistance was begun. On the following day he pushed so vigorously that we allowed him to walk on crutches, which he did, bearing some weight on the lame knee.

December 1st. Had no massage for five days, and was then going about with one cane. Had no pain while walking until he got tired.

December 26th. There was evidently a good deal of induration and thickening on the outer aspect of the thigh above the knee-joint. The margin of what seemed to be the synovial capsule on the outer and anterior aspect of the thigh felt hard and sharply defined, making one think that perhaps there had been a rupture of the vastus externus. But there had been no sudden pain, and he could contract his quadriceps extensor group, though not strongly.

For the past eight days, he had been going about freely with one cane. The leg would only bend at this time to a right angle, and it could not be freely extended. He then told me, what we had not learned before, that *this was as much motion as it had before it was injured*, and that it had been a troublesome knee for about a year and a half. My suspicions were aroused, and meeting his physician a few days later I suggested to him the possibility of the patient having a sarcoma. Very soon after this he was taken to the City Hospital, where his leg was amputated. It was found that the lower end of the femur had been converted into a large involucrum by a subperiosteal sarcoma, which had burrowed into the medullary canal,

leaving an outside shell. A year later he died of sarcoma of the lungs; and history shows that this is sadly too often the ending of these cases where no massage has been used.

After the first eight days that I attended this patient massage and bandaging were continued but once or twice a week till the 26th of December. The leg was amputated January 5, 1895. Doubtless the disappearance of the effusion made the diagnosis easier for the surgeons, who had not previously seen the case. One of them thought that this was a case where massage might have been more honored in the omission than the performance. Possibly. Another who examined the patient told me that massage could not do any harm in such a case. An orthopedic surgeon of large experience who did not know of this case, when asked in the abstract as to the danger of massage accelerating the spread of sarcoma cells into the general circulation and producing a metastasis of the disease in other organs, expressed himself freely to the effect that it would not make any difference. Where the risk is already so great of diffusion of sarcoma cells and the reappearance of the disease in some other organ, I think any of us would be willing to run a little more risk if massage or any other treatment would do as well for a sarcomatous limb that had been repeatedly sprained as this one had been, and give us the use of it again for a few weeks before having it cut off.

This subject is by no means exhausted, for so-called sprains of back, hip, shoulder and other joints would require further consideration.

From the foregoing the following conclusions would seem to be justifiable:

(1) A sprain is a wrench or twist of a joint; a sudden, partial displacement of two articulating joint-surfaces, followed by immediate replacement.

(2) The symptoms are pain, swelling, discoloration, and usually heat, with impaired motion.

(3) Its diagnosis may be obscured by the swelling, which may conceal a fracture underneath.

(4) Whatever will quickly reduce the heat, the pain and the swelling — such as massage, snug bandaging, and elevated position of the joint — will proportionately make the diagnosis easier.

(5) The means just mentioned are therefore not only valuable for diagnosis but also for treatment; and their use in many cases of sprains of all degrees of severity shows that they recover in one-third of the time that they require under absolute rest and fixed dressings without massage.

(6) Even a sprain of a joint previously weakened by malignant disease may be rapidly ameliorated by massage, and useful motion gained before amputation.

A BRIEF HISTORICAL RETROSPECT OF THE EXAMINATION OF THE URINE IN ANCIENT AND MODERN TIMES.

BY THEODORE WM. SCHAEFER, M.D.,

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MOST works on urinalysis and urinary diagnosis are devoid of important historical data. As far as the writer is aware, no book has been published in the English language on the examination of the urine which contains an historical introduction.

It is to be hoped that this brief, cursory historical retrospect will stimulate others in studying medical history, a very instructive and fascinating study. It is a fact, which cannot be denied, that medical history is very little studied in this country and does not receive the attention which it deserves.

In ancient times, according to the history of medicine, the examination of the urine was held in great esteem by the common people and was accordingly practised by physicians, in the days when there were no microscopes, by simply reading the disease off from the urine by looking at it. The *modus operandi* of looking at the urine is called *uroscopy*, and was much practised in ancient times.

It is highly probable that in the days of the Pharaohs, when specialism in medicine was so complete, that the ancient Egyptian physicians practised uroscopy. They used urine internally as a medicament, which fact should not surprise us at all, for the common people have still faith in the efficacy of urine as a remedy for certain diseases, and urine mixed with brandy is occasionally swallowed down in spite of our so much praised days of enlightenment, progress and advanced therapeutics.

The ancient Chinese and Hindu physicians practised uroscopy. The early East Indian physicians were acquainted with diabetes mellitus. In the days of the Roman Empire, when the number of physicians was as considerable in proportion to the number of inhabitants as it is to-day, there were many specialists, among whom were also those who examined or rather looked at the urine.

Celsus, the Roman, and especially Aretæus, of Capadocia (about A. D. 30-90), described diabetes and diseases of the bladder.

Quintus Serenus Samonicus (died A. D. 211) wrote a medical poem, entitled "*De Medicina Præcepta*," in hexameter verse. In this poem he lauds goat's urine internally for stone in the bladder.

"Si vero horrendum vulnus fera fecerit aspis,
Urinam credunt propriam conducere potu."

"Siquis hyoscyamum gustarit, lacte capellæ
Exhausto, rabidos poterit mulcere furores."

During the Middle Ages, the urine was investigated by inspection, and Alexander, of Tralles (525-605), discusses in his "*Twelve Books of Medicine*," the subject of urinary sediments quite fully.

Theophilus, who lived under Heraclius (610-641), wrote a treatise "*On the Urine*."¹

Stephens, of Athens (640), in his treatise "*On the Sign of Virginité*," mentions the Egyptian superstition, that a reliable diagnostic sign of virginity may be found in the fact that peas upon which a virgin has urinated germinate, while the contrary condition of sexual purity may be proven by the failure of the peas to sprout — apparently a very accommodating doctrine when we consider the germinative power of peas!

The treatise *Περὶ οὐρῆς*, *De urinis*, commonly ascribed to Theophilus, is probably the work of his disciple Stephens, and is the earliest treatise on uroscopy which has been preserved to our day (Handerson).

The Arabian physicians had recourse to mysterious procedures, and busied themselves with uroscopy and astrology, branches which were subsequently transmitted by them to the West. A regular physician

would rarely meddle with surgery. The Arabian physicians enjoyed a good reputation as prognosticians and diagnosticians. What kind of diagnoses they sometimes made may be inferred from the following anecdote:

Thabet ibn Kora (836-901) diagnosticated a disease between the ribs and pericardium in the following manner: "I showed him my urine glass, and he saw in it what was hidden between my ribs and pericardium." And without needing to trouble himself, like us poor doctors, with anatomy, pathological anatomy, auscultation and percussion, and even the post-mortem, "the concealed disease appeared to him as a stain on a polished sword looked to the eye," — a better result than we can attain with all our accessories!

Nokter, of St. Gall, who lived in the ninth century, famous as the greatest savant of his age, a musician, astronomer, mathematician, poet and theologian, well versed in the Greek and Latin languages (at that time a great rarity), was well known also for his cures and his uroscopy.

The statutes of the Hospital of St. John, of Jerusalem (in 1181), provided that the four physicians who were employed there should be skilled in uroscopy. Uroscopy was taught in the universities, and the price for an "examination" of the urine at Frankfort, Germany, in 1424, was about twenty-four cents.

In the sixteenth century, uroscopy was recognized as an honorable occupation of the physician. It was first promulgated by Galen (A. D. 131-201) that the condition of the natural forces can be determined from the condition of the urine, as that of the spiritual forces from the pulse; and that in the same way the health or disease of each important organ may be determined.

In support of such nonsense, which was especially current in Germany, such men even as Joubert, Capivaccio, Thomas Fyens (1567-1631) at Louvain, and Hercules Sassonia (1550-1607), declared themselves. More numerous and weighty, however, were its opponents: Joh. Lange, Diomedes Cornarus, Horekovicz, Clementius Clementinus (about 1512), at Rome; Christopher Clauser (about 1531), of Zürich; Euricius Cordus (1486-1534), of Zimmerhausen in Hesse (lived about 1520 in Erfurt, then in Marburg, and died 1534 in Bremen); Franz Emerich (about 1552), of Vienna; Bruno Seidel (about 1562), professor in Erfurt; Wilhelm Adolph Scribonius (about 1585), in Marburg; Siegmund Koelreuter (about 1574), in Nuremberg; and Peter van Foreest (1522-1597), of Alkmaar, in northern Holland. Such were the most famous of the opponents of this doctrine, who contended that the causes of disease and diseases themselves, etc., could not be determined from the urine, since temperament, season, mode of life and age had a great influence upon its excretion (Baas).

"Carry his water to the wise woman," says Fabian in "*Twelfth Night*"; and to the question of the doughty Sir John Falstaff, in "*King Henry IV*," "Sirrah, you giant, what says the doctor to my water?" His page replies: "He said, sir, the water itself was a good water; but for the party that owned it, he might have more disease than he knew for."

On which the learned Stevens makes the following comment: "The method of investigating diseases by the inspection of urine only was once so much the fashion, that Sinacre (1461-1524), the founder of the College of Physicians, formed a statute to restrain

¹Outlines of the History of Medicine and the Medical Profession, by John Hermann Baas, M.D. Translated from the German by H. E. Handerson, M.D.

apothecaries from carrying the water of their patients to a doctor, and afterwards giving medicine in consequence of the opinions they received concerning it. This statute was soon followed by another, which forbade the doctors themselves to pronounce on any disorder from such an uncertain diagnosis.

"It will scarcely be believed hereafter, that in the years 1775 and 1776 a German, who had been a servant in a public riding-school (from which he was discharged for incompetency), revived this exploded practice of *water-casting*. After he had amply increased the bills of mortality and been publicly hung up to the ridicule of those who had too much sense to consult him, as a monument of the folly of his patients, he retired with a princely fortune, and perhaps is now indulging a hearty laugh at the expense of English credulity."

Why should it not be believed? Do not "eminent" doctors now profess to diagnose, not only diseases, but even conjugal compatibility, by a microscopic examination of the blood? And this not in 1775, but the year of our Lord 1886! (Handerson.)

[Twenty years ago the writer of these lines knew of an old German quack in the city of Baltimore, who practised the ancient art of uroscopy. It was surprising to see the number of people, from all quarters of the city, who would flock to him for treatment. Old and young were requested to bring their "water" along. A dentist, who lived only a few blocks away, believed in the emetic powers of urine and administered urine to his sick children to produce emesis.]

During the Reformation, uroscopy or *Brunnenschau*, as it was then called in Germany (Luther had translated the Hebrew term for the meatus urinarius in women by *Brunnen*), and urinary prognostics were an everyday business, so that in pictures the doctor and urinal always stood beside each other. These uroscopists found their doggerel immortality in the right royally pitiful rhyme of the "Theuerdank," an allegorical poem by Melchior Pfünzing, published in 1517, though these same things are done frequently enough also to-day in both open and secret practice. Handerson has translated two of these verses into right royal and pitiful English doggerel, as follows:

"Doctor! His water you now have surveyed:
Dare you promise me truly that he shall be made
Well, sound and free from his present disease?"

The doctor said that, according to the indications of uroscopy, the disease might be a fever, and that, with God's help, he would cure the patient. But,

"After the teachings of Avyцен,
Weak drugs alone must be given to him.
Strong drugs, I ween, will not answer so well,
For a simple complexion within him doth dwell!"

The following account also gives us a pretty picture of the condition of medical matters at that time. Besides all sorts of so-called physicians, many itinerant Jews carried on business: "The shameless, idiotic Jews also, though banished from the land, had nevertheless no hesitation in travelling and riding about in Würzburg and the adjacent places, their urinaria in hand or carried upon the pommel of the saddle, professing and boasting, whenever one was sick they would from a simple examination of the water, diagnose and make known the disease and its causes, whatever length of time it might have existed. Thus they cheated the poor people, and, indeed, sometimes the nobles and the lords, out of large sums of money

... which is pitiable and disgraceful, to be overrun and mocked at by such heathens, who should more properly be persecuted by the Christians. After such management, and after, if possible, invoking the aid of the magic spells of both males and females, then for the first time recourse was had to the doctor, in order to have him examine the water." A system, which, with some variations depending upon the times, is frequently followed to-day!

Physicians-in-ordinary were appointed especially to inspect every morning the "water" of their gracious lord. This was done in order to ward off any impending danger which threatened their most gracious master, and prophylactic measures were at once instituted when the appearance of the urine indicated the slightest change of color. From this exquisite humor and salty fluid were made not only the diagnosis of the disease, but also its procatactic (exciting) causes—something in the style of that doctor of the present day who, by holding up before his eye the urine glass, diagnosed a fall down a flight of twelve steps. Moreover, in this way was determined the existence or non-existence of pregnancy—"a deceit of which the physicians themselves were conscious," which fact renders the disgrace only the more indelible. Here and there a urinary glass was the sign of a physician (Baas).

Dr. Thomas Willis (1622-1675), after whom the "Circle of Willis" is named, lived in the time of Charles II of England. He determined the sweetness of diabetic urine in 1674, and is generally admitted to have been the first who noticed this particular pathological condition of the urine.

In the beginning and middle of the seventeenth century, prescriptions a yard long flourished in daily practice, with ten or more ingredients. This medieval fashion still obtains in certain quarters of our own country.

Ananias Horer (1721), a contemporary writer of those times, says, "We find excellent practitioners who permit the sick to bring their urine to the house and from its appearance diagnose disease." And Joh. George Zimmermann (1728-1795) said that from Russia to Switzerland he was regarded as a great practitioner, who had, instead of books, a large number of urine glasses in which the doctor urinated himself.

Uroscopy was practised far into the eighteenth century in Germany. The "*Urinbüchlein*" of Th. Majus was the text-book of the day. It is worthy of interest, from an historical standpoint, to mention just here the fact that it was Contugno, in 1770, who first employed the boiling test for the detection of albumin in the urine.²

Pole, in 1775, and Mathew Dobson in the same year, demonstrated the existence of grape-sugar in the urine, and John Rollo (of Woolwich, an English naval surgeon) wrote an extended monograph upon this subject.³ "Mathew Dobson actually obtained sugar from urine."⁴ Cowley (in 1788) and Frank (in 1794) were familiar with glycosuria. William Prout (1785-1850), of London, England,⁵ besides describing diabetes mellitus in 1825, proved that the acid in the stomach was hydrochloric acid in 1824.—Dr. John Blackall (1771-1860), of Exeter in Eng-

² After Purdy, Practical Urinalysis and Urinary Diagnosis. The urine was boiled in a spoon.

³ An account of Two Cases of Diabetes Mellitus, etc., London, 1797.

⁴ Tyson: The Practice of Medicine, p. 750.

⁵ Diseases of the Kidneys, 1843.

land, repeated Contugno's heat-test for the detection of the presence of albumin in the urine (1813) in cases of nephritis.

But it was Dr. Richard Bright (1789-1844), of London, who first placed the examination of the urine upon a solid, scientific basis, and who reformed our renal pathology by his excellent, masterly description of the disease which bears his name. It was Bright who has given urinalysis a new path, and he deserves a place among the first and foremost physicians in the history of medicine.

Johann Florian Heller (1813-1871), of Vienna, after whom the nitric acid test for albumin is named, invented the urinometer in 1849. Claude Bernard (1813-1878), the celebrated French physiologist, made his classical experiment by producing glycosuria artificially by puncturing the floor of the fourth ventricle. The well-known color-test for bile with nitric acid is named after Leopold Gmelin (1789-1853).

Justus von Liebig (1803-1873), the greatest of German chemists and founder of university laboratories, has given to urinalysis a method for the quantitative estimation of urea.

The names of Pettenkofer, of Trommer, of Fehling, of Heidenhain, of Ludwig, of Vogel, of Roberts, of Garrod and of Tyson are known to every medical student. Paul Ehrlich (born 1854), one of the opponents of the phagocyte theory of Metschnikoff, has given to urinalysis a ready method for making a positive diagnosis in typhoid fever.

The diazo-reaction of the urine was first suggested by Ehrlich in 1882. Tyson says in his excellent work on "The Practice of Medicine," page 29, that he "never found it absent where the test was made sufficiently early."

Before closing, I should not forget to mention the names of Jacksch, who has written a valuable work on clinical diagnosis; of Maixner and of Kuhn.⁶ These three observers have laid down the law that peptone is always present in the urine when suppurative processes are going on in the body.

In this connection I should not fail to mention also the name of Charles W. Purdy, M.D., who has written one of the best works in the English language on "Practical Urinalysis and Urinary Diagnosis," which was first published in 1894. — Urinalysis has made rapid strides in recent years, and the day has at last arrived when the examination of the urine in disease can no longer be ignored by the physician. Chemical and microscopical analyses have been made subservient to other methods of diagnosis in a considerable number of diseases. We are able to establish the existence of minimum quantities of matter, thereby making a positive diagnosis, which is not possible by any other method at our disposal.

ABORTION DANGEROUS IN ENGLAND. — A member of a distinguished family in England telegraphed to a no less distinguished dermatologist: "How can I abort eczema?" The police, getting wind of such a dispatch being sent, and thinking "Eczema" was a woman's name, placed the gentleman under arrest. The tragedy itself was, however, aborted by a prompt explanation that ex-Emma and eczema were not the same. — *Medical Record.*

⁶ W. Kuhn: Reinigung der Peptone von Albumosen, Zeitschrift f. Biologie, 1893.

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., BOSTON.

SPONTANEOUS RUPTURE OF THE BLADDER.¹

MR. ARCHIBALD CUFF, reports, from the service of Mr. Charles Atkins, Sheffield Infirmary, a case of spontaneous rupture of the bladder, with operation and recovery. The patient, a male aged forty-seven, had a long-standing stricture of the urethra, dating back to a gonorrhea fifteen years before. For three years he had had vesical tenesmus, dysuria, and attacks of pain in the lower abdomen and loins.

Two weeks previous to entering, on lifting a ladder he felt something give away in the lower part of the abdomen; twelve hours later there was severe pain, and on the following day repeated vomiting and chills, and a rise of temperature. At the same time a tumor appeared in the hypogastrium. Vomiting ceased in a short time. When admitted, the temperature was 106°, pulse 104. There was an ill-defined tumor extending from the symphysis pubis nearly to the umbilicus; abdominal walls tense; no tenderness. The catheter drew a small quantity of alkaline and turbid urine.

An incision was made as for suprapubic cystotomy. Upon entering the abdomen a thick mass was encountered, which apparently consisted of connective tissue and inflammatory exudation. It contained a series of cavities filled with bloody urine, one of which communicated by a small opening into the bladder; at the upper part of the mass was another cavity containing foul pus; all the cavities were freely opened and drained.

The patient made a good recovery. The mass diminished to a small lump, and the abdominal wound healed. The urine became clear, and the patient was relieved of his symptoms.

The author considers this to have been a case of a bladder sacculated by long-continued distention due to stricture, and rupture following upon unusual muscular effort.

SPONTANEOUS RUPTURE OF THE FEMALE BLADDER.²

The patient, a woman of thirty-eight years, was operated upon December 5, 1896, for hemorrhoids. No urinary retention followed the operation. On making a sudden movement in bed she felt something give way in the lower part of the abdomen, which was soon followed by severe abdominal pain. Abdominal distention and diminution in the quantity of urine soon took place. There was no rise in temperature. The patient died three days later.

At the autopsy a large quantity of urine was found in the peritoneal cavity; no peritonitis, tuberculosis or other disease of the peritoneum. The bladder was empty. In the median line of its upper and posterior surface was a oval ulcer with thickened edges, an inch long and half an inch wide. Its base was formed by the mucous membrane of the bladder, in the centre of which was a small perforation through which the urine made its escape. Report as to the nature of the ulcer was reserved for further examination.

¹ Lancet, February 6, 1897, p. 378.

² Croft: Lancet, February 13, 1897.

RENAL TUBERCULOSIS.⁸

The writer states the channels of invasion by which the tubercle bacilli reach the kidney to be three: first, and much the most frequent, by the blood; second, "ascending urinary infection"—by direct extension from the lower part of the genito-urinary tract; third, access to the parenchyma through the capsule, by extension from some neighboring organ.

In connection with the first of these—invasion through the blood—the question of the infection of the fetus through the blood from the mother during intra-uterine life, is decided as being practically established, though the inheritance of a dyscrasia is said to be the much more usual method of allowing subsequent establishment of the disease by rendering the possessor of the dyscrasia more receptive of it than are other individuals. Of the abdominal organs the kidney is stated to be that which is the most frequently infected. The bacilli which have originally made their entrance—ordinarily through the lungs or the alimentary canal—are taken up by the lymph-channels, passed through the veins to the arteries, and finally presented to the glomeruli of the kidney for elimination.

In the second—the ascending form—there seems to be a natural tendency for the disease to reach out toward the ureters, and to ascend through them or their lymph-channels to the kidney.

The third method—that of extension from neighboring organs—is less well established. The renal capsule seems to offer an efficient barrier to the invasion of the bacilli.

In examining for tubercle bacilli, the fact they are to be found in the powdered dust of the small calculi that are sometimes passed, when they are not discoverable in the urine, is noted.

The rarer forms of renal tuberculosis are stated to be as follows: renal epithelial tuberculosis; renal ecchymotic tuberculosis; a special form of tuberculous nephritis, due to compression of the uriniferous tubules by a process of sclerosis; tuberculous renal cicatrization; glomerulo-tuberculosis.

Morris gives figures from 2,610 autopsies at the Middlesex Hospital as to the frequency of renal tuberculosis. Among these were 44 cases of renal tuberculosis—29 of which were of the miliary, and 15 of the caseating form. Of the former, all showed tuberculosis of other organs, and both kidneys were involved in all but one. Of the 15 of the caseating form, two were primary in the kidney; in one of these there was no tuberculous disease elsewhere than in the kidney. Both kidneys were affected in 8 cases.

In a total of 125 cases of post-mortem examinations, of which the above mentioned form a part, more than half showed both kidneys to be involved.

The writer found 23 cases of renal tuberculosis in a total number of 567 autopsies at the Presbyterian Hospital, there being altogether 68 cases of tuberculous disease of one kind or another.

In 8 of the 23 cases of renal tuberculosis, one kidney only was involved.

The evidence for and against the view of Cohnheim, Khalden and others, namely, that tubercle bacilli brought to the kidney by the blood can be passed through it into the urine without injuring or infecting the organ, is presented and examined.

The practical point involved in Cohnheim's proposition is, that tubercle bacilli may exist in the urine without necessarily implying infection of the kidney.

Under symptomatology, attention is called to the different grouping and development of the symptoms, according to the mode of the invasion of the disease. Thus, when it is through the blood-channels there may be no symptoms of importance until the disease is far advanced, even to the formation of a palpable renal tumor. In the ascending variety, on the other hand, the renal infection will have been preceded by a most painful and exhausting train of symptoms, dependent upon the presence of disease in the bladder and the lower urinary tract.

The symptoms which aid in establishing a diagnosis are summarized as follows: pallor and emaciation, edema of the feet and legs, moderate pyrexia and night-sweats, polyuria, dysuria, pyuria with an acid urine, turbid urine seen to issue from the ureter on cystoscopic examination, an appreciable enlargement of the kidney, or a palpable tumor (whether tender or not), the discovery of tubercle bacilli in the urine drawn by a ureteral catheter, reaction to tuberculin injection, moderate albuminuria.

Under treatment, the writer says that nephrectomy, in cases in which the disease is shown to be limited to one kidney, even if the lower parts of the urinary tract are already involved, may be justified; ordinarily, however, hygiene, diet, outdoor life in an appropriate climate, give the patient the best chance of relief or recovery—or of retarding the process, at any rate.

Cresate, in gradually increasing doses, up to 70 or 80 minims daily, is recommended.

The following statistics are given of nephrectomy and nephrotomy in general, including their performance for tuberculous disease. The last table is that of 28 nephrectomies performed at Roosevelt and Presbyterian Hospitals. He cites 54 cases of nephrectomy, with a general mortality of 38.18 per cent.; also, 54 cases of nephrotomy, with an operative mortality of 12.72 per cent. These statistics of different compilers regarding nephrectomy are added:

ABDOMINAL NEPHRECTOMIES.

	Cases.	Mortality.
Tuffier	11	26.3%
Facklam	13	30.0
Vigneron	19	26.84

LUMBAR NEPHRECTOMIES.

	Cases.	Mortality.
Tuffier	45	28.2%
Facklam	75	28
Vigneron (primary)	65	40
Vigneron (secondary)	20	35

Presbyterian Hospital, nephrectomies since 1893, 15 cases.
Roosevelt Hospital, nephrectomies since 1893, 13 cases.
Total nephrectomies 28, recoveries 26, deaths 2 (7.1%).

A CASE OF TOTAL EXTIRPATION OF THE BLADDER.

Tuffier⁴ reports a case of total extirpation of the bladder (followed by recovery) for an extensive tumor of that organ.

The patient, a man forty years of age, had had urinary symptoms for three years, beginning with a sense of discomfort in the hypogastrium, which was soon followed by frequent and painful urination, which later

⁸ F. Tildeu Browne: Presbyterian Hospital Reports, vol. ii, 1897.

⁴ Annales des Maladies des organes genito-urinaires, February, 1897, p. 130.

became almost intolerable. Hematuria first appeared at the end of two years, since which time there have been abundant hemorrhages at irregular intervals. Patient's general condition was fairly good at the end of the first year.

On admission, there was intense pain in the hypogastrium, radiating to the testicle.

October 6, 1896. Suprapubic incision revealed a hard tumor with friable surface, involving the walls of the entire left side of the bladder and the mucous membrane of the organ throughout. Free hemorrhage followed manipulation. The bladder was tamponed for twenty-four hours, and then drained for three weeks. The bladder was then extirpated. It was first tamponed with iodoform gauze. The abdominal incision was then lengthened, and it was further enlarged by a lateral incision on either side extending to the inguinal canal; the adhesions resulting from a former operation were broken down. The whole surface of the bladder was easily freed by the finger as far back as the points of entrance of the ureters. The bladder was then drawn upward through the wound, its neck was isolated by the finger, and the inferior vesical arteries and the ureters were clamped and cut. The bladder being drawn high up through the wound, it was possible to dissect off its peritoneal investment, and to free it thus from its attachments; after which it was removed. The clamps were then removed from the ureters. A catheter was introduced into each, and secured by a single suture passed through the wall of each ureter. The sutures were left long. A small incision was then made into the rectum on either side, and the ends of the ureters, together with their catheters, were led through these and out through the anus. The sutures were attached externally to a rod, to prevent their being drawn into the rectum. The cavity left by the removal of the bladder was tamponed with iodoform gauze and the abdominal wound was closed except at its lower portion.

The tumor proved to be an alveolar epithelioma. The patient's condition was critical on the second day, but thereafter improved. The packing was removed on the third day. At this time the urine was normal in quantity. On the sixth day the urine flowed through the abdominal wound as well as through the catheters. These were removed on the following day, and syphon drainage was placed in the abdominal wound. There was a fecal discharge through the abdominal wound on the ninth day, which persisted for two days and then ceased. On the twenty-first day a phlebitis of the deep veins of the right leg occurred, but did not seriously retard the convalescence, which was uninterrupted from that time. In the sixth week the patient was up and about; and thereafter he was well and practically free from all symptoms.

IMMEDIATE SUTURE OF THE BLADDER AFTER SUPRAPUBIC CYSTOTOMY.⁵

De Falaccos advocates immediate suture of the bladder after suprapubic cystotomy, and thinks it should be employed in almost every case, irrespective of the condition for which the operation was performed or the age of the patient, and refers to numerous successful cases. He prefers catgut for suture material, and uses a catheter *à demeure*. He allows his patients to get up at the end of a fortnight, as a rule.

⁵ Revue de Chirurgie, No. 8, 1896.

BOTTINI'S TREATMENT OF PROSTATIC HYPERTROPHY BY GALVANO-CAUTERY.⁶

Bottini describes his method and the instruments by which it is carried out. The bladder is emptied, and the urethra cocaineized with a one-per-cent. solution. The galvano-cautery instrument, shaped like a stone-searcher, is then passed into the bladder. The cauterizing part of the instrument is held against the portion of the prostate which it is desired to burn, and is heated to a red heat. The application of heat should not continue longer than one moment. The temperature of the cautery blade is increased every ten seconds. The outer part of the instrument which surrounds the cauterizing blade is kept cool by the passage through it of a stream of cold water. The operation is not painful.

After-treatment consists in drawing the urine with a catheter for the first twenty-four hours, and in washing out the bladder with a solution of boracic acid; later *nux vomica* is given by mouth. The slough separates usually in about twelve days, after which, as a rule, the patient is able to urinate spontaneously. When there has been much atrophy of the bladder-wall, much assistance is derived from the electric current and from intra-vesical douches of cold water.

He claims for this method the following advantages:

- (1) The rapid restoration of spontaneous urination, even where it has been absent for years.
- (2) The absence of danger, which he believes due to its aseptic nature.
- (3) The freedom from relapse.
- (4) Painlessness, and the avoidance of a general anesthetic.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR meeting February, 3, 1897, the President, DR. H. L. BURRELL, in the chair.

TERATOMA SPECIMENS.

DR. W. T. COUNCILMAN: The specimens which I have to show to-night came from a case which occurred in the practice of Dr. Lovett. The case is interesting both from a pathological and from a surgical point of view. The history is briefly as follows: A well-formed male child showed at birth a swelling of the scrotum. This was at first taken to be a hydrocele, tapped, and a small amount of straw-colored fluid was found within it. The quantity of fluid, however, was entirely too small for it to really be a hydrocele. The tumor continued to grow, and in the course of a short while it was completely removed. When removed it was found to be a teratoma, that is, a tumor which is composed of highly organized tissue and in which all three of the germinal layers of the embryo are represented. It is interesting to find a tumor of this character, a teratoma of the testicle, in a child of that age because these tumors are rarely congenital. I think only four cases of congenital teratoma of the testicle have been reported. The wound healed perfectly, and the child did well a couple of months. At that

⁶ Archiv. für klinische Chirurgie, vol. liv, 1897.

time a tumor began to appear on the head. There was a tumor which first appeared close to the anterior fontanelle. It was apparently projecting from the cranium, and the tumor was partly removed. The tumor continued to grow very rapidly after that, and the child died about three months after the first appearance of the tumor. Examination of the tumor of the head showed that to be also a teratoma, and one which was really very much more complicated in its structure than the tumor of the testicle.

First, about the position of the tumor of the head. This mass of tissue which I have here represents a section of the tumor, one-half of the tumor. This is a portion of the frontal bone. The mass of the tumor is partly covered by the skull, which is very much thinned and eroded; and in places the tumor projects from the skull. Beneath the tumor one can see a smooth membrane, which is the dura mater; so that the tumor is attached to the dura mater, more or less attached to the skull, and it had compressed the brain. One of the points of interest about the case is the enormous compression of the brain and the fact that this compression had not produced any symptoms whatever during life. The convolutions of the brain were perfectly flattened; the great mass of the brain was pressed over to the left side, and the brain was exceedingly misshapen. The brain was, however, of the normal weight, and a careful microscopic examination showed the absence of any degenerative processes.

So that we have two tumors, one of the testicle and one of the head; and the two tumors followed shortly after one another. The tumor of the testicle was completely removed, and it was at first supposed that the tumor of the head really represented a metastasis of the tumor of the testicle. An examination of the tumor of the testicle and an examination of this tumor would show the impossibility of any metastasis from one to the other. The tumor of the testicle was of a more or less solid, more or less cystic, structure; and in the tumor almost all the tissues which one finds in the body were represented, and some of the tissues were built up to a very high extent. For instance, in the tumor of the testicle there was a structure which very closely resembled the retina, there was a quantity of striated muscular fibre, bone, cartilage and tissues which apparently represented in a rough way the trachea and even the intestinal canal—all in this small tumor. The tumor of the head is of a more or less cystic structure. There are numerous cysts here. Some of these cysts are lined with perfectly well-formed epithelium; some of them contain hairs. There is a quantity of bone in the tumor, cartilage, and a great deal of brain tissue—a tissue which really represented comparatively well-formed brain, certainly brain which would correspond to a comparatively late period of fetal brain. Among other structures there was a perfectly well-defined portion of cerebellum and a portion of the choroid plexus, so that from the complexity of the structure of the tissue which we have here we can be sure this did not result from a metastasis of the tumor of the testicle, because we always assume that a metastasis of a tumor is due to the conveyance of certain cells of the tumor from one part of the body to another by means of the blood or of the lymphatics, these cells being deposited in another part of the body and growing and developing a tumor similar to the first. Such a tumor as this could not have been due to a deposit of single cells, because the tumor,

if it were a metastasis, had not only single cells, but masses of tissue must have been deposited; and we know such tissues could not pass through the pulmonary circulation. At the autopsy there was no metastasis in the lungs or any place else in the body.

A very interesting point is in regard to the origin of these tumors. How can we explain the formation of such a tissue as we have here, in the first place in the testicle and after that in the head? With regard to these tumors of the testicle a great deal of work has been done recently; and careful investigation has shown that many of the tumors of the testicle known as cystocholesteromas, are more or less solid tumors of the testicle. If we examine them carefully, we shall find within the tumors tissues which correspond to all three of the germinal layers. How can such a tumor develop in the testicle? There is no way of explaining that in accordance with most of the theories of tumors. Of course, we can exclude trauma with regard to such a tumor. We can exclude the fetal inclusions in the ordinary sense of the word, because there is no way in the development of the testicle by which tissues belonging to the three germinal layers could be included. The testicle develops from the endothelium of the body cavity, and there is no possible way in which cells belonging to the mesoderm, endoderm and ectoderm could have been included in the testicle.

We have an analogy in the so called dermoid tumors of the ovary, those tumors in which we have cysts lined with epithelium containing hairs or epithelial products. It has been shown that these tumors of the ovary really are never true dermoids. Along with the tissues belonging to the epithelium there is always tissue which belongs to the mesoderm and tissues which belong to the endoderm. The majority of the so-called dermoids of the ovary are not simple dermoids; they are true teratomata in that all three of the germinal layers are represented. In the ovary it is the same way as in the testicle. How can we explain these tumors in the ovary? We cannot assume in the case of the ovary either the possibility of cells belonging to the epiderm or cells belonging to the endoderm being included within the ovary. The ovary is developed, as the testicle is, from the endothelium of the body cavity; and with regard to the ovary the possibility has been suggested that these tumors which we have in the ovary really represent a pathogenetic fetal development. There is an old theory with regard to these tumors, that they really represent an abnormal development of the fetus, resulting from impregnation in the ordinary way; but that is absurd.

Baldat supposes that under certain conditions the ova within the ovary can begin to develop and can develop such structures as we have here, that it is a parthogenetic fetal development. We know that the development of the ova without sexual congress takes place in a number of the invertebrates, and usually takes place for a time, and the product gradually becomes more fetal until sexual congress takes place again. That is known as the alternation of generation; and he supposes that under certain conditions this can take place in man, resulting in the production of the teratomata of the ovary. We know, of course, that all sorts of cells can come from the ovum without fertilization, and the cell in the ovum before it undergoes fertilization undergoes a certain change. If we suppose this to be the ovum and this the nucleus, that

nucleus before fertilization undergoes a certain change by which the so-called polar bodies are extruded from the ovum. The ovum in the beginning is a bi-sexual cell; and before it becomes impregnated the supposed male part of the ovum passes out from the egg in the form of the polar bodies, and the chromatin of the spermatozoon enters to take the place of the chromatin that has been lost; and it has been suggested by some that this very imperfect impregnation can take place in the ovary; that when one egg prepares itself, so to speak, for fertilization, and extrudes its male part, that that male part can pass from this egg into another ovum, and the ovum which is so very imperfectly impregnated can go on in the development of such very imperfect tissues as we have in the case of these tumors.

But that does not explain the formation of the tumor of the head at all. We can see here also no tissues from which this tumor of the head could have arisen. It certainly did not arise from the skull, because we could not have brain tissue and all the other tissues which we have here in a tumor formed from the bone. There is no real connection of the tumor with the skin or with the dura mater beneath; so that this tumor has grown here as a parasite, as a foreign tissue, not in connect on with any of the other tissues. It seems very probable that here we must assume, that in the course of development certain cells which were separated from the developing ovum or from the developing embryo at a very early date had become included within the walls which cover up the medullary cavity, within the so-called medullary plates which are formed on either side of the inward extension of the epidermis which forms the medullary canal. It would be very much simpler to explain the process if we found this inside the dura mater, because we could then assume the possibility of its being a fetal inclusion, that is, that there could have been a very imperfectly developed fetus, which could have been entirely enclosed in the medullary cavity; but this is entirely outside the medullary cavity, and must have been included in some way in the plates.

This is, so far as I know, an absolutely unique case. I have gone through the literature very carefully of all the head tumors, and I have not found a similar one. These teratomas of the head are not very uncommon; but they are found sometimes within the cranium, even in the ventricles of the brain or at the base of the brain. They sometimes develop from the pituitary body, and in some cases they grow from the posterior wall of the pharynx, and project partly from the pharynx and partly into the brain; and here we must assume either that the imperfectly developed parts of a twin fetus have become included in the enveloping medullary plates which close in the medullary canal, or else that there has been a very early segmentation of the embryo, and certain cells before the differentiation of the germinal layers have taken place have been thrown off, and these single cells have become included in that way. One of the mysteries we cannot explain is why those cells should be there for a considerable time, for months, and then suddenly go on and grow and develop in this way. One of the most interesting things about the tumor of the testicle is the age of the individual. As I have said, such congenital tumors of the testicle are exceedingly rare. By far the majority develop from twenty to thirty years of age.

SPECIMEN OF A DERMOID CYST.

DR. PORTER: This specimen is from a woman, between fifty-five and sixty years of age, upon whom I operated to-day. She had had this tumor located in the suprasternal notch twenty odd years. It was situated low down, close to the notch, between the two sterno-cleido mastoids, and about as large as a mandarin orange, lobulated and extremely hard to the feel. It was a question of diagnosis; and after considering everything I could think of as originating in that region, I told Dr. Hubbard it was like a grab-box, and I did not know what we should find. On cutting through the skin the fat appeared very like the fat in fat necrosis — an entirely different yellow from ordinary fat; and after exposing the tumor pretty well up towards the thyroid cartilage and down close to the sternum, it commenced to ooze towards the lower part. I ruptured it accidentally; it proved to be a dermoid cyst, and the solid part is represented in the central portion, and the rest is of hair and sebum removed from the cyst. The cyst extended up on the left side of the trachea to a level of the upper border of the thyroid cartilage, I should say, but my landmarks are not positive. I found it extended well down in the anterior mediastinum, and I was obliged to leave the cyst wall there, as it covered in the large vessels of that region; and from it was growing hair which could be seen. I suppose that it is a sequestration dermoid. I find in Sutton that dermoids of the thorax are very uncommon. I should like to know Dr. Councilman's views of the case.

DR. COUNCILMAN: This tumor, as I understand it, developed close to the inner border of the sterno-cleido-mastoid muscle. Was there any skin or papilla alongside of one of the sterno-cleido mastoids?

DR. PORTER: No.

DR. COUNCILMAN: I should think that it would be very much more probable that the tumor had developed from one of the branchial arches (some remains of one of the branchial arches) than from the tissues left by the closing in of the walls from the growing together of the thoracic walls. A short while ago I had a very interesting specimen showing the remains of a small portion of a branchial arch. This was on the neck, just in the position where it should have been; and if we suppose that to represent the sterno-mastoid muscle, and here the sternum, there was a small projection at that point, and extending downwards into the tissues beneath there was a small mass which could be felt as an infiltration; and epithelial tissues which had not gone on to a typical development were found in the tissues immediately beneath that point. It seems to me it would be rather more probable to suppose that it did come from a small portion of epidermis which became accidentally enclosed from the imperfect closure of one of the branchial arches than to suppose with Sutton that it came from the accidental inclusion of the tissue in the formation of the thoracic wall, because these dermoids are more apt to be in the mediastinum. We find them in the abdomen and in the thorax which result in that way. One of the most interesting examples of a tumor which formed from portions of the branchial arches I had the good fortune to see some time ago. That was an enormous carcinoma of the neck which had developed not from the throat nor from the outside of the neck. It was a true carcinoma, which developed

rather high up in the neck; and it could only have developed from some of the remains of the branchial arches. The malformations which can come in that way from the branchial arches and the tumors which can arise from that, form a very interesting chapter in pathology. As I understand you, that did not go down?

DR. PORTER: Yes, and that is the point I wish to make.

DR. COUNCILMAN: I think it is possible that it may have developed as you supposed.

DR. DOUGLAS GRAHAM read a paper on

SPRAINS AND THEIR TREATMENT.¹

DRS. R. W. LOVETT and J. G. MUMFORD read papers on the same subject.²

DR. PADDOCK: I wish to express my pleasure in meeting the Surgical Section to-night. For the two years I had the honor of being the president of the State society I looked forward to meeting you. It was my duty during that term of office to meet the different district societies throughout the State. I began with the society in Barnstable, and visited the different district societies north and south, east and west, putting off meeting the largest society of the State, the Suffolk, until the last; but, unfortunately, it was put off too long, and I did not meet you until to-night when I am simply an ex-president. When I came to-night I did not anticipate receiving the honor which your President, Dr. Burrell, has conferred upon me by yielding to me his seat. I assure you I acknowledge the honor which he has conferred, and yield it back to him to close the meeting.

DR. BURRELL: A motion to adjourn is now in order.

Motion made and voted.

AMERICAN MEDICAL ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE SECTION ON PRACTICE OF MEDICINE, PHILADELPHIA, JUNE 1-4, 1897.

FIRST DAY. — TUESDAY.

THE Chairman of this Section was DR. J. H. MUSSEY, of Philadelphia, who, in his opening remarks alluded to the inspiration that the members must feel in meeting in Philadelphia, the early home of American medicine.

The first paper read was by DR. W. B. CAMAC, of Baltimore, entitled

THE SCHOTT TREATMENT OF CARDIAC DISEASE, in which he said that no satisfactory theory had ever been advanced to fully explain how this treatment met the indications and produced the results which were claimed for it. Schott himself explained it on the theory of the reflex action of the nerve centres; while LAUDER BRUNTON and LUDWIG had discovered that the muscular system had a capacity of storing blood equivalent to that of the internal organs and the skin, and explained the action of the Schott treatment on the ground that the resistant treatment and the baths combined stimulated the muscular system to such a degree as to relieve resistance in the peripheral circu-

lation; but the results obtained by the treatment at Nauheim are undoubted in reducing the size of enlarged and dilated hearts. The speaker said that this method of treatment had been introduced into the Johns Hopkins Hospital for the purpose of testing its efficacy not only in cases of heart disease, but in affections of the kidneys. The author reported the results of ten cases. Of these, four patients had died, two were not improved, one showed improvement only while under constant treatment, and in three the permanent results were most satisfactory. Some of these were cases of chronic nephritis in various stages of advancement, but all of the patients had either enlarged or dilated hearts. In connection with the Schott treatment various heart stimulants, such as nitro-glycerin, digitalis, strophanthus, and strychnine, were used as the indications demanded. The experiments showed that while extensive changes in the position of the cardiac heat were obtained in all cases, this effect alone did not imply permanent improvement.

DR. WM. OSLER, of Baltimore, opened the discussion by saying that in suitable cases the Schott treatment was undoubtedly of positive advantage. One objection to it was the difficulty in carrying it out, as the class of cases in which it is indicated are those of moderate dilatation of the heart without much degeneration of its muscular substance.

DR. STOCKTON, of Buffalo, held that the Schott treatment was dangerous when applied indiscriminately to cases of cardiac disease. He insisted that it be carried out with great caution. In the baths at Nauheim, the water is charged naturally with gas.

DR. J. H. HERRICK, of Cleveland, O., said the treatment had no definite reference to the cause of the disease. In the treatment some relationship to the causation of the trouble as well as the organic disease was demanded.

DR. MORRIS, of New York, had found enlargement and dilatation of the heart common, especially among beer drinkers. The Schott system of exercise was very beneficial in cases of gastralgia. In his experience it produces a marked effect in lessening the area of dulness of the heart in such cases.

THE PROGNOSIS AND THERAPEUTIC INDICATIONS IN CARDIAC DISEASE,

was the title of a paper by DR. D. L. ROCHESTER, of Buffalo, in which he classified all heart diseases into (1) disease of the cardiac valves, (2) disease of the blood-vessels, and (3) disease of the heart muscle. It had been his experience to have patients brought to him in conditions regarded as utterly hopeless; and by proper treatment he had been able not only to relieve them temporarily, but to give them years of comfortable existence. Even in the most serious conditions of cardiac disease, it is never prudent to give an unfavorable prognosis until an attempt has been made by proper treatment to improve the tone and strength of the heart muscle and the arterial walls. The treatment recommended by the speaker consists in absolute rest in bed, the free use of cathartics, diuretics, diaphoretics, baths, passive exercise, and a liquid diet. Proper nutrition and exercise be considered important factors in the management of the cases later.

DR. JAMES B. HERRICK, of Chicago, was a strenuous advocate of venesection as a therapeutic measure

¹ See page 593 of the Journal.

² See pages 594 and 595 of the Journal.

in these cases, believing that it is of especial value in cases of general edema and cyanosis. He reported three cases of myocarditis in which he had resorted to this treatment with beneficial results. In each case he had drawn from sixteen to eighteen ounces of blood. The improvement in all of the cases was prompt, and in two of them permanent.

DR. J. B. MARVIN, of Louisville, Ky., favors the use of strychnine hypodermically in cases of acute dilatation of the heart; and commencing with one-twentieth of a grain of the drug, he increases it steadily until the physiologic effects are obtained.

DR. J. M. UPSHUR, of Richmond, Va., advocated the use of nitro-glycerine alternately with the strychnine.

DR. WAINWRIGHT advocated blood-letting in extreme conditions due to heart disease.

DR. ROCHESTER, in closing the discussion, said he employed tincture of nux vomica as a heart tonic, giving it in large doses, gradually increasing up to one drachm thrice daily.

DR. C. F. HOOVER, of Cleveland, O., read a paper entitled

REDUPLICATION OF HEART SOUNDS,

in which he referred to the various theories that had been advanced from time to time to account for the phenomenon of double cardiac sounds.

DR. HENRY BEATTES, of Philadelphia, followed with a paper upon

THE USE OF DIGITALIN WITH REFERENCE TO THE DOSE.

He said that digitalis had long had the reputation of being a very uncertain drug. The contradictory physiological effects were due to the existence of elements in the crude drug having diametrically opposite properties. There were now upon the market two preparations of digitalin, one known as the German, or pure Merck, and the other as the French Merck. The former was readily soluble in water and alcohol, but not readily soluble in ether. The latter differs from this in not being readily soluble in water, and is also a more powerful drug, and necessarily must be given in smaller doses. One-tenth of a grain is the minimum dose for an adult, and one-half a grain the maximum dose. The author uses the German digitalin.

DR. J. H. HERRICK believes that digitalis or digitalin acts upon the heart through the pneumogastric nerves. He was opposed to the routine treatment of heart lesions by any drug, and more particularly by digitalis.

DR. HENRY TOULMIN, of Philadelphia, read a paper entitled

TRACHEAL TUGGING,

in which he classified his cases into (1) very slight up-and-down movement, (2) slight up-and-down movement, (3) tugging; and (4) extra tugging. He had examined 75 patients; and of this number 44 presented no symptoms which could be ascribed to this class; 19 belonged to Class 1, five to Class 2, two to Class 3, and five to Class 4. The speaker said that the phenomena of the moving of the trachea with the respirations or the pulsations of the heart were due, as a rule, to aneurism of the ascending aorta.

THROMBOSIS OF THE BLOOD-VESSELS OF THE NECK.

This paper was read by DR. HELEN BALDWIN, of New York, in which she reported the case of a colored girl, aged twenty, who presented the symptoms of pain in the left side of the neck and in the axilla. There was extreme dilatation of the heart, and panting respiration. The temperature, taken in the mouth, varied between 94° and 96.5° F., while in the rectum it was constant at 102°. The external jugular was plainly defined and had the feeling of a hard cord. The patient died on the tenth day, signs of pneumonia having manifested themselves. At the autopsy an enlarged heart was found, with well organized thrombi in both the external and internal jugular veins.

SECOND DAY. — WEDNESDAY.

THE SERO-DIAGNOSIS OF TYPHOID FEVER.

DR. WM. H. WELCH, of Baltimore, opened the discussion on this subject with remarks on the principles underlying sero-diagnosis, in which he directed attention to the importance of a proper diagnosis of typhoid fever in its early stages, particularly in the South, where the prevalence of malarial and continued fevers made the clinical diagnosis difficult. The discovery of the typhoid bacillus was not immediately followed by the practical results in diagnosis and treatment consequent upon the discovery of the diphtheria and tubercle bacilli. Numerous attempts had been made to obtain cultures of the typhoid bacillus. The first was by the juice of the spleen, withdrawn with a hypodermic needle; but the results were unsatisfactory, and the danger of injury to the organ was considerable. Cultures made from rose-spots were tried, but were unsatisfactory. The results obtained with cultures made from the blood were more apparent; but large quantities of blood, as much as 10 cubic centimetres, were required. With cultures obtained in this way good results had been secured in 27 per cent. of the cases. The Elmsner method of obtaining cultures from the stools marked an advance in the diagnosis of typhoid fever; but it was disappointing in that its field of usefulness was limited.

The modern method of sero-diagnosis rested upon Pfeiffer's discovery of the principles of artificial immunity; but Pfeiffer's reaction, so-called, had nothing directly to do with the reaction in serum immunity. The principle of Vidal's test was that by the addition of one part of blood serum to ten parts of fluid containing the typhoid bacilli a reaction takes place whereby the bacilli lose their motility and clump together. It had been ascertained by Dr. Johnston, of Montreal, that this power of producing agglutination of the bacilli was retained by dried blood as well as fresh. Dr. Welch was of the opinion that the best method of obtaining the blood was by an incision, or by pricking the lobe of the ear, rather than by blisters or the opening of a vein. This power to cause agglutination of typhoid bacilli possessed by the blood serum of typhoid patients was also possessed by other serous fluids, as the serum from a blister or the fluid from a serous cavity. High temperature destroys the power of agglutination. It is an open question whether more importance should be attached to the loss of motion of the bacilli or to the clumping, some observers being of one opinion and others holding to the opposite belief.

Young cultures, not over twenty-four hours old, should be used in the tests, though still younger, from six to eight hours old, had been used with good results in some cases. The author prefers a middle course, and uses and recommends cultures fifteen hours old. As to the culture medium, it did not seem to matter very much whether agar or bouillon was used. The use of old cultures is, the speaker thought, a distinct source of error. The degree of saturation of the test was another point which should receive considerable attention. With a strong saturation the result is obtained more quickly, while with a weak saturation a time-limit of about two hours should be allowed. It was his experience that the reaction was more marked in thermostat-cultures than in room-cultures. The degree of saturation recommended by Widal was one to ten or one to fifteen, but later experiments have shown that dilutions of one to forty or one to fifty gave better results. The criticism had been made that the colon bacillus gave the reaction in some cases as strongly as the typhoid bacillus; but when there was any doubt in the differential diagnosis of the two diseases, the precaution should be taken of making the test with a weak dilution, as the colon bacillus had never been known to react with a dilution greater than one to forty. Another source of difficulty in some cases is the late appearance of the reaction. In the majority of cases it could be obtained in the first week, but undoubted cases of typhoid, confirmed by subsequent post-mortems, had failed to give positive reaction until the second or third week, and in a few cases the reaction had been absent altogether. The conclusion to be drawn from this was that a negative reaction is not conclusive evidence of the absence of typhoid fever. A third source of error was to be found in the fact that the blood of persons who had had typhoid fever retained the power of agglutination for a considerable time.

Finally, Dr. Welch emphasized the importance of precision in the test, but at the same time he thought the method might be so simplified as to be available for the general practitioner, so that a fairly accurate test might be made at the bedside.

DR. WYATT JOHNSTON, of Montreal, stated that his experience with the serum test covered over 600 cases, more than half of them typhoid. He believes that other diseases, such as cholera and bubonic plague, will be shown to have a reaction. He has been led to devise the method of dried-blood tests on account of the distance that specimens had to be sent for examination; and it was found that the dried blood could be sent by mail. He believes that dried blood clumps more readily than serum.

An important point was the alkalinity of the culture; as, if it were acid, the reaction would not take place. Young cultures should be used in preference to old ones. With proper cultures, if loss of motion took place without clumping, it might be regarded as a pseudo test; or, if the clumping took place without complete loss of motion, the reaction should also be regarded with suspicion.

DR. R. C. CABOT, of Boston, followed with a

CLINICAL REPORT ON SERO-DIAGNOSIS.

He had examined the statistics of both American and foreign observers with the following results: In 1,826 cases of supposed typhoid, 1,740, or 95 per cent., autopsy confirmed the serum test. In 1,649 cases not

typhoid, 1,592, or 96 per cent., were negative. Total, 3,475 cases: 95.8 per cent. of which confirmed the serum test; two per cent. proved incorrect. In the 101 cases supposed to be typhoid, 96 had given positive reaction, while five had failed. Three of these were seen late in the disease. One was seen early in the disease and persistently gave a negative reaction, although the post-mortem examination verified the diagnosis of typhoid. In 301 cases, with diagnosis other than typhoid, 300 were negative, while one gave a positive reaction. This was a case of pernicious anemia which occurred in a negro.

The speaker had been in the habit of using dilutions of one to ten, which Dr. Welch and others had held was too strong; but his time-limit was from fifteen to thirty minutes as against two hours. He used the quick, or microscopic, method in all his examinations. The phenomena necessary to constitute a typical Widal reaction were a cessation of motion and a clumping of the bacteria. With one of these elements present and the other wanting, he would not call the case typhoid. For the purposes of statistics he had taken the first day in bed as the first day of the disease, and thought this method of calculation open to no stronger criticism than any other method of reckoning the beginning of an attack. The length of time which a patient who had once had typhoid would continue to show the reaction was *sub judice*, the longest period reported being thirteen years. Furthermore, the reaction might be intermittent. It might be present one day, absent the next, present the third day, etc.

Reference was made to the susceptibility of the blood of negroes to the test. The speaker said that Dr. Geo. B. Shattuck, of Boston, had examined the blood of seventeen negroes, and had secured positive reactions in two cases not known to have had typhoid, and in three others who had positively not had typhoid. One of these was the case of pernicious anemia previously referred to. He thought the more careful tests should be made in a laboratory, but sufficiently accurate tests could be made at the bedside by the physician with a knowledge of bacteriology. The Widal test was certainly a very material aid in the diagnosis of typhoid.

DR. BLOCH, of Baltimore, gave a clinical report on sero-diagnosis. Microscopic tests were made by diluting sixteen times. By means of the hemoglobinometer, the exact amount of dilution could be determined. Examinations made at the same time with both fresh and dried specimens showed the results to be practically the same. The earliest date on which the reaction was obtained was on the sixth day, the first day of the disease being considered as that on which symptoms compelled the patient to give up work.

One hundred and seven examinations in 46 cases of typhoid gave a percentage of failure of 6.5 per cent. The culture medium used was slightly alkaline, although experiments were made with acid and neutral media. The acid medium did not show any precipitate of dead bacteria. Especial interest attached to the use of the test in cases of tuberculosis. By this means it was possible to make a diagnosis at an early date in cases of tubercular peritonitis, tubercular meningitis, and even pulmonary tuberculosis. The author gave the history of several cases in which the diagnosis between tuberculosis and typhoid could have been made only in this way.

(To be continued.)

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THE LOOMIS SANITARIUM FOR CONSUMPTIVES, AT LIBERTY.

THE first annual report of the Loomis Sanitarium for Consumptives (Liberty, Sullivan Co., N. Y., with hospital and dispensary at 230 West 38th Street, New York City) has just been published.

The late Dr. Alfred L. Loomis, of whom the Sanitarium is a memorial, the report states, had pronounced views in regard to the arresting and cure of incipient phthisis by climatic treatment, and repeatedly sent patients to Colorado, the Adirondacks, and Liberty, with results proving the correctness of his views. The great distance to Colorado and the limited accommodations at Saranac made it difficult for some invalids to avail themselves of either place. Liberty then suggested itself to Dr. Loomis as an ideal situation for the erection of a sanitarium, where patients, after a four hours' journey from New York, could find themselves 2,200 feet above the sea-level, in air shown by scientific tests to be the equal of Colorado and the Adirondacks for the treatment of phthisis. The renting of a small house in West 38th Street, New York, for a city hospital and dispensary, was soon followed by the purchase of 193 acres of land two miles west of Liberty, where it was hoped in the near future to build a sanitarium. Then came the lamented death of Dr. Loomis, and, following it, the noble gift of the Sanitarium as a memorial of him by Mr. J. Pierpont Morgan.

The Sanitarium was incorporated in January, 1896, and on June 1st of the same year was opened for the reception of patients; the formal dedication of the buildings, by Bishop Potter, taking place in November. The Loomis Memorial, or Administration Building, of roughly-hewn gray stone and half-timber, is three stories in height, 190 feet long, and 60 feet wide. The house is tastefully decorated and furnished, and equipped with every modern appliance, and the grounds about it have been laid out by a skilled landscape gardener. All this is the gift of Mr. Morgan. Grouped

around the main building, and within a few hundred yards of it, are a handsome casino, for the amusement of the patients, and four cottages, all of which, with a single exception, are memorials erected by benefactors of the institution. When all the buildings are completed, by July 1st, the Sanitarium will have a capacity for seventy patients, with twelve emergency beds in addition. The laboratory is furnished with all the necessary apparatus for bacteriological and experimental work; also with a powerful x-ray apparatus and well-equipped throat-room.

The object of the Sanitarium is to help persons in the incipient stages of phthisis recover their health who, by reason of limited means, are unable to go to more expensive resorts, or to travel long distances. Only those are admitted who are in the early stages of the disease, and to whom a residence for a number of months in the Sanitarium promises either a complete cure, or such an improved condition that they can return to their homes and be able to carry on their work. The statistics at the end of the first six months show a remarkable improvement in sixty per cent. of the cases; and there have been already nine discharged in which the disease was regarded as arrested or cured.

Dr. Wm. M. Polk is the President of the Medical Board of the Sanitarium, and Dr. Henry P. Loomis, Secretary.

The sanitarium for consumptives established by Dr. V. Y. Bowditch at Sharon, Massachusetts, five or six years ago, was a pioneer in the practical application of the views and aims represented at Liberty. The Sharon Sanitarium has been less fortunate, though not less deserving of good fortune than that at Liberty. It only needs a generous endowment to fully demonstrate the benefit it is capable of affording to the class of sufferers for which it is designed.

MEDICAL NOTES.

VETO OF THE OSTEOPATHY BILL.—The Osteopathy Bill passed by the Illinois Legislature, the object of which was to legalize this peculiar form of irregular practice, has been vetoed by Governor Tanner of that State.

COMMENCEMENT AT JOHNS HOPKINS.—On June 15th, the first class to graduate from Johns Hopkins Medical School, which is now four years old, received their diplomas. The class numbered seventeen, and included one woman.

COMMENCEMENT AT RUSH MEDICAL COLLEGE. Two hundred and sixty men were graduated from Rush Medical College, Chicago, on May 26th, Commencement Day.

DR. PARK RICHTER APPOINTED DEAN.—Park Richter, M.D., has been appointed Dean of the Medical Department of the Minnesota State University. The library of the late Dean Millard is to become the property of the College of Medicine.

THE NEW BUILDINGS OF GUY'S HOSPITAL MEDICAL SCHOOL.—The new Medical School buildings of Guy's Hospital, London, were recently opened by the Prince of Wales. The Treasurer stated that nearly \$500,000 had already been received for the endowment fund of the hospital in answer to the appeal of the Prince of Wales.

A DISTINGUISHED PHYSICIAN WHO PERISHED IN THE PARIS FIRE.—Henri Feulard, M.D., a distinguished dermatologist, member of the French Dermatological Congress, and one of the editors of the *Annales de Dermatologie et de Syphiligraphie*, perished in the disaster of the Bazaar de Charité. He was forty years of age, and had already won a high reputation in his specialty. He had rescued his wife and daughter from the fire, and lost his life in endeavoring to save some others who begged for his help.

TWELFTH INTERNATIONAL MEDICAL CONGRESS.—The Executive Committee of the Congress have received from the Minister of Transportation about 7,000 free first-class tickets to Moscow and return, which will be placed at the disposition of the members of the Congress. In order to secure a free ticket each member of the Congress must inform the General Secretary of the route he will take to and from Moscow. The tickets will not be issued to the wives and families of members.

"AMERICAN JOURNAL OF INSANITY."—The *American Journal of Insanity* will hereafter be published in Baltimore by the Johns Hopkins Press. The editors will be Drs. Henry M. Hurd and E. N. Brush, of Baltimore; Dr. G. Alder Blumer, of Utica, N. Y., and Dr. J. Montgomery Mosher, of Albany, N. Y. All communications for the *Journal* should be addressed to Dr. Henry M. Hurd, care of the Johns Hopkins Hospital, Baltimore, or to any of the editors. All exchanges and business communications should be addressed to the Johns Hopkins Press, Baltimore.

FIRST INTERNATIONAL EXHIBITION OF DENTISTRY AND DENTAL-SURGERY.—An International Exhibition of Dentistry, Dental Surgery and Hygiene, will be held this year in September at the Marlborough Hall, Polytechnic Institute, Regent Street, London, W. Foreign exhibitors who are not able to attend the Exhibition, or who have no representative in London, can, if desired, be represented by the management, and have their Exhibits placed, arranged and attended to during the exhibition. All applications to be addressed to the offices of the Exhibition, 18, Hart Street, W. C.

THE JUBILEE OF ANESTHESIA IN JAPAN.—A semi-centenary festival in commemoration of the discovery of anesthesia was held at Tokio on March 4th. Addresses were delivered by Mr. J. Otsaki, on "The Relation of Foreign Languages and Medicine in Japan"; by Professor S. Sato, on "The History of the Discovery of Anesthetics"; by Dr. C. Ishiguro, on "Anesthetics in Japan"; by Dr. T. Miwa, on "Anesthetic Apparatus"; and by Prof. N. Nagai, on "The Nature

of Ether and Chloroform." A large collection of books, pictures, etc., relating to the history of medical science was exhibited. Amongst these the portraits of Simpson, Morton, and Hanaoka excited special interest.

CONTAGIOUS DISEASES IN THE BRITISH ARMY.—A women's memorial has been prepared, which is signed by Princess Christian, the Duchess of Connaught, the Duchess of Teck, and numerous other ladies. The text is as follows:

We desire to express our anxious hope that effectual measures will be taken to check the spread of contagious diseases among our soldiers, especially in India.

We appreciate and respect the opinions of those who, notwithstanding the appalling statistics to which a competent committee, appointed by the government, has recently given authority, are opposed to us on this subject. We believe that they hold, in all sincerity, that the evil of rendering vice safer and the risk of degrading women outweigh all other considerations.

But, speaking as women, we feel bound to protest against these views. We believe not only that preventive measures, if exercised with scrupulous care, do not cause any real danger to women, but that they constitute a valuable safeguard of women's virtue, and afford a great opportunity of escape from a life of vice.

We feel that it is the duty of the State, which, of necessity, collects together large numbers of unmarried men in military service, to protect them from the consequences of evils which are, in fact, unavoidable in such a community and under such conditions; and with the deepest earnestness we call on the government to do all that can be done to save innocent women and children in the present and future generations from the terrible results of vices for which they are not responsible.

THE VITALITY OF THE TURKS.—The correspondent of the *London Times* is impressed with the eagerness of the Turks to fight and with the difficulty of killing them. He mentions one man whose abdomen was penetrated by a bullet, and who not only kept his place in the ranks till the battle ended but marched ten miles afterwards. Another man with three wounds—two in the legs and one in the shoulder—continued on duty twenty-four hours until an officer noticed his condition and sent him to a hospital. "Sometimes," says the *Lancet*, "our alcoholism has been associated with our daring and our endurance as cause and effect, but here are qualities of the same sort in a non-alcoholic nation. Our contemporary's correspondent remarks further on the rapidity with which wounds heal, and says that medical men attribute it to the abstinence of the Turks. Here we should scarcely be able to match the race whose soldiers are ill-clad, ill-fed, and who take no alcoholic stimulants."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, June 16, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 65, scarlet fever 46, measles 153, typhoid fever 5. For the week ending June 23, 1897, the following cases were reported: diphtheria 78, scarlet fever 43, measles 87, typhoid fever 6.

THE DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY.—A correspondent writes us in regard to the dinner of the Massachusetts Medical Society as

follows: "It was the best arranged, best served, and best in every way I have ever been to (my record is twenty dinners during twenty-six years). The speaking seems to grow thinner every year. No doctor can fill such a big place; and I believe it is better to eat, drink and be merry, and leave the speaking for some other occasion."

DR. POLK ADDRESSES YALE MEDICAL STUDENTS.—The Annual Address in Medicine at Yale University will be delivered on Tuesday, June 29th, by Prof. William M. Polk, M.D., of New York City, on the subject "How to Work."

A FATHER HAS A RIGHT IN HIS CHILD'S DEAD BODY.—The full bench of the Massachusetts Supreme Court recently decided, in the case of Samuel C. Burney against the Boston Children's Hospital, which was an action to recover damages for an autopsy made without the plaintiff's consent upon the body of his child, that a father has a property right in the dead body of his child before and after burial. The contention of the defendant that there is no property right in a dead body, which had been sustained by a lower court, thus apparently falls to the ground.

BIRTHDAY OF A CENTENARIAN.—Miss Hetty L. Purdy, of Derby, Conn., one hundred years old Tuesday, June 15th, was born in Rye, N. Y., June 15, 1797. At the age of eighteen, according to a report in the *Boston Transcript*, she was engaged to Dr. Seaton, a wealthy young Englishman who was studying under Dr. Bailey, of Rye. The wedding day had been set. Dr. Seaton started on a flying trip to England. He was to return on the day before the marriage. But on the trip over, his generous impulses prompted him to treat gratuitously a poor seaman who was in the throes of ship fever. The physician contracted the disease himself, and in two days died. The young girl vowed she would never wed, and, although suitors appeared, she kept her vow.

NEW YORK.

NO CONSOLIDATION OF THE NEW YORK MEDICAL SCHOOLS.—It is now definitely announced that the negotiations for the consolidation of the Bellevue Hospital Medical College and the medical department of the University of the City of New York have been finally abandoned. In consequence, the Bellevue Faculty have determined to at once begin the construction of a new building of their own. Ever since the organization of the school it has occupied a building standing within the grounds of Bellevue Hospital and belonging to the city. The lease for this structure, which was seriously damaged by fire a few months ago, expires next year, and as there were difficulties in securing a renewal of it on satisfactory terms, the Corporation decided to put up a building on land already owned by it, at the southwest corner of 26th Street and First Avenue. This land consists of six city lots immedi-

ately adjoining the Carnegie Laboratory, an important adjunct of the college, and the new medical school will be erected on three of them, with a frontage of 75 feet on First Avenue, and 125 feet on 26th Street. It will be a plain and substantial building, five stories in height, and fitted up with all the most approved modern appliances. Its cost is estimated at \$100,000, and it is hoped that it will be ready for occupancy by January 1, 1898. In the meanwhile the old building in the hospital grounds will be temporarily arranged for the work of the school, and will be used for its classes until the new one is finished. In time, if necessary, the college can extend its building by taking in the other three lots belonging to it.

THE SITE FOR THE NEW HARLEM HOSPITAL.—The Commissioners of Public Charities have selected as a site for the new Harlem Hospital (the uptown city hospital) a plot 200 by 400 feet on Lenuox Avenue, between 135th and 136th Streets. For a number of years the hospital has been in an old and inadequate building on East 120th Street, and it was first intended to put up the new one on land in the vicinity, and fronting on the East River, already belonging to the city. It was found, however, that this property was not suitable for the purpose, and the site now selected will have the advantage of a much more central location, being about midway between the eastern and western districts of Harlem. The Legislature has authorized an outlay of \$300,000 for the new hospital.

YELLOW FEVER AGAIN BROUGHT TO NEW YORK.—The steamship *Advance* arrived on June 11th from Colon, with yellow fever on board. One of the second-cabin passengers died of the disease soon after the vessel reached quarantine, and another on June 13th, in the Swinburne Island Hospital.

DEATH FROM CHLORATE OF POTASH POISONING.—An inquest has just been concluded in the case of Hyman Berger, twenty-two years of age, who died in May from the effects of chlorate of potassium taken by mistake for Rochelle salts. There seemed to be little question that the drug was purchased at a pharmacy on East Broadway, but the coroner charged the jury that the evidence did not warrant them in holding any one to blame, and the latter found that the deceased "came to his death by asphyxia caused by chlorate of potash poisoning, said poison having been self-administered by mistake for salts and procured at some place unknown to the jury."

A CONVALESCENT HOME FOR NEW YORK HOSPITALS.—The Middletown Convalescent Home, under the direction of the churches of Middletown and Goshen, in Orange County, was opened early in June for the reception of convalescent children from the New York hospitals.

DEATH OF DR. E. S. BUNKER.—Dr. Edward Seaman Bunker, for many years a professor in the Long Island College Hospital, Brooklyn, died at his home at Bath Beach, L. I., on June 7th, at the age of fifty-seven.

Miscellany.

AN ANTIVIVISECTION HOSPITAL.

WE see it stated that a committee has been formed for the foundation of an antivivisection hospital from which "all vivisectors will be forever excluded." No proposition could well be sillier than this; nevertheless, we shall be glad to see the attempt made to carry it out, for its absurdity will then be all the more evident. Let us see what and whom it will be necessary to exclude in order to be logical in the determination to derive no benefit from the labors of experimental physiologists and pathologists who are here stigmatized shortly as vivisectors. First and foremost it will, of course, be necessary to exclude the Listerian treatment, and to resolve not to profit by the researches of Pasteur and Lister and the antiseptic practice which is now so universal, and has been so beneficent in its life-saving effects. Of course, all those who object to profit by the teachings of experimental physiology and pathology must at once exclude the use of the stethoscope or any of the knowledge which the experiments on respiration of living animals by Boyle, and the sounds of the valves of the heart by Hope, have brought to our aid in the treatment of heart diseases and lung disease. Properly speaking, and to be logical, no pulse should be felt, and the knowledge gained by Harvey's experiments on the heart and discovery of the nature of the circulation should be altogether kept out of view. Nitrite of amyl must, of course, not be used for the relief of angina pectoris, for that is one of the most recent conquests of physiological experiments; neither must any brain disease be localized or operations for the removal of tumors be performed, for they will be based on the knowledge gained by the researches of Ferrier and of Horsley. The use of antitoxins in the treatment of diphtheria, plague, pneumonia, erysipelas, or tetanus must, of course, be rigidly excluded. But first of all it will be necessary to find medical men of ordinary scientific standing, or, indeed, any medical men, who would willingly exclude as far as they could (for none could wholly exclude) the knowledge and methods of treatment with which so-called "vivisectors" have so richly endowed preventive and curative medicine and surgery of our day. — *British Medical Journal*.

Obituary.

DR. BENJAMIN E. COTTING.

RESOLUTIONS OF THE OBSTETRICAL SOCIETY OF BOSTON.

THE members of the Obstetrical Society of Boston wish to place on record their tribute to the memory of Dr. B. E. Cotting:

As a founder of the Society and a constant attendant at its meetings, they recall his continued interest in its objects and its welfare; they remember his loyalty to the Society in its earlier days, and that, by his efforts, it was kept alive at times when its existence seemed imperilled. They remember the ever-ready welcome at his home and his generous hospitality, the words of counsel and cheer which he gave to the younger members, the faithfulness with which he sought out and laid before us in printed form the history of the Society.

As a member of the medical profession, they refer with pride to his hearty sympathy with everything which tends

to its honor and its well-being; to the skilful services which he unweariedly put forth for our State Society and its various branches; to the impetus which he gave the organization during his presidency; services which had so marked an influence in raising and confirming its honorable position.

They cannot fail to recognize his distinguished labors in the cause of medical literature and in the support of the *Boston Medical and Surgical Journal*.

As an honored citizen and a warm, true and hearty friend, they will long miss his presence and cordially cherish his memory.

With this recognition of Dr. Cotting as a friend and a member of the profession and of the Society, they tender earnest sympathy with his family and friends in their bereavement.

Correspondence.

KOCHER'S VIEWS OF GOITRE AND CRETINISM.

PARIS, May 20, 1897.

MR. EDITOR:—In the United States familiarity with the causes of goitre, and its sequel, cretinism, is so largely theoretical and indirect, that in continuation of my last letter (p. 240), I cannot do better than give your readers some of the results of Professor Kocher's studies upon and of his researches into the origin and nature of these ailments, so frequently met in Switzerland, so rarely seen in our country.

With regard to the etiology of goitre, a matter which has been largely disputed, and concerning which many theories have been advanced, Kocher's practical inquiry began in his visit to the villages throughout the valleys and upon mountains of the Canton of Berne. He made these researches as president of a commission of twenty-five physicians. Kocher's personal share in the inquiry was very large and arduous. More than 76,000 school-children, between the ages of seven and sixteen years were passed in review; and their parentage, their antecedents, their homes, the food they ate, and especially the water they drank, were all subjected to stringent questioning and examination. This work was done with Kocher's habitual exactitude and thoroughness. As a result he formed independent opinions, the most important of which are purely original with Kocher and have been accepted as true.

The female is more frequently a victim of goitre than is the male sex. In children, between nine and fourteen years of age, goitre reaches its highest degree of frequency. While goitre sometimes, though rarely, becomes developed before children are sent to school, the position of the head in reading and writing, during school hours, probably gives a stronger tendency to the ailment, and, therefore, there exists a "school-goitre." The discovery was made that the more mature the age of the individual the greater is the development of the secondary changes in the thyroid gland. As to the time of its onset goitre usually appears near the end of the first ten years of life. Saussure asserted that if at ten years of age a child had no goitre he never would have one. Kocher found that before the seventh and eighth years goitre was an exception, but that it increased in frequency up to the thirteenth and fourteenth years.

Congenital goitre is rare. A greater exception is congenital atrophy of the thyroid gland.

In his researches throughout the Canton of Berne, Kocher discovered that those districts in which the so-called "fresh-water sandstone" prevailed were especially afflicted by goitre; on the other hand, that in districts in which "salt-water sandstone" predominated goitre was infrequent. His conclusion, however, was that the prevalence of goitre depends less upon the presence of dissimilar sandstone than upon a mixture of organic elements which, in different localities are differently prominent, and that the manner in which these varying organic peculiarities reach the people is through *drinking-water*; that neither deficient

nourishment, unhealthful dwellings nor wretchedness and poverty of every kind, are a direct causation of goitre, but that water which creates goitre is much richer in organic elements than is water which does not give rise to the affection. And yet he found that districts rich in goitre and districts which are free of the ailment are separated often merely by a valley or a river-bed. In the midst of goitre-laden localities he discovered oases in which no goitre existed. He also found that actually there existed "goitre-fountains," and that competent inhabitants were able to point out fountains whose water without exception caused goitre in the children who drank it. On the contrary, in places where goitre largely prevailed that, very often, families which had a private water-supply were free from the affection. In goitre districts the people themselves often accuse certain fountains of being a cause of the disease. When children drank water from wells, brook or river, they were largely afflicted by goitre. Long and open conductors of water are also unfavorable.

In one village Kocher found individuals who possessed normal thyroid glands and many others in whom the gland was hypertrophied. In the first case the people drank from a meadow spring, the affected drank water from a brook and fountains. In this place the cows preferred to drink from a spring which emptied into a basin, declining water from other sources. The animals which confined themselves to this spring gave more milk and were fatter and handsomer than the other cows of the village. Among goitre fountains, therefore, Kocher had discovered an exquisite anti-goitre spring, and naturally ordered an analysis of the two waters to be made. The water which caused goitre formed absolutely no deposit, and the analyst pronounced it, comparatively, a very clear drinking-water. That perfectly clear and fresh drinking-water can produce goitre is shown by the numerous cases in the valley of the Grindelwald, where the water-supply is derived from a source lying very high among the mountains.

In this examination of school-children Kocher always made a point of being perfectly clear as to what water the children used.

Reverting to the examination of the two waters: Analysis showed that while the chemical dissimilarities between them were very small, four times as much sulphate of lime existed in water which did not cause goitre as was found in water used by individuals who were affected by the tumor.

In both cases the water was fresh, crystal-clear and agreeable. The harmless water also contained twice the quantity of magnesia salts which were found in the suspected water. But, since it was found that water which was rich in lime could and did cause goitre, Kocher declines to consider these dissimilarities a sufficient explanation.

A thorough bacteriological examination of both waters was then made by Professor Tavel, of the University of Berne, with the result that in the innocuous water a far smaller number of micro-organisms was found, than in the other, namely, while in the first only nine species of cocci, bacteria and pilz, were isolated, in the other, 33 organisms were distinctly discovered. Culture of these various organisms from the two waters established the identity of only one of them. The organisms were then used *en masse* for the inoculation of guinea-pigs: in several instances there resulted a hypertrophy of the thyroid gland. A similar inoculation of dogs proved to be negative. But Kocher concludes that only by repeated experiments, especially with dogs during a long period of time, can a decision be reached. He wishes, however, to put upon record the remarkable fact that in, apparently, the cleanest and purest spring-water a large number of micro-organisms can be found. He concludes that the discovery in spring-water of this or that coccus, or of this or that bacterium, is an indication of small import, and adds that from this discovery it is absolutely impossible to draw the slightest conclusion.

Finally, he says, that a certain peculiarity of geological formation has an influence in the development of goitre, but that it is equally true that it is not the mineralogical

formation of ground, not the coarse chemical quality of underlying rocks, which produces the affection, but rather a mixture or uncleanness which taints the drinking-water as it filters through the underlying strata. As a theory, it may be supposed that certain geological combinations probably filter water and render it harmless, while others allow the passage of matter, which injures the thyroid gland of individuals who drink water of the latter origin. Last year, Baumann, late professor of chemistry in Freiburg, announced the discovery, in the normal thyroid gland, of iodine in the proportion of one milligramme of iodine to one gramme of the gland. In a struma he found little or no iodine. This absence of iodine is exciting attention as a possible, if not probable, cause of goitre. In combination the substance is called *thyroidine* or *iodothyroïne*, and is being artificially compounded and given to goitre cases in hope of relieving the ailment.

CRETINISM.

With regard to Cretinism, Kocher, touching the results of heredity, finds in sound and strong parents, who have lived far from regions in which cretinism is endemic and had there begotten normal children, that, after moving into a district of cretinism, they have begotten one or more cretins. In some of these cases the parents, either father, mother, or both, became victims of goitre, but without a trace of cretinism. Moreover, after such parents have returned to their former place of residence, they again begot healthy children. In some cases normal children were begotten in the cretin districts by parents to whom cretins were also born.

Various theories have attempted explanation of the foregoing facts. The most reasonable of these is that the same influences which lead to goitre are a cause of cretinism, or, that goitre is a stepping-stone to cretinism, and, where it is widespread, that cretinism always exists where goitre is endemic.

Kocher's opinion is that whenever goitre or cretinism appears in children, one or the other of the parents will be found to have goitre. He strongly asserts that the discomforts caused by goitre, no matter how intense they may be, never lead directly to cretinism, not even in its slightest degree, but that cretinism arises only and solely, when, by degeneration of the thyroid gland through goitre, or equally well by means of some other injury of the gland, its function is destroyed or seriously impaired. Or, quoting from Morel: "Goitre is the first stage of the road which leads to cretinism."

So long ago as 1830, Troxler said that the thyroid gland exerts an influence upon psychical life, the importance of which influence is not sufficiently understood.

Kocher was the first to take the stand that in operating upon goitre: (1) That total extirpation of the gland was not only wrong, but that it surely would lead to psychic disturbance, to cretinism, or, at any rate, to a greater or less disturbance of the general well-being. (2) That these disturbances cause a characteristic form of illness to which Kocher gave the name of "*Cachexia strumipriva*," which term, later, he modified into "*Cachexia thyropriva*," which he considered a truer expression of the ailment. (3) That in young individuals this condition exhibits a great similarity to cretinism, and, therefore, that there exists a decided dependence between cretinism and the thyroid gland. (4) That the total extirpation of the thyroid gland is wholly unallowable.

These assertions were first made before the Congress of Surgeons in Berlin. They were wholly new and awaited and were received with a large degree of sarcasm. Later, Reverdin, the elder, of Geneva, to whom in conversation Kocher had previously mentioned these conclusions, made a thorough examination of them with reference to patients from whom he had extirpated the entire thyroid gland. He acknowledged the truth of Kocher's discovery in a paper, which, later, he read before the French Congress of Surgeons, but did so, not only without mentioning Kocher's priority in the matter, but allowed himself to be recognized as the author of the new gospel.

He was rewarded with the cross of the Legion of Honor. Kocher's recompense was the decided assumption on the part of the German writers who had derided his original announcement of the facts in question, and who did not trouble themselves to look into the matter, that Reverdin was the first to recognize and describe the cachexia thyreopriva. In various pamphlets, professional friends of Kocher's have shown the facts in their true light, bitterly denouncing Reverdin and leaving him in an unenviable position. Kocher himself has done nothing but give a simple statement of the affair, in passing, in his pamphlet on cretinism.

To return to the subject under consideration. Kocher says so long as sound glandular substance remains, that the thyroid gland has nothing to do with cretinism. Goitre is dangerous only when it causes destruction of the gland, and, in consequence, abolishes its function. This danger can be averted by operation. In spite of this, a few professional teachers still advise against the removal of the goitre.

Kocher is very decided in his opinions with reference to myxedema. Inasmuch as it represents merely a certain stage of the affection to which he finally gave the name of cachexia thyreopriva, he considers the term myxedema confusing and imperfect. It originated with reference to a change in the skin, and represents simply the stage of thickening and hard infiltrating of the skin, these conditions being derived from an increased deposit of mucoid matter in the cellular tissue.

The English Myxedema Commission pronounced its decision almost wholly from adult cases; but Kocher has found that typical, so-called myxedema appears in children. On the other hand, that cachexia thyreopriva is a constant consequence of the removal of the whole of the thyroid gland. So far as etiology is concerned, his conclusion is that myxedema cachexia thyreopriva and cretinism are identical. And, the Myxedema Commission having concluded that "atrophy of the thyroid glands, which formerly was not remarked, is an unfailing pathologico-anatomical accompaniment of myxedema, Kocher says this means neither more nor less, so far as origin is concerned, than that myxedema and cachexia thyreopriva are identical diseases. Since Kocher has found that in any form of so-called myxedema, the cause of constitutional disturbance is, through metastasis, in the thyroid gland, he advises in all cases of myxedema, that the antecedents of the patient, especially as to drinking-water, dwelling-place, place of birth and family relations, should be carefully analyzed. It is, however, distinctly known that cretinism is connected neither with absence nor presence of a goitre, but that it is directly dependent upon cessation of function in the thyroid gland, which may occur either through inflammation or removal of the gland on account of malignant disease.

While congenital goitre is an exception and congenital atrophy of the thyroid gland a still greater variety, cases are known, as has already been pointed out, in which, after reaching a district rich in goitre, perfectly sound parents can beget cretins.

Through the maternal blood the fetus absorbs the abnormal influence into its thyroid gland, and in consequence of early and intense disease of the gland, atrophy supervenes. Nevertheless, the thyroid gland of the mother is not necessarily involved, for adults possess far less sensibility to the influences which lead to goitre than is the case in earlier years. The conclusion is that inherited and, at the same time, congenital cretinism is derived from the mother alone; while inherited cretinism, which appears only after a lapse of months, or years, is derived from the father alone.

Inherited and congenital cretinism is an exception. It not only implies a mother who has had goitre but also a mother who is affected by cretinism, that is, atrophy of the thyroid gland. Inherited, but not congenital, cretinism implies a father who is a cretin and a relatively normal mother. But, in the first case, the child may have inherited from the healthy parent a well-developed thyroid gland (or one sufficiently well-developed), which, after

birth, begins its function and thus disposes of all signs of congenital cretinism.

But by far the most frequent form of cretinism is congenital and not inherited. According to Kocher, the so-called inherited cretinism, as a rule, is congenital, that is, acquired during fetal life. The injury of the thyroid gland and the pathologico-anatomical substratum are the same as in cretinism which develops later. But the injurious material is absorbed by the mother from without, and by her is transferred to the thyroid gland of the fetus. The overruling factor, then, is always the influence of the land upon which the mother lives. So long as the child is in embryo, its tissues, the provision and nourishment, as well as the disposal of waste products are cared for through the maternal blood. If, therefore, the thyroid gland of the child does not develop, or becomes atrophied through disease, the gland of the mother acts perfectly, both for herself and the child. It is, then, evident that the body of the child, at the moment of birth, will not show any more cretinic degeneration than that of the mother herself. If the latter have only a goitre in a thyroid gland in a normal portion of which the functions are still satisfactory, the child, at birth will be plump and well-shaped. This is taught by experience. It is only when the child, independently of the mother, begins to nourish its own nervous system and with it the thyroid gland, that, as in acquired cretinism, the disturbance begins gradually to appear.

When Kocher says that in the strict sense of the term, cretinism is not congenital, and yet also says, that the most frequent form of cretinism is congenital, he may seem inconsistent; but he is not. He means simply that while children are not born cretins the thyroid gland in the majority of cretins has been *congenitally* so influenced that as the child grows the sleeping abnormality in the gland begins to develop and the process continues until cretinism has become established. As can be seen, this is not strictly congenital, that is, the condition does not appear at birth and yet it is congenital, because, during fetal life, through the blood, or nourishment, or drinking-water, or the mother, who herself may not have been a cretin and may have possessed a normal thyroid gland, the injurious tendencies were implanted in the thyroid gland of the fetus.

After a total excision of the thyroid gland the following symptoms soon begin to appear: oppression, fatigue, weakness and a sense of weight in the limbs. Fatigue frequently precedes pain in the arms, legs, neck and shoulders. There is a stiffness of the extremities, especially of the arms; a feeling of coldness supervenes. All these symptoms go hand-in-hand with a commencement of psychic disturbance. Thought is slow, so also are reactions. The patient is not actually stupid. He experiences rather, a feeling of difficulty in the use of the sensitive motor and sensory apparatus and is vexed by it. A swelling of various localities begins—of the eyelids, nose, lips, feet, hands and abdomen. The hair becomes rough and thin, the mucous membrane swells; anemia appears, breathing capacity diminishes; yet with all these symptoms there may exist a perfect power of judgment. Later, mental disturbances and epileptic attacks set in. This condition is cachexia thyreopriva and not myxedema.

Believing that drinking-water is the cause of goitre and secondarily of cretinism, and after proposing various means of procuring pure and safe water, Kocher says: "If they prove impossible then nothing remains but to do as surgeons—and the Chinese—do: *boil the water*. We look with proud contempt upon the tail-wearers of the heavenly land, but this time we wear the cue. The Chinese cannot comprehend why these barbarians of the sunset land drink raw water; and I, also, fail to understand it. To eat most of our food in a raw state would disgust us and yet, undoubtedly, we poison ourselves daily by drinking raw water. Between water as a beverage and bathing-water should be drawn a heavier line than has yet been done."

Yours respectfully,

H. O.

METEOROLOGICAL RECORD

For the week ending June 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.				Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...6	30.16	52	85	50	96	31	88	N.E.	E.	6	7	O.	O.	
M...7	30.30	53	86	50	87	30	88	N.E.	N.E.	10	9	O.	O.	
T...8	30.30	52	85	49	84	85	84	E.	E.	15	9	F.	O.	
W...9	30.08	53	86	50	97	97	97	N.E.	E.	17	16	R.	R.	1.22
Th...10	29.86	54	86	53	98	91	94	N.E.	N.E.	12	19	R.	O.	.97
F...11	29.89	65	78	52	78	75	76	N.W.	E.	13	10	C.	C.	
S...12	29.76	60	67	53	82	85	84	E.	N.	5	9	O.	F.	2.19

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 12, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,868,000	600	250	13.65	12.90	2.40	5.55	1.95	
Chicago	1,619,226	369	104	10.53	12.90	2.70	4.05	.27	
Philadelphia	1,214,256	383	139	16.90	9.62	3.38	7.80	3.12	
Brooklyn	1,160,000	347	118	14.28	7.28	4.20	5.88	1.68	
St. Louis	570,000	185	49	7.56	9.72	3.24	2.16	—	
Baltimore	550,000	142	39	7.00	5.60	4.20	1.40	—	
Boston	517,732	174	50	17.40	15.08	1.74	6.06	—	
Cincinnati	405,000	88	—	4.56	11.40	1.14	2.28	—	
Cleveland	350,000	68	18	1.47	7.35	—	—	—	
Pittsburg	285,000	75	25	8.64	14.63	2.66	2.66	—	
Washington	277,000	82	25	10.98	10.98	—	3.66	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	20	8	15.00	20.00	—	—	5.00	
Fall River	96,919	26	12	15.40	23.10	11.55	3.85	—	
Nashville	87,754	26	6	15.40	7.70	7.70	3.85	—	
Lowell	87,113	23	3	—	4.35	—	—	—	
Cambridge	86,812	33	13	15.15	9.09	—	12.12	—	
Charleston	65,165	—	—	—	—	—	—	—	
Lynn	65,220	23	6	—	3.85	—	—	—	
New Bedford	62,416	24	11	12.45	—	8.30	—	4.15	
Lawrence	55,510	18	7	16.66	11.11	5.55	5.55	—	
Springfield	54,799	14	3	7.14	21.42	7.14	—	—	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	13	3	—	7.69	—	—	—	
Brockton	35,853	5	1	—	—	—	—	—	
Malden	32,894	10	1	10.00	40.00	—	—	—	
Chelsea	32,716	11	3	9.09	27.27	—	9.09	—	
Haverhill	31,405	12	2	3.12	6.25	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	3	28.56	—	—	14.28	—	
Fitchburg	28,392	7	3	14.28	—	—	14.28	—	
Taunton	27,812	10	0	—	20.00	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	0	—	—	—	—	—	
Everett	21,545	8	2	12.50	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	5	0	—	20.00	—	—	—	
Amesbury	10,320	—	—	—	—	—	—	—	

Deaths reported 3,356; under five years of age 898; principal infectious diseases (small pox, measles, diphtheria and croup, whooping cough, erysipelas, diarrheal diseases and fever) 367, consumption 28, acute lung diseases 312, diphtheria and croup 141, diarrheal diseases 84, scarlet fever 40, typhoid fever 28, measles 24, cerebro-spinal meningitis 17, erysipelas 10, small-pox (New York) 1.

From typhoid fever Chicago 7, Philadelphia 5, St. Louis 4, New York 2, Brooklyn, Baltimore, Boston, Cleveland, Washington, Pittsburg, Nashville, Worcester, Lawrence and Malden 1 each. From measles New York 10, Brooklyn 6, Boston 3, Chicago and Philadelphia 2 each, Pittsburg 1. From cerebro-spinal meningitis Boston 8, New York 5, Somerville 2, Washington and

Newton 1 each. From erysipelas New York 3, Chicago 2, Philadelphia, Boston, Washington and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending June 5th, the death-rate was 17.4. Deaths reported 3,661; acute diseases of the respiratory organs (London) 229, measles 121, diphtheria 56, diarrhea 34, scarlet fever 32, fever 26.

The death-rates ranged from 12.0 in Brighton to 27.1 in Salford; Birmingham 20.2, Bolton 24.9, Croydon 13.8, Gateshead 18.1, Huddersfield 17.0, Leicester 18.4, Liverpool 23.1, London 15.4, Manchester 21.9, Newcastle-on-Tyne 15.8, Nottingham 13.1, Portsmouth 13.4, Sheffield 23.3, Swansea 17.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 12, 1897, TO JUNE 18, 1897.

Leave of absence for one month, on surgeon's certificate of disability, with permission to apply for an extension of one month, is granted MAJOR WILLIAM C. SHANNON, surgeon, U. S. Army, Jackson Barracks, La.

Leave of absence for one month, to take effect about July 24, 1897, is granted CAPTAIN WILLIAM F. LIPPITT, JR., assistant surgeon, Fort Leavenworth, Kan.

Leave of absence for one month, with permission to apply for an extension of one month, to take effect upon his relief from duty at Fort Robinson, Neb., is granted FIRST-LIEUT. CHARLES LYNCH, assistant surgeon.

Leave of absence for four months, on surgeon's certificate of disability, is granted FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, Fort Thomas, Ky.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 12, 1897.

M. H. SIMONS, surgeon, ordered to the "Iowa," June 16th.

WASHINGTON B. GROVE, commissioned assistant surgeon from June 3d.

R. P. CRANDALL, passed assistant surgeon, detached from Naval Hospital, Norfolk, June 14th, and ordered to the "Iowa," June 16th.

W. G. FARWELL, medical inspector, detached from special duty, Marine Rendezvous, Philadelphia, and continue other special duty.

D. O. LEWIS, surgeon, after completion of examining board, Naval Academy, ordered to the Marine Rendezvous, Philadelphia.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWO WEEKS ENDING JUNE 12, 1897.

GREENE, JOS. B., assistant surgeon. To rejoin station, Detroit, Mich., on return to Evansville, Ind., of Passed Assistant Surgeon, P. M. CARRINGTON. June 9, 1897.

GRUBBS, S. B., assistant surgeon. To proceed to Boston, Mass., and report to medical officer in command of Service for duty, on return to Detroit, Mich., of Assistant Surgeon, JOS. B. GREENE. June 9, 1897.

HASTINGS, HILL, assistant surgeon. Granted leave of absence for seven days from June 7, 1897. Leave of absence extended for seven days from June 14, 1897.

RECENT DEATHS.

JOSEPH JACKSON BOYNTON, M.D., M.M.S.S., died in South Framingham, June 17, 1897, aged sixty-four years.

DR. JOEL W. SMITH, of Charles City, Io., who died there recently, at the age of seventy-two years, was a successful practitioner who had won in large degree the respect and confidence of the community in which he practised. He was born in 1824 in Franklin, N. Y., and graduated from the Yale Medical School in 1850, and subsequently became a pupil of Dr. William Detmold, of New York City. He practised for a short time in New York State, but in 1857 removed to Charles City, Io., which was the scene of his labors until his death. He was a member of the American Medical Association, of the Iowa State Medical Society, being vice-president in 1872; of the International Medical Congress, Philadelphia, 1876, and Washington, 1887; of the American Public Health Association, of the Iowa Public Health Association and of the American Association for the Advancement of Science. His wife, a daughter and three sons survive him.

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GEORGE B. SHATTUCK, M.D., EDITOR
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Lecture.

THE NEW SURGERY.

THE SHATTUCK LECTURE FOR 1897.¹

BY DAVID W. CHEEVER, M.D., LL.D., BOSTON.

WHAT can it do now that it could not do before? What can it do better now than it could before?

Anesthesia, as well as asepsis, must answer these questions. The one gave us painless operations; the other painless-healing. One annulled consciousness, the other prevented inflammation; one rendered possible delicacy of manipulation, the other averted suppuration and absorption. Formerly suppuration was frequent, and primary healing rare; now primary healing is the rule, and suppuration the exception. Healing is measured by days, instead of by weeks; surgical fever is nearly always absent. The hectic of suppuration is happily wanting; the chill of sepsis unusual; secondary hemorrhage unknown, unless the result of trauma. Ligatures are buried and encysted or absorbed; sutures are cut and drawn out dry as when put in; pain is little; constitutional disturbance often slight. Scars are less deforming; adhesions less contractile; keloid less frequent; recurrence, locally, more favorably affected. Three dressings take the place of twenty; there are no ligatures to pull away and none to fear to touch, because they may prematurely loosen the stream of some great vessel.

We will try to describe these great changes without exaggeration, and proceed to speak of them in detail.

Let us look back seventy years, to 1827, when the work of Benjamin Travers, F.R.S., senior surgeon of Saint Thomas's Hospital, on "Constitutional Irritation," appeared. Chapter II, "On Examples of Direct Constitutional Irritation induced by Inflammation following Punctured Wounds and Abrasions of the Fingers in Dissection"; and Chapter IV, "On Examples of Direct Constitutional Irritation induced by the Admission of a Poison into the System by a Wound, or Abraded Surface." In Chapter IV are given 16 cases, of which 12 died.

Venesection, cupping, leeches, calomel, antimony, senna, opium, ammonia, stimulants, few and spare incisions, poultices, lead lotion, were the remedies used. It is, however, justice to Mr. Travers to say, that bleeding was soon found to be useless, and a supporting treatment was advocated in the later cases. What strikes one, however, was the absence of anything antiseptic, or cleansing; the too slight use of free incisions, and the malignancy of the symptoms, which ranged from lymphangitis to diffused suppuration of the cellular tissue; to erysipelas of the phlegmonous variety; to gangrene, to sepsis and general pyemia. In varying degree these conditions showed themselves in all the cases, and death followed, in from one to eleven days, in 75 per cent. of those wounded. This sad mortality occurred in one surgeon's practice; mostly from October to January of one autumn term of the medical schools. There were affected: a professor of anatomy, an army surgeon, a naval surgeon, a civil surgeon, four physicians, eight medical students, not to mention an undertaker and a servant. Of the 16 professional men and students, 12 died.

Thirteen cases followed wounds received in autopsies

on persons very recently dead; and three from dissecting-room subjects. In one case, Mr. Newby's, it is instructive to note the contagious, or infectious character of the disease. Mr. Newby opened the body of a child dead of enteritis (*Query*, peritonitis?), and had a pustule appear on a wounded thumb. He had deep-seated pain in the left breast, and a pink tinge there: a tumor from the sternum to the scapula, and from the clavicle to the hypochondrium; fetid stools; a brown tongue; a swollen arm; effusion of brown serum. He died on the eleventh day.

Now mark the consequences. Mr. Jackson, his assistant, had an erysipelatous throat and abscess of the tonsil; his pupil, a low fever; the housemaid, tonsillitis; the nurse, fever and a stiff neck (cellulitis), followed by phlegmonous erysipelas, which was fatal; the woman who laid out Mr. Newby's body had phlegmonous erysipelas, but recovered. Five cases resulting from this one of Mr. Newby's; apparently none who were in contact escaped, except the attending surgeon.

What would be the moral effect to-day, if such an epidemic of preventable poison occurred in our community and carried off twelve persons engaged in the pursuit of pathology and anatomy? Contrast it, if you can, and mark the difference in hygiene, in sanitation, in treatment, in the chances of professional life.

All this occurred in this century, in the great medical centre of London, under the best surgeons, Sir Astley Cooper being one of the consultants.

Mr. Clifton, of Islington, aged thirty-seven, scratched his thumb with a needle while sewing up the body of a female who had died of peritonitis. He was under the care of Dr. Gordon, of Finsbury Square. At three o'clock the next morning he was awakened with excruciating pain in the thumb and forearm; after ten hours the surgeon describes the arm as tense and swollen; very severe constitutional symptoms and pain; nausea, headache, anxiety, oppression in the chest; pulse full, hard, and 120. A large dose of calomel, and bled to 30 ounces; a poultice, a febrifuge and aperient. This was followed by a sleepless night and terrible pain; hand and arm much swollen; red line of absorbents; pain in axilla; appeared much sunken and complained of head greatly. Leeches and cold to temples. Next day, dreadful pain and lack of sleep; hand and arm more swelled; pulse full and hard, and 100. Bled 12 ounces; leeches applied; pulse 130; overwhelming oppression in chest and head; bled 16 ounces; leeches and purgatives. Next night, in agony, no sleep; pulse 120, hard and wiry. An incision made in hand and thumb—a little pus; immediate relief; poultice; fell asleep. During this sleep he bled very largely in the poultice, and fainted. Later, pain returned; pulse rose to 120, full and hard. In three days more, 140 leeches were applied. Then followed collapse, sighing, pulse 140, soft and compressible. Opium was now used freely; he improved; the application of leeches was only necessary twice more, and purging. He recovered.

The streptococci and staphylococci must have found exit with the 58 ounces of blood taken from the veins, and the 140 leeches, and have been also eliminated by the purging. What is noticeable, from our point of view, is that all these heroic measures were taken to allay inflammation—whereas inflammation was a symptom only of the putrescent germs running riot in the blood.

¹ Delivered before the Massachusetts Medical Society, June 8, 1897.

From this time on, mostly in war, but also in peace, hospital gangrene prevailed occasionally, down to twenty years ago. In civil general hospitals, wards had to be closed on this account; while pyemia and hospitalism were often fatal to the wounded as well as to the puerperal woman.

The fate of a compound fracture is a good barometer, or measure, of the healthfulness of a hospital, and of the sanitary success of treatments. From 1864 to 1869, about thirty years ago, we learn from the first quinquennial report of the Boston City Hospital, there were treated 120 compound fractures. Of these over one-half (66 per cent.) came to amputation. Of the compound fractures of the upper extremity 41 per cent. died; of the lower extremity 60 per cent. were fatal. Of those amputated, the thigh had a mortality of 56 per cent.; the arm 38 per cent.; the leg 32 per cent. One-sixth of the deaths were from pyemia; and there were four cases of tetanus. Such were the results during the first five years of a new and well-equipped hospital. Nor was this sad record much at variance with the other great hospitals.

During the sixth and last period of five years (1889 to 1894), being the experience from this hospital when twenty-five years to thirty years old, although the beds had increased from 250 to 800, the number of amputations had fallen from 132, the first five years, to 82. Of the 132, the first five years, the total mortality was 49 per cent.; but of the 82 amputations, the last five years, the total mortality was 16.75 per cent.; one-third as large as thirty years ago. Amputations of hip, 50 per cent, instead of 100 per cent.; amputations of thigh, 12.5 per cent., instead of 56 per cent.; amputations of leg, 13.5 per cent., instead of 32 per cent.; amputations of arm, 16.5 per cent., instead of 38 per cent. In other words, few compound fractures came to amputation; of those few the mortality was less by two-thirds than formerly. What other adequate cause can be found for so vast a change unless it be asepsis. The patients were of the same class; the accidents were the same; the hospital wards the same; many of the surgeons the same.

In curious confirmation of these proofs of asepsis come a series of recent events which is a crucial test.

Late in November, 1896, a sudden move of the entire surgical plant to the new operating-rooms was made, and made unexpectedly, on account of the urgency of a contractor engaged to tear down the old amphitheatre by December first. New hands had to be employed in a part of the sterilizing process; a new sterilizer was also being tried; everything was thus altered from its habitual use for months previously. Failure of asepsis promptly followed. Stitches suppurated; stitch abscesses burrowed; 13 cases of absorption, covering the three surgical services, occurred; some serious cases of sepsis; so that all but emergency cases were refused operation.

An "emergency committee" of three surgeons proceeded to hunt for germs, three to six hours each day; and in this they were vigorously assisted by Dr. Councilman's department. Cultures from silk, from catgut, from gauze, from sheets, from instruments, were made; more than one hundred in all. The search was immediately rewarded by finding streptococci and spores in the sutures, ligatures, towels and sheets; the gauze, which was baked separately, was free and sterile. The fault was largely in the too low temperature of the new sterilizer. An entirely new bacillus was found in

the catgut, which produced abscess in the guinea-pig when injected in its culture. A spore-bearing bacillus was found on the sheets used at operations. This yielded only to two bakings, twenty-four hours apart. If baked at short intervals it was not killed, because this spore was found to hatch and grow in twenty-hour intervals.

In one week of hard work the trouble was nearly subdued; and soon the wounds resumed their usual course of primary aseptic healing. It was a demonstration, and perhaps worth what it cost.

This brings us naturally to consider the first great advance in the new surgery. And that is, that under its dressings, we can safely wait, after an accidental injury, an indefinite time, before operating.

All older surgeons must recall the precept, then imperative, that while we might wait after an injury for reaction to succeed shock, we must not wait too long. There was a golden moment, between twelve, eighteen, at most twenty-four hours after an accident, when amputation must be done. Unless this golden moment was availed of, then surgical fever succeeded reaction; suppuration invariably ensued; and while inflammatory processes were going on, and until pus flowed freely, no operation should be done. This intermediate stage was a fatal stage, prone to tetanus, to sepsis, to metastatic inflammation. The necessity of operating on the second, third or fourth day after a wound, in our late civil war, explained the large mortality from tetanus and gangrene which resulted.

Operate early, or operate late; primary amputation within twelve hours of the injury; or, after a week to ten days, secondary amputation on a case become pathological by suppuration. Experience proved this to be the true method.

Under the new surgery all this may be done away with. The lacerated limb is shaved, scrubbed, irrigated, packed and dressed aseptically. One may wait indefinitely; suppuration does not ensue; fever and absorption will not occur, provided the antiseptic is complete; and provided the limb is not fatally injured and past repair.

Wait and see how the injury will turn out. Wait and see whether the parts can heal of themselves and save the limb. Wait in the surety that when you take down the dressing the cuts will look as fresh and clean as when they were inflicted. Under this aseptic *regime* then we wait for shock to be all gone; we wait to see if a compound fracture cannot heal itself. The majority do heal, and amputations become rarer and rarer.

Next, healing is painless. This is a new thought. After the subsidence of the pain of the incisions, lasting a few hours, there should be no more pain in aseptic healing. The clinical thermometer should barely rise, if it rise at all.

Late experiments at our hospital have proved that surgical fever, so-called, steadily diminishes as asepsis improves. Imperfect asepsis, a few germs in the dressings, or an infected suture, surgical fever; fair asepsis, no more germs than the vitality of the tissues can handle and destroy, slight fever; perfect asepsis, no stitch abscess, no effusion or draining, no surgical fever and painless healing. It is a demonstration; and it has been demonstrated.

Contrast this with the course of events formerly, after the removal of a breast. Surgical fever; fifteen ligatures to come away; drainage by the ligatures;

suppuration; a daily dressing; a sinus; probably some stitches suppurating and failing to hold; a granulating surface, drawn together with adhesive plaster; fever; pain; ligatures to be pulled daily. Such patients recovered, but they suffered for several weeks.

To take a perfect case of new surgery. A lady, whose breast I removed, told me, after she recovered, that she had had no pain. Ether first annulled it, and she declared she had had no real pain in the dressings or in healing. This is an extreme case.

The new surgery does away with secondary hemorrhage. Why? because the ligature does not come away, but stays on the vessel. Ulceration through the coats of the artery is not to be expected, as formerly, hence the vessel does not give way and bleeding follow. We tie the carotid and the wound heals over the buried ligature of boiled silk, or asepticized animal tendon, by first intention. The vessel is closed when the string is tied; it stays closed, and there is the end of it.

Could John Hunter rise and admire this new use of the ligature to treat an aneurism, near the sac, with no fear of secondary hemorrhage; could Ambroise Paré only see his ligature safely enclosed and encapsuled in the stump of an amputated thigh. Primary union; a smooth scar; no pain; no hemorrhage; no suppuration.

These triumphs of asepsis in ordinary wounds seem small, however, in comparison with what it has accomplished in visceral surgery. Opening serous cavities with impunity, and with a mortality for simple exploratory celiotomy of from three to five per cent., seem to the older surgeon almost incredible. Formerly the abdomen was a hidden and sacred region; now it is thrown wide open. If it is safe to open the abdomen, then it is idle to wait for the growth of cysts of the ovary, but better to remove them before adhesions form. If it is safe, why not remove the appendix when it is not acutely inflamed? Such are the claims of asepsis: we cannot assent to them all, however.

To take another region: in the first five years of the City Hospital fractures of the vault of the skull were equally fatal (60 per cent.) whether trephined or not. Now trephining is used with comparative safety to explore for clots, to remove ganglia, to search for tumors, even to relieve pressure. The pleural cavities and the pericardium have also been opened, as never before.

The value of explorations has been much increased by anesthesia. This is the result of, first, absence of feeling on the part of the patient; and, second, of the relaxation of the muscles. No question of diagnosis and possible operation on the contents of the abdomen or of the pelvis should be considered settled without an examination under ether. The gain in knowledge, and the enhanced accuracy in diagnosis, are very great. Bi-manual examination of tumors of the abdomen, and of the pelvic organs in the female, is made easy and reliable by ether. The rectum, also, is thus rendered accessible.

Many are tempted by the immunity of aseptic surgery to incise the abdominal walls for diagnosis. While explorations are thus made needlessly, still the final risk may be only of a scar or a hernia. Grave reasons should be the only excuse for such incisions; and while we are spared the former risk of sepsis, still if the explorer disturbs or handles malignant disease, the subsequent danger is considerable. Chronic peritonitis of the tubercular variety yields the best results from ex-

ploratory laparotomy and drainage; but acute, diffused peritonitis is as fatal as before the days of asepsis.

In orthopedics, in opening joints, and in the radical cure of hernia, asepsis has substituted the open incision for the more clumsy subcutaneous methods of Dieffenbach. While atmospheric air was once recognized as hostile to primary healing, it is now proved to be harmless, provided clean hands, instruments and sponges touch the wound.

Antiseptic spray is abandoned as a needless precaution. The knee-joint is safely opened to wire a broken patella, and the *évidement*, or the excision of joints, formerly the pride of the conservative surgeon, is now boldly advanced from a justifiable risk to a certain success.

The golden stitch of Paré, revived by Wood in the subcutaneous suturing of the abdominal rings, has given place to the free, open incision and dissection of Bassini, in the radical cure of hernia.

Club-foot and tarsal deformities are cut open and repaired, and knock-knee is chiselled into shape, without fear or scruple.

The sensitive serous lining of the spinal canal is dissected, pared and matched, to enclose a spina bifida. Fracture and dislocation of the spine is made compound and repaired with questionable audacity, uncertain result, but yet with aseptic triumph. Hydrocephalus is tapped and microcephalus expanded, by the same surgical boldness, without fatality, but without final cure.

The sensitive ganglion of Gasser is torn from its hiding-place, with a mortality of only 20 per cent., but with little lasting benefit.

But when we look at the successful treatment of large, open surfaces caused by burns, we must yield our unqualified admiration. Who has not seen, twenty-five years ago, the burn so large it could not heal. The wretched victim perished from chronic irritation. Now, skin-grafting and transplantation freely and aseptically cover the largest granulating area with a new epidermic shield; and healing takes place without disastrous cicatrices and contractions.

The treatment of gangrene—traumatic, diabetic or senile—has been much improved. High amputation in traumatic gangrene is now justified, without waiting for a line of demarcation, since sepsis, in this moist variety, frequently outruns the walling off of nature. And the aseptic and hurried ligature has enabled us to amputate the atheromatous vessels of age and senile mortification with a fair degree of success.

The curetting of cold abscesses and packing them with antiseptic gauze have hastened their repair, and proved curative; but only provided the source of suppuration could be removed, as in a joint. Meanwhile the flaxseed poultice has been replaced by hot fomentations of corrosive gauze, thus checking pus formation in acute abscess. Pus is still brought into hospitals; but little pus is engendered in them. Hospitalism is a myth, where once a terror.

It may be confidently asserted that grave surgical injuries and operations are safer in a hospital than in their own homes, however luxurious. Sanitation, scrupulous cleanliness, discipline, drill, ceaseless vigilance, skilled nursing (night as well as day), attendance of trained care-takers, and above all antiseptics and asepsis, have brought about this marvellous success.

Pyemia was the opprobrium of surgery and the

fatal disease of hospitals. Sepsis decimated the lying-in retreat. Both are so far subdued, that suppuration and absorption are regarded almost as a fault; and puerperal blood-poisoning as a neglect of due precaution, in many instances. This is a strong assertion, and may be questioned, but statistics answer for it, to a large degree.

But when we approach the large class of chronic diseases, we are forced to pause in our enthusiasm. Tubercle, cancer and sarcoma are, as yet, unconquered. Setting aside the inoculations of Koch, and regarding only the treatment of tubercle by the knife and gouge, it is not yet proven that evident tubercle, as in lymphatic glands, should always be removed. Neither pulmonary nor miliary tuberculosis always follow tuberculous glands in the neck, if left untreated. Many children grow up and have long lives, whose so-called scrofulous glands have scarred their necks by suppuration in their early years.

"It is a familiar clinical fact, that the operative treatment of joint tuberculosis has not infrequently been followed by tuberculosis of the other organs, or by general miliary tuberculosis."²

Cancer is a degeneration; it is senility, often premature. Could a germ be found, an antitoxin might succeed. Cancer spreads; becomes disseminated; attacks other tissues. New cancer grows in the lymphatic glands, and in other parts. "The reproduction of similar structure is an argument against the microbic origin of cancer."³

Cancer is an atypical proliferation of cells from a matrix of embryonic epithelial cells. The new epithelial cells, like the ameba and leucocyte, possess the power of locomotion, or migration. Here is the fatal fact, and the reason for dissemination. We see cancer cells sprinkled like dust over the mesentery and peritoneum in abdominal cancer. Generalization of cancer takes place in consequence of the entrance into the circulation of cancer cells, or fragments, which when arrested, like emboli, constitute new centres of cancerous growth. It is this cell migration, and the intrinsic capacity of the cells to reproduce themselves in new localities, that constitute malignancy. For example, in 18 cases of cancer of the pylorus, Senn found only one case limited to the pylorus; in 17 the lymphatic glands were also affected.

Here operation could be only palliative, and not curative. Nodules in the skin and in the lymphatics are the rule of dissemination in cancer of the breast. Later, one may be sometimes attracted by an arching out, or prominence of the sternum, on the affected side. Here we may suspect cancer in the medulla of the sternum. The bronchial and mediastinal glands are next involved; then the pleura and the liver. Obviously the surgeon's knife can only be curative in those early or exceptional cases, where the misplaced cells are local, and have not migrated. All operations, however extensive, at a later period must be wholly uncertain as cures; and recurrence is the rule, sooner or later.

Sarcoma is an atypical proliferation of connective-tissue cells. The small, round cells migrate freely through the muscular interspaces, by the sheaths of the vessels, through the vessels, rarely by the lymphatics. Sarcoma gives rise to regional or general infection at an earlier stage than cancer. It is vascular and

rapidly growing. Hence a very early operation is the only thorough one. Local recurrence is more common than general.

Sarcoma is the tumor of young and vigorous life; cancer, the degeneration of senility; tubercle hatches in the nest of childhood and adolescence. We have here, then, three diseases incurable by the knife. Anesthesia and asepsis may charm, but they will not cure. We have to look for a different class of remedies: the erysipelas toxin, the streptococcus toxin; chemical solvents? What, we know not yet. But through this path only can finally be secured immunity from occurrence, recurrence and death from these malignant affections.

While admitting freely the great benefits sometimes conferred by judicious surgeons, yet the New Surgery is in danger of injury and degradation from the tendency to over-operate. This is a very grave charge, but it is true.

We can open the abdomen safely; why not look in, nor wait for halting diagnosis? Having looked in, if we find anything operable we remove it. A healthy appendix; a fibroma, or a cyst like a marble; a drooping uterus to hang up; a sinning ovary to rebuke, and take out of the way of farther mischief.

We leave Nature no chance. But be sure she will get even with us in the end. The expected relief from removing pelvic organs does not always follow. The sensibilities of nerves cut away are referred back to their terminal branches, as we see in amputations. Neuralgia, menstrual nixus, flows of serum, supplement the normal function. The patient is unable to work, and is, moreover, unhappy. Meanwhile Nature teaches us, by her laws of compensation, that an operation is not always necessary. A dilated bladder overflows; an obstructed bowel leaks by serious diarrhea, and the unbearable load is washed away. So time and physiological rest will often alleviate the ills of pelvic indurations and inflammations.

Will operations increase in frequency? We think not; but there will be a conservative reaction that will tend to diminish them. Also, the advance in bacteriology will diminish them still more. Traumatic surgery we shall always have; but pathological surgery will be lessened by new antitoxins. Meanwhile we must not overlook the changes which the New Surgery is causing in the surgeon himself. First, he is specialized. Necessary preparation and special study are so much increased, that he must pay attention to surgery only to be successful. Second, his responsibility is increased with his knowledge. The electric light pierces opaque tissues, and clarifies a diagnosis, before doubtful; or shows misplacement in a fracture, so that the dullest juror can see it. The anatomy of the viscera opens up a new field of study for the surgeon. He operates no better than his predecessor, but he must know more.

Surgery is less simple than formerly. When to operate in appendicitis, and when to forbear, open up a new set of anxieties for the surgeon; redness, heat, pain, swelling, fluctuation, guided the knife formerly; now leucocytosis and the thermometer must also be consulted.

The surgeon of to-day needs general professional training, first, so as to promptly recognize and treat any medical complications, such as pneumonia, pleurisy, the exanthemata. Next, clinical experience to appreciate gross appearances. Then, regional anat-

¹ Senn: Limits of the Art of Surgery.

² Senn: On Tumors.

omy; training in bacteriology; a competent knowledge of the mechanical and chemical details of asepsis. Restrained by broader knowledge and with a judgment tempered by experience, the new surgeon will offer to the world only such operations as are nearly sure of success; thus benefiting the public health, which was the object of its founder in endowing the Shattuck Lectures.

Original Articles.

INTRA-TYMPANIC DISEASE AS A FACTOR IN THE CAUSATION OF AURAL VERTIGO.¹

BY CLARENCE J. BLAKE, M.D.

NOTWITHSTANDING the work which has been done in the study of aural vertigo, the field presented both for observation and conjecture is a very large one, since it deals both with a peripheral and a central organ of equilibration, and has numerous reflex connections which bring it into sympathy with other portions of the body remote both in the physical and physiological sense. It is the purpose of this paper, therefore, merely to draw attention to such gross interferences with the peripheral organ of equilibration as may serve to explain in a minor degree the simplest form of causation of a complex of symptoms which is found in varying extent throughout the whole class of vertiginous cases in which the ear plays a part.

A consideration of the structure of that portion of the labyrinth devoted to equilibration (a study in the simplest sense, schematical it almost might be called) shows a bony cavity filled with an incompressible fluid into which project the tactile organs transmitting to the nerve cells the ultimately appreciable motion. All movements communicated through this fluid are of the to-and-fro order, whether they be the minute transmission of the pulsatory movement of sound waves, or the grosser forms of impulse due to the less delicate movements communicated by means of the sound-transmitting mechanism of the middle ear from the outer air, or through the body by transmission through its bony framework, or solely through the medium of the circulation.

It stands to reason that if the deviation from a line of equilibrium of a ciliate body projecting into the lumen of a semicircular canal, produced by the inertia of a body of fluid from three to five millimetres in length, and less than half a millimetre in diameter, can cause distinct symptoms incident to the sense of motion, that a permanent deviation of a ciliary body from its normal position, as a result of pressure upon the body of the fluid into which it projects, would bring about a sense of motion, the permanency of which would be dependent upon the continuance of the pressure or the sensory adaptation to the abnormal condition.

It is somewhat after this fashion that we may, with our present knowledge of the structure and functions of the equilibrating organ of the labyrinth, construe the effect which would be produced by any pressure from without exerted upon the body of fluid, within which the tactile end apparatus of the posterior branch of the auditory nerve is located. This pressure

from without may be induced in a more or less constant degree by pressure upon the membrane of either the oval or round window, and in lesser duration, though probably not in lesser degree, by increased blood pressure and consequent dilatation of the vessels within the labyrinth.

As has been shown by the early experiments of Burnett and others, any degree of movement of the base plate of the stapes inward upon the membrane of the oval window means a corresponding degree of movement of the membrane of the round window outward, and, *vice versa*. It stands to reason that where the excursion of the stapes inward exceeds the limit demanded for the transmission of the longest sound wave of the lowest musical tone appreciable as such by the human ear, the displacement of the fluid may be such as to exert a definite effect of deviation from the normal line of the ciliate bodies projecting into the ampulla-like endings of the semicircular canals, in point of fact, however, there would seem to be in some cases, a region of immunity between the displacement incident to the longest sound wave and the grosser movement which may induce symptoms of disturbance of equilibration, and it is not, therefore, until the displacement of the fluid in the labyrinth has become a distinctly mechanical one that this peripheral displacement is translated in the sensorium into the sense of a displacement of the body in space.

Two facts are shown from the clinical observation of cases of distinctly aural vertigo, first, that the sense of degree of disturbance of equilibration is, all other things being equal, in definite relationship to the degree of fluid displacement induced by mechanical causes, and, second, that the auditory nerve offers no exception to the general rule of acquired toleration of a disturbing influence of a degree within the possible limits of compensation. Given, therefore, a degree of fluid displacement in the semicircular canals consequent upon inward pressure of the base plate of the stapes which shall cause symptoms of vertigo, it is understood that even with a continuation of the displacement, the vertiginous symptoms may gradually decrease and finally disappear, because of the gradually acquired toleration of the abnormal condition, and be reawakened only by such further increase of displacement as might be due to a still further incursion of the stapes, or to the increased intra-labyrinthine pressure incident to an increased circulation in the blood-vessels within the labyrinth, or an increased vessel dilatation with increased blood pressure consequent upon a suspense of vaso-motor inhibition of reflex origin.

The following cases will serve to illustrate the grosser forms of mechanical disturbance, which sometimes result in the production of what may be called distinctly *aural vertigo*.

A woman, fifty years of age, who had, as a result of a suppurative inflammation of the left middle ear in childhood, a destruction of the larger portion of the drum-head, and the formation of cicatricial bands firmly attaching the lower end of the long process of the malleus to the inner tympanic wall, had, in consequence of a severe acute naso-pharyngeal catarrh, a recurrence of the suppurative process in the middle ear, with the formation of granulation in the posterior superior portion of the tympanum and neighborhood of the stapes. But little attention was given by

¹ Read before the Boston Society for Medical Improvement, January 25, 1897.

the patient to the symptoms incident to this condition until a sense of fulness and pressure on that side of the head supervened, gradually increasing in degree, and being further complicated by light but continuous sensations of vertigo, together with a distinct subjective circulatory tinnitus increasing, together with an increase of the sensations of fulness and pressure, when finally the patient was obliged to take to her bed, as any attempt to maintain an erect position was accompanied by a degree of vertigo which made attention to household duties impossible. An examination of the ear made at this time showed a firm granulomatous mass projecting downward, below the posterior superior border of the tympanic ring and consequently covering the region of the stapes, and the incus was either absent or enclosed in the granulosomatous mass; when sitting up in bed for purposes of examination the patient had to be supported, and any movement of the tumor, especially direct pressure inward and upward, induced an excessive degree of the already almost unbearable vertigo. The removal of the granulomatous mass was evidently indicated, and this was effected piecemeal by means of curved forceps, with intervals of rest for manipulation, necessitated by the increased vertigo and accompanying nausea which the movement of the tumor caused. During the process of morcellation, it was found that the incus was absent, and with the final removal of the larger portion of the mass which pressed directly upon the head of the stapes, there came a sensation of relief from the more exaggerated symptoms, and both the vertigo and the sense of fulness and pressure, and, in a measure, the tinnitus, disappeared during the subsequent three days of rest and recuperation in bed.

A man, thirty-two years of age, who had suffered from suppurative middle-ear disease in childhood, with entire cessation of discharge from the ears for several years, had contracted a severe cold, followed by sensations of pain and fulness in the depth of the ear and a slight, thin mucopurulent discharge. To this symptom he paid but little attention, and continued his work as a clerk, until he noticed a sensation of fulness and pressure in the ear, slowly increasing, and culminating in an attack of vertigo, with nausea and vomiting, and a degree of instability which made it necessary for him to leave his work. When first seen he was in bed, with a slight degree of constant vertigo, which was greatly increased by any movement of the body, and especially by an attempt to sit erect; in the latter position there was a constant tendency to fall toward the left. The right ear was intact, but showed evidences of a past suppurative process; an examination of the left ear showed destruction of the membrana tympani and of the membrane of Shrapnell, and through the opening above the short process of the malleus, enlarged by previous destruction of the soft parts, there were visible a few points of granulation tissue and shreds of desquamated epidermis. With a cotton-tipped probe the granulations were removed, and by means of the forceps a sufficient amount of the epidermis was extracted to give a distinct sensation of relief from the symptoms of pressure and vertigo, and to permit the introduction of a middle-ear syringe. Repeated washings finally effected the entire removal of a cholesteatomatous mass, which, accumulating in the upper and posterior portion of the epitympanum, had by pressure downward upon the head of the incus effected such change in the position of the stapes as

would serve to account for the symptoms of vertigo relieved by removal of the impacted mass.

These two cases illustrate sufficiently the grosser form of pressure which may induce vertiginous symptoms, and may be taken as representing the simple uncomplicated aural vertigo. In the first case, the pressure exerted was apparently upon the head of the stapes, crowding it inward; in the second, the pressure which pushed the incus downward tended both to force the stapes farther into the fenestral niche, and also to carry it toward the inferior niche wall, except in so far as movement in this direction was interfered with by the pull of the stapedius muscle. In the first case, moreover, the incus being absent, and the continuity of the ossicular chain, and its counteracting effect upon the action of the stapedius muscle being broken, the unhindered contraction of the stapedius would tend to pull the head of that bone toward the posterior niche wall, to tilt the posterior end of the base plate inward, and the anterior end outward, and so increase the tension of the basal ligament as to counteract in a measure the tendency toward pressure of the stapes inward from the weight of the superincumbent granulation mass.

Clinical experience in the mobilization of the stapes, as well as anatomical investigation, has shown that the stapes in position in the fenestral niche under normal conditions is, when separated from its articulation with the incus, and its attachment to the stapedius muscle by division of its tendon, in the position of a loose plunger rather than that of an armature firmly attached to a tense basal membrane, the conditions of tension requisite to the operation of the stapes in connection with the ossicular chain and membrana tympani being furnished by its relation to the other portions of the sound-transmitting apparatus, including the stapedius muscle, and by resistance of the body of fluid within the labyrinth. Of the two muscles of the sound-transmitting apparatus which counteract each other, the tensor tympani is by far the larger, and the duration of its action is apparently correspondingly longer than that of the stapedius, a certain degree of contraction of the tensor tympani muscle taking place, and being expended in bringing the articulating facets of the head of the malleus and incus into closer apposition before the counteracting contraction of the stapedius muscle begins. The articulating facets on the head of the malleus locking more firmly against the facets on the head of the incus tend to carry the body, and, therefore the long process of that bone downward, as well as tilt it inward, and this pressure transmitted through the incudo-stapedial articulation carries the head of the stapes downward toward the inferior niche wall, and counteracts the pull of the stapedius muscle; confirmatory clinical evidence of this effect is shown in the relatively greater frequency of adhesions between the head and the crura of the stapes with the inferior niche wall in old cases of suppurative disease of the middle ear, and the pull of the tensor tympani muscle toward the limit of its effective work in drawing the long process of the malleus inward, as best seen in cases of suppurative middle-ear disease where the membrana tympani has been destroyed, and the malleus may be pulled inward unhindered.

Turning now to such cases of non-suppurative disease of the middle ear as may serve to illustrate the point which is here taken, and leaving out of consideration those cases of bony fixation of the stapes

which, as has been shown by the sections of Politzer, serve not only to render the stapes immobile by bony growth springing from the edges of the oval window, but even to displace that bone, and encroach upon the space of the labyrinth itself, we find in advanced cases of simple chronic catarrhal inflammation of the middle ear, a general thickening of the tympanic mucous membrane, a contraction of the tensor tympani muscle, or secondary contraction of its tendon, the membrana tympani being very much indrawn, and a high grade of deafness aërially, with either correspondingly increased, or markedly decreased hearing by bone conduction, the same immobility of the sound-transmitting apparatus, which prevents the passage of sound waves inward, either interfering with the passage of sound waves outward, and so making them more plainly heard within, or by a greater degree of pressure causing a suspense of function of the sound-transmitting structures of the cochlea.

While the intra-labyrinthine pressure thus induced may interfere with the function of the sound-receiving portion of the labyrinth, it may not be sufficient in degree to affect the equilibrating portion, and while not sufficient in degree to affect the equilibrating portion in itself, it is a factor in the causation of antral vertigo, in the sense that, coupled with sudden and occasional increase of intra-labyrinthine pressure due to circulatory disturbances, the two together may bring about a degree of irritation of the semicircular canal end apparatus sufficient to induce the familiar vertiginous symptoms.

Under normal conditions, an increased intra-labyrinthine pressure resulting from vessel dilatation causes not only a movement of the intra-labyrinthine fluid through the safety channels provided for it, but also a certain degree of movement of the membrane of the oval and round window, especially the latter, outward. Given a fixation of these parts, one possible element of compensation for increased intra-labyrinthine pressure is lost, and a lesser degree of intra-labyrinthine vessel dilatation will be required to bring about disturbances of sensation in the equilibrating apparatus. This is the case sometimes in the steadily progressive cases of intra-tympanic thickening in which the disease progresses through many years to a very high grade of deafness and in which, after middle life, may be sometimes noted, in addition to the gradual impairment of hearing for sounds aërially conveyed, the occurrence of at first a slight, and then a more annoying and even fatiguing degree of circulatory tinnitus, and a still higher grade of deafness; finally, the symptom of a slight, persistent dizziness, or of occasional attacks of more marked vertigo, apparently traceable to incidental conditions of increased cerebral and intra-labyrinthine circulation consequent upon long nervous strain and overtire, culminating at last in a sudden suspense of vaso-motor inhibition.

A woman, forty-two years of age, married, with three healthy children, keeping a large house, having many social as well as family demands upon her time—fatigued, moreover, by the effort which she had to make, under these conditions, to compensate for an impairment of hearing of several years' standing, and which was slowly increasing—began to notice slight symptoms of dizziness when first waking in the morning, and occasionally in the daytime after prolonged exertion. The dizziness increased rather than diminished, and she had finally a distinct attack of vertigo

without localization of direction in movement, and with a tendency to fall forward. During the two or three days' rest following this attack of vertigo, the general dizziness became less, but increased as she again resumed her usual vocations; and after a second marked attack of vertigo, I had an opportunity of making an examination. The hearing was decreased in both ears, especially the left, to an extent which made participation in ordinary conversation impossible, though the voice of a single speaker in the ordinary conversation tone could be heard, and words plainly understood at a distance of three feet, and in the left ear at a distance of less than two feet. The hearing for the tuning-fork by bone conduction was increased in both ears; objective examination showed opaque and indrawn drum-heads; and the history gave the symptoms of a slowly progressive chronic non-suppurative disease in both middle ears. In order to test the degree of influence of the patient's general condition upon the causation of the vertigo, as well as upon the further decrease of hearing which had more recently evidenced itself, instead of attempting local treatment, the patient was directed to take advantage of an opportunity to leave home and make a prolonged visit to a sister living upon a large farm and was given instructions as to diet, exercise in the open air, special injunctions as to rest and sleep, and was put upon small doses of quinine sulphate (one-eighth grain every two hours).

At the end of six months of restful life, the patient returned to her home and her duties. She was free from dizziness; had had no attack of vertigo for three months; had less tinnitus aurium and there was a moderate degree of improvement in hearing. She continued well for nearly two years, when the dizziness, preceded by slowly increasing circulatory tinnitus, returned, and an attack of vertigo, more severe than any previously experienced, occurred. Another period of rest was sufficient to again relieve these symptoms. Three years later when seen again, the patient had in the interval been well, had successfully passed the menopause, and had no further increase of deafness than might be reasonably expected in the time which had elapsed in a chronic progressive case of that character.

LATE EXCISION OF THE HIP.¹

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AN article dealing with excision of the hip need no longer begin by a comparison of the merits of excision and conservatism as routine methods of treatment. Whatever the sentiment of the surgical world may have been ten or fifteen years ago, it is now generally admitted that on the whole, conservatism is preferable to operative measures. This view is supported by the weight of surgical opinion in America, in England, in Belgium and France and even in Germany. Certain radical surgeons who regard tuberculosis as a malignant affection still advise early and radical measures whenever a tuberculous focus appears in a hip-joint and especially if suppuration occurs² (Bradley, Steiner, Cazin, Daniel, Molliere, Wright, Barker).

But if there is agreement as to the advisability of conservatism on general grounds, there are often

¹ Read before the American Orthopedic Association, at Washington, D. C., May 7, 1897.

² Gangolphe: *Maladies infect. et parasit. des Os*, 1894, p. 332.

many differences of opinion expressed as to the time when conservative should yield to operative measures. The opinion of the surgical world in this regard is of interest.

In France, Ollier³ seems to dictate surgical opinion in this matter. He writes: "Abscesses are opened; but if they recur, if they are accompanied by phenomena of absorption, if the hip remains painful and does not tend to ankylosis, if the acetabulum is diseased, resection is formally indicated."

One may assume that Vincent, of Lyons,⁴ is a fair exponent of this policy, to which he agrees in his writing; and it is interesting to note that in 233 cases of hip disease treated at the Charité Hospital, where this policy was followed, 52 were resected, being at the rate of 22.3 per cent. of all cases. At the Children's Hospital, Boston, in 1,100 cases, 50 were resected, being at the rate of 4.54 per cent. This comparison seems to indicate that French conservatism is five times as operative as is American conservatism.

Menard⁵ probably represents French opinion in general, in stating that, "Resection ought not to be reserved for desperate cases; if one wishes to obtain good results the operation must be done in time."

Again, Lambotte,⁶ another recent French writer, says of excision, "we are of the opinion that as soon as pus exists in the capsule the best way of rapidly curing the patient is to resect without delay."

Nor can French results from operation be adjudged as altogether satisfactory, when Ollier teaches that the most desirable result after resection is complete ankylosis, and Montoz⁷ would nail the femur to the acetabulum after operation to obtain this. Yet one must remember French conservatism expects very little; for Vincent writes, "It is ankylosis in good position (without resorting to resection) that we pursue as the ideal of a cure in coxalgia."

In Germany the tide sets strongly in favor of conservatism. As Jalaquier⁸ has put it somewhat graphically: "The Volkmanns, the Leisrinks and the Koenigs, who were resection mad (*atteints de résécomaine*), are now reacting, and are defending conservative operations."

Sasse⁹ believes that conservative measures can be followed in 75 to 80 per cent. of all cases (leaving 20 to 25 per cent. of cases for excision), an estimate practically the same as Vincent's.

Bruns,¹⁰ reviewing forty years' work at the Tübingen clinic, found 600 cases which he reduced to 390 cases of authenticated hip disease; and of these, 69 were resected, making about 18 per cent., a proportion not far from those of the other Continental surgeons just mentioned.

Schede, Helferliche, Gussenbauer, Von Bergmann and others at the German Surgical Congress in 1894, advocated conservative as contrasted with operative measures.¹¹

English opinion is of two sorts: one, represented by the enthusiastic advocates of early excision, one of whom¹² would remove the head of the bone "as soon as it is suspected that caseation is advancing in it," while another asserts that "treatment short of excision,

when once suppuration occurs, is useful only as a palliative or means of temporizing."¹³ The other point of view, the more conservative, is represented by Mr. Watson Cheyne.¹⁴ He would advocate excision, as follows: "(1) Where the disease is progressing rapidly, where tenderness does not subside under treatment, where the fulness in the groin increases, where starting at night continues and where the shortening rapidly extends"; (2) where primary acetabular disease is present; (3) where true dislocation has occurred.

In the United States conservative measures (for the most part in the form of ambulatory treatment by a splint affording protection and traction) are persisted in, on the whole, longer than in Europe. When conservative measures fail to give relief the propriety of excision is considered; but opinion differs widely as to the indications for its performance. Some ultra-conservatives believe that excision is practically never called for, and would treat the most advanced cases to the end by traction and fixation. In general, however, American surgical opinion favors what is known as late excision.

The practical question is this,¹⁵ Is excision of the hip a satisfactory operation done late; when traction and fixation have failed? There is no question of the utility and generally satisfactory results of a fairly early excision of the hip, as shown by a large mass of statistics. The results may perhaps be inferior to a similar series of cases treated by the best conservative means, but many useful legs result, and the mortality percentage is low after the operation. The present paper is wholly directed toward the question of excision of the hip done after conservative measures faithfully tried have failed—one might almost say, excision of the hip done as a last resort.

At the Children's Hospital, Boston, the attitude toward excision of the hip has remained practically unchanged for eighteen years. From 1878 to 1895 inclusive, some 1,100 cases of hip disease have come to the hospital for treatment, and 50 cases have been excised. Conservative treatment at this hospital, as a rule, has consisted of protection, partial fixation, and traction to the joint. In general this is applied by means of the long traction-splint in connection with crutches and a high sole on the well foot. Activity is restricted to certain hours, but ambulatory treatment is preferred to recumbency where possible. Confinement to bed is ordered for patients with sensitive joints, deformity or abscess. Abscesses are opened as they occur. The general condition of the patient is cared for by general hygienic measures.

The indications for abandoning conservative measures for operation, as accepted at this hospital, have been in general as follows:

- (a) Persistent failure of the general health.
- (b) A progressive destructive process in the joint, which continues in spite of favorable therapeutic conditions. This is made evident by much induration and multiple indolent sinuses through which the products of the disintegration drain rapidly away.
- (c) The persistence of severe pain and excessive tenderness late in the disease, which are not affected by efficient traction and fixation.
- (d) The formation of extensive sequestra in the joint.

³ Ollier: *Resections des Grands Articulations*, Paris, 1895.

⁴ *Congrès de Clin. Proc. verbale*, 481.

⁵ *Coxalgie Tuberculeuse*, Paris.

⁶ *Journ. de Med. et de Chir. Annals*, iv, 3, 261.

⁷ *Congrès Fr. de Chir.*, 1895, ix, 153.

⁸ Jalaquier: *Thèse d'Ag.*, Paris, 1886.

⁹ *Archiv. f. klin. Chir.*, xxiv, 4, 719.

¹⁰ *Cent. f. Chir.*, 1894-96.

¹¹ *Loc. cit.*, 1894.

¹² *Barker: British Medical Journal*, June 9, 1888.

¹³ G. A. Wright: *Hip Disease in Childhood*.

¹⁴ *Tuberculous Disease of Bones and Joints*, 1895, p. 239.

¹⁵ *Journal American Medical Association*, July 7, 1894.

The object of the following analysis is not primarily to investigate and tabulate the mortality (this has been done again and again in other series of cases), but incidentally to note the mortality, and really to study the condition of the cases in which this operation was done, and especially to note the character of the end-results in those cases where it can be ascertained.

The first case on the list was operated on in 1877, the last case in October, 1895. Of the whole 50 cases, only eight have been operated on since 1892, so that in the majority of all cases an interval of three or four years at least has elapsed between operation and the time of writing.

The incision in use has been one of the posterior ones. Traction on a bed-frame was generally used for some weeks after operation, and a protection splint for the joint has been required for months, and oftener for years, after operation.

The group consists of 50 cases.

Mortality of the 50 cases. Nineteen are known to be dead, and three others were doing so poorly six months after operation that they undoubtedly died—a known mortality-rate of nearly 50 per cent. It is of interest in this connection that Schmidt (quoted by Laurent) found in 116 resected hips that after two and one-half years from operation only four per cent. died of tuberculosis; and after this period he considered them practically safe.

Of the 19 fatal cases, four died within a week after operation, probably of shock and exhaustion; seven died in the year after operation of generalized tuberculosis for the most part; four others died from two to six years after operation; and in the other cases it is simply known that the patients died. One or two had amyloid degeneration of the viscera; one or two died from causes apparently not connected with the disease; but in most cases the cause of death was either generalization of the tuberculosis, or exhaustion, obviously due to the long drain on the system.

It does not seem likely that a closer analysis of the fatal cases would add anything to the figures on the subject or be of especial value.

The practical value of such an investigation should lie chiefly in the definition of the class of cases operated on and the character of results obtained.

The age of the patients at the time of operation was as follows:

Two years	2
Three years	1
Four years	6
Five years	4
Six years	9
Seven years	6
Eight years	6
Nine years	2
Ten years	6
Eleven years	3
Twelve years	3
Not stated	2

The duration of the disease at the time of operation, as estimated from the statements given by the parents, would be of little value and would make the time too short in most cases. The duration of several cases in the group is, however, striking:

Four had lasted	3 years at least.
One had lasted	4 years at least.
Two had lasted	5 years at least.
One had lasted	6 years at least.
One had lasted	8 years at least.
One had lasted	9 years at least.

Although it is not possible to formulate it satisfac-

torily, it may be said that the cases ultimately coming to operation, for the most part did not receive proper attention at home, and were irregular in attendance at the clinic. They were, as a rule, neglected cases. Some had never been under treatment anywhere when admitted to the wards for operation.

The symptoms most prominent in the late history of cases coming to operation were excessive pain and sensitiveness, much porky induration about the hip and profuse discharge from the sinuses.

The condition of the joint at the time of operation was of much interest, as showing how severe and extensive was the disease for which these operations were done; and a consideration of them is of especial value in showing that in the more severe and extensively diseased cases a favorable outcome is not impossible.

In the 50 operations, the great trochanter was removed 47 times, along with the head and neck. This was necessitated by the extent of the disease. Three times only was the section made between the trochanter and head. Eight times it was noted that the shaft of the femur was more or less extensively diseased. Where the shaft of the femur was noted as extensively diseased, the patient generally died, but one case did well where the bone was removed (in a girl of ten) two inches below the lesser trochanter.

The condition of the acetabulum was of much interest, and especially so because so far as one may judge from these cases perforation of the cavity was not necessarily the accompaniment of the gravest cases. The condition of the acetabulum was not noted in 12 cases; three times it was noted as normal or nearly so; two times it was noted as diseased or as containing sequestra; fifteen times perforation had occurred. Supposing that the later condition was one of much gravity, the writer analyzed these cases as to the outcome. Of the 15, three are dead and one likely to die; five are in good condition, as reported below; and one was doing well one year after operation. In five the present condition is not known. This is not far from the rates of mortality in the whole group of cases.

Finally, of the 50 cases, 19 are dead; of the remaining 31, three were doing poorly when last heard from (six months after operation) and probably died. Others were heard from as doing well, as follows:

One	4 months after operation.
Five	6-8 months after operation.
One	9 months after operation.
One	10 months after operation.
Two	12 months after operation.
One	18 months after operation.
One	24 months after operation.

Nothing can be said of the present condition of these patients. They could not be traced.

The interest lies chiefly in the remainder, the cases where the present condition is known.

The detailed notes are as follows:¹⁰

CASE 42. The leg was amputated for osteo-myelitis of the femur persisting after excision. The boy is well. The stump is healed and he is a bicycle rider. Fourteen years since operation.

Discharge profuse. Many sinuses. Patient steadily losing.

CASE 9. A had result as to shortening, position, etc., probably due to removal from hospital against advice. Ankylosis in abduction, eversion and flexion. Shortening of about six inches. Slight lateral curvature beginning. Eleven years since operation.

¹⁰ The condition before operation is printed in the small type.

Many sinuses. Leg and thigh swollen and edematous. Temperature 104°. Parents delayed consent to operation one month.

CASE 19. Seven years and a half since operation. Sinuses healed. Motion of 80° in flexion and a few degrees in abduction. Can stand on operated leg. Uses crutches still, but advised to discontinue them.

Hip and knee on same side diseased. Thickening of trochanter. No abscess. Pain persistent and uncontrollable. Operation chiefly for painful condition.

CASE 23. Six years since operation. Wears no splint, and walks on affected leg without trouble.



CASE 31.

Motion in flexion 25°, abduction 30°, rotation 35°. Shortening of four inches.

Drunk mother and neglect at home. Abscesses and sinuses. Much thickening about joint. Flexion and abduction. Deformity of leg. Temperature 102°. General condition wretched. The operation was performed at two separate times, the patient being too weak to stand it all at once.

CASE 25. Six years since operation. Health good. No crutches for three years. Sinuses healed one year after operation. One inch shortening.

Neglect at home. Leg flexed and adducted. Much spasm and pain. No motion in joint.

CASE 26. Five and one-half years since operation. Walks well without crutches. No splint for a year. Sinuses healed for two years or more. Shortening one inch. General health good, and endurance is as good as the average.

Disease had existed nearly two years. No motion in hips. Much swelling and very painful. General condition failing.

CASE 31. Five years since operation. Shortening five and one-half inches. Motion in flexion 60° in rotation and abduction a few degrees. Can bear

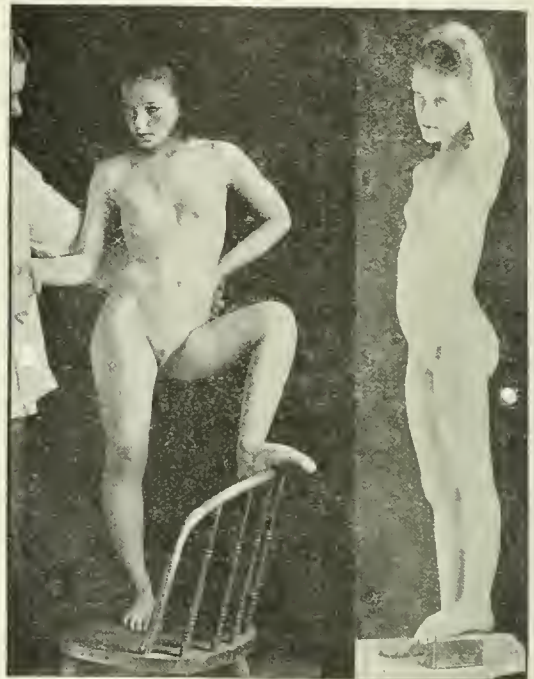
whole weight on operated leg. General condition excellent. Sinuses healed.

An old, untreated case. Condition very bad. Diagnosis of rheumatism had been made some months before outside of hospital and no apparatus used. Thigh flexed to 100°, sinuses and very painful.

CASE 33. Five years since operation. Shortening one and three-quarters inches. General health excellent. Walks without cane or crutch. Wearing a protection splint. Motion in flexion 40°, a few degrees of motion in rotation and abduction.

Treated for once a year. Leg splint. Abscesses opened, etc. Condition gradually getting worse. Sinuses. Much swelling about hip. Tenderness and pain.

CASE 36. Four and one-half years since operation. Condition excellent. Can walk without splint or



CASE 50.

crutches. Sinuses healed. Motion in flexion 65°, in abduction and rotation half of normal. Shortening one inch.

Under treatment three and one-half years. Abscesses had been opened and sinuses persisted. There was much thickening and little or no motion in joint.

CASE 39. Four years since operation. Can walk without splint. Shortening of two inches. Motion in flexion 45°, abduction normal. Condition good.

Much hectic. Hip very sensitive. Thigh and hip extensively swollen and indurated. Hip held in flexed position.

CASE 42. One year since operation. General condition good. Shortening about three inches. Motion of 40° in flexion, and a few degrees of abduction. One sinus still open. Using a traction splint.

Flexion deformity and no motion in hip. Trochanter one and one-half inches above Nelaton's line. Old sinuses open.

CASE 43. One year since operation. General condition excellent. Shortening one inch. Sinuses open. Can bear whole weight on operated leg. Motion in flexion to 65°, rotation normal.

Swelling so great that a large firm tumor occupied the upper

thigh, dense and tender. Five sinuses reaching one-third of the way down the thigh. No motion in joint.

CASE 44. One year since operation. Sinuses healed. Shortening two and one-half inches. Condition excellent. Can stand and walk on operated leg. Motion in flexion to 45°, rotation and abduction nearly normal.

Hip flexed to right angle. Very sensitive. Much thickening about trochanter. Sinuses discharging profusely.

CASE 45. Fifteen months since operation. General condition excellent. It was so bad at the time of operation that she was too weak to sit up. Sinuses are opening. Shortening one and three-fourths inches. Motion to 45° in flexion, rotation one-half of normal.

Hip very sensitive and flexed and abducted. No motion. Temperature 102°. Not gaining in general condition.

CASE 46. One year after operation. Very sick at home. Destructive process has continued in spite of excision. Exhaustion from profuse destructive suppuration is bringing about a fatal issue.

No motion. Hip very painful. Much edema and swelling. Sinuses. Poor general condition. Consent to operation delayed by parents.

CASE 50. Acetabulum perforated. Bone removed for an inch below trochanter. Condition five years after operation: Motion apparently perfect except in abduction. No apparatus used. Sinuses healed. No pain. Patient walks without apparatus. Length of right leg, 25 in.; length of left leg, 27½ in.; circumference of right thigh, 15 in.; left thigh, 13 in.; circumference of right calf, 9¼ in.; left calf, 11¼ in. Leg can be fully extended and flexed.

Hip very sensitive, grating on motion. Several discharging sinuses. Much swelling. Failure in general condition.

These cases require no comment. They are all the cases which could be traced; and in many of them time enough since operation has elapsed to warrant the consideration of them as ultimate results. As an advocate of the use of fixation and traction in all cases to the latest possible moment, the writer hopes that a consideration of these cases may lead to the conclusion that late excision often produces excellent results.

Clinical Department.

A CASE OF TRAUMATIC CEREBRAL EDEMA: OPERATION, DEATH.

BY H. WARREN WHITE, M.D.,

Instructor in Clinical Medicine, Tufts Medical School,

AND J. W. COURTNEY, M.D.,

Assistant to the Physicians for Diseases of the Nervous System, Boston City Hospital.

THE following case fits in so beautifully with that reported by Drs. Walton and Brooks in a recent issue of the JOURNAL,¹ and has proven of such extraordinary interest to the writers that they beg leave to submit its report as a further contribution to the study of cerebral edema following trauma, although they fully realize that the evidence of autopsy is lacking.

CLINICAL HISTORY, BY DR. WHITE.

The patient was a man aged thirty, married, and by occupation, a travelling salesman. His family and

previous history were unimportant. On March 19, 1897, while on business in Lowell, he was thrown from a carriage about 8 p. m., striking on the right parieto-temporal region. After the accident he arose to his feet, refused a glass of water which was offered to him, and then sank into complete unconsciousness. He was almost immediately removed to the Lowell Hospital, and consciousness returned the next morning at 5 o'clock. During this time there was no vomiting and only a slight amount of nausea. For the next two days he remained at the hospital and, with the exception of headache, was quite comfortable. On the morning of the fourth day his wife arrived at the hospital and found him up and dressed, waiting impatiently for her, as he expected to take an early train for Boston. He was allowed to go, under protest, by the hospital physicians in charge, and returned to Boston on the noon train, taking a parlor-car section. He did not complain of jarring, although he walked and sat down slowly, as if these movements hurt him. He walked unaided from the train to a carriage and from the carriage into his house, sat down for a few minutes and then, with slight assistance, made his way upstairs to his chamber where he had to be undressed and put to bed.

I saw him later in the afternoon. At that time he talked easily and, excepting a headache and pulse of 42, seemed perfectly natural. Examination showed a small contusion over the right parietal region and some swelling of right side of face. The pupils were equal in size and reacted normally to light. The eyes were somewhat red, but no paralysis was anywhere present. The urine was passed normally, but the bowels had not moved since the accident. His family reported that he had appeared dull and stupid, had kept his eyes shut and refused to talk.

Fifth day. Pulse 44, temperature 99° F. Treatment consisted simply of laxative for bowels, bromide for headache, and evaporating lotions to head. Milk diet.

Sixth day. Some difficulty in persuading patient to stay in bed. Found out that he went to bath-room yesterday. Bromide increased.

Seventh day. Consultation with Dr. Geo. W. Gay, who emphasized the importance of keeping the patient in bed however well he felt, and advised continuance of symptomatic treatment.

Eighth day. Pulse 52, temperature normal. Patient restless, conscious, and determined to have his clothes and go to business. Headache still present, mostly on right.

From the eighth to the tenth day no change. On the tenth, Dr. Courtney saw him with me, and careful examination failed to detect any symptoms which were of localizing value. The tenderness over the right parietal eminence still persisted, but the mental condition was fairly good, and outside of a slight increase of the deep reflexes on the left, the examination from a neurological point of view was negative. In Dr. Courtney's opinion there had been either a slight hemorrhage or a decided contusion to the right cortex outside the motor areas, with enough resultant local edema and pressure to cause not only the psychical disturbance, but also the somewhat exaggerated condition of the deep reflexes and the slowness of the pulse. In view, however, of the gradual amelioration of all symptoms, it seemed fair to hope for a final absorption of the effused material, and a further continuance of

¹ Observations on Brain Surgery Suggested by a Case of Multiple Cerebral Hemorrhage. Drs. Walton and Brooks. April 1, 1897.

symptomatic treatment was advised, with the injunction that the patient should be carefully watched for the slightest symptom of motor disturbance, in which case it was deemed advisable to trephine at once.

Up to the twelfth day the pulse had gradually risen in frequency to 70, and the temperature continued normal. The mental condition also improved somewhat and the patient took nourishment freely.

At my morning visit on the fourteenth day the patient was found in good condition, with normal temperature and good pulse. He had taken his nourishment freely, and seemed to be on the high road to recovery. At 10.30 A. M. he was suddenly seized with what the family described as a trembling over his whole body lasting fifteen minutes. Both Dr. Courtney and myself were summoned and reached the bedside at about 12.30. The patient was lying on his left side, unconscious and breathing stertorously. The face was cyanosed and the facial veins congested; the carotids pulsated forcibly; the eyes were closed. Temperature in right axilla 103°, in left 102.5°. The pupils were equal in size, dilated, but reacted to light. No ocular or facial palsy was apparent. The mouth was open and the tongue retracted. The right arm and both legs were in constant motion, but the left leg was not moved as vigorously as the right. The left hand and arm were extremely paretic, but were moved when forcibly pricked with a pin. Both deep and superficial reflexes were abolished on left, lively on right.

Interpreting the condition as a generalized pressure of the entire right cortex from the extension of a focal lesion for the position of which the predominance of the paresis in the left arm seemed to point to an area, not in, but adjacent to the arm centre, it was decided, in view of the deepening coma, to operate at once.

The situation was fully explained to the family and their consent to operation gained. Dr. Gay was telephoned, but could not be reached. Dr. John C. Munro was then summoned, and on his arrival the condition was explained to him. In his opinion there was no question as to the necessity for immediate operation, so the head was shaved and prepared. At about 2.30 the operation was started, Dr. Edward H. Nichols assisting.² The patient was very lightly etherized, a semicircular flap made in the scalp and an inch trephine opening made over the arm centre on the right side. On removing the trephine button the dura bulged somewhat into the opening and did not pulsate. On opening the dura the brain pushed out moderately, but without pulsation. The pial veins were much distended. There was no evidence of fracture of either table in the region of operation. A probe swept round between the dura and pia showed an excess of edema in all directions, but a director passed first into the substance of the brain directly under the arm centre and then into the ventricle failed to show anything further. With rongeur forceps the trephine opening was enlarged, and the dura opened more freely. For a few moments pulsation returned, only to disappear before completion of the operation. Although the brain bulged moderately, it was not markedly tense as one finds it in cases where the ventricles are distended, and no evidence of hemorrhage was found between skull and cortex.

² For the details of the operation and for other assistance in the case, the writers desire to express their indebtedness to Dr. Munro.

The patient's pulse grew considerably weaker toward the close of operation, but it reacted well to strychnine. Respiration was quiet and apparently normal. Temperature (axilla) 103.5°. Later in the afternoon the pulse dropped from 110 to 96, and the patient rested easy. One-fiftieth of a grain of strychnia sulph. was given subcutaneously every hour, and at 8.30 P. M. the temperature was found to have dropped to 101.5°.

Saturday, fifteenth day. Quite weak all day. Pulse 110-116, respiration 26-30, temperature 100-102°. Patient much easier than before operation; coma and paralytic symptoms not so marked. Left arm moved somewhat. Nutrient enemata partly retained: urine passed involuntarily. Subcutaneous injection of strychnia continued all day at hour intervals. In the evening the respiration began to assume the Cheyne-Stokes character, and the pulse intermitted.

Sunday, sixteenth day. Gradual failure all day. Examination in A. M. (Dr. Courtney) showed: Eyes closed; pupils equally dilated, but responded readily to light; no ocular or facial palsy. The right arm and leg normal; the left arm and leg paretic, but not so much so as before operation. Superficial reflexes abolished, left; lively, right. Deep reflexes lively both sides, but more so on right. Coma deeper. Respiration shallow and sighing.

Toward noon the pulse had risen considerably and could not be influenced by strychnia; the respirations numbered 41-42. Death at 4.30 P. M.

No autopsy was permitted; but after death the dressings were removed and found to be deeply saturated with serum. The wound looked healthy.

CONCLUDING REMARKS, BY DR. COURTNEY.

The conditions found on operation in this case were so strikingly like those found in that of Drs. Walton and Brooks that I cannot help feeling that the pathological process was identical in kind, if not in position; and I do not consider that I am assuming too much when I entirely neglect the consideration of the question of fracture or extensive hemorrhage.

Clinically there were several points of such marked difference in the two cases as to make them worthy of comparison. In theirs, there was early dilatation and slow reaction to light of the pupils, increased pulse-rate and paralytic symptoms. In ours, the pupils were normal in size and in their reaction to light almost to the end; the pulse was slowed to 42 at first, and did not reach 70 until the twelfth day; furthermore, no paralytic symptoms were present until the fourteenth day.

As points of resemblance, it may be noted that both patients began to go to pieces on the fourteenth day from onset, and that the total duration of the illness in both was about sixteen days.

To Dr. Walton the decided contraction of the face, and other indications of pain which he elicited by pressure over the injured area in his case during the unconsciousness which was present the night after the injury, made him think of the trance-like condition produced in young women by severe concussion. In our case marked evidence of pain on pressure over the injured area could be elicited during the period of deepest coma.

It would appear from a study of these two cases that the symptoms presented are of extremely little value as indicating either the position or the extent of

the effusion, and that we ought to place a very definite limit to the time we should wait for resorption even where the symptoms continue to be psychical and not paralytic. Personally, I should be strongly inclined in the future to do a lumbar puncture at the end of the first week, even though the symptoms were purely psychical, and if immediate amelioration did not follow, to supplement this procedure by trephination, for this case demonstrates very clearly the uselessness of the latter operation after the brain has so far suffered from pressure that unconsciousness has supervened.

Dr. Walton asks: "Should we trephine in cases of local edema?" I do not believe that the diagnosis of local edema can be made even where one can absolutely exclude hemorrhage and gets an early monoplegia or hemiplegia. In this connection it is worthy of note that in our case the predominance of the paresis in the left hand and arm proved to be of absolutely no diagnostic significance as to the location of the point of greatest intensity of the pathological process.

There is one further point which this case seems to me to demonstrate very clearly, namely, the great toleration of the brain for pressure which is gradually increased. In conclusion I would remark, that, even before reading Dr. Walton's paper, I was strongly impressed by the conditions of this case as a possible clue to what may go on in the brain, in lesser severity, in the cases of so-called traumatic hysteria.

FRACTURE OF HUMERUS FROM MUSCULAR ACTION.

BY J. V. MEIGS, M.D., LOWELL, MASS.

MRS. S., aged fifty-six, healthy and of muscular build, while engaged in screwing a rubber nipple on a nursing-bottle, felt a snap in her right arm, which was immediately followed by a sharp pain, with complete loss of power. I saw her in less than half an hour after the accident, and on examination found an oblique fracture of the right humerus at junction of upper and middle third.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

J. G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, January 25, 1897, the President, DR. A. L. MASON, in the chair.

DR. J. HOMANS presented

GALL-STONES FORMED ON THE SUTURES OF AN OPERATION FOR CHOLECYSTOTOMY TWENTY MONTHS AGO.

I have specimens here which I think are interesting and instructive. They are some gall-stones formed on the sutures of an operation for cholecystotomy twenty months ago. There are two good-sized ones, nearly one and a half inches long. Here are some colored pictures of them.

The woman from whom these were removed came to me from Cavendish, Vt., with a history of nine or ten years' illness. She had been under treatment for many years. She had been in hospitals at times for

months. Her symptoms were backache, incessant vomiting, etc., feeling as if a string was tied round her and she had pain in the backbone, as she expressed it; great distress in the epigastrium; emaciation. She had been in bed eight months before she came here. Dr. Pease washed out the stomach for a fortnight, with some relief; but the woman was so miserable and so suffering that I thought I would do an operation, and that I should probably find salpingitis at least. The uterus was fixed, and there was an enlargement in the left side of the pelvis. I made an opening in the pubic region, and took out a tubo-ovarian cyst on the left side. The bleeding was so free I could not tie all the vessels in the pelvis, so I put on five compressing forceps and left them sticking out of the wound. Not being satisfied that what I removed was a sufficient cause for her symptoms, I put my hand and forearm into the abdomen through the wound, reached up to the liver, and found the gall-bladder full of gall-stones. I sewed up the pubic incision and made another one parallel to the cartilages of the ribs and took out 97 gall-stones. They were about one-fifth of an inch long on the average. It was such a nice clean case that I thought I would sew up the gall-bladder. I put a piece of gauze in the bladder to keep the bile from running out, and made a beautiful seam. I then put in the external sutures. Later, I found I was a piece of gauze short and had to remove my stitches. Feeling it would take a good while to sew up the gall-bladder again, I united its edges with sutures of silk to the peritoneum and put in a rubber tube, and drained. At the end of five weeks she went home well. She weighed about one hundred pounds.

She gained flesh and strength until she weighed 204 pounds, and has been well until about six weeks ago, when she began to have constant vomiting and a return of her former symptoms. I wrote for her to come to St. Margaret's again. About a week ago I made an incision through the old scar and came down on the gall-bladder, which was adherent to the scar; I opened it and found seven gall-stones. An interesting thing is that they have crystallized round these sutures with which at the time of my operation I sewed the gall-bladder to the peritoneum. The sutures became detached, dropped into the gall-bladder, and the biliary salts crystallized round them. All these gall-stones have formed within twenty months, and probably within seventeen or eighteen. I think that is quite a short time. I take it that these pieces of silk acted in the same way as strings suspended in a saturated solution of hot alum do; as it cools, the alum crystallizes around the strings. I think it is rare to have recurrent gall-stones, and very rare to be able to state the exact time it has taken for a gall-stone to form.

CANCER OF KIDNEY: NEPHRECTOMY.

DR. H. H. A. BEACH: At the last meeting I presented a kidney that had been removed for sarcoma. That patient has gone on in uninterrupted convalescence.

Within a week from that time this kidney was removed from the left side of a man sixty years old. The water-color drawing by Miss Byrnes, of the Harvard Medical School, illustrates very beautifully the projection of the disease into the pelvis of the organ, as well as the unusual contour of the bosses on its surface. The patient, while lifting a heavy stone into a boat fifteen years ago, felt something snap in his back

and fell over into the water. He was disabled for a number of months, but was finally able to attend to light work and had no special symptoms from the injury.

• Three years ago he began to pass a small quantity of blood with his urine. This has slowly increased in quantity and frequency until it is now practically continuous, accompanied with vesical pain and tenesmus. There was no pain in the lumbar region, and only a slight resistance to pressure in the direction of the kidney could be detected. His anemia was marked. An attempt was made with ergot and hydrastis to control the hematuria so that a cystoscopic examination of the bladder could be made. The bladder was sounded, but no calculus could be detected. The prostate was enlarged. The bladder was carefully washed out, but no evidence of papilloma could be found in the washings. As the bleeding would not yield to internal medication, and as a cystoscopic examination was impracticable, it became necessary to open the bladder to explore the region. It was done by the suprapubic route. Large clots were found—the bladder perhaps one-third full. They were old, partially adherent and too firm to break down easily. They were sufficient to cause a good deal of tenesmus, whenever there was an attempt at passing urine. The bladder was thoroughly cleared, washed out, and no evidence of any malignant disease or papilloma found, though the bladder-wall was soft and would tear in places like wet paper. Hemorrhage stopped, and he recovered very well from the operation; the tenesmus was relieved through the continuous drainage of the bladder, and he went on very comfortably for a week, when the hemorrhage recurred.

He had been so much more comfortable after the operation that he demurred at the idea of anything more in the way of surgery. In the meantime a mass could be felt deeply in the left lumbar region, with some tenderness, and the hemorrhage was going on. As soon as he decided upon the operation, the anterior incision was made and a second kidney found before removing the diseased organ. The kidney was excised without difficulty, as there were slight adhesions. The disease had infected the glands in the immediate vicinity of the kidney, and had extended to those about the aorta. He sank on the following night from the long-continued hemorrhage, pain, the exhausting effects of the disease, and shock. His blood at the time of the operation had the appearance of a mixture of red ochre and water.

DR. CLARENCE J. BLAKE read a paper on

INTRATYMPANIC DISEASE AS A FACTOR IN THE CAUSATION OF AUDITORY VERTIGO.¹

DR. G. L. WALTON: The neurologist comes in contact with no symptom which causes more difficulty in diagnosis than vertigo. It is my routine custom, in investigating each symptom, to ascertain the length of time it has lasted, whether it was of sudden or gradual onset, whether it has been continuous or intermittent, its seat and its character; then to question regarding accompanying symptoms. The first point regarding the character of vertigo is always to ask whether it is a general tendency to whirl around (or for bodies to seem to be turning around) or whether the tendency is for the person to fall in a definite direction, forwards, backwards or sidewise. If the latter is the character,

I have been accustomed to consider as a rule that the dizziness was aural (or auditory, as the case may be). Again, when the dizziness has come on in paroxysms, the patient falling suddenly forward, as in the case Dr. Blake has just reported, the dizziness should be classed under this head. With regard to the symptoms which accompany the case under investigation, we should look for tinnitus and deafness. If these symptoms are present the chances are still more in favor of the aural or the auditory vertigo. The next step is to investigate the condition of the ear itself, for which purpose I always refer the case to an aurist, but often find in such cases the report quite negative or comparatively negative, namely, that the local condition is not sufficient to explain fully the vertigo, although there may be some slight aural disturbance. In this event we have to consider from how many directions we may have a vaso-motor disturbance which will increase the intra-labyrinthine pressure and produce an auditory vertigo without disease of the ear itself.

Woakes elaborated some time ago the anatomy of the blood-supply of the labyrinth, and showed that the point of departure for sources of irritation was the lower cervical ganglion, near which the vertebral artery passes, and from which it receives a branch. This artery supplies the inner ear through the internal auditory, a branch of the basilar. He shows that this inferior cervical ganglion receives also a branch from the pneumogastric through which branch irritation from the stomach may tend to bring about a disturbance of the vaso-motor control; in illustration of which irritation he instances a case of an elderly gentleman with no teeth who was in the habit of eating meat in very large pieces, and in whom a vertigo appeared which was at first deemed by the attending practitioner purely stomacic. For all practical purposes it was; but Woakes points out the fact, that, though the stomach was the real point of irritation, the vertigo was, accurately speaking, auditory. The patient was relieved by changing his diet. The obvious anatomical connection through which the labyrinthine pressure was altered in this case was the pneumogastric nerve, the inferior cervical ganglion, the vertebral artery, the basilar artery, the internal auditory artery. There are even more remote connections of this ganglion; for example, a branch connects it with the brachial plexus, through which path a severe rap on the so-called crazy bone may produce an attack of auditory vertigo. We should not forget in this connection the inhibitory nerve to the heart, whose intimate relations with the vaso-motor supply of the labyrinth accounts for the rapid fall, as a reflex preservative phenomenon. It has been suggested to me that the knock-out blow on the side of the neck, or even on the side of the jaw, may owe its disproportionate effect to this reflex train, though the immediate effect may be expended in the pneumogastric nerve.

This brief review will serve to bring to our notice the various directions from which an auditory vertigo may appear without disease of the ear. This brings us to the question Dr. J. J. Putnam has suggested; and I fully agree with him that an irritability of the centres of equilibration themselves is of the greatest importance in these cases. Given a case of no great irritability of those centres, there will be, of course, great resistance to a moderate degree of irritation, and *vice versa*. We see occasionally, for example, in cases of hysteria, without aural trouble, a typical auditory ver-

¹ See page 5 of the Journal.

tigo, a tendency to fall in a definite direction; still I do not believe it is entirely a question of irritability of equilibration in these cases, for in hysteria and in nervous prostration, vaso-motor disturbance is a not infrequent occurrence. Such patients are very liable, for instance, to flushes and chills, not to mention sudden edema. It seems, therefore, not improbable that such patients, on account of lack of vaso-motor control, may be subject to sudden alterations in labyrinthine pressure, tending to set up aural vertigo, in turn rendered more pronounced by central irritability.

DR. E. D. SPEAR: I don't know that I can add anything to the valuable paper which Dr. Blake has read this evening, except, perhaps, to emphasize, for the benefit of the general practitioner, the importance of examining the ear in all cases of obscure stomach affections, that is to say, those in which the symptoms, as nausea and vomiting, point to the stomach, because of this direct connection which the peripheral space organ, the utricle and semicircular canals have with the brain. The subject is one which few of us can go very deeply into on account of its intricacies, both anatomical and physiological. But the cases to which we should confine our attention to are those of middle-ear disease proper, in which the labyrinth is involved only by reason of contiguity, from direct or indirect pressure upon the stapes. The discussion of this question brings up to all of us numberless questions which we, perhaps, would not like to trouble Dr. Blake with. I may, perhaps, ask him what he considers the action of quinine on the auditory nerve, or whether he considers it a central affection or peripheral irritation. He made mention of the use of quinine in a case of aural vertigo, in which he gave very small doses. Perhaps it is on account of the usual fear of aurists of the effect of quinine, that we are cautious in its use. In small doses it is stimulating, in large doses toxic, though it is possible that we get a better effect in the use of quinine in these cases because of its antagonizing effect upon the hyperemia supposedly present.

Another interesting question which, of course, Dr. Blake did not touch upon in this connection, but which appeals to me, is the function of this portion of the auditory nerve in regulating the movements of the eyes in maintaining equilibrium. It is the question that comes to me frequently in the cases of vertigo I am called upon to look at, and in which I cannot find a cause within the ear sufficient to explain the continued duration of the vertigo after local treatment has had considerable effect upon it. In these cases there are to be found either errors of refraction possibly, or the so-called 'phorias of the oculists, that is, the divergencies due to changes of tension in the muscles of the eyes themselves.

DR. F. L. JACK: It is generally accepted that aural vertigo is due to increased pressure in the labyrinth on the vestibular and ampullar nerves. That must be true in nearly every instance; but a case occurs to me where vertigo was produced by exactly the opposite thing, that is, a diminution in the pressure in the vestibule. Of course, this could be demonstrated only in an operated case. I know of no other way of determining this fact. The case was one of a series experimented upon some few years ago by removing the stapes. This operation was done originally with the idea of improving the hearing; and after a few cases were operated upon, it occurred to me, after seeing a case with vertigo, that possibly removing the

stapes — which in some way might be pressing on the fluid and, in consequence, producing vertigo — would bring relief. It was found on attempt at extraction, that it was impossible, on account of bony fixation, to remove the ossicle. In the attempts at removal the arms of the stapes broke and the foot-plate was left firmly in place. It occurred to me then to make a perforation in through the foot-plate, and this was accomplished by means of a very small hook. The hook was easily passed through the foot-plate, and a discharge of fluid immediately followed. Attempts were made, by passing the hook into the hole, to break off the bone and draw it out. In doing the operation the foot-plate was not pressed in so as to increase the pressure, because in this pulling process the foot-plate was brought farther out, and by evacuating a few drops of fluid in the labyrinth, diminished any undue pressure there. The vertigo was increased very much, and it followed shortly after the operation before much of any swelling could possibly have taken place. In fact, there was no swelling or inflammatory reaction to be seen in the ear. The vertigo increased very considerably, continued a number of weeks, and slowly disappeared. I think this certainly is a case where the vertigo was made very much worse by a diminution in the pressure.

DR. CROCKETT: It seems to me there is one clinical point that might be elaborated a little, and that is that all cases that have fixation of the stapes or thickening of the membrane of the round window are much more liable to attacks of vertigo from changes of tension; and this has a clinical bearing in some cases which come to the aurist, the neurologist and to the general practitioner. It very often happens in the clinic that we see cases from other hospitals referred on account of vertigo where we find an old middle-ear thickening, and yet the stapes fixed or the round window fixed, and no apparent reason why the case should have vertigo at that time more than at any time in the last three, four or five years, perhaps; and very often I have found in this class of cases that the patient had some general disorder disturbing the arterial circulation, as chronic interstitial nephritis or chronic heart disease. It seems to me in this class of cases the aurist is too apt to be contented with finding the chronic thickening in the middle ear and not going further; and, of course, it is important in such cases to recognize the fact that the ear is only one factor in the general lesion, and it may be the first symptom of interstitial nephritis, or some similar disease disturbing the arterial tension. Of course, here treatment should be directed not to the ear particularly, because the ear has been in about the same condition a long time, but entirely to the general disease which is behind the vertiginous symptom.

DR. BLAKE: In answer to Dr. Spear's question, the quinine was given in this case, as in similar cases, in the small and continuous doses for its effect on the arterial tension, in accordance with the recommendation of recent French writers, and in consonance with experiments made in cases where the vertiginous symptoms were apparently due to nervous overstrain.

I am glad to hear Dr. Jack's case and to report a confirmatory observation. A young man, twenty-two years of age, had lost the membrana tympani, malleus and incus from the right ear as the result of a suppurative inflammation of the middle ear in childhood. Examination showed the tympanic mucous membrane

dry and transparent and the stapes in position, but without the attachment of the stapedius tendon; the hearing for the voice was practically *nil* in the right ear and very nearly normal in the left. The stapes was removed without difficulty by means of a short hook passed under its head, and came away without resistance and without other sensation to the patient than that of a slight snapping noise. The removal was followed by a slight and increasing congestion about the oval window, and within thirty seconds by a slight oozing of perilymph. The hearing was immediately improved; and the voice in an ordinary conversation tone was heard across the room, a distance of more than fifteen feet. Within five minutes the patient became violently dizzy, with a tendency to fall toward the right; and he was put to bed, where he remained forty-eight hours, during which time the vertigo gradually decreased. This experience was followed by variable hearing, with variations in the volume of discharge and occasional attacks of vertigo; but at the end of a week the discharge had ceased, the vertigo had disappeared, and the hearing had returned to its condition before removal of the stapes.

AMERICAN MEDICAL ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE SECTION ON PRACTICE OF MEDICINE, PHILADELPHIA, JUNE 1-4, 1897.

(Continued from No. 25, p. 631.)

THE SERUM TEST FOR THE DIAGNOSIS OF TYPHOID.

THIS paper was read by DR. GERHARDT, of New York. He said the serum employed in the tests by the New York Board of Health was secured from blisters. The microscopic test was used whenever possible, while the macroscopic was seldom resorted to. Dilutions of one to ten were generally used, and cultures, eighteen to twenty-four hours old, and of great virulence, were used. The cultures were obtained from Pfeiffer. The distinctness of the reaction was more marked with virulent cultures. The medium might be agar or bouillon. The tests employed in the laboratory of the New York Board of Health were generally made with dry blood with a one to ten dilution and a fifteen-minute time-limit. If positive reaction is obtained from these tests, a positive diagnosis of typhoid is made; but if agglutination does not occur in fifteen minutes, or requires a greater dilution, a request for a further test with serum is always made. Others had suggested a dilution of one to thirty, or one to fifty, and a time-limit of two hours; but there did not appear to be any advantage in this procedure.

A CLINICAL REPORT ON SERO-DIAGNOSIS,

by DRs. J. H. MUSSER and JOHN M. SWAN, of Philadelphia, was read by Dr. Swan.

The tests were made with dried blood. One hundred tests were made. In nine the blood was taken from children under fifteen, and in the remainder from adults; twenty-six from females and seventy-four from males. Age and sex seemed to exercise no influence. The cases were divided into four classes: (1) typhoid fever during the disease, (2) during convalescence from typhoid, (3) where typhoid had been present at some time, and (4) where typhoid had not been diagnosed. In the latter, the reaction was ab-

sent in all cases, among which were cases of pneumonia, tuberculosis and catarrhal fever. His conclusions were: (1) that age and sex exercise no influence, (2) that the reaction might be obtained during the occurrence of the disease as early as the seventh day, (3) that the reaction disappeared at varying periods after the cessation of the disease, (4) that the reaction could not be obtained from blood taken from patients suffering from diseases other than typhoid.

DR. MARK W. RICHARDSON, of Boston, read a paper entitled

ELSNER'S METHOD OF DIAGNOSIS IN TYPHOID FEVER.

Elsner's gelatin-culture medium had first been prepared with carbolic acid; but, as a result of later experiments, he had been led to substitute potassium iodine, and the inoculation of this gelatin with the stools of typhoid fever had been very successful. No other bacteria than those of typhoid fever could be made to grow upon this medium. He had been led to examine this method of testing for typhoid fever partly from a desire to see whether it would confirm the tests made with the blood-serum, and partly to see whether it could be relied upon in those cases in which Widal's test failed to give a reaction. The result of his investigations convinced him that the serum test was preferable on account of its greater convenience in those cases where it gave a positive reaction; but cases in which the serum test had failed might show a typical reaction by Elsner's method. An examination of 29 cases other than typhoid showed no bacilli by Elsner's method, or the isolation of bacilli was imperfect. The statement made that the typhoid bacillus was a ubiquitous organism was not confirmed by this method, as the examination of the non-typhoid cases had failed to show the presence of the bacillus.

He summed up his conclusions by stating that the value of Widal's serum test was greater by reason of its simplicity, but a case which had failed to react to this method might still show the typical reaction if the stools were examined by Elsner's method.

DR. N. S. DAVIS, of Chicago, said that, according to his experience, 90 per cent. of cases of genuine typhoid gave a positive reaction to the Widal test, and in six per cent. there was a partial reaction. In three per cent. of cases there was no reaction whatever. The time at which the reaction could be obtained varied, and had no relation to the severity of the attack. In two and one-half per cent. of the cases with clinical diagnoses other than typhoid, a reaction was obtained, but in all of these cases there was a history of a prior attack of typhoid. In view of the fact that the reaction was not a constant attendant of typhoid fever, he suggested that it would be more correct to call it a symptom of typhoid fever, rather than a test for typhoid. It stood in the same category as rose-spots. When present with other symptoms of typhoid, these were of value. So it was with the serum test: it did not furnish conclusive evidence.

DR. H. A. WEST, of Galveston, Texas, said that the test promised to be of especial importance in his section of the country, and he hoped it would be the means of settling the vexed question of diagnosis between typhoid, malaria, continued fever, thermic fever, etc. Many of these fevers failed to respond to the salts of cinchona, and he was of opinion that such cases were typhoid in character, and it was to be hoped that this test would clear up the matter.

DR. J. B. HERRICK, of Chicago, gave the experience of Dr. George H. Weaver, of the Rush Medical College, in the diagnosis of typhoid fever by means of Widal's test. Several of the cases examined had all the symptoms of typhoid fever, and were also tuberculous, and in these the test failed to give a reaction. It was possible that this failure of the test was merely a coincidence, but it opened up the question whether this test was applicable in cases of mixed infection.

Immediately after the Section was called to order for the afternoon session, the following officers were elected for the ensuing year: Chairman, Dr. Fisk, of Denver; Secretary, Dr. Albert Jones, of Buffalo.

DR. A. P. OHLMACHER, of Cleveland, read a paper entitled,

OBSERVATIONS ON TWO EXAMPLES OF TYPHOID MENINGEAL INFECTION.

The author gave the clinical and pathologic aspects of the cases. The spleen weighed 220 grammes; the ileum was the seat of typical typhoid ulcers, and a hematoma was located in the brain substance. Cultures taken from the meningeal hemorrhage gave perfect growths of the typhoid bacillus.

The second case was like the first, but owing to lack of time Dr. Ohlmacher gave a brief synopsis of the two cases. Both gave clinical evidence of typhoid fever with suppurative leptomenigitis. Bacteriological investigation gave large numbers of typhoid bacilli and of no other micro-organisms, while an exhaustive investigation of other organs furnished undoubted evidence that the cases were true typhoid. In the second case there was broncho-pneumonia as a complication, and typhoid bacilli, as well as staphylococci, were demonstrated in the lungs. There was also endarteritis of the cerebral arteries.

The next paper was read by DR. WILLIAM OSLER, of Baltimore, entitled,

RELAPSES IN TYPHOID FEVER.

In 500 cases of typhoid fever treated in Dr. Osler's wards at the Johns Hopkins Hospital, there was a percentage of eight per cent. of relapses, about the same as that noted by Liebermeister, but a much larger percentage than that given by Murchison. Physicians were apt to shift the responsibility for relapses to errors of diet, but it was his experience that error in diet was not responsible in any considerable number of cases. The term "relapse" should be limited to those cases in which there were distinct evidences of reinfections after a period of apyrexia. Rise of temperature and return of dangerous symptoms, without a period of absolute freedom from fever and serious symptoms, should be regarded as an intercurrent relapse and not as a true relapse.

The sources of reinfection were as yet unknown, but a possible source was the lingering of the bacilli in the mucous membranes of the system. Chiari also made the interesting suggestion that the typhoid bacilli remaining in the gall-bladder might become the source of a secondary infection. In 19 out of 23 cases of typhoid fever, Chiari demonstrated typhoid bacilli in the gall-bladder. Relapses might be single, double, or rarely, triple. Several cases where there had been four or five relapses had been reported, and Dr. DaCosta stated that he had had a case with five relapses.

As illustrating the length of time a case of typhoid

fever might continue, he related the history of a case in which, after a period of six weeks' freedom from fever, a relapse occurred, and later, a second relapse; so that the original attack, with the two relapses, covered a period of six months. The relapses were not always of a similar character in their inception to the original attack, as the text-books used to teach. The fever did not increase by gradual steps, as the original fever did, but, on the contrary, might go up with two or three short bounds. In other cases the relapse might be the counterpart of the original attack. He did not believe that the Brand system of treatment had anything to do with the occurrence of relapses. The Brand method was used extensively in the wards of the Johns Hopkins Hospital, and the proportion of relapses there was not excessive, and no one could say, from a study of those records, that hydrotherapy had anything to do with such occurrences.

PERICHONDritis OF THE LARYNX IN TYPHOID FEVER.

was the title of the next paper, read by DR. M. H. FUSSELL, of Philadelphia.

The case of which this paper was a report occurred in a man thirty years of age, who came under his observation in December, 1894. There was considerable hoarseness, and the patient afterward developed pneumonia. After eating an apple he was seized with stenosis, and an examination showed an edema of the larynx. Perichondritis of the larynx was diagnosed, and tracheotomy was suggested, but the patient refused to have the operation done. He died on the seventh day, and the autopsy showed that there was a large perichondrial abscess. Hoarseness, with respiratory distress, were the only symptoms complained of. The complication was very infrequent, but its infrequency did not excuse physicians and writers for neglecting it. The only treatment was tracheotomy.

DR. H. A. WEST, of Galveston, read a paper upon

THE RATIONAL ANTISEPTIC TREATMENT OF TYPHOID FEVER.

He was sceptical of the value of the so-called abortive treatment of typhoid, believing, as he did, that this was a self-limited disease. Nor did he believe in the efficacy of the antiseptic treatment, for before the disease attained its height the bacilli would have passed through the intestinal tract into the blood, and no drug known could reach them there. His experience with the various "cures" recommended had not been such as to commend them to his judgment. The rational treatment of typhoid—the only antiseptic treatment—"begins at the mouth and ends at the bedpan." The way to give antiseptics was to withhold anything in the way of food or medicines that would require any antiseptics, and to use the tooth-brush frequently for the dislodgement of particles of food that, accumulating in the teeth, might decompose and cause fermentation. One of the chief difficulties in the treatment of typhoid was the gastric disturbance, which was generally a complication, for in no disease, except cancer of the stomach, was the power of the stomach to digest food so weakened as in typhoid fever. In typhoid fever the stomach might lose half its bulk. Added to this decrease in the amount of gastric juice, there was also a decreased secretion in hydrochloric acid. For these reasons we should abstain from loading down the stomach with solid food

which it could not dispose of, and the condition should be treated by the administration of pepsin, hydrochloric acid, and the like, which, in this case, were antiseptics in the proper sense of the word. It was now proved that the typhoid bacilli left the mucous membrane of the intestinal canal in the early stages of the disease and entered the blood, so that the administration of antiseptic drugs could have no effect upon them. In the rational treatment of the disease was included a plentiful supply of water to flush out the stomach; and good results follow copious irrigations of the large intestine.

The next paper read was by Dr. J. N. UPSHUR, of Richmond, Va., upon

THE TREATMENT OF TYPHOID FEVER.

The author went into details as to the method of disinfecting bedpan, bed-clothes, keeping the patient clean, etc. He deprecated the use of alcohol in the early stages of the disease, except in the cases of persons accustomed to its use. He said that the headache required no treatment, as it would disappear spontaneously in the second week. Phenacetin might be used with caution, but in general the use of the coal-tar derivatives should be avoided. Bromide of soda should be given for insomnia; and for coma vigil there was nothing that could take the place of opium. Somnolence should be treated with alcohol. Nausea and vomiting were rarely of sufficient severity to require treatment, but when present, drop doses of the tincture of iodine were useful. Constipation was not an indication of grave intestinal lesions, and laxatives should be avoided. Salol should be administered when the stools were offensive, and sordes called for the internal use of turpentine. Strychnine with nitro-glycerin should be given for a weak heart. Peritonitis demanded treatment with tincture of opium, or hypodermic injections of morphine. Laparotomy was not justifiable, for the reason that the probability of saving the patient was very slight. The bladder should be emptied freely, either naturally or by means of the catheter.

The speaker considered the abortive and antiseptic treatments in vogue as being irrational. He had never tried the Woodbridge treatment, because he regarded his patients as of too much consequence to be subjected to such danger. With his knowledge of the disease and of its self-limited character, he could not understand the wonderful results claimed for the treatment by Dr. Woodbridge, unless the age of miracles had returned. The testimonials which had been filed regarding the efficacy of the treatment were of no more value than similar testimonials for some "cancer cure" or "kidney cure," and other such cures.

THE USES OF THE X-RAY IN MEDICINE

were enumerated by Dr. FRANCIS H. WILLIAMS, of Boston. Charts were exhibited by him showing the results of investigations by the x-ray in cases of pleurisy, pneumonia, tuberculosis and emphysema; and during his discussion of the subject Dr. Williams said in substance:

Probably many will wish to know whether I have found x-ray examinations harmful, and whether useful in practical medicine. No harm or inconvenience has followed their use in more than 500 examinations I have made during the past year. They are useful to

the physician if he is provided with good apparatus. The varying resistance which the different tissues of the body offer to the passage of the x-ray depends upon difference in bulk and in chemical composition. Organic substances made up of carbon, hydrogen and nitrogen allow the rays to pass readily, while those like bone, containing an inorganic substance like calcium, offer more resistance to the rays.

The difference in permeability of air and water by the x-rays is a very important factor in their usefulness in thoracic diseases. In pulmonary tuberculosis the fluorscope may suggest disease, first, by showing a diminution in the volume of the diseased lung by the position and movements of the diaphragm; second, by showing an increase in density by diminution in the normal brightness. The lung may become so dense that no more rays pass through it than through the liver. The brightness in the lungs indicates the amount of air that enters the body.

I have examined more than 75 cases of tuberculosis with the fluorscope, and found that in certain cases this instrument showed that the disease was more extensive than the usual physical examination indicated; in other words, it showed increase in density in the lungs earlier than was detected by the physical examination. We can detect an abnormal condition of the lungs in cases of tuberculosis earlier by means of the fluorscope than by auscultation and percussion.

I have examined more than 50 cases of pneumonia with the fluorscope.

In concluding, Dr. Williams spoke of the beneficial effects of fluoroscopic examinations in cases of heart trouble, pleurisy and other maladies.

The paper read by Dr. C. L. LEONARD, of Philadelphia, was upon

THE APPLICATION OF THE RÖNTGEN RAYS TO MEDICAL DIAGNOSIS.

His methods were practically similar to those advocated by Dr. Williams. Illustrations of Röntgen-ray experiments were exhibited.

(To be continued.)

Recent Literature.

Potomains, Leucomains, Toxins and Antitoxins; or, The Chemical Factors in the Causation of Disease. By VICTOR C. VAUGHAN, Ph.D., M.D., and FREDERICK G. NOVY, Sc.D., M.D. Third edition, revised and enlarged. Philadelphia and New York: Lea Brothers & Co. 1896.

This book aims at being a concise collection of facts and observations on the above subject. It contains chapters on the bacterial poisons contained in foods, on the examination of foods for poisonous substances, on the chemistry of the infectious diseases and on the subjects connected with the germicidal and antitoxic properties of the blood serum. The chemistry of the potomains and leucomains and the methods of isolating toxins are discussed in other chapters. The book is largely a compilation, and shows little effort on the part of the authors to digest the great mass of material which they have used, so that in places it is very heavy reading. As a compilation, however, it may be found useful for reference.

The publisher's part has been well done.

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MEDICAL MEN AND THEIR HEALTH.

At this season when so many other portions of the community are planning vacations, relaxation, shorter working-hours, it is well that the doctor, who spends all the rest of the year caring for the health of others, should take stock of his own and consider whether he is sufficiently solicitous for improving, or at least for keeping good, his own physical condition, for there is no laborer in any walk of life for whom such care is more essential.

Under the above head, Dr. John W. Teale, in the *Lancet*, offers some useful suggestions which physicians would do well to ponder. In response to a hypothetical question, "What will most conduce to the success of a general practitioner?" he replies, "Power of concentration and command of temper."

By power of concentration he would mean that power by which a man, however wearied, on entering a house is able at once to abstract his brain from everything that has already happened, and to concentrate his mental faculties on the case that is before him. Patients are naturally somewhat selfish and are very quick to observe if they do not get full attention, and if, when the finger is on the pulse, the mind is not on the patient.

Secondly, command of temper. To the quick, high-strung, sensitive man, exhausted by the worry and anxiety of daily life, thorough command of temper with testy, querulous, exacting patients can only be obtained by rigid self-control commenced in early life. To be forever bearing in mind that the patient is the sufferer, that testiness and ill-temper are due to physical weariness and distress, and not to disloyalty to the doctor, is a task that will try the strongest nature.

In order to cultivate and obtain this concentration and command of temper, the physician should live as far as possible a simple out-door life in constant physical training. "Why," he asks, "should a man become stout and short of wind because he has reached fifty?"

Simply because he is struggling with his life work when his physical condition is not fit to grapple with it.

The exercises which Dr. Teale recommends are performed with light Indian clubs; these or with dumb-bells or the ordinary parlor gymnastics, constitute a kind of training which students are apt to drop when they leave college, but which can profitably be kept up during the whole life. It may be said that many medical men do not need these exercises, their physical powers being sufficiently tested every day on their bicycle and in other ways. Some in the country do a little at sawing or splitting wood in the morning to keep themselves in trim. It is a mistake to suppose that the busy man wants a great deal of physical exercise. His ordinary day's work, with what it involves in taxing mind and body, is generally enough for him. One writer, moreover, suggests that it is well for the physician to cultivate the art of sleeping for a few minutes at any time. A man can only live safely on the interest of his vital strength. Any withdrawal of principal should be promptly replaced.

Dr. Teale advises that two good meals and one moderate one be taken each day, and thinks that a late dinner is preferable, for if taken in the middle of the work, either the meal or the patients must suffer. It is possible to be too busy to dine, in which event a cup of soup, or a sandwich and a glass of wine is better than a hearty meal. A good dinner implies leisure for digestion. Half an hour's leisure before dinner will often enable a man to eat a hearty meal. Everything that is good is wholesome, taken at proper times and in proper quantities. After a man is twenty-five or thirty, he only wants as much food as will maintain his weight and not add to it.

Like St. Paul he believes in a little wine, taken diluted at meals (provided it be good wine)—some good people will resent this advice—and thinks that spirits are useful when one is jaded and exhausted, but are unnecessary and hurtful when taken between meals or at bedtime, except for special reasons. "Three hundred and sixty-five glasses of whiskey taken in one year at bedtime are an unnecessary and a severe tax on the liver when its work is in full swing."

With regard to baths, an ordinary healthy man may take a cold bath daily almost up to any age; but as the object is not only to get up a reaction but to keep it, most hardworking men require that cheapest of all luxuries, a fire in the dressing-room and a hot bath-towel. If this is followed by a course of Indian clubs in his flannels, a man will be fit to face any weather. The same underclothing should be worn summer and winter, of wool, and only the outer clothing varied. This advice is better suited to England than to New England. Colds are generally caught either in ill-warmed rooms or through ill-protected feet. "If chilled through by a cold drive, walk home, if possible, the last mile or two, keeping on your heavy wraps to restore your circulation. . . . Light your fire whenever you can endure it; it is the cheapest and best

health-giver in the world, especially in cold, thundery weather in the summer; with a well-arranged room and a proper fire-place most healthy people can learn to sleep with their windows open, winter and summer."

Dr. Teale cautions against badly aired beds, and says, "the risk will be best guarded against by carrying in the travelling-bag a light flannel dressing-gown to put on the damp sheets."

With regard to turning out of bed at night, no amount of precaution can make this otherwise than dangerous. But if an arrangement can be made by which the clothes can be kept aired and warm, and a cup of hot milk with a teaspoonful of brandy can be procured, the risks can be reduced to the minimum.

There is a timely word about holidays. Every medical man, if possible, should have an out-door sport of some kind: golf and cycling are good, but perhaps the best is fly fishing. It takes one usually into a beautiful country, the exercise is gentle and varied, the interest absorbing, and it is better for the jaded practitioner than scampering half over Europe in a hurry in a second-class railway carriage in charge of a party of tourists.

Much of the above is what judicious medical advisers are constantly telling their patients; but it is not amiss that somebody should tell it to the medical advisers themselves. The doctor is apt to have less attention paid him, whether sick or well, than any one else.

DOLICHOCEPHALY AND TUBERCULOSIS.

At a meeting of the New York County Medical Association held June 21st, Dr. Mark I. Knapp read a paper in which he advanced the novel idea that a short bi-parietal diameter of the cranium is a positive and diagnostic characteristic of tuberculosis. He said that he did not claim that all persons with long, narrow heads suffered from the disease, but did maintain that all such had a predisposition to it. Moreover, that whenever such a person was not well, it would be found, provided there was not an excess of urates in the urine, that he was suffering from tuberculosis, either of the lungs or some other portion of the body. In 477 out of 484 cases of tuberculosis examined by him in the City and other hospitals, he found the narrow bi-parietal diameter present.

A remarkable conclusion arrived at by Dr. Knapp from his study of the subject was, that tuberculosis is not an infectious disease; it being demonstrated, in his opinion, that unless an individual has the shape of head predisposing to it, he is in no danger of contracting tuberculosis, however much he may be exposed to it.

Shall boards of health segregate dolichocephalics, males and females separately?

It has remained for an end-of-the-century physician to demonstrate that to be long headed, which has heretofore been considered desirable, is really unsafe. Perhaps as long-headed people are susceptible to long micro-organisms or bacilli, round-headed or brachy-

cephalic individuals may be susceptible to infection with round organisms or cocci. Perhaps Dr. Knapp can establish such a connection.

MEDICAL NOTES.

BERI-BERI AT SANTIAGO.—Beri-beri is reported to be very prevalent at this port.

DEATH OF FATHER KNEIPP.—Father Kneipp, of water-cure fame, whose death has been so many times falsely reported of late, actually died on June 17th, at the age of seventy-six.

JUBILEE HONORS.—Sir William MacCormac, President of the Royal College of Surgeons, and Dr. Samuel Wilks, President of the Royal College of Physicians, were created baronets at the Jubilee Celebration, and they were the only medical men honored.

COLORADO'S CONTRIBUTION TO THE RUSH MONUMENT FUND.—Colorado has already fulfilled the pledge for a two-thousand-dollar contribution to the Rush Monument Fund, made by Dr. Graham at the meeting of the American Medical Association at Philadelphia. At the meeting of the State Medical Society June 15th, the full sum pledged by Dr. Graham was immediately raised by individual subscriptions offered most generously and with great enthusiasm.

TRANSPORTATION OF A LEPER.—A case of leprosy was recently discovered in Johns Hopkins Hospital, in the person of a Mrs. Sansoni, who was found to have recently arrived from Allegheny City. In spite of the protest of that city, the Baltimore officials are going to send her back in a steel freight-car which is to be sealed until its arrival. Perhaps it would be well to disinfect the railroad track with bichloride after the passage of the car, in order to avoid all possibility of infection of the passengers in other trains.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, June 30, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 85, scarlet fever 35, typhoid fever 8.

THE HARVARD DENTAL ALUMNI ASSOCIATION held its Twenty-Sixth Annual Dinner at Young's Hotel on Monday evening, June 28th. At the preceding business meeting officers were elected as follows: President, Dr. Joseph T. Paul, Boston; Vice-President, Dr. Frederick Bradley, Newport, R. I.; Secretary, Dr. Waldo E. Boardman; Treasurer, Dr. H. S. Parsons; Executive Committee, Drs. Waldo E. Boardman, William P. Cooke, Frank T. Taylor; Council, Drs. Joseph T. Paul, Frederick Bradley, H. S. Parsons, Waldo E. Boardman, William P. Cooke and Frank T. Taylor. After the dinner, which was attended by a large number, the Rev. Dr. Hodges, Dean of the Episcopal Theological School at Cambridge, addressed the company. Dr. Eugene H.

Smith, Dean of the Dental School, gave some interesting facts and figures in regard to the school. He was followed by Dr. Thomas Fillebrown and Dr. Charles W. Berry.

HARVARD MEDICAL ALUMNI ASSOCIATION.—This Association held its Seventh Annual Meeting on Tuesday, June 29th, at the Harvard Medical School, the President, Dr. George B. Shattuck, in the chair. The following officers were elected: President, David W. Cheever, M.D., 1858, Boston; Secretary, James S. Stone, M.D., 1894, Boston; Councillors for the term ending 1901, George B. Shattuck, M.D., 1869, Boston, Charles F. Folsom, M.D., 1870, Boston, Joseph E. Garlaud, M.D., 1877, Gloucester, Mass.

The following resolution, proposed by Dr. L. R. Stone, of Newton, Mass., was unanimously and enthusiastically adopted:

That the President of the Association be authorized in behalf of the Association to petition the Board of Overseers to further consider the question of extending the right of voting for members of the Board of Overseers to graduates of the Medical School.

Dr. Francis P. Kinnicutt, of New York, Professor of Clinical Medicine in the Medical School of Columbia College, was elected an honorary member of the Association. The reports of the Secretary and Treasurer were read and accepted. After the adjournment of the business meeting, the annual dinner took place at the Hotel Vendome. More than two hundred members and guests were present. After dinner, the President, Dr. George B. Shattuck, President Eliot, Dr. J. M. Da Costa, of Philadelphia, Drs. F. P. Kinnicutt, and J. W. Braunan, of New York, Dr. F. M. Spalding, of Cambridge, and the President-elect, Dr. Cheever, addressed the company. Dr. S. W. Driver, of Cambridge, read the report for the Committee on the Medical School.

POUGHKEEPSIE CLIMATIC EFFECTS.—Probably the change of climate from the seashore to the more relaxing and debilitating atmospheric conditions at Poughkeepsie had much, though not all, to do with the collapse of the Harvard crew in the late University boat race. An exposure of three weeks to such a change is either too long or not long enough.

THE SUPREME COURT SUSTAINS THE BOARD OF REGISTRATION IN MEDICINE.—Judge Morton has denied the petition of Dr. Charles Zieman to the Suffolk Supreme Court for a writ of mandamus to compel the Board of Registration in Medicine to issue to him a certificate to authorize him to practise as a physician. Dr. Zieman, who has an office in South Boston, claimed he had practised medicine in this State three years continuously before the act requiring physicians to be registered went into effect, which was in 1894, and was therefore entitled to a certificate without taking an examination. The Board refused to grant him a certificate upon such premises. The evidence at the hearing failed to establish his claim that he had practised in the State three years before 1894.

CENTENNIAL ANNIVERSARY OF DARTMOUTH MEDICAL SCHOOL.—The one hundredth anniversary of the Dartmouth Medical School was observed by exercises in the college church at Hanover on June 29th. President Tucker presided, Dr. Phineas S. Connor, 1861, of Cincinnati, O., gave an historical address. At the conclusion of the address there was a banquet of the medical men at Butterfield Museum.

NEW YORK.

YELLOW FEVER AT QUARANTINE.—The steamship *Finance* which left Colon on June 14th arrived at Quarantine on June 21st with yellow fever on board. It was found that one of the passengers had been attacked with the disease on the 15th, and two others on the day following. Two of them died at sea, and the third just as the vessel came to anchor. When Health Officer Doty boarded the *Finance* he found that three other passengers were down with yellow fever. They were transferred to the hospital on Swinburne Island, and all the other passengers sent to Hoffmann Island for detention and observation.

RECOVERY WITH A BULLET IN THE BRAIN.—A son of Police Captain Schmittberger, who was accidentally shot in the head at a church fair on May 26th was discharged from the Mount Sinai Hospital on June 20th, with the pistol bullet still lodged in the brain. He has recovered with the exception that the entire right side of the body is paralyzed from the injury caused to the motor tract in the left cerebral hemisphere.

THE BROOKLYN WATER-SUPPLY.—The Brooklyn Department of Public Works has recently made public the report of Prof. Albert R. Leeds's examination of the water-supply of Brooklyn, together with the statement of Chief Engineer De Varona. Dr. Leeds states that the well-remembered trouble with the water last summer was due to the presence in it of a form of algæ known as the asterionella, which is enclosed in an envelope of silica and secretes an oil of a fishy and salty flavor. These algæ derive their nourishment from silica, which is particularly abundant in the Brooklyn water; so that the same difficulty may be looked for again as long as the same physical conditions as at present exist. The enormous multiplication of the algæ is favored by plenty of light, by a gentle tremulous motion of the water, by the absence of peaty coloring matter in the water, and by its storage in shallow reservoirs. Dr. Leeds recommends that the storage reservoir should be converted into a substantially subterranean basin, necessitating the use of "by pass" pipe. Engineer De Varona states that the cleansing of the ponds and streams suggested by the Health Department, while good in itself, did not reach the source of the trouble. He urges the building of the "by pass" pipe around the Ridgewood reservoir, and mentions that the same trouble with the water at Brookline, Mass., was remedied by the building of a covered reservoir, thus excluding the light necessary to the existence of this form of plant life.

Miscellany.

STUDY OF THE AMERICAN MEDICINAL FLORA.

WE have received from Dr. H. H. Rusby, Chairman of the General Commission, whose address is the New York College of Pharmacy, and Dr. Valery Havard, Chairman of the Sub-Commission, address, Fort Sloonm, Davids Island, New York, a statement in regard to the above subject.

The Sub-Commission of the Pan-American Medical Congress appointed to study the medicinal plants of the United States has entered into an association with the Smithsonian Institution for that purpose. The attention of our readers is called to the respective circulars issued by these organizations, which we print below.

SMITHSONIAN INSTITUTION,
WASHINGTON, D. C., May 28, 1897.

DEAR SIR:—The Smithsonian Institution has undertaken to bring together all possible material bearing on the medicinal uses of plants in the United States. Arrangements have been made with a body representing the Pan-American Medical Congress, the Sub-Commission on Medicinal Flora of the United States, to elaborate a report on this subject, and the material when received will be turned over to them for investigation.

The accompanying detailed instructions relative to specimens and notes have been prepared by the Sub-Commission.

All packages and correspondence should be addressed to the Smithsonian Institution, Washington, D. C., and marked on the outside *Medicinal Plants, for the U. S. National Museum*.

Franks which will carry specimens, when of suitable size, together with descriptions and notes, free of postage through the mails, will be forwarded upon application. Should an object be too large for transmission by mail, the sender is requested, before shipping it, to notify the Institution, in order that a proper authorization for its shipment may be made out.

Respectfully,
S. P. LANGLEY, *Secretary*.

INSTRUCTIONS RELATIVE TO MEDICINAL PLANTS.

The Pan-American Medical Congress, at its meeting held in the City of Mexico in November, 1896, took steps to institute a systematic study of the American medicinal flora, through the medium of a General Commission and of special Sub-Commissions, the latter to be organized in the several countries. The Sub-Commission for the United States has been formed and consists of Dr. Valery Havard, U. S. A., Chairman; Mr. Frederick V. Coville, Botanist of the U. S. Department of Agriculture; Dr. C. F. Millsbaugh, Curator of the Botanical Department of the Field Columbian Museum, Chicago; Dr. Charles Mohr, State Botanist of Alabama; Dr. W. P. Wilson, Director of the Philadelphia Commercial Museums; and Prof. H. H. Rusby, of the New York College of Pharmacy. This Sub-Commission solicits information concerning the medicinal plants of the United States from every one in a position to accord it. The principal points of study are as follows:

1. Local names.
2. Local uses, together with historical facts.
3. Geographical distribution and degree of abundance in the wild state.
4. Is the plant collected for market, and if so,
 - (a) At what season of the year?
 - (b) To how great an extent?
 - (c) How prepared for market?
 - (d) What is the effect of such collection upon the wild supply?
 - (e) What price does it bring?
 - (f) Is the industry profitable?
5. Is the plant, or has it ever been, cultivated, and if so give

all information on the subject, particularly as to whether such supplies are of superior quality, and whether the industry has proved profitable.

6. If not cultivated, present facts concerning the life history of the plant which might aid in determining methods of cultivation.

7. Is the drug subjected to substitution or adulteration, and if so, give information as to the plants used for this purpose.

While it is not expected that many persons will be able to contribute information on all these points concerning any plant, it is hoped that a large number of persons will be willing to communicate such partial knowledge as they possess.

It is not the important or standard drugs alone concerning which information is sought. The Sub-Commission desires to compile a complete list of the plants which have been used medicinally, however trivial such use may be. It also desires to collect all obtainable information, historical, scientific and economic, concerning our native and naturalized plants of this class, and, to that end, invites the co-operation of all persons interested. Poisonous plants of all kinds come within the scope of our inquiry, whether producing dangerous symptoms in man, or simply skin inflammation, or, as "loco-weeds," deleterious to horses, cattle and sheep. In this respect, the general reputation of a plant is not so much desired as the particulars of cases of poisoning actually seen, or heard from reliable observers. It is believed that much interesting knowledge can be obtained from Indians, Mexicans and half-breeds, and that, consequently, Indian agencies and reservations are particularly favorable fields for our investigation. Such knowledge will be most acceptable when based upon known facts or experiments.

In order to assist in the study of the habits, properties and uses of medicinal plants, the Sub-Commission undertakes to furnish the name of any plant-specimen received, together with any desired information available.

Owing to the diversity in the common names of many plants, it will be necessary for reports, when not furnished by botanists or others qualified to state the botanical names with certainty, to accompany the same with some specimens of the plant sufficient for its identification. While the Sub-Commission will endeavor to determine the plant from any portion of it which may be sent, it should be appreciated that the labor of identification is very greatly decreased, and its usefulness increased, by the possession of complete material, that is, leaf, flower and fruit, and in the case of small plants, the underground portion also. It is best to dry such specimens thoroughly, in a flat condition under pressure, before mailing. While any convenient means for accomplishing this result may be employed, the following procedure is recommended. Select a flowering or fruiting branch, as the case may be, which when pressed shall not exceed 16 inches in length by 10 inches in width. If the plant be an herb two or three feet high, it may be doubled to bring it within these measurements. If it possess root leaves, some of these should be included. Lay the specimen flat in a fold of newspaper and place this in a pile of newspapers, carpet felting, or some other form of paper which readily absorbs moisture, and place the pile in a dry place under a pressure of about 20 to 30 pounds, sufficient to keep the leaves from wrinkling as they dry. If a number of specimens are pressed at the same time, each is to be separated from the others by three or four folded newspapers or an equivalent in other kinds of paper. In 12 to 24 hours these papers will be found saturated with the absorbed moisture, and the fold containing the specimen should be transferred to dry ones. This change should be repeated for from two to five days according to the state of the weather, the place where the drying is done, the fleshiness of the specimens, etc. The best way to secure the required pressure is by means of a pair of strong straps, though weights will do. The best place for drying is beside a hot kitchen-range. When dry, the specimens should be mailed between cardboard or some other light but stiff material which will not bend in transit.

It is a most important matter that the name and address of the sender should be attached to the package, and that the specimens, if more than one, should be numbered, the sender retaining also specimens bearing the same number, to facilitate any correspondence which may follow. The Sub-Commission requests that, so far as practicable, all plants sent be represented by at least four specimens.

Correspondence.

THE ACCIDENTS PRODUCED IN SERO-THERAPEUTICS.

BOSTON, June 15, 1897.

MR. EDITOR:—No matter what may be the nature or composition of the various serums now employed in medicine, the accidents they occasion have in most instances been identical in nature.

The anti-diphtheritic serum has produced the following: (1) Abscesses, that might be considered as accidental when only one occurs; but Sevestre and Variot have placed on record epidemics of abscesses, of no great seriousness be it said, but which must be accounted for by an alteration of the product employed. (2) Certain exanthemata occurring in varying proportions, attaining the high figures of 50 per cent. of cases according to McCrombie, but more usually in about 13 to 15 per cent. (3) Arthropathies, often coexisting with the cutaneous phenomena and subsiding when the skin manifestations disappear; and in 1895 reports from Germany put the joint complications as occurring in about 1.5 per cent. of cases. (4) General complications, such as albuminuria, urobilinuria, peptonuria, epistaxis and metrorrhagia. (5) During the course of the post-diphtheritic syndrome, vomiting, diarrhea, inflammation of the lymphatic glands, tumefaction of the spleen and cardiac disturbances (such as arrhythmia, tachycardia, *bruit de galop* and edema of the limbs) have been observed at the same time that the cutaneous and joint complications were present. And, lastly, let us mention those cases of death which have been quite often observed whose cause could not be exactly explained.

Anti-streptococcus serum has produced urticaria, erythema and inflammation of the joints, as well as patches of erysipelas at the point of inoculation. In the case of a little girl of ten years afflicted with a membranous tonsillitis, Variot employed this serum, with the result that the accidents produced by it were far more serious than the primary affection.

It is most probable that in such cases the bacteria are still living in the serum. Roger, of Paris, has prepared an anti-streptococcus serum, 300 c. c. of which he injected into a female suffering with puerperal septicemia, and which cured the patient without any complications taking place.

The serums obtained from the dog, goat, lamb and calf, the anti-tetanus serum, and Maragliano's serum all have their series of complications, which, by their behavior and aspect recall those produced by the anti-diphtheritic serums.

The sero-therapeutics for variola demands a more special mention and description. Here we are not dealing with a product requiring only from one, two, or even twenty to thirty cubic centimetres for each injection, but a fluid injected in large quantities. Bèclère injected 1,560 c. c. of serum, taken from a vaccinated cow, in a female suffering with confluent small-pox; the patient recovered without any complication, excepting a slight exanthema situated over the internal aspect of the knees, the right thigh and under the right breast. Fourteen former cases and other recent observations have demonstrated the harmlessness of massive injections in man. Nevertheless, Bèclère has observed inflammation of the joints and in one case very serious complications.

The only serum whose use has never been known to produce any complications when injected into man, is human serum.

Many and varied are the explanations given to account for post-sero-therapeutical complications. Legendre considers that the serum of certain horses, and not the antitoxin, is to blame. Lebreton, Magdeleine and Variot are also of this opinion, but believe that the serum itself must be taken into consideration as well.

Latent microbism, awakened into activity by the laceration of the connective-tissue meshes produced by the injection, is also a theory upheld by Legendre. Sevestre is more inclined to believe that the serum is harmless, and that it is to the antitoxin that we must attribute the complications. Marville, d'Astros and Engelhardt have reported cases that would appear to show that the reactions of the temperature are in all probability due to individual predispositions.

After the fatal cases reported by Guinon and Moizard, Sevestre attributed the factors of the concomitant or added infections as the cause and more especially the streptococcus, but Netter does not accept this theory and believes that the substance giving rise to the complications is an element pre-existing in the serum of certain animals and that only at certain given times.

Now, if the antitoxins could be incriminated, the number of exanthemata would naturally be proportional to the quantity of serum injected, and it is a fact that the majority of writers attest that the skin manifestations are more infrequent the greater the antitoxic quality of the serum and consequently requiring a small amount of liquid for each injection. The writings of Zagari and Calabresse, confirmed by those of Poix, distinctly prove that anti-diphtheritic serum has an inferior toxic power to that taken from a normal horse.

There now remains the serum itself, whose toxicity has been shown to be at least equal to that of medicated serums. The harmful qualities of serums are not constantly present and are usually observed in series, and it is not of infrequent occurrence to observe long periods of time during which none of the complications are reported as appearing in cases under serum treatment.

If the vehicle is the cause of complications and if the decrease in its quantity in no way attenuates its efficaciousness, it is quite natural to endeavor to extract the curative principle from the antitoxic serums.

In Germany, quite recently they have been able to precipitate the antitoxins of tetanus and diphtheria in the serums; but on account of an absolute want of experiments and precise knowledge of the therapeutic value of these precipitates they leave us, for the present, at least, in the dark as to their use.

Very truly yours,

C. G. CUMSTON, M.D.

HOSPITAL AND DISPENSARY ABUSE.

A CORRESPONDENT writes us as follows, with regard to this subject. His words portray vividly the manner in which hospital abuse bears upon many young and struggling members of the medical profession.

MR. EDITOR:—The abuse of medical charity is a matter of vital importance to a great portion of the profession—probably a greater portion than one can imagine. Although one of the thousands of sufferers, I try to view the matter from an impartial point of view, my only desire being to stimulate a discussion of this most important problem. I am neither a "calamity-howler," nor a prophet; but as far as I can see in the future, the time is not far distant when the Massachusetts Medical Society will be compelled to take a hand in this matter, or legislative interference will be called to aid. No words of mine (young, poor, insignificant practitioner, that I am) can be strong enough in condemnation of the system of "charitable anarchy," that deliberately, without any necessity therefor, deprives great numbers of practitioners of the legitimate means for earning a livelihood.

I assure you, sir, these are not phrases, but plain, simple, unvarnished truths. Yours truly, JUSTICE.

METEOROLOGICAL RECORD

For the week ending June 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		Wet't'r. °		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 P. M.	
S.. 13	29.68	54	58	58	94	95	94	N.E.	N.E.	4	7	O.	.26
M.. 14	29.79	55	64	64	87	91	89	N.	E.	5	5	O.	.02
T.. 15	29.79	63	75	75	85	67	76	W.	W.	4	10	C. F.	.01
W.. 16	29.79	68	77	77	54	58	56	N.W.	N.W.	15	7	C.	O.
T.. 17	29.86	66	76	76	56	58	57	W.	S.	4	10	F.	O.
F.. 18	29.97	68	76	76	58	78	68	N.	N.E.	6	13	C.	F.
S.. 19	30.00	69	81	81	46	64	55	N.	S.	12	12	F.	C.
W'k.													.29

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. **W'k.** Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 19, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.	
New York	1,868,060	711	291	16.10	14.25	5.18	6.44	1.40	
Chicago	1,619,226	439	167	15.18	11.06	7.72	4.37	—	
Philadelphia	1,214,256	394	152	16.48	11.70	5.20	5.72	1.56	
Brooklyn	1,160,000	364	146	12.69	11.31	3.78	6.92	—	
St. Louis	576,000	225	86	10.12	9.24	6.60	.88	.44	
Baltimore	550,000	189	81	8.25	13.20	1.10	2.76	.55	
Boston	517,732	190	35	15.98	12.48	2.60	4.16	2.60	
Cincinnati	405,000	89	—	8.96	12.32	5.60	2.24	—	
Cleveland	350,000	75	13	2.66	3.99	1.33	1.33	—	
Pittsburg	285,000	—	—	—	—	—	—	—	
Washington	277,000	107	47	20.46	8.37	11.16	4.65	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	33	7	6.06	—	—	3.03	3.03	
Fall River	95,919	34	17	21.30	13.15	18.41	—	—	
Nashville	87,764	35	20	17.10	5.70	17.10	—	—	
Lowell	87,123	31	11	6.46	9.69	3.23	—	—	
Cambridge	86,812	29	9	10.35	21.15	3.45	3.45	—	
Charleston	65,165	—	—	—	—	—	—	—	
Lynn	65,220	—	—	—	—	—	—	—	
New Bedford	62,316	17	11	17.64	23.52	11.76	—	—	
Lawrence	55,510	14	7	28.56	—	—	—	—	
Springfield	54,799	21	7	4.76	19.04	—	—	—	
Holyoke	42,361	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	5	0	20.00	—	20.00	—	—	
Brookton	35,853	—	—	—	—	—	—	—	
Malden	32,894	8	3	12.50	12.50	—	12.50	—	
Chelsea	32,716	4	1	—	—	—	—	—	
Haverhill	31,465	11	2	18.18	—	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	6	1	16.66	16.66	—	16.66	—	
Fitchburg	28,392	15	2	6.66	—	—	—	—	
Taunton	27,812	2	2	—	—	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	8	2	12.50	—	—	—	—	
Waltham	21,812	—	—	—	—	—	—	—	
Everett	21,575	8	2	—	25.00	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	—	—	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,150; under five years of age 1,141; principal infectious diseases (small-pox, measles, diphtheria and croup, whooping-cough, erysipelas, diarrheal diseases and fever) 427, consumption 361, acute lung diseases 304, diarrheal diseases 165, diphtheria and croup 139, scarlet fever 26, measles 25, typhoid fever 20, cerebro-spinal meningitis 16, whooping-cough 15, erysipelas 9, malarial fever 8, small-pox 4.

From measles New York 6, Brooklyn 5, Chicago 4, Philadelphia, Baltimore and Providence 2 each, Boston, Fall River, Lowell and New Bedford 1 each. From typhoid fever Chicago 6, New York and Boston 3 each, St. Louis and Baltimore 2 each, Cincinnati, Lawrence, Taunton and Waltham 1 each. From cerebro-spinal meningitis Boston 6, New York and Washington 3 each, Baltimore, Somerville and Chelsea 1 each. From whoop-

ing-cough Brooklyn and St. Louis 3 each, Chicago, Baltimore and Washington 2 each, New York, Boston and Lawrence 1 each. From erysipelas New York 4, Philadelphia 2, Chicago, Lawrence and Chelsea 1 each. From malarial fever Philadelphia 6, New York 2. From small-pox New York 3, Cambridge 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending June 12th, the death-rate was 15.6. Deaths reported 3,297; acute diseases of the respiratory organs (London) 191, measles 131, whooping-cough 90, diphtheria 57, diarrheal 48, scarlet fever 28, fever 24.

The death-rates ranged from 8.2 in Croydon to 23.7 in Salford; Birmingham 19.8, Bradford 16.5, Cardiff 13.2, Hull 15.5, Leeds 15.9, Leicester 14.1, Liverpool 21.1, London 13.8, Manchester 20.3, Newcastle-on-Tyne 17.5, Norwich 12.8, Nottingham 16.1, Portsmouth 14.9, Sunderland 17.6, Swansea 12.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 19, 1897, TO JUNE 25, 1897.

Leave of absence for three months, to take effect about July 1, 1897, with permission to go beyond sea, is granted COLONEL WILLIAM H. FORWOOD, assistant surgeon-general, U. S. A.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING JUNE 26, 1897.

E. Z. DERR, surgeon, ordered to duty with new Naval Rendezvous, New York.

J. F. URLE, passed assistant surgeon, detached from Rendezvous, Boston, June 24th, and ordered to the "Wabash" same day.

F. B. STEPHENSON, surgeon, detached from the "Wabash," June 24th, and ordered to Marine Rendezvous, Boston, same day.

W. B. GROVE, assistant surgeon, ordered to the Naval Laboratory, New York, June 21st.

L. W. SPRATLING, passed assistant surgeon, ordered to the Naval Hospital, Norfolk, July 1st.

G. B. WILSON, passed assistant surgeon, detached from the "Yantic," ordered home and granted two months' leave.

INTERNATIONAL MEDICAL CONGRESS.

RAILWAY TICKETS AND PASSES.

A letter from the Secretary-General of the Twelfth International Medical Congress conveys the following information, which is additional to that which has been published in the medical journals:

As it is too late to send tickets to the American Congressists, they are requested to send to the Secretary-General at Moscow, their addresses in London, or Berlin, or Vienna, or Paris, or to avail themselves of the National Committees in those cities, in order to receive their tickets and free passes over Russian railroads in those places.

The free passes are valid from July 13th to September 13th over the following routes:

Eydkunen to Moscow and back; Moscow to Petersburg, or Moscow to Graniza, or Moscow to Odessa, or vice versa; Graniza to Petersburg (or Odessa, or Eydkunen, or Ungneni, or Alexandrowo) or vice versa.

Different lines going and returning may be chosen, and stop-over is permitted.

Eydkunen to Petersburg is excluded from the free list.

A. JACOBI, Chairman American National Committee.

SOCIETY NOTICE.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION. — The next meeting of the Mississippi Valley Medical Association will be held in Louisville on October 5, 6, 7 and 8, 1897.

DR. H. W. LOEB, Secretary, 3559 Olive Street, St. Louis.

BOOKS AND PAMPHLETS RECEIVED.

Local Anesthesia and Anesthetics. By E. J. Mellish, M.D. Reprint. 1897.

Who Discovered Anesthesia? By Joseph H. Hunt, M.D., of Brooklyn, N. Y. Reprint. 1897.

Strophanthus: A Clinical Study. By Reynold W. Wilcox, M.D., LL.D., New York. Reprint. 1897.

Address.

THE CENTENNIAL INTRODUCTORY ADDRESS, DARTMOUTH MEDICAL SCHOOL, JULY 14, 1896.

BY G. A. LELAND, M.D., BOSTON.

On the 117th page of the last general catalogue of Dartmouth College is the momentous announcement that the one hundredth annual address is to be delivered at this time and place. That this is the *one hundredth annual* occasion of this nature, of itself furnishes us with food for reflection and retrospection; and though it is not my purpose, even if I were able and you had patience to hear, to place before you the status of our art and science at that long-gone period and all that has happened since, yet it may not be unprofitable for us to look back to a few salient features of the century that is past, that you may infer how meagre and barren was medicine as then known in comparison with what it is to-day.

Now, gentlemen, the first students of this school were cotemporaries of a most remarkable physician of London, in whose life we may find many features the contemplation of which may be both profitable and interesting, not only because it is the life of one possessed of a wonderful intellect, a prodigy of learning, and because that prodigy lived up to the promise of his early years, but because it shows that the whole of the scientific knowledge of that time could be compassed by one human mind.

Dr. Thomas Young was born on the 13th of June, 1773; learned to read at two years; had read the "Book of Books" through twice at four, and began Latin two years later. At thirteen, it is related of him, that by selling stationery, etc., he collected five shillings which he added to the 10s. 6d. given him by his parents, and bought some Greek and Latin books and a Hebrew Bible, for which latter he gave one-third of his capital, namely, five shillings—not an end-of-the-nineteenth-century taste for a boy of thirteen years. Before he was seventeen, he had read the principal Latin and Greek authors, and many in French, and much in mathematics, natural philosophy, natural history, botany, etc.; and in the next three years the number of works in these subjects and in chemistry, medicine, history and literature which he devoured is almost incredible, especially as he is described as reading them in a studious and painstaking way, never hastily, but with a memory singularly tenacious, never forgetting what he had mastered. From all this it must be concluded that he was a reclusive, taking most pleasure and comfort in segregation, pursuing his studies and investigations alone, with a strong, self-reliant mind.

The Rev. George Peacock, his biographer, says of him that he was "at an early period of his life an accurate classical scholar; perfectly familiar with the principal European languages; well acquainted with mathematics, and with almost every department of natural philosophy and natural history; profoundly versed in medical and anatomical knowledge; and in possession of more than ordinary personal and ornamental accomplishments."

And the same author says "that the principal causes of the extraordinary success of an education carried on for so many years with so little assistance

from extrinsic sources, were these"—and here we may all get an inspiration for the conduct of our own lives, whether we are just starting out, or howsoever far we have advanced on the road towards success—"the principal causes were these: the peculiar constitution of his own mind, his great industry, his conviction that what one man had accomplished another might accomplish also, the determination to master *every branch* of knowledge whose acquisition he thought necessary or desirable."

In 1752 (nineteen years of age), he began the systematic study of medicine in London, influenced in his choice, no doubt, by his uncle Dr. Brocklesby, a successful London practitioner. He then went to Edinburg, to Göttingen, and after travelling (mostly a-foot) over a large part of Germany, and becoming personally acquainted with the principal savants of the land, he returned to Cambridge (1797) to take up the legally required residence of six years before he could make his M.B., which he did in 1803, at thirty years of age. And after the requisite five years more, at thirty-five, he received the degree of M.D., in 1808. He began practice, however, in London early in 1800, three years before he received his first degree. In the world's metropolis, however, as is the case in most large cities, a physician must wait many years before he secures sufficient recognition for constant occupation. This, fortunately for the world, never came with Dr. Young; largely perhaps because of its ceaseless activity his mind required more to feed upon than ordinary minds.

In 1801, he accepted the professorship of natural philosophy in the Royal Institution. Who of us would assume the duties of so arduous a position after being one year in practice? In this position he did some of the most important work of his life—establishing the undulatory theory of light (which, however, had been merely mentioned something like a century before), elucidating the interference phenomena of light also; doing much in optics and in the anatomy of the eye, and it is curious to us now to read that he considered the substance of the crystalline lens to be muscular. But he held this professorship only two years, resigning because he did not wish the dear public to hold the opinion that he was anything but a physician, lest it interfere with his medical practice. Do we not here see a phase of medical human nature in a trait which is even in evidence at the present day—the anxious desire that the *oi πολλοί* shall think well of us?

In 1811, after an unsuccessful trial four years earlier, he was elected one of the physicians of St. George's Hospital, which position he held for the remainder of his life; and it is said of him, that his practice was very successful, that his treatment was much in advance of that of his colleagues.

In 1813 (forty years of age), appeared his first medical book, "Introduction to Medical Literature, including a System of Practical Nosology," a work of great labor, and of great assistance to students and investigators.

In 1815, appeared his last medical publication, "A Practical and Historical Essay on Consumptive Diseases."

After this, in addition to his medical practice, he turned his mind to perhaps more intellectual activities. He was one of the most learned exponents of Greek criticism of his time, able to use that beautiful language almost as his mother tongue; and his work in

the interpretation of Egyptian hieroglyphics is classic even to the present day.

What he did in further scientific investigations, in optical discoveries, in computation of longitude, in the value of life and life assurance, etc., is too far reaching to be mentioned at the present time; and I am afraid I have wearied you in what I have already cited in the life of this remarkable man, who died in May (10th.) 1829, at fifty-six, probably of valvular disease of the heart.

But, apart from the many features of his life which we may bring home to ourselves with profit, the point I wish to bring out is this, that the whole range of human knowledge at the time of the infancy of this medical college was compassed by one human mind, which also added very much thereto. Should any individual of us at the present day set out with a similar object in view, what a task would he find before him! Setting aside as irrelevant to our purpose all the enormous advances which have been made in natural science, in chemistry, geology, astronomy, biology, in the new science of electricity (then in its infancy, whose birth shall ever be associated with the name of that great American, Benjamin Franklin), and in all the other sciences and arts which contribute to the sum of human living and human progress, and coming into the more restricted field of our own science and art of medicine and surgery, how stupendous would be the task of any one whose ambition would lead him to attempt to master it all! Those pioneers, the advance guard, the specialists, a great army of careful, painstaking, minute investigators, have pushed forward till the sum of what is known in *any one* of the special branches of medicine—such as ophthalmology, otology, laryngology (including rhinology) gyneecology, neurology and dermatology—not to mention general medicine and general surgery, and what they have contributed to them, is enough for the employment of all the energies of one poor human mind at the present day. And it is probably not untrue that the mass of literature published in any one of the specialties mentioned is to-day greater than that of the whole of medical literature at the beginning of this century.

The handful of intrepid men who came away up here among these everlasting hills, away from the dust and the turmoil, the slums and the clinics of the larger cities, did it with the idea, more prevalent then throughout the country and the world than now, that the experience of others, as gained from their writings, supplemented by their own, was a sufficient basis for the propagation of a knowledge of the empirical science of medicine. And, gentlemen, it is a noteworthy fact that they were contemporaries of that great country practitioner (and it must be admitted that the majority of the students of most medical schools are to be extra-urban practitioners) who one hundred years and two months ago to-day (May 14, 1796) first inoculated a boy eight years of age, James Phipps, with vaccine matter taken from the hand of a dairymaid, Sarah Nelmes, who had become inoculated from one of her master's cows. This quiet, studious, painstaking man first had his attention drawn to the matter while yet a student twenty-five years previously, and had called the attention of his teacher, the great John Hunter, to it. But he, Hunter, seems not to have taken much note of the matter, and his reply to his pupil was, "Do not think, but try; be patient, be accurate." This was rather

equivocal advice; and after ignoring the first part of it and following the last part for twenty-five years, carefully collecting his facts and studying them in all their relations, Edward Jenner made a name for himself which shall ring down the ages as long as time and history shall obtain with the human race—Edward Jenner, the conquerer of one of the most virulent, loathsome and fatal of the ills which human flesh is heir to; a disease, the presence of which spreads terror and panic; and which at his time and before was so common that Sir Gilbert Blane told the House of Commons that at the end of the last century an adult who had not had small-pox was scarcely to be met with or heard of in the United Kingdom. So prevalent was this disease that various authorities estimated the annual death-rate in Europe from it alone to be 210,000 to 500,000. Bernoulli, the celebrated mathematician, believed that no fewer than fifteen millions of human beings were destroyed by small-pox every twenty-five years, that is, 600,000 annually. De la Condamine estimated that it destroyed, maimed or disfigured one-fourth part of mankind. And the *Medical Press* recently stated that fifty millions of people died in Europe of small-pox in the eighteenth century.¹ Macaulay, the historian, observed that the disease was always present, filling the churchyards with corpses, and leaving on those whose lives it spared the hideous traces of its virulence. "If a modern traveller," said one observer, "could be transported to London in the early part of the present century, no peculiarities of architecture, dress or behavior, would be so conspicuous as the enormous number of pock-marked faces he would encounter at every turn."²

Such being the condition in pre-vaccination times, what is it now in countries where vaccination is compulsory? In England, from an average death-rate of 2,000 (sometimes even amounting to 6,000 per million inhabitants), since compulsory vaccination (1871) during the ten years, 1885 to 1894, the death-rate has been only 26; and in Prussia, where vaccination is even more thoroughly carried out than in England, the rate has been only 7 per million yearly for a similar period. Whereas formerly Buchan, in his "Domestic Medicine" (fourteenth edition, 1794), says, "This disease is so well known that a minute description of it is unnecessary." Now, many of you will practise for years, perhaps throughout your whole professional career, and never see a case. It is only a few years ago that an English army surgeon in South Africa failed to recognize and isolate a case, and, an epidemic ensuing, was nearly mobbed for his carelessness.

What has wrought all this change? Simply the careful observation and the ability to draw practical conclusions of an English country practitioner a hundred years ago. And how significant is it that the great John Hunter who had the stupendous truth almost thrust upon him by his distinguished pupil should have failed to make that great name for himself and to earn the undying praise of a grateful world! And what were the emoluments earned by Edward Jenner himself? Grants of money by Parliament, medals, honors, diplomas, statues, etc., were heaped upon this modest man, who *sought not his own gain*, but freely and fully published his great discovery to the world.

This year of 1896 is again noteworthy, because October 16th is the fiftieth anniversary of the first

¹ Lancet, Jenner Centenary Number, May 23, 1896.

² Medical Record, October 5, 1895.

application of sulphuric ether in the Massachusetts General Hospital for the induction of general anesthesia, by Morton and Jackson; and that that was not so very long ago is evidenced by the fact that the man who probably made the ether then and there used is now living in Boston.³ And though there are several claimants for the honor of its first administration, it is evident that the world first knew of the great discovery from the work done with it in the New England metropolis. It was known before, to be sure. As early as 1795, Dr. Pearson used it for relief of spasmodic respiratory affections. That it would produce insensibility was shown as a laboratory experiment by Goodwin in 1822, Mitchell in 1832, Jackson in 1833, and Wood and Bache in 1834; but its first use as a surgical anesthetic was as mentioned above. The news of this remarkable performance reached England on the 17th of December, and on the 21st, Mr. Liston, the eminent surgeon made use of it.⁴

Now, gentlemen, I might dilate on the immense advantage of the glorious discovery of anesthesia, but this has been already frequently done by others.

"Is there anything in human history which more sternly teaches that man must win every boon of nature by his own ceaseless striving than that this simple chemical and physiological secret of anesthesia should have lurked so strangely long in its easy formulæ, undeciphered, through all those waiting generations when pain was an omnipresent tyrant whom science could not control, and the operating-room a torture-chamber, dreaded almost as much by the surgeon as by the sufferer?"

"Thus, in 1846, did the anesthetic age commence, giving to your art a sure control of anguish; to its boldest practice confidence, quiet and leisure; and to those who have to lie under that knife a sweet and complete oblivion. I [Sir E. Arnold] have myself known what it is to pass, fearless of the kind steel, into that world of black-velvet tranquillity of which your magic drug now keeps the gate, and to awake as good as healed, grateful beyond words for the soft spell of enchanted peace and the sure and faithful skill."

And what shall I say of the discovery of local anesthesia by cocaine by Dr. Karl Koller in or about 1886? It is second only in its valuable results to that of general anesthesia. Of what immense value is it in all operations and manipulations in the great field of the mucous membranes, in the eye, nose and throat! It has opened up the nose to us as it was never before shown, and it may be truly said that the whole science of rhinology had its birth in the discovery of the local anesthetic property of cocaine. Before this the nose was a veritable *terra incognita* till this agent banished the temporary swellings in the interior of that organ, and showed what was permanently obstructive; and then enabled us to accomplish its painless removal. Operations also within the throat, and especially those intra-laryngeal operations, among the most difficult and most delicate of surgery, are by it brought into almost

absolute control; and, moreover in the amount of comfort by it vouchsafed to sufferers from those incurable, painful affections of the throat, such as cancer and tuberculosis, it is one of the greatest boons brought to suffering humanity by our modern medical art. And the American people will ever owe a great debt of gratitude to it and to its discoverer because it so providentially came in season to mitigate the sufferings of the last days of that great heroic spirit, that idol of the nation, that great leader of her conquering armies, as he sat in his chair at Mt. MacGregor, fighting the only losing battle of his life; and it doubtless prolonged his life while with infinite patience he drove his pen to the accomplishment of his last great work (the writing of his "Memoirs"), which he so sadly undertook actuated by love of his family. How pathetic and significant his remark that even a swallow of cold water burned like liquid fire; and what a boon was the anesthetic power of cocaine!

Thus rhinology may be said to have had its origin in the discovery of cocaine, and from the better knowledge of the functions of the nose have resulted some of the greatest advances in the treatment of affections of the throat and ear; and, now, many minor and some major operations are being done under its use by a recently promulgated method of intradermic injection.

And, now, gentlemen, I have touched upon but two of the notable things which have occurred since the founding of this Medical School. The time is too short to speak of the great work of Sir Joseph Lister whose name will ever be associated with the antiseptic treatment of wounds. By his wonderful teaching of the germ theory and invention of sterilization, suppuration is brought under control and hospital gangrene, once the *bête noir* of hospital practice, is now only an historical curiosity. I take some satisfaction in having once seen a single case, but I find that most of my colleagues and medical friends have never had that opportunity.

Following on after Listerism, the perfected microscope showed the basis of the germ theory; and here the names of Klein and Koch are immortal; and from that great, new science of bacteriology has been evolved the antitoxins. Think of the enormous boon to humanity given us by Roux and Behring, by which that dread disease diphtheria, hitherto almost unconquerable, has in the last three or four years received such a staggering blow. From a death-rate of 40 to 60 per cent., according to the virulence of the epidemic, by the use of antitoxin the rate has been reduced to 12 per cent. in France, and to 11 per cent. in our Boston City Hospital. It has been estimated that by this new treatment 60,000 lives are saved annually in Europe.

And this, my hearers, could not have been brought about without the use of animals. The whole science of bacteriology, and much of that of physiology, depends on the study and observation of the behavior of living entities under given conditions. And whither shall we look for those entities, except to controllable animal life? A bill has lately been before the Massachusetts Legislature, whose object it was to obstruct and abolish vivisection; as Dr. Bowditch said, "it was utterly mischievous and would carry scientific medicine back to medievalism."

I bring this to your attention to enlist your influence against these antivivisectionists, these modern

³ Under date of December 16, 1896, Dr. C. J. Blake, of Boston, writes me as follows: "Fifty years ago my father, Mr. John H. Blake, conducting a series of experiments in the production of sulphuric ether, succeeded in obtaining a very pure article which he gave to his friend, Dr. Charles T. Jackson, for experimental purposes; and it is presumably this ether which was given by Jackson to Morton. At this time Mr. Blake was also manufacturing purified ether on a commercial scale."

⁴ Chambers Encyclopædia, and Encyclopædia Britannica.

fauatics (probably mostly childless) who would set the value of the lives of the dear little children, the sunshine of the home, below that of the insignificant guinea-pig, in which the Klebs-Löffler bacillus can best be studied, or below that of the cheap dray-horse which is more valuable as a furnisher of the life-giving serum than he could be in any other capacity.

Now, gentlemen, I am well aware of the fact that I have not done what might have been expected of me; that is, to give you a review of the branches of medicine embraced in my own department. I have not told you of the great progress which has taken place in otology, where practice has made such marked advances that the times of simple syringing, of placing almost every known substance into the aching ear, or of doing what is almost but not quite so bad, leaving the diseased ear alone to take care of itself, are giving place to those of an active, rational treatment which is calculated to preserve the hearing of a very large portion of mankind whose ears in times comparatively recent were lost by neglect and meddlesome interference. I have not told you how many obscure cerebral diseases of the earlier part of this century — yes, even to within a short decade — are now classed under the head of "otitic brain disease" because it has been found that their origin is in inflammatory invasions of and from the middle ear. I have not taken up the subject of obstructive growths in the nose and nasopharynx, which latter, principally under the name of adenoid vegetations (which name is now so familiar even to the laity) were only discovered and published to the world so recently as 1868 or 1870, by the late Dr. Wilhelm Meyer of Copenhagen; which growths have been found to be the cause of so much of the earache of childhood, thus leading on to the deafness of middle age. I have not gone into the wonderful history of throat diseases brought about since the invention of the laryngoscope by Manuel Garcia in 1864, which has opened up to us many of the obscure causes of cough and of obstructed respiration. I say I have not gone into all these points in my specialty, because I thought you would bear enough of them later; and then it is so alluring to get out of the deep ruts in which I am always travelling, and to look abroad into the attractive fields of other research that I have indulged my own desire and so led you with me on an excursion which to me has been very pleasant, and I hope not without some degree of pleasure and profit to yourselves.

Now, I cannot conclude without expressing to you a very deep sense of personal bereavement in the great loss which this Medical School, this college, this community, the medical profession of this State and of New England, has sustained in the recent death of the Dean of this Medical Faculty. As I come up here this year, I miss his genial smile, his cordial greeting, the sense that there is a guiding genius at the helm who is ever present, handling with a fatherly, masterful detail everything which pertains to the institution. In his daily life, too, we may find much to emulate with profit, for it was his principle to do everything well, to do with his might whatsoever his hand found to do, a man of firmness of character, of sterling worth and conspicuous honesty and honor. There was no shirking in the nature of Dean Frost, but it was his nature to put the whole of himself into his life work; and so we have found it in the history of this Medical School, to which he gave his best ener-

gies without stint — this Medical School which owes so much of its present excellence and high standing to his thoughtful and forceful management.

And, finally, gentlemen, there are a few personal words which I would inflict upon your hearing. You have chosen a calling which is most fascinating but which is arduous, which will claim every moment of your time if you follow it faithfully from now till you lay aside forever the implements of your toil. There is a glamor about it in the minds of the laity when they see the physician come to look at the tongue, to feel of the pulse, perhaps take the temperature, and examine some organ — and pocket his apparently easily-gotten fee; but the long nights of ceaseless labor, the burning of the midnight oil, the long and expensive years of study in preparation, enter not into the ken of those who are so easy with adverse criticism, but so grudgingly slow with adequate reward. The position of a physician at the present day is far better than it was when Hogarth and Molière ridiculed the calling of this most sacred profession, when, perhaps, then as now there were some who deserved ridicule; but to him who enters upon it with soberness, with a single eye and a steadfast purpose, there is nothing in it but that which should command his most noble efforts and so merit the highest praise. As one quoted before (Sir Edwin Arnold) so beautifully puts it: "And the nobly educated man who knows himself the accepted servant of science and nature, and the messenger, as far as may be, of Heaven's eternal pity, has moments, we all believe, of rich success and boundless recognition, that makes his fees the very smallest part of his after-payment in life."

It is not only a life-work of toil, but one of danger, for the pestilence which slayeth at noon-day is to be your constant companion. At every turn we meet hordes of invisible enemies which the microscope has only recently revealed to us, but whose deadly strength is too abundantly proven by the long list of medical men who have succumbed to disease contracted from their patients. Therefore, I say that this medical life which you have chosen with a bravery which you do not now appreciate nor comprehend, is no sinecure; but to the strong belongs the victory — the strong in body, the strong in mind, the strong in heart and the strong in faith.

Original Articles.

PERICARDITIS: SOME POINTS IN ITS DIAGNOSIS AND TREATMENT.¹

BY FREDERICK C. SHATTUCK, M.D.,
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THERE is perhaps no disease with which we are so well acquainted more frequently overlooked during life than pericarditis. Among the reasons for this failure in diagnosis may be mentioned, first, the fact that pericarditis, like the inflammation of the other serous membranes, is commonly and perhaps invariably secondary. Rheumatism is the most frequent primary disease; but in rheumatism the endocardium is attacked even more frequently than the pericardium, and thus two possibilities of error are afforded. In the first place, it is in some cases not easy, unless after repeated careful examination, to determine posi-

¹ Read at the Twelfth Annual Meeting of the Association of American Physicians, Washington, D. C., May 5, 1897.

tively the endo- or exo-cardial origin of adventitious sounds; and, in the second place, both membranes may be simultaneously attacked, while the auscultatory sounds of the endocarditis wholly or very largely mask those of the pericarditis. Again, it is notorious that, especially in children, the rheumatic poison may be manifested so slightly in the joints that it is not thought worth while to call in the doctor, who thus misses a chance of noting the commencement of an inflammation resulting later in adherent pericardium or a damaged valve. While many other joint-diseases and infections may be complicated by pericarditis, in none, save pneumonia, is it so common as to lead us to be specially on the watch for it. Tuberculosis may attack the pericardium either alone, just as it may attack the pleura; or together with other serous membranes, as well as parenchymatous organs in varying degree, as in the acute miliary form; or, third, as an extension from the contiguous lung or pleura in chronic pulmonary consumption. Such extension seems to be rare, considering the very large number of cases of fatal phthisis. Except in cases where the tuberculosis is confined to the pericardium, and is then accompanied by considerable effusion or more or less pronounced local symptoms, the condition of the serous sac is liable to be overlooked. In pneumonia and other forms of lung inflammation, and also in pleurisy complicated by pericarditis, it may easily be impossible even for the most skilled and careful observer, owing to the anatomical relations of the organs, to detect and differentiate the pericardial inflammation.

The frequent association of pneumonia and pericarditis, as well as the latency of the latter, has forced itself upon my attention of late. Of 57 cases of pneumonia under my care in the hospital during the past three years 20 have come to autopsy. In 13 of these pericarditis was found. In 5 of the 13 pericarditis was detected during life. In the other 8 it was carefully sought for, and the absence of its signs was recorded. In 7 of the 13 cases the pneumonia was right-, in 6 left-sided. This experience differs widely from that of Osler, who found pericarditis in only 5 of 100 autopsies of those dying from pneumonia in the Montreal General Hospital.

In a similar way hydropericardium, with or without inflammation of the sac, in cases of nephritis and cardiac insufficiency may be quite masked by hydrothorax, ascites, passive congestion of the liver and other results of hydremia and stasis.

Symptoms, again, are not to be relied upon as suggestive of pericarditis or in any way distinctively diagnostic. The primary disease may be so severe as to render the additional load almost imperceptible to the observer. Pain in the cardiac area is very frequently absent, often slight, most apt to be marked in the relatively vigorous with mild primary disease. It is, perhaps, a fair general statement that the less severe the original disease the more likely are symptoms suggestive of secondary pericarditis to be present. Ordinarily there is nothing about the facies, position, breathing or pulse essentially different from what may be seen in many other forms of intrathoracic disease. The temperature-range, as in other serous sac inflammations, has no distinctive peculiarities.

Diagnosis must, then, rest mainly on physical signs, but these may be entirely absent. I have deeply stamped in my memory the case of a physician's wife, some years ago. Double dry pleurisy was present,

and, believing that pericarditis must be also present, twice daily for nearly two weeks I examined the precordia with the greatest care without ever succeeding in detecting any friction which I could refer to the pericardium. At the autopsy the pericardial surfaces were uniformly united by delicate and recent adhesions. Friction, again, is proverbially often evanescent and may come and go between examinations which may be separated by too long an interval, the first having given negative results, and no local or circulatory symptom arising. It has happened to me more than once, the last time within a few months, to order a patient with well-marked pericardial friction sent to my clinic at the amphitheatre the next morning, that students might have the opportunity of listening to it, and then to find that the friction had disappeared entirely. Another trap which is set for us is the pleuro-pericardial friction. If there is no other evidence of a process in the lung with which pleurisy is apt to be associated, and no other evidence of pleurisy than friction within the precordial limits, the chances are in favor of the pericardial origin of the friction, especially in the rheumatic cases. Conversely, with other evidences of pleurisy or of a cause for it, a friction in the above area is probably pleural; but we have all encountered cases where a double friction accompanying the cardiac movements and persisting during cessation of respiration has subsequently proved to have originated solely in the pleura bordering on the heart.

Another pitfall is, the lungs and pleura being beyond suspicion, the association of endo- and peri-carditis of undoubted rheumatic origin, if you like. Two recent personal cases illustrate this point:

CASE I. A boy of six was seen with Drs. Miles and Coggeshall, acutely and very seriously ill with symptoms of defective circulation; endocarditis was apparently unquestionable. During both the consultation and subsequent discussion of the case the possibility of considerable pericardial effusion occupied the foremost place. The enlargement of the area of cardiac dullness was quite moderate; gentle percussion was resonant in the fifth right interspace (Rotch); the dullness did not seem to extend to the left beyond the impulse; the precordia was not prominent, and I believed that an attempt to tap the pericardium would pierce the ventricle, and thereby hasten death. The end came in about twenty-four hours. There was no autopsy, but the undertaker states that from the incision which he made near the heart for embalming purposes nearly a quart of clear, yellow fluid escaped. My inevitable conclusion from this is that death was immediately due to a large pericardial effusion, the removal of which might have saved the child's life; but which had not manifested its presence by signs characteristic of such condition, though the possibility of its presence was carefully weighed.

CASE II. A few weeks later a boy of eleven was admitted to my ward with a doubtful history of mild articular inflammation, a systolic apex-souffle, and a double murmur below the base on the left so soft and regular as to suggest an endocardial origin, though pressure with the stethoscope increased its intensity. A few days later the double murmur changed its character, and I was satisfied that it was due to pericarditis (Case VIII); in short, we had a rheumatic endo-pericarditis. Soon after, the pulse rose to 160 and was paradoxical; orthopnea and precordial pain were present, and the urine fell in quantity. Coincidentally the area of dullness increased and extended to the left of the impulse. I pushed a good-sized trocar and canula into the fifth space an inch beyond the nipple just inside the line of flatness. That I entered the pericardium was proved by getting about two drachms of serous fluid. The end of the canula moved freely, as if in a cavity; adhesions were not

felt breaking; perviousness of the canula was proved by reinsection of the trocar. The cardiac movements communicated to the canula were alike visible and palpable, but no more fluid could I get. From this time the boy began to improve, morphia and alcohol being continued, and a week later all signs of pericarditis had disappeared. Here I was either mistaken as to the amount of effusion or it was trabeculated something like a varicose vesicle. The latter possibility was suggested to me by a previous case (Case 1) in which I could not extract as much fluid as the signs would warrant in expecting to get, though I tapped in several places.

These cases show that I, at least, find it sometimes difficult, though trying to exercise due diligence, to determine the presence or degree of pericardial effusion, especially when endocarditis is also present, though the lungs and pleuræ are clear.

Dry pericarditis is not to be diagnosticated with certainty in the absence of friction, the possible pleural origin of which is always to be borne in mind. Practically, perhaps, it is not of much consequence, as obliteration of the sac is the worst sequence.

A small effusion may be suspected, but is not to be made out with certainty. What the least amount of fluid that can be detected may be, I cannot state. I suspect that it is not fixed, but varies with different patients as well as with different observers. The practically important thing is to be able to recognize a considerable or large effusion, to decide rightly whether tapping is necessary and to practise it successfully. Since I published a little book on "Auscultation and Percussion"² I have had more experience with pericardial effusion than in all the rest of my professional life, and my belief as to the shape of the dulness produced by effusion differs now from that of most writers on the subject whose views I then accepted. I do not find, namely, that the dulness of the large effusion is either pear-shaped or pyramidal. To my percussion the area of dulness is simply that of the normal heart equally extended in all directions; therefore, of course, it is also that of a symmetrically enlarged heart, though the latter can seldom if ever produce so large a dull area. It is always my attempt in cardiac percussion to map out the limits of the heart itself, disregarding the smaller area, that of cardiac flatness so-called, within which the pericardium comes immediately in contact with the chest-wall, uncovered by lung. By inserting needles along the line of dulness as determined during life or just before the autopsy in a number of cases, and then opening the body, I have satisfied myself that substantial accuracy is thus possible. The pyramidal and pyriform-shaped areas may result from aiming to mark out flatness rather than dulness, a procedure which the very gentle percussion required in this work renders more difficult to me than the plan which I have pursued. In several cases of large effusion I have noticed dulness below the left clavicle as compared with the other side, but have never been able to make out any percussion changes in the back which I could connect with a distended condition of the pericardial sac. The impulse of the heart may or may not be visible, palpable, or both. In the cases in which it is accessible to sight or touch distinct extension of the dulness to the left of such impulse has seemed to me a very important physical sign of effusion within the sac. If no impulse can be seen or felt the maximum intensity of the first sound must serve as the best indication of the

seat of the apex. Change in the percussion-sounds, upward or laterally, with change in the position of the patient, is very valuable if it can be distinctly made out. Such change was noted in three out of four of my recent cases. Silence on this point in the others tends to show that the sign was not specially studied. Prominence of the precordia is, I am sure, not frequent, and no important conclusions should be based on its absence, which I have noted even in a young subject. The lungs offer less resistance than the chest-wall and may both retract away from the distended pericardium. Moreover, the limits of possible effusion are more definite in the case of the pericardium than in the case of the pleura. Paradoxical pulse was noted in five out of eight cases. Effusion was large or considerable in all where it was present; but the value of this sign is lessened by the fact that it may be found also in other conditions, though, perhaps, less constantly. Repeated and sudden collapse was noted in six cases, and therefore seems to be a sign worth mention. In none of my cases were aphroia, dysphagia or irritative cough noteworthy symptoms.

The diagnosis of uncomplicated, considerable pericardial effusion should ordinarily present no great difficulty, especially if the observer has had the opportunity of watching the case and noting the development of the symptoms and physical signs. A weak and dilated heart, an encapsulated pleural effusion, and possibly a mediastinal new-growth are the conditions involving most liability to error. The difficulties of diagnosis in complicated cases have been already dwelt upon sufficiently in a communication which makes no pretence of exhausting the subject, but is rather a record of personal experience.

Treatment.—In a general way I must confess my scepticism as to the value of therapeutic measures other than rest as materially modifying the formation or promoting the absorption of pericardial effusion. I have seen effusion increase in spite of remedies, and I have seen it rapidly diminish without remedies. Morphine should be used freely if pain demands it. Alcohol and digitalis should be given if the state of the circulation seems to call for them. Blisters I never use, as my faith in their efficacy is small, and I know they interfere with close study of the case, and may interfere with necessary puncture. The ice-bag I have applied when it was grateful to the patient. I relate annually to my students a story of Sir William Gull, told me by Dr. Pye-Smith. At a consultation Gull detected a pericarditis which had been overlooked by the attending physician, who was perhaps unduly apologetic for his oversight. After hearing him out Sir William remarked: "Oh, it is all right. Perhaps it is just as well you did not find it, for if you had you might have treated it." It is my belief that he meant to enounce a general principle rather than to express doubts as to the skill or wisdom of the individual. To tap or not to tap, that is the practical question to my mind; and unless we are quite sure of our diagnosis of a large effusion the question may be a very nice one. Whatever may be our attitude to-morrow, to-day we cannot regard puncture of the heart as an innocent procedure, and we cannot bring ourselves to interfere with the pericardial as freely as with the pleural cavity. The consequences of an error are liable to be too serious according to our present knowledge; and yet the fact that I have in seven cases attempted to tap the pericardium, in six successfully, is

² G. S. Davis, 1890.

proof, I think, that I am not more timid in this respect than most people. I believe I have saved at least two lives by tapping. In Case II the fluid finally ceased to reaccumulate. In Case VII tapping proved the necessity for free incision. I have never regretted having tapped. I have reproached myself for not having tapped.

There is a double danger in every large pericardial effusion; that of sudden and that of gradual failure of the heart, embarrassed as it is. The frequency of sudden collapse in my cases has been already alluded to. Fortunately in none was it fatal; but the withdrawal of a relatively small amount of fluid may obviate this tendency. Moreover, it has seemed to me, alike in pericardial and in pleural effusion, that absorption sometimes follows the removal of even a small amount so rapidly as to suggest a causal connection. Of course, absolute proof of this is hard to obtain, and perhaps I should exercise fully as much scepticism here as with regard to drugs, blisters, and the like. No hard-and-fast rule can be laid down with reference to when to tap. Each case must be determined on its merits; but if the diagnosis of considerable effusion seems sure, if the breathing and circulation show danger signs, and if the patient be not under close supervision of a competent assistant, I believe it is safer to puncture. If the case is uncomplicated or largely so—that is to say, if it be only the effusion which seems to threaten life—interference is more strongly indicated than if the effusion be merely a single factor, as in Case IV, where malignant endocarditis was strongly suspected. If interference is decided upon, of course, cleanliness of hands, skin, and instrument must be ensured. Personally, I prefer a moderate-sized trocar and canula, attached to the aspirator with a side switch.

A smooth canula can be moved freely in all directions within the sac if adhesions or other cause impede the flow, and one feels no nervousness in coming in contact with the moving heart. Repeatedly I have felt the motions with the utmost distinctness, and have indeed sought them when the results were scanty.

The Point of Election. The points advised as most suitable for puncture by most writers group themselves in the superficial cardiac space, the small triangular area where the pericardium is not covered by lung; that is, the fourth and fifth left interspace, either at the sternal border or an inch from it, are mentioned by all authorities. Rotch has suggested the fifth right interspace at the sternal border, basing on his cocoa-butter injections in the cadaver the opinion that the dilated heart never extends into this space, and that puncture there is consequently safe. The left costo-xiphoid angle, the instrument being thrust upward and somewhat backward, is also recommended for safety. Here I have punctured once only, and then after death, Case IV. The ease with which I withdrew a pint of fluid inclines me to try this point again, and during life, if occasion offers. This inclination is strengthened by preceding several autopsies recently by puncture in this spot. The liver or peritoneum may be wounded in reaching the normal pericardium at this point; but this danger must be small when the pericardium is distended with fluid.

The fact that the line of dulness extends to the left of the impulse—for the probable reason that the fluid seeks the lower and lateral portions of the sac, which, moreover, are more distensible—first led me to try

tapping just inside the outer left limit of the line of dulness, and it is here that I have made my most productive punctures, withdrawing once thirty-six ounces; again in the same case (II) twenty-four and sixteen ounces; and in another case (VII) sixteen ounces. I must confess I feel less nervous about thrusting a sharp instrument in so far to the left than directly over the heart. The lung ought to be wounded by puncture so far to the left. This has not seemed to occur in any of my cases, though in Case VII the incision was made to the left of the nipple and opened the left pleural cavity, producing pneumothorax and probably causing the subsequent empyema. My colleague, Dr. Cutler, agreed with me in the opinion, which was later shown to have been erroneous, that the pleura was probably adherent at this point. This belief and the fact that I had already reached the fluid here, led us to advise it as the point of incision. The case has been reported in full, with critical remarks by Dr. Porter, who has since made many careful dissections which show that the fifth left interspace at the sternal border is the point of election for incision. This case is, I believe, the only one which has ever been treated by incision in the Massachusetts General Hospital.

Twice I have punctured in the fourth right space near the sternum, without getting fluid in either case. In one of these cases puncture in the fifth left was productive, in the other it also was dry. Very recently my colleague, Dr. Vickery, drew three and one-half ounces from the pericardium through the fourth right space. The patient who had also pneumonia, died that night, and the autopsy showed about a pint of fluid still in the pericardium.

The following table shows the seat and result of my punctures.

Fourth left	once	fluid.
Fifth left	eight times	fluid twice.
Sixth left	three times	fluid twice.
Fourth right	twice	no fluid.
Left costo-xiphoid angle	once, post-mortem	fluid.

CASE I. Female, aged twenty-four years, single; entered the hospital January 19, 1891, with acute polyarticular rheumatism.

January 23d. Pericardial friction; rising temperature and pulse.

January 28th. Chest as in diagram. (Fig. 1.)

Tapped in fifth left interspace, three inches from median line. One ounce of bloody serum obtained; heart felt on canula.

Tapped again in fourth right space, two and one-half inches from median line; dry tap.

January 31st. Paradoxical pulse. Tapped in fifth left space, four and one-half inches from median line; half an ounce of bloody serum. Next day tapped in same space six and one-quarter inches from the median line; dry tap.

April 12th. Discharged well.

CASE II. Male, colored, aged forty-seven years; entered the hospital on October 26, 1892. Had suffered from weakness and dyspnea for eight weeks, but had worked in a damp place until entrance. Examination showed pericardial friction with muffled sounds at the apex.

November 19th. Steadily losing flesh and strength, but without special symptoms till to-day, when sudden, gasping respiration, weak and almost imperceptible pulse, and fainting. Area of dulness as in diagram. (Fig. 2.)

Tapped in fifth left space, one inch outside of nipple, removing twenty-four ounces of serous fluid, containing tubercle bacilli and also the "bacillus pyocyaneus pericarditis," described by Ernst in the *Transactions* of this

Association, 1893, p. 135. Great relief; heart felt on canula.

November 26th. Tapped for same symptoms as before; one pint.

December 17. Tapped for same symptoms as before; thirty-six ounces.

Both these taps were in the same place as the first.

March 5, 1893. Tapped in the sixth left space, one and

matism and cardiac symptoms for three weeks. A harsh, systolic murmur over the whole cardiac area.

February 8th. Pericardial friction.

February 17th. Dulness as in diagram. (Fig. 4.)

Sudden cyanosis and collapse. Tapped in sixth left space, one and one-half inches outside the left nipple, and two ounces of bloody serum obtained.

February 19th. Died. No autopsy was permitted, but

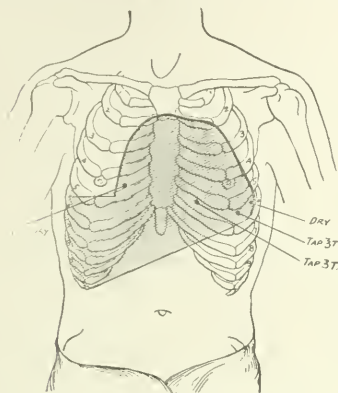


FIG. 1.

one-half inches beyond the nipple; one pint; paradoxical pulse.

March 12th. Eloped from the hospital and could not be traced.

CASE III. Female, aged twenty-four years; entered the hospital January 4, 1893, with precordial and poly-articular pains, orthopnea, and gasping, painful respira-

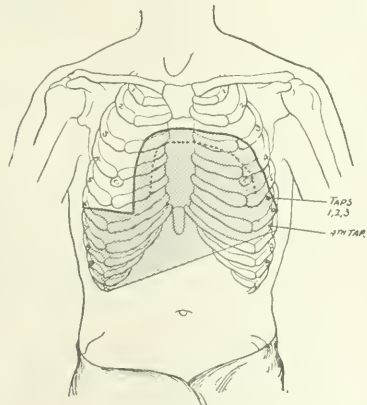


FIG. 2.

tion. Dulness beneath left clavicle, and cardiac dulness as in diagram. (Fig. 3.)

The same day, on account of sudden cyanosis and weak and rapid pulse (160), tapped in fourth right and fifth left spaces; both dry; heart felt on canula.

January 7th. Died; no autopsy.

CASE IV. Male, aged about seventeen years; entered on January 5, 1894, after six weeks of polyarticular rheu-

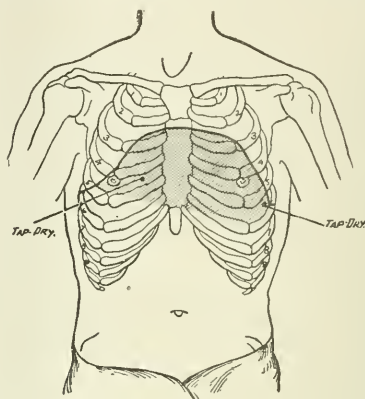


FIG. 3.

I tapped after death at the left costo-xiphoid angle, obtaining a pint of serum.

Whether in this case the puncture during life was too far to the left, or whether the effusion increased between that time and death, we have no certain means of knowing. The former seems more probable.

CASE V. Male, aged six years; entered February 17,

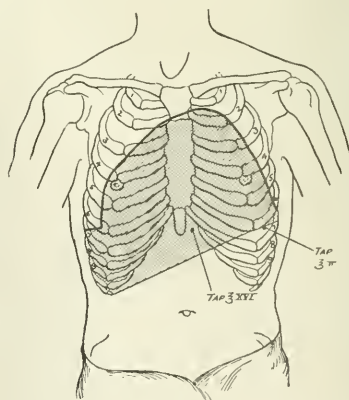


FIG. 4.

1894, with a history of fever, weakness, dyspnea, and pain in the chest for ten days. Leucocytes, 18,000.

February 19th. Pericardial friction.

February 21st. Dulness as in diagram, shifting with change of position. (Fig. 5.)

February 26th. Sudden cyanosis and collapse. Tapped in fifth left space, near sternum; one ounce of serum. Died the same day; no autopsy.

CASE VI. Male, aged forty-seven years; entered April 2, 1895, suffering for four days with pain in various parts of the chest, depending somewhat on position. Cyanosis, labored breathing. Friction apparently pleural, over fourth and fifth left costal cartilages; no distinctly pericardial friction. Paradoxical pulse; delirium.

April 5th. Area of cardiac dullness has steadily increased, and is now as in diagram. (Fig. 6.)

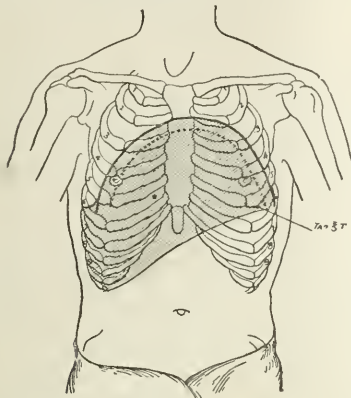


FIG. 5.

Died the same night. Autopsy: A pint and a half of sero-fibrinous fluid in the pericardium and one pint in the right pleural cavity.

In this case the pericardium ought to have been tapped, perhaps saving life.

CASE VII.³—E. C., my junior interne in the hospital, aged twenty-six years, was taken acutely ill October 23, 1895, with pneumonia of the right lower lobe.

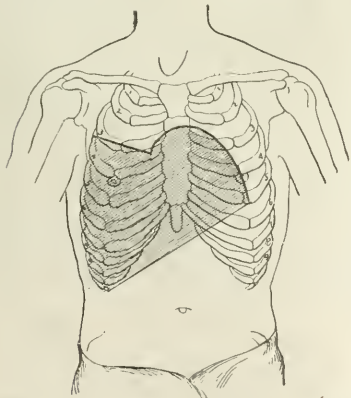


FIG. 6.

October 28th. Dry pericarditis. Effusion soon followed, seemed to diminish, but returned and increased.

November 22d. The pneumonia having cleared, the condition was critical, the pulse paradoxical, the precordial dullness as in diagram. (Fig. 7.)

After consultation with Dr. Cutler, tapped in fifth left

space, one and one-half inches outside of the left nipple, removing a pint of sero-purulent fluid, containing pneumococci in pure culture. Marked relief.

November 24th. The fluid was evidently larger in amount than ever, and the pericardium was incised under ether by Dr. Porter, the cut being made just within the point of puncture. An amount of fluid, estimated at a quart, escaped; the left pleura was opened; improvement

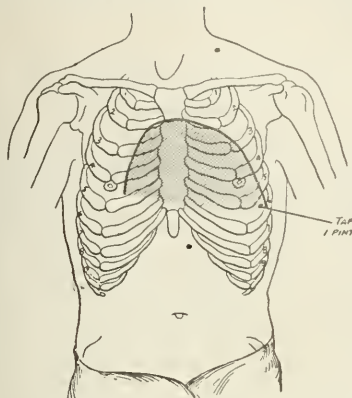


FIG. 7.

in the pulse and loss of the paradoxical character was almost instantaneous.

December 4th and 24th. About six ounces of somewhat turbid fluid were taken from the left pleura. Cheyne-Stokes respiration was present for days.

January 23, 1896. Incision for left empyema (pneumococcus), with escape of a quart.

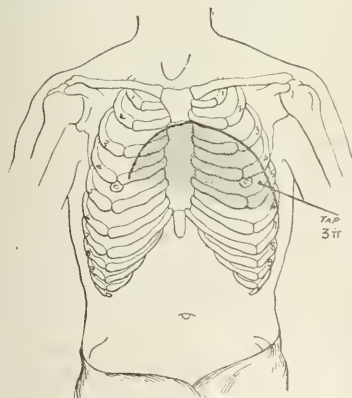


FIG. 8.

February 7th. Erysipelas of the whole back, neck and shoulders.

March 10th. Pus was let out of the old pericardial scar and of glands in the left axilla. Pneumococci.

April 27th. Discharged from hospital. Recovery of strength has been steady, though gradual. He is now in Europe, and is looking forward to resuming his studies in the autumn.

³ For full report of this case, see Boston Medical and Surgical Journal, May 6, 1897, p. 439.

CASE VIII. Male, aged eleven years; entered March 1, 1897, with subacute rheumatism, mitral regurgitation, and a pericardial friction.

March 5th. Pulse weak and rapid; precordial pain and dyspnea; paradoxical pulse. Tapped in fourth left space, just outside the nipple, and two drachms of serous fluid withdrawn. Dulness as in diagram. (Fig. 8.)

March 24th. Area of dulness much smaller. Symptoms abating.

April 1st. Discharged well.

REMARKS ON SYMPHYSEOTOMY.¹

BY GEORGE J. ENGELMANN, M.D.

THIS operation is one which merits our consideration, more especially so as there are those who are inclined to view askance, if not to ignore, the procedure as one of the many fleeting innovations of this progressive era, or as too crude or unsurgical as compared with Cæsarean section, which is now extended, by reason of its success as a hospital operation in elective cases, upon most elastic indications to the minor degrees of pelvic contraction, and even into the realms of version and the forceps, with but little thought of symphyseotomy or premature labor.

This is not a new operation, as it has been known for over a century, and practised even in those early days with fair success and with excellent results as compared with Cæsarean section; yet it has not received the consideration it merits until within the past decade; in that time it has undergone a crucial test, and must now be recognized as one of the accepted procedures of modern obstetric art.

Symphyseotomy holds an unquestioned place in operative midwifery; but its indications are yet to be fixed, its application and limitation to be defined. In the main, we may say that the operation pertains to the intermediate degree of pelvic contraction, that it replaces craniotomy on the living child and premature labor in the earlier months, and must be compared with Cæsarean section on the one hand and high forceps and version on the other, the latter coming in contact with symphyseotomy in the minor contractions, and the former by its relative indications being almost a parallel operation. The indication for pubic section, as I would formulate it, is to be found in the slighter disproportion, two centimetres or less between biparietal and pelvic conjugate, because two centimetres can always be gained by the operation, or, in other words, with the average fetal head of this country, in a pelvis of between 7 and 9 cm. ($2\frac{3}{4}$ to $3\frac{1}{2}$ in.). As yet the various operators differ somewhat as to the sphere of the operation, at least in so far as its limits are marked by pelvic measurements alone, always an uncertain guide.

Pinard gives the widest scope to symphyseotomy, from a conjugate of 8 cm. ($3\frac{1}{6}$ in.), above which he resorts to premature labor, to one of 5 cm. ($1\frac{1}{4}$ in.), within the absolute indications of Cæsarean section, thus confining Cæsarean section to a pelvis of less than 5 cm. ($1\frac{3}{4}$ in.).

Leopold allows a much smaller range to the operation, but likewise applies it to the higher degrees of contraction, to those with a conjugate of 7.5 cm. to 6 cm., the limit for absolute Cæsarean section.

Morissani himself does not carry symphyseotomy quite so far, limiting its application to a conjugate be-

tween 8.8 cm. and 6.7 cm. ($3\frac{5}{16}$ to $2\frac{1}{16}$ inches), very much the class of cases formerly consigned to craniotomy on the living child, and, if elective, to premature labor in the earlier months.

Tarnier gives preference to symphyseotomy in pelves of less than 8 cm., though he reports a series of cases of induced labor in contractions to 6.6 cm. ($2\frac{1}{2}$ in.), unfavorable by reason of the high fetal mortality. Leopold limits premature labor to a conjugate between 8 cm. and 7 cm., cases in which at term he advocates forceps or version in the flat pelvis and version in the justo-minor above 7.5 cm., symphyseotomy below. Tarnier gives preference to premature labor as the method of choice in pelves above 8.6 cm., when it can be inaugurated at the beginning of the ninth month.

Such have been the varied degrees of pelvic contraction to which symphyseotomy has been applied; and though the conditions and circumstances of the individual case will determine our choice of method, we must be guided to some extent by the results of the various operations resorted to in those intermediate forms of pelvic contraction for which symphyseotomy is advocated, and it is well to bear in mind that in these cases the mortality from forceps, version and premature labor is not a low one, but greater, I should say, than from the pubic operation.

The high-forceps operation is reported by Zweifel with a mortality of 7.3 per cent. The Dresden clinic from 1889-1894 records a maternal mortality of 5.17 per cent., and a fetal mortality of 21 per cent., 5.6 per cent. due directly to the operation; this is with a conjugate down to 7.5 cm. Version in this class of cases, to a conjugate of 7 cm. in the flat and to 7.5 cm. in the justo-minor pelvis, gives a mortality of 10 per cent. (Leopold).

Premature labor is practically without danger to the mother (perhaps one per cent.) when the operation is performed, as it usually is, by an experienced obstetrician; but the fetal mortality is great (40 per cent. in the cases reported by Tarnier, with a conjugate between 6.6 cm. and 8.8 cm.); and of these children born before the ninth month few survive the first year unless well cared for and favorably situated.

Craniotomy gives a mortality of perhaps 5 per cent.; Cæsarean section 14 to 20 per cent.; and symphyseotomy, at the utmost, not over 11 per cent.—we may say, from 2 to 11 per cent.

The safety or danger of an operation is a patent argument for or against; and since symphyseotomy and the relative Cæsarean section, as now advocated, apply to the same moderate disproportion between fetal head and maternal pelvis, to a similar class of cases, it may be well to note the relative mortality of these operations more carefully.

MORTALITY OF SYMPHYSEOTOMY.

	Maternal.	Fetal.
1777-1808	34%	72%
1858-1866	20	18
1887-1893, collected by Morissani	11.6	12
	Expunged, 0.8	..
1893, in Germany, 1 in 37	2.7	..
To 1893, in America	18	29
Since 1893, in America	13	..
	Expunged, 2	..
During 1894, in United States, 44 cases	13.5	27
1894, Farabœuf, Paris	2	..
In 1895, New York, 21 cases	9	14
In 1895, Italy, 53 cases	4	5
In 1895, Pinard, 44	2+	..
In 1895, total, 303 cases from all countries, Harris	11	..
Zweifel, 25 cases	0	8

¹ Read before the Obstetrical Society of Boston, February 16, 1897

MORTALITY OF CÆSAREAN SECTION.

	Maternal.	Fetal.
In Vienna Hospital first 100 years	100%	..
In Paris during first 80 years	100	..
In Europe to 1868	46	..
In America to 1868	60	..
In America 1875-1885 (Harris), 33 cases	74	54%
In America 1882-1885 (Harris), 10 cases	90	80
In 1894, 44 cases in United States, Harris	27.5	..
In 1894, 40 cases in United States, Haven	22.5	..
Expunged,	9.0	..
Leopold	15 to 20	..
Singer	14	..

The lowest mortality of Cæsarean section is 14 per cent.; and that by only one operator, Sänger, in a small series of cases about equal in number to the symphyseotomies reported by Zweifel without a single death; even the mortality of the 303 cases collected by Harris, a total from all countries in 1895, is only 11 per cent.

Such are the results, as they have been obtained in cases taken as they come, one and all, not selected, none expunged, very much more favorable for mother and child than similarly collected Cæsarean sections and more favorable even than small series by expert operators; whilst those facts have but a very relative value, we cannot entirely ignore them.

The operation is decidedly less dangerous than Cæsarean section, and at least equally safe and more certain than forceps or version in the shorter sacro-pubic diameters. It is hardly more serious than premature labor in a pelvis from 7 cm. to 8.5 cm., and far more promising for the child.

Yet we are loth to adopt symphyseotomy, especially as compared to the relative Cæsarean section: it is not so brilliant and impressive an operation and does not appeal to the surgeon of to-day as so strictly surgical. But we must accept that procedure which promises the greatest benefit to our patient with least danger to herself and child. Then we must consider, not alone the great centres, the hospitals, but the country at large; and pubic section is of far more general usefulness, as it is not confined to such an extent as the Cæsarean to the surgical teacher or to the hospital and its trained staff. In fact, the first successful operation in this country, followed by others at a later day, was performed by a young practitioner in Texas.²

Symphyseotomy is eminently adapted to the more trying conditions met with in everyday practice, successful especially as an operation of necessity after forceps have been tried and have failed, when Cæsarean section is very unpromising. Whatever experience may henceforth teach or our preference dictate, with *moderate disproportion between head and pelvis*, not over 2 cm. with pelvic contraction not below 7 cm. (2¾ inches), pubic section is to be considered and is our only resource after an unsuccessful trial of forceps if the child is to be saved, replacing the brutal craniotomy of former days; and for the present we must accept such failure of forceps with moderate disproportion of head and pelvis as an absolute indication for symphyseotomy, for which we should always be prepared in the lesser degrees of pelvic contraction.

A REUTER'S telegram from Cape Town, dated June 16th, states that satisfactory experiments have been made with a new method of inoculation discovered by Dr. Edington.

Clinical Department.

A CASE OF CÆSAREAN SECTION.¹

BY EDWARD REYNOLDS, M.D.

MRS. P., thirty-two years old, married, a native of Cambridge, was brought to me when about six months advanced in her third pregnancy, by Dr. L. E. Morgan. Her first labor, which occurred in 1886, was under the charge of Dr. Nichols, of Cambridge, who, with the assistance of Dr. Driver, succeeded in safely delivering her; but only after a prolonged and difficult forceps operation, and at the sacrifice of the life of the child and the integrity of the soft parts of the mother. Her second pregnancy, a year later, was again under the charge of Dr. Nichols, and was wisely terminated by the induction of labor at eight months. Even at this period, however, forceps were again necessary, and a living child was extracted only after a prolonged and difficult operation.

Nearly ten years had elapsed without pregnancy, when the patient finding herself again in this condition, placed herself in Dr. Morgan's hands, told him her history, and informed him that her former attendants had advised her never to go beyond seven months. Dr. Morgan communicated personally with both Dr. Nichols and Dr. Driver, and was emphatically advised by both of them not to undertake a labor at eight months.

Dr. Morgan and I measured the pelvis together, at about six months, with the following results: Distance between anterior superior spines of the ilium 22½ cm. (9 in.); distance between crests of ilium, 26 cm. (10¼ in.); external conjugate, 20 cm. (8 in.) diagonal conjugate 4 in.; true conjugate, by estimation, 3½ in. or perhaps a little less; form of deformity, justo-minor. We agreed to see the patient together at intervals of a fortnight and decide upon the course to be pursued in accordance with the development of the child. At seven months the child was small, and the head evidently bore no relation to the size of the pelvic brim, being easily moved from side to side when pressed into the brim by pressure from above. We then told the patient that an induction at that time would probably result in the loss of the child and was unnecessary for her own sake. Both she and her husband stated that they estimated the life of the mother at so much higher value than that of the fetus that they were unwilling to consider the latter in comparison with the slightest increase of risk for the mother; and they consequently consented very unwillingly to a further prolongation of the pregnancy. I now saw the patient at weekly intervals, but even at eight months the child was very small, and entered the brim on pressure from above so extremely easily, that I was unwilling to admit that the time for an induction had come; but recognizing the ease with which one may be mistaken in the size of the child *in utero*, I was unwilling, in view of the history of the preceding labors, to attempt an intrapelvic labor at a period later than eight months. I therefore recommended the Cæsarean section at term, on the ground that it was the safest thing for the child; and upon the whole, safer for the mother than an induction of labor at any latter period, with the chance that this might be followed by a difficult forceps operation. The patient being thoroughly unwilling to accept this decision, I

² Dr. Williams, of Denison, Tex., in 1880 (Harris).¹ Read before the Obstetrical Society of Boston, February 16, 1897.

advised her to see some other obstetrician and obtain his advice, without telling him what mine had been. Mrs. P. accordingly consulted Dr. George Haven, who gave her the same advice. This joint decision was accepted by the patient and her last catamenia having occurred on the 5th of December, the date for the operation was set for September 10th, unless labor should occur earlier.

This did not happen, and the operation was performed shortly after 11 A. M. on that day. The abdomen was opened by an incision about eight inches in length in the median line. The uterus was lifted through the incision, surrounded by towels and the cervix grasped by the hands of an assistant. The uterus was then opened in the median line by an incision about six inches long. The arms and legs presented. The child was extracted by traction on the legs, and cried much more promptly than most Cesarean babies do. The placenta was implanted on the fundus and left lateral wall, its edge just appearing in the wound. The placenta was calcareous and with the membranes was universally adherent to the walls, but owing to the accessibility of the uterus under these circumstances, could be very rapidly dissected off with the fingers. Half a drachm of Squibbs' fluid extract of ergot was given hypodermically. The uterus contracted well. Ten braided silk intermuscular, and six fine silk sero-serous sutures were inserted and tied, after a bit of gauze had been passed into the vagina through the cervix. Fifteen silkworm-gut, and a number of finer coaptation sutures were used in the abdominal wall. The abdominal incision and the delivery of the uterus occupied three minutes; the uterine incision and the delivery of the child, one minute; the delivery of the adherent placenta, two minutes; the total time of operation to this point being six minutes. The uterine suture occupied $8\frac{1}{2}$ m.; the abdominal suture, $20\frac{1}{2}$ m.; total time of operation $40\frac{1}{2}$ m. The recovery from ether was rapid. There was no vomiting and little or no thirst. The temperature for six days ran between 100° and 101° , no explanation of its elevation being found except that the patient was in an extremely nervous state. There were no other symptoms of any kind whatsoever. The patient was kept in bed for three weeks to secure good involution of the abdominal walls, and was discharged in first-rate condition at the end of four weeks. Her baby was a girl, weighing eight pounds and one ounce, was nursed from the start, and reached a weight of one and a quarter pounds above its birth weight during the first four weeks, weighing nine pounds and five ounces on discharge.

I heard the other day that mother and child are both in the best of health.

I report this case as another instance of the elective Cesarean section, and in support of the position which I hold to be the proper one at the present day, that while there is still a field for the induction of labor, the Cesarean section is to be preferred, in the interests of the child, to the induction of labor for contracted pelvis at a period earlier than eight months, and in the interests of both mother and child to an induction at eight months or a later period, under circumstances which render it likely that the induction will be followed by a difficult labor.

There are two other points which I have noticed in every Cesarean section which I have done or seen, and which I mention in connection with this report

only because I have never seen them referred to in any published report of Cesarean cases:

First, I have noticed that the babies when first extracted appear sluggish, and usually require considerable stimulation before they breathe, cry, or move with any activity. It would seem probable that this sluggishness is due to the fact that their intra-uterine life is so suddenly and gently interrupted, and that a certain amount of handling, hot and cold water, and other cutaneous stimulation is needed to replace the disturbing and stimulating effects of the normal passage through the pelvic canal.

Second, it appears to be the rule that there is little or no lochia during convalescence from the Cesarean operation. This I offer simply as an observation, and one which I should be glad to have explained.

CASE OF SYMPHYSEOTOMY.¹

BY E. H. POMEROY, M.D., CALUMET, MICH.

Mrs. C. M., mixed Indian and Canadian French blood, rachitic dwarf, age twenty-one, height four feet, five and a half inches. First pregnancy. Married October, 1895. Last menstruation last week of December, 1895. Labor commenced during the night of November 2, 1896. As this was a case of elective symphyseotomy, I had taken the following pelvic measurements several weeks before: spinous processes, $10\frac{1}{2}$ inches; crests, 10 inches; diameter of Baudelocque, 7 inches; internal diagonal conjugate, $2\frac{3}{4}$ inches; true conjugate (estimated) 2 inches.

Early on the morning of November 3d, in the presence and with the assistance of my associates of the Calumet and Hecla Hospital Staff, Drs. Niles, Simonson, Bobb, Shorts and Rees, I performed symphyseotomy. The patient was first rendered surgically clean, as for a capital operation. I regret that I cannot recall the name of the operator whose directions I followed in separating the symphysis. The principal portion of the operation consisted in a short incision, half an inch in length, directly through the soft parts covering the middle of the anterior aspect of the symphysis; the section with a tenotome of all the symphysis excepting about three-eighths of an inch of the upper portion; then the insertion of a probe-pointed bistoury beneath the soft parts and close to the symphysis, until it could be made to hook over the upper, unsevered portion of the latter, meeting the end of the finger of the left hand, which finger has been thus far held constantly and steadily as a guide and guard against the inner aspect of the symphysis; with this knife the remaining portion of the symphysis was separated. The forceps were then applied and traction made until the pelvic bones separated and the fetus, a large and vigorous male, was delivered. During the delivery, although the ilia were supported strongly by an assistant pressing from each side, the pubic bones separated a distance of fully two and a half inches, and both sacra-iliac articulations gave way with sounds perceptible, if not alarming, to all the physicians present.

The child had the appearance of having grown nearly ten months *in utero*. I regret that no accurate mensuration of the fetus was made. It was weighed by Dr. Bobb, and the weight was slightly more than

¹ Reported, by invitation, before the Obstetrical Society of Boston, February 16, 1897.

twelve pounds (twelve and a half pounds including the cloth in which it was suspended; the subsequent weighing of the cloth made no impression on the small spring-scale used).

A small tear in the perineum was immediately repaired; a warm sublimated intra-uterine douche given; the original incision, as well as a tear half an inch long near the fourchette, dusted with boric acid and iodoform; a voluminous padding of sterilized dressings applied; broad bands of rubber adhesive plaster encircling the pelvis; the knees and ankles padded and bandaged to their fellows, and a broad obstetric binder applied. The bandage of adhesive plaster was soon found to be inefficient to hold the pelvic bones in proper position, and a belt of surcingle web, with strap and buckle, was added, and found to retain the bones in position admirably.

These dressings, and the horizontal position, were insisted upon for three weeks, although lying on either side was allowed. Recovery was uneventful, excepting for an occasional rise of temperature, which would yield immediately on the use of a boiled-water or mild sublimate douche.

At the end of three weeks, firm union was found to have taken place at both sacro-iliac junctures and at the pubic symphysis. The patient has been wholly free from restraint since the fourth week (present writing March 11, 1897); lactation has been free and normal from the beginning; and the child is a typical specimen of vigorous health.

This is the only case of symphyseotomy I have ever seen. The only Cæsarean section I ever saw was before the era of asepsis. The results of my symphyseotomy have been very pleasing. The union of the pelvic bones remains firm and strong. The patient leads a laborious life as a miner's housewife, walks long distances in deep snow, apparently without fatigue, and expects to raise a large family of children.

Cæsarean section, however, as described in the report of Dr. Reynolds's case, and in Dr. Worcester's approved comments, is a better surgical operation, cleaner, simpler, gentler; and listening to the report certainly gives me a more pleasing impression than I ever experienced from my own case of symphyseotomy, although I believe the record of statistics to be more in favor of symphyseotomy. In due time I expect to attend my patient in a second delivery, which I purpose shall be a Cæsarean section, and in a third which shall be an elective operation, based upon the experience of the first and second.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, February 16, 1897, the President, DR. FRANCIS H. DAVENPORT, in the chair.

DR. EDW. REYNOLDS reported

A CASE OF CÆSAREAN SECTION.¹

DR. G. J. ENGELMANN offered

REMARKS ON SYMPHYSEOTOMY.²

DR. E. H. POMEROY of Calumet, Mich., reported

A CASE OF SYMPHYSEOTOMY.³

DR. J. P. REYNOLDS referred to the importance, in collecting statistics of the two operations, of comparing only those that are done by experts. It is manifestly unfair to compare the operation of symphyseotomy, for example, performed by an expert, with Cæsarean section done by a general practitioner.

DR. A. WORCESTER said that as a general practitioner he felt strongly the ease with which Cæsarean section could be done, as compared with symphyseotomy. He believed that the latter operation required more surgical skill to avoid complications.

In our statistics all deaths from septicemia, which are avoidable, should be thrown out.

DR. E. REYNOLDS, in closing, said that the keynote was struck by Dr. Engelmann when he said that symphyseotomy did not compete with Cæsarean section at the time of election, but that it was the operation to be used at the latter part of a long labor, where the patient was exhausted and the soft parts lacerated. In these cases Cæsarean section often proved very fatal.

He would agree with Dr. Worcester that Cæsarean section was the simpler operation for the inexperienced surgeon, but this operation should never be done by the man who did not appreciate thoroughly the meaning of asepsis. For the dirty-fingered man craniotomy was the only operation.

He mentioned two observations he had made in his experience with Cæsarean section. One was that if the operation was done before the onset of labor, the cervix would dilate and stay dilated on the removal of the child. This overthrew the bugbear that one could not get good drainage unless labor had started up. The other observation was that the lochia were of very small amount and duration after Cæsarean section.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

ELEVENTH ANNUAL MEETING, WASHINGTON, D. C.,
May 4-6, 1897.

FRANCIS S. WATSON, M.D., President, occupied the chair.

FIRST DAY. — TUESDAY.

REPORT OF POST-MORTEM EXAMINATIONS IN SOME CASES OF MOVABLE KIDNEY.

DR. FRANCIS S. WATSON, of Boston, read a paper on this subject. It consisted of a report of the post-mortem findings in eight cases of movable kidney. Four of these subjects were females, four males. In four of them both kidneys were movable; the right kidney alone was movable in three cases; the left kidney alone in one case. The perinephritic fat was greatly diminished in five cases and slightly diminished in two; it was not noted in one. Hydro-nephrosis was absent in all of the cases. There was ptosis of one or more of the other abdominal organs in six cases; none in two. The peritoneal coverings of the kidney were greatly relaxed in four cases; in four they were moderately relaxed. In two of the first four cases, those in which the peritoneum was greatly

¹ See page 35 of the Journal.

² See page 34 of the Journal.

³ See page 36 of the Journal.

relaxed, the kidney rotated upon its long or short axis upon turning the body on the side opposite to that of the mobile kidney or raising it to an upright position and then bending it far forward. In two others of this group these movements of the organ were prevented by the presence of a number of transverse bands of peritoneum which occurred at short intervals, and which were all that restrained it. In none of them was there any evidence of dilatation of the pelvis or the calices of the kidney, or of any organic change that could be referred to the presence of a hydronephrosis during life; and this was as true of those in which the condition was of long standing, and the motility very marked as in the others. This fact, Dr. Watson said, he had also observed in five other cases in the living subject on whom he had performed nephrorrhaphy. His observations in these 13 cases confirmed the view recently expressed by Albarran, that at least in the earlier stages of movable kidney the enlargement of the organ so often noticed in connection with the crises is due to acute congestion rather than to retention of urine in the renal pelvis and subsequent dilatation.

CLINICAL OBSERVATIONS ON LOOSE AND DISPLACED KIDNEY,

by DR. JOHN P. BRYSON, of St. Louis.

These observations, the speaker said, had been made in the course of operative work in this field. The real pathological entity in the condition of loose or displaced kidney, in his opinion, was a disturbance in the fatty capsule: whether or not this was accompanied by a more or less general enteroptosis he could not say. There exists, so far as he had been able to observe, first, a loosening of the capsule, which allows the kidney to move about within it; second, the capsule itself may become loosened from its posterior and superior attachments in such a way as to slip about with the kidney; third, these abnormal conditions may be combined in a greater or lesser degree.

He had noticed as a common occurrence that the pain in the neighborhood of the kidney was in inverse proportion to the amount of motility of the organ in the earlier stages. He reported a case of movable kidney on the right side, accompanied by marked gastric disturbance. The latter symptom he had never observed in connection with disturbance of the left kidney, whether due to calculus or other cause, while with disturbance of the right kidney vomiting was very common. This fact, to his mind, suggested some anatomical connection between the right kidney and the pneumogastric nerve. The speaker said that so far as he had observed, a good deal of the pain and distress which accompanies these cases of loose kidney is due to the relative looseness and length of the vascular pedicle.

DR. J. WILLIAM WHITE, of Philadelphia, referred to the relative frequency of movable kidney in women. Among the etiological factors of the condition he mentioned pregnancy, tight lacing and a disappearance of the fat due to some exhausting disease. In the production of the symptoms, hysteria or the neurotic element possibly played some part. The gastro-intestinal symptoms which accompany right movable kidney, he thought, were explicable on mechanical grounds, and were due to disturbance of the duodenum by the displaced kidney.

DR. EDWIN C. BURNETT, of St. Louis, said he had

observed a case of renal calculus on the left side in which vomiting occurred after the crisis.

DR. EDWARD MARTIN, of Philadelphia, said that recent anatomical researches help to explain why the kidney maintains its position. Cross-sections show that the organ is, to a certain extent, shelved, together with its fatty capsule.

DR. EUGENE FULLER, of New York, said that in some cases of painful kidney, simply disturbing the capsule seems to effect a cure. He thought many kidneys were movable with reference to the outer layer of the fatty capsule, no matter whether the kidney itself is movable or not; they are not true movable kidneys.

DR. JAMES BELL, of Montreal, said he was particularly interested in the fact that hydronephrosis is comparatively infrequent in movable kidney. He had only observed two cases where this was a marked complication.

DR. JAMES P. TUTTLE, of New York, mentioned an observation made by Dr. Janeway, that the more movable the kidney the less severe the renal symptoms, while the gastro-intestinal symptoms seem to be correspondingly increased.

DR. BRANSFORD LEWIS, of St. Louis, referred to a case of pyelitis of the left kidney where after each crisis the patient suffers from intense nausea — sometimes vomiting.

SOME OBSERVATIONS UPON THE SURGICAL ANATOMY OF THE KIDNEY.

DR. GEORGE E. BREWER, of New York, read a paper with this title. It was based upon numerous examinations made during the past summer to determine the frequency, causation, symptomatology and treatment of movable kidney. The total number of cases examined was 351. Of these 200 were clinical and 151 were post-mortem examinations. Of the 200 clinical examinations, 142 were males and 56 females. The total number of displaced kidneys found in the 200 clinical examinations, was 11, or 5.5 per cent., of these, nine were reported as palpable, one movable and one floating. In the 142 males, displacement of the kidney was found but twice; in both instances it was the right kidney, and was recorded as palpable. The percentage, therefore, of displaced kidney found in the males examined was 1.4 per cent. In the 56 females examined, displacement of the kidney was noted in nine instances, or 17.3 per cent., of these, seven, or 12 per cent., were recorded as palpable; one, or 1.7 per cent., as movable, and one, or 1.7 per cent., as floating; all occurred upon the right side. Of the eleven patients in whom movable kidney was found, only one complained of symptoms which could be attributed to the displaced kidney, and that was a case of floating kidney in a very hysterical female.

Regarding the accuracy of these observations, Dr. Brewer said that in every case recorded as palpable, movable or floating kidney, he firmly believed that the kidney was felt; that a number of displaced kidneys may have escaped detection he regarded as highly probable, as in many instances, owing to the rigidity of the abdominal muscles, or an excessive deposit of fat, it was utterly impossible to approximate the two examining hands sufficiently to appreciate the presence of an organ of the size of an ordinary kidney, and the only sensation conveyed to the fingers was a purely negative one.

Post-mortem Examinations. — Total number of subjects examined, 151. Of these, 91 were males, 56 females, and in four the sex was not recorded. The upper border of the right kidney was found opposite the eleventh rib in 78 cases. The upper border of the right kidney was found opposite the twelfth rib in 62 cases; in eight cases it was found one inch below the twelfth rib, and in one case one-half inch below the twelfth rib. The upper border of the left kidney was found opposite the eleventh rib in 100 cases, and opposite the twelfth rib in 43 cases; in one case it was found opposite the tenth rib, and in the five remaining cases it was found from one-half to one inch below the twelfth rib. One right kidney had been removed; and in one case the left kidney was congenitally absent.

If we consider all kidneys occupying a position below the free border of ribs as pathological, the number of displaced kidneys found upon post-mortem examinations of the 151 subjects was 14, or 9.2 per cent.; 10 of these occurred in males and four in females. Of the 10 occurring in males, six were on the right side and four on the left. Of the three in female subjects, two were on the right and one on the left.

Dr. Brewer said that the number of observations contained in the above record is far too small to enable one to draw any accurate conclusions from their analysis. The fact that the kidney may be firmly fixed in its normal position after death by no means proves that was not freely movable during life.

Before concluding his paper, Dr. Brewer called attention to a number of anatomical anomalies connected with the kidneys which were observed during the course of the post-mortem examinations, and which were of considerable surgical interest. This is especially true of the great variation found in the distribution of the arteries to the kidney; 85 of the kidneys received more than a single arterial trunk; 70 received two arterial trunks from the aorta, 12 received three, two received four, and one received five. Three of the latter were from the aorta, one from the ovarian, and one from the common iliac. Considerable variation was also observed in the arrangement of the renal, supra-renal and spermatic veins. A surprising number of variations in the ureter were also observed.

After concluding his paper, Dr. Brewer exhibited a number of photographs illustrating anatomical anomalies of the kidney.

DR. BANGS said that, while making some observations on the kidney in the dead-house at Bellevue two or three years ago, he came across some of the anomalies mentioned by Dr. Brewer.

DR. SAMUEL ALEXANDER, of New York, mentioned a case where the kidney was found to have an anomalous arterial supply. The condition was encountered during a nephrectomy, and fortunately recognized before any damage was done.

DR. BRYSON said that with some of the malformations of the kidney and ureter mentioned by Dr. Brewer, symptoms might have existed during life which would have proved very misleading.

DR. EDWARD MARTIN said that Dr. Brewer's difficulty in palpating the normal kidney was in accord with his own experience. Both with and without ether he had been unable to make out the kidney excepting in a very small proportion of cases.

DRS. WATSON and BANGS expressed similar views.

RESULTS AFTER NEPHRECTOMY FOR RENAL TUBERCULOSIS.

DR. L. BOLTON BANGS, of New York, said that in order to learn the remote results of nephrectomy for renal tuberculosis, and compare them with the results of hygienic measures, he had collected, from literature and other sources, 112 cases, the majority of which had not been included in any previous report on this subject. His investigations extended back to 1888, when Newman made his report. Since then our methods of diagnosis in these cases have been vastly improved by the aid of the cystoscope and ureteral catheterization. One serious objection encountered was that in a certain number of the cases the remote history could not be ascertained, while in other instances the reports were so vague that no definite conclusions could be drawn.

The mortality from the operation in the 112 cases collected was about 19 per cent.; adding to this those that died within a few months after the operation, we get a mortality of a little over 28 per cent. These figures agree very closely with those of Pollet, who placed the mortality at 29 per cent.; 33 of the 112 cases, that is, about 30 per cent., survived for a period varying from one to eight years after the operation; 33 were reported as "promising"; in 19 there was no remote record of the patient.

The immediate result of nephrectomy for tuberculosis of the kidney, Dr. Bangs concluded, may be regarded as brilliant, and the prognosis as to the future promising, especially if the affection is of brief duration and confined to one kidney.

DR. CHISMORE said he favored the hygienic treatment of renal tuberculosis in preference to the operative.

DR. EUGENE FULLER said that while he agreed with Dr. Chismore, yet there are cases of this affection where the symptoms become unbearable and where an operation must be performed to give relief.

DR. ARTHUR T. CABOT, of Boston, spoke of the possibility of an error of diagnosis in these cases, owing to the close similarity between the smegma and tubercle bacillus. He referred to a case of supposed renal tuberculosis, the tubercle bacilli having been reported as present in the urine, which upon operation proved to be one of stone in the kidney.

DR. BRYSON mentioned a case of renal tuberculosis wherein repeated examinations failed to reveal the presence of the tubercle bacilli in the urine; this was afterwards found to be due to the fact that the ureter from the affected kidney was blocked.

DR. WATSON said he preferred the hygienic to the operative treatment, if the latter could possibly be avoided.

DR. BANGS, in closing the discussion, said that in the histories of the cases included in his report, frequent references were made to the smegma bacillus, and in some instances the diagnosis had been confirmed by cultures. In many of them the condition of the kidney was clearly tuberculous.

DETECTION OF STONE IN THE KIDNEY.

DR. EDWARD MARTIN, of Philadelphia, read a paper on this subject. He stated that in making the diagnosis of kidney calculus, the following points should be considered: family history; age and environment;

traumatism; diathesis; kidney lesions, whether obstructive or otherwise; the presence in the urine of mucus, blood, crystalline deposits, pus, epithelium or albumin; alternations in the quantity and specific gravity of the urine; pain; tenderness on deep palpation; tumor; gastro-intestinal disturbance; reflex disturbances of the lower urinary tract; palpation; ureteral examination; x-rays.

After reviewing in detail the symptoms and signs above enumerated, Dr. Martin said he should place in the order of value:

(1) X-ray photographs; of these, several should be taken, with the light placed somewhat differently, before their negative evidence is accepted.

(2) The passage of gravel or small concretions, associated with renal hematuria, fixed pain and colic.

(3) Renal hematuria, aggravated by exercise, markedly relieved by rest, remaining long unassociated with pyuria.

After concluding his paper, Dr. Martin exhibited a number of negatives of x-ray photographs, one of which quite distinctly showed the presence of a stone in the kidney.

DR. BANGS said the diagnosis of kidney stone was sometimes very obscure, and any new method to aid us should be warmly welcomed. Thus far he had not had very satisfactory results from the use of the x-rays. Mere puncture of the kidney in cases of suspected stone is not always conclusive.

DR. FULLER said the majority of cases of renal calculus which give rise to marked symptoms are those where the stone is small, but too large to enter the ureter, and in such instances he did not think the x-rays would prove of much service.

DR. BRYSON agreed with Dr. Fuller, that the small calculi are the ones more apt to cause trouble.

DR. CHISMORE advised flushing out the kidney in order to remove small particles of stone.

DR. CABOT mentioned a case where the entire kidney pelvis was found to be filled with a gravelly mass made up of triple phosphate crystals and held together by tenacious muco-pus. In that case four attempts had been made to get a photograph by means of the x-rays, but the results were negative.

DR. BRANSFORD LEWIS, of St. Louis, exhibited

A MODIFIED SCROTAL RESECTION CLAMP.

DR. PAUL THORNDIKE, of Boston, reported

A CASE OF CYSTIN CALCULUS IN THE MALE BLADDER.

The calculus weighed three and one-half grains. The case was of interest because of the rarity of this kind of stone, and because of the fact that it was only after repeated examinations that cystin crystals were found in the urine. The urine usually had a very disagreeable odor, due to the evolution of sulphuretted hydrogen gas.

(To be continued.)

THE CONSUMPTION OF TOBACCO. — The annual consumption of tobacco in Holland is a little over 7 pounds a head; in the United States, 4.5 pounds; in Austria, 3.8 pounds; Denmark, 3.7 pounds; Switzerland, 3.3 pounds; Belgium, 3.2 pounds; Germany, 3 pounds; Sweden and Norway, each 2.3 pounds; France, 2.1 pounds; England, a little under 2 pounds; Italy, Russia, Spain, 1.25 pounds. It is estimated that 2,000,000,000 pounds weight are used annually, of a money value of more than \$2,500,000,000.

AMERICAN MEDICAL ASSOCIATION.

ABSTRACT OF THE PROCEEDINGS OF THE SECTION ON PRACTICE OF MEDICINE, PHILADELPHIA, JUNE 1-4, 1897.

(Concluded from No. 1, p. 18.)

THE papers presented by DR. DE SCHWEINITZ, of the Department of Agriculture at Washington, on

TUBERCULOSIS, ANTITOXIN AND ANTITUBERCULIN, which DR. MCFARLAND read, were brief. The latter's experiments with small animals by inoculation were interesting.

HOW TO TREAT TUBERCULOSIS.

DR. D. L. ROCHESTER, of Buffalo, made a report on this subject. After referring to a number of cases he had treated for tuberculosis, and the success or failure attendant, Dr. Rochester laid great stress upon the importance of properly conducted exercise in the treatment of pulmonary tuberculosis. Without exercise and fresh air all efforts come to naught, regardless of whatever specific medication is used, he declared. The treatment of special symptoms was thus advised:

Cough. — Generally best relieved by attention to the upper air-passages, keeping them free from secretion. The constant inhalation of essence of peppermint through a perforated zinc mask was especially valuable.

Pain in the Chest was best relieved by strapping the chest, or by hypodermic injection of morphine.

Fever. — Best controlled by the uclein administration. Spousing with alcohol and water is often of great value.

Sweating. — This generally disappears during the treatment with uclein. Atropine and aromatic sulphuric acid still remain at the head of the list of drugs useful in controlling this distressing symptom.

A further report on

THE TREATMENT OF TUBERCULOSIS BY IODOFORM INUNCTIONS

was made by DR. L. F. FLICK, of Philadelphia.

He had met with only varying success. In discussing the disease Dr. Flick expressed the opinion that the profession were too prone to speak of cases of tuberculosis as being cured, when in fact they were only improved. In many cases the disease reappeared after a long interval.

DR. S. SOLIS COHEN, of Philadelphia, coincided in many points with the author of the paper. Before the Section adjourned to attend the general session, Dr. Cohen exhibited an apparatus for the inhalation of compressed air and exhalation into rarefied air, used in cases of tuberculosis and other diseases of the lungs.

CURABILITY OF PULMONARY TUBERCULOSIS

was presented in a paper read by DR. E. B. BORLAND, of Pittsburg.

Evidence has been accumulating which shows that tuberculosis is not only a universal, but the universal disease, said he. Post-mortem examinations made in recent years point to the probability that 25 per cent. is much too low an estimate of the total number of infections. Schlenker made 100 consecutive post-mortem examinations of children and adults for this purpose, and found 66 per cent. tuberculous. Turn-

ing to pulmonary tuberculosis, Babes found lesions of the bronchial gland in more than one-half of his post-mortems on children. Long before Koch discovered the tubercle bacillus, Louis laid down the rule, that, if tuberculosis was found in any part of the body, it would be found in the lungs.

It will be a moderate estimate to say that nearly 50 per cent. of the human race are infected at some period of life with tuberculosis. Large as is the death-rate, the tubercle bacillus does not seem to be a markedly virulent germ. Without the addition of septic germs pulmonary tuberculosis would not be the fatal disease it is to-day. The vile habit which American people have of expectorating on floors and sidewalks has much to do with the transmission of septic germs, as well as tubercle bacilli, to the lungs.

Nature can wall up tubercle bacilli with bodies of leucocytes and connective-tissue cells for life, but cannot imprison septic germs for any great length of time. Tuberculosis uncomplicated with sepsis may be considered a curable disease, in the sense that it may be held in abeyance, that is, kept in a latent condition, for a lifetime, providing the vital resistance of the individual is kept up to the normal standard. Nature has been known to completely eradicate it in a limited number of cases. The scientific physician will endeavor to imitate nature so far as he can interpret her methods.

The question arises, Can tuberculosis be cured to all intents in its latent stage? It has been demonstrated that two-thirds of all infectious diseases either disappear or remain quiescent during an average life. If nature can accomplish so much under the reign of empirical medicine, what will she be able to do when the physician concentrates all his energy on building up and maintaining the vital resistance of cell life, and keeping septic germs away from the latent life. The author has nothing to offer on the curability of the ulcerative stage, that is to say, the well-developed mixed infection. Perhaps less than three per cent. throw off both infections and fully recover. In probably 20 per cent. the disease becomes quiescent, and remains so for a number of years, and is then lighted up again. The average life of the remaining 77 per cent. may be placed at two years. The posting and enforcing the placard: "Gentlemen *will* not, others who do not class themselves under the title *must* not, expectorate on floors and sidewalks," would do more to improve the prognosis of either stage of pulmonary tuberculosis than all the toxin or antitoxin treatments of the last decade.

A general discussion on tuberculosis followed, which was opened by DR. CHARLES DENISON, of Deuver, Col. He was hopeful that in the future a specific would be discovered which would be effective in the cure of this dread disease. Others who participated in the general discussion were DRs. HERRICK, KLEBS, ROCHESTER, PAQUIN and FLICK. Several thought an absolute cure absolutely impossible.

DR. WOODS HUTCHINSON, of Buffalo, spoke of deformities of the chest in the light of ancestry and development. He placed all chests in two classes. Chests of animals as well as humans were represented by illustration with explanatory remarks.

THE TREATMENT OF CROUPOUS PNEUMONIA,

was the subject of a paper by DR. D. S. CAMPBELL, of Detroit.

Cold applications were regarded by the speaker as extremely effective. Their use had enabled him to save many lives in private and hospital practice.

DR. J. EICHBERG, of Cincinnati, O., read a paper on THE HOT BATH IN THE TREATMENT OF PNEUMONIA.

As practised in the hospitals of that city the temperature of the hot baths is generally 100°. The patient is wrapped in a warm blanket after emerging from the bath, and kept there for a period of half an hour before the body is subjected to a vigorous rubbing. The most powerful argument in favor of the bath was the fact that patients at first averse to taking the bath soon expressed a desire for its repetition, even before the proper time for giving the bath had arrived. The case of a butcher who had suffered for twenty-one days was mentioned. In that interval he was given 137 hot baths, and finally recovered.

DR. N. S. DAVIS, JR., of Chicago, read a paper on CHEYNE-STOKES RESPIRATION.

The session adjourned after a brief discussion following the reading of a paper by DR. ALLYN on

MULTIPLE NEURITIS IN INFLUENZA.

FOURTH DAY. — FRIDAY.

The following resolution was offered and adopted:

Resolved, That Professor Welch, of Baltimore, and others who took part in the discussion on Sero-Diagnosis, be appointed a committee to draw up a brief statement of the consensus of opinion arrived at through this discussion, this statement to be published in the journal of the Association in connection with the report of the discussion.

The other members of the committee are Dr. Wyatt Johnston, of Montreal; Drs. Cabot and Richardson, of Boston; Dr. Black, Baltimore; Dr. Biggs, New York; Drs. Kneass, Swan and Musser, Philadelphia; Dr. N. S. Davis, Jr., Chicago, and Dr. Ohlmacher, Cleveland.

An extended discussion on

GOUT

ensued, in which a dozen physicians were announced to participate.

DR. WOODS HUTCHINSON, of Buffalo, opened the discussion. He spoke extemporaneously. A strict diet, plenty of exercise and abundance of the best tonics obtainable were prescribed by the speaker as the remedy for this ailment.

DR. CHARLES STOCKTON, of Buffalo, presented a paper on the "Gastro-Intestinal and Hepatic Relations and Manifestations of Gout." Murchison and Sir Dyce Duckworth, among other students of the subject, he said, had associated the excessive formation of uric acid and the development of gonty attacks with disturbances of the liver. Under the name of lithemia, or latent gout, Murchison described a set of symptoms very commonly met with in this country. Among the conspicuous symptoms are the appearance of uric acid, urates and calcium oxalate crystals. These cases of lithemia show evidence of disturbed primary digestion, headache, lassitude, malaise.

Let us return to the question propounded, continued the speaker, Is lithemia gout, or is it the expression of a toxemia resulting from habitual disorder of the digestive organs, including the liver? From experience the conclusion has been forced upon me that the great majority of instances of so-called lithemia are,

in fact, cases of toxemia in no true sense gouty in nature. In conclusion, I would say:

(1) That gout is a definite disease, to which certain individuals are predisposed, but which depends for its development upon causes largely unknown.

(2) Laziness and full nitrogenous diet and the use of fermented liquors predispose to the disease.

(3) So-called lithemia, as the term is popularly applied, is not gout, but it is an auto-intoxication, depending upon gastro-intestinal derangements.

(4) The diet in gout should be largely free from nitrogenous substances.

(5) The diet in lithemia must be ascertained by a careful study of the primary digestion and the general health of the patient.

Further papers on Gout were read by Dr. T. B. FUTCHER, of Baltimore, and Dr. CHAS. A. OLIVER and F. S. PEARCE, of Philadelphia. The general discussion of the topic was abbreviated by the absence of quite a number of the speakers announced.

Dr. H. C. WOOD, of Philadelphia, declared that the treatment for the disease was not so necessary as the treatment of the individual. He advocated a meat diet generally.

There was considerable applause when Dr. Wood said that the bicycle was the greatest antilithic in the world. If there was any cure for gout, exercise would come nearer effecting it than anything else.

Every man who has had a gouty grandfather, said he, should take a Turkish bath at least once a week. You can't wipe out ancestral traces any other way.

The discussion of

ANEMIA,

scheduled for Thursday, and made a special topic for yesterday, was begun at noon.

Owing to the illness of Dr. Stengel, Dr. A. E. TAYLOR opened the subject assigned to Dr. Stengel. "The Nature and Varieties of Anemia." Dr. Taylor also read a paper prepared by himself, on "The Alterations in the Blood and the Methods of Determination."

The other contributors to the subject were Drs. S. M. HAMILL, D. L. EDSALL and W. CAMPBELL POSEY.

An adjournment was taken at one o'clock to enable the Section to attend the luncheon at the Aldine, tendered by the Philadelphia Medical Club.

Three papers by Dr. D. D. STEWART were read by title.

Papers were also presented by Drs. EINHORN, of New York; WILLIAMS, of Buffalo, and Dr. JAMES TYSON.

The proceedings of the session of the afternoon proper were exceedingly brief.

THE TREATMENT OF CARCINOMA BY A NEW METHOD, was discussed by Dr. G. B. MASSEY.

Dr. J. D. STEELE described his

METHODS OF TREATING A CASE OF PRIMARY RENAL TUBERCULOSIS.

Dr. MATTHEW WOOD's experiences in

TREATING EPILEPSY BY THE NIEMEYER METHOD were interesting.

The Section adjourned *sine die* after hearing a paper read by Dr. KLINE, of Washington, D. C., on

MEDICINE AS AN EXACT SCIENCE.

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HAFFKINE'S PLAGUE PROPHYLACTIC FLUID.

Dr. HAFFKINE, in a letter to the *British Medical Journal*, gives an interesting account of the physical characteristics of the plague bacillus, of the method of preparing his prophylactic fluid, and the results from its use.

The plague bacillus may be recognized by its stalactite growth in broth.

Broth richly inoculated with the plague bacillus is placed in a perfectly quiet position. Twenty-four to forty-eight hours after inoculation, the liquid remaining limpid, flakes appear underneath the surface, forming little islands of growth. In the next twenty-four to forty-eight hours the flakes grow down in a long stalactite-like jungle, the liquid always remaining clear. In four to six days the islands of growth get more compact and solidified. If the flask is slightly disturbed, then the islands fall down to the bottom in a sort of snowfall, bringing down the stalactites, the whole growth getting deposited at the bottom. The appearance of the islands of growth underneath the surface is accompanied or preceded by the deposition of a residue on the sloped walls of the flask and at the bottom, as well as by the appearance of a ring round the surface of the liquid.

Characteristic also of the bacilli are its involution forms on agar-agar. The medium is not to contain glycerine, and is not to be freshly prepared, but must be partly desiccated, and have the surface perfectly dry, showing a good alkaline reaction. The germs are to be inoculated abundantly, and preferably spread over the whole surface of the agar in a continuous layer.

Rarely in twenty-four hours, as a rule, in three to four days, the individual microbes begin to swell up, and form large round or oval bodies, staining in the beginning well, afterwards showing colorless central regions, which extend gradually to the peripheral parts. The bacilli become unrecognizable, lose the

appearance of schizomycetic microbes, and acquire that of a yeast cell or alga. The swelling continues often to the extent of forming a body about twenty times larger in surface than the original bacillus. The power of staining is afterwards lost completely, and the remains of the microbe appear in the shape of an unrecognizable dusty spot.

These forms are not to be seen in liquid cultures, but I have discovered and demonstrated them in the tissues of inoculated rabbits. Their appearance in the tissues suggests at first the idea of modified blood corpuscles, or disintegrated tissue cells, or stained drops of albumin.

In planning for the preparation of his prophylactic fluid Haffkine was guided by the consideration that his cholera inoculation, which is made with the bodies of Koch's bacilli, reduces the susceptibility and absolute mortality of the disease, but not the case mortality. This result is believed to be due to the fact that it has a bactericidal and not an antitoxic action. Considering the possibility that the bactericidal properties resided in the bodies of bacilli, and the antitoxic power in the substances produced by them in the media in which they grow, Haffkine undertook to prepare a fluid containing both the bodies of the bacteria and the toxins.

Luxurious growths of plague bacilli are cultivated by adding to the nutritive media large amounts of fat exposed to free aëration. Clarified butter is suspended in the flasks of nutrient media, and successive crops of the bacilli having been grown, the liquid is shaken, by which a milky-white emulsion is produced, and then the bacilli are killed by exposure of the fluid to a temperature of 70° C. for an hour. In a quiet position in test-tubes two different substances are then obtained: a thick, white sediment and a perfectly limpid fluid. Injected subcutaneously into animals they produce: (1) the sediment, a local inflammation and a nodule at the seat of inoculation, accompanied with little fever or general effect; and (2) the fluid, a considerable rise of temperature and a general affection, with no noticeable local effects.

Inoculations with the mixed sediment and fluid were begun on January 30th at a house of correction in Byculla, Bombay, where plague had appeared among the prisoners, and continued until the epidemic ended on February 7th. The results may be summed up as follows: Total occurrences from the first day after inoculation till the end of epidemic—12 cases, 6 fatal, in an average daily strength of 173 non-inoculated; 2 cases, none fatal, in an average daily strength of 148 inoculated.

"If repeated observations in similarly precise conditions," writes Haffkine, "confirm the results in the Byculla Goal, the plague prophylactic will appear to influence the disease in men in a very advanced stage of incubation, the period of the latter being in plague apparently between two and seven days, whereas the prophylactic will appear to act in some twelve to fourteen hours, arresting or mitigating the disease in individuals infected several days before. The rapidity of its effect would recall the immunity produced

in a few hours in animals by injection of non-fatal doses of comma bacilli into the peritoneal cavity.

"Between January 10, and May 6, 1897, 11,362 individuals from the infected areas have been inoculated by the above process with the following occurrences, which do not include those in the Byculla House of Correction detailed above.

"The fatal occurrences were 12, namely: 3 patients who were already unwell at the time of inoculation; 3 patients who contracted the disease within twelve hours after inoculation; 2 patients who fell ill within three days after inoculation; 4 patients attacked fifteen to twenty-five days after inoculation. The attacks with recoveries numbered 33.

"Figures relating to the general population are not available for an exact comparison with the death-rate from plague in the corresponding classes of non-inoculated persons. A rough estimate, however, would seem to show that the inoculated have suffered to an extent about twenty times smaller than the non-inoculated living under the same conditions and exposed to the same chances of infection."

MEDICAL NOTES.

A MILLIONAIRE IMPRISONED FOR SPITTING IN THE STREET-CARS. — W. B. Bradbury, a wealthy resident of San Francisco, Cal., is reported to have been convicted for the second time of spitting in the street-cars, and sentenced to twenty-seven hours' imprisonment in the county jail.

PHILADELPHIA POLYCLINIC. — Dr. T. B. Schneideman, formerly adjunct professor, has been elected professor of diseases of the eye in the Philadelphia Polyclinic. Dr. G. Hudson Makuen, formerly lecturer, has been elected professor of defects of speech. Dr. C. W. Burr has resigned the professorship of diseases of the mind and nervous system.

AN INTERNATIONAL LEPROSY CONGRESS. — An International Congress on Leprosy is to be held in Berlin on October 11th. The following subjects for discussion are announced: "Pathological Anatomy," to be opened by Virchow; "Bacteriology," by Neisser; "Infectiousness," by Koch; "Etiology," by Besnier; "Diet in Relation to Leprosy," by Hutchinson. Numerous favorable responses have already been received by the committee, and it is believed that the attendance at the conference will be very large and representative of all countries and shades of opinion.

THE QUEEN'S JUBILEE FREE FROM ACCIDENTS. — Very few accidents occurred in London on the day of the Queen's Jubilee Procession, a fact which the *British Medical Journal* attributes to the perfection of the military and police arrangements, the absence of wheeled traffic, and the good humor of the crowd. Abundant ambulance service was provided, but the surgeons found little employment. Out of 47,000 troops only 25 fell out during the day, a fact which speaks well for the physical condition of the men.

PLAGUE AND THE PILGRIMAGE. — Official news from Jeddah confirms the announcement of the outbreak of bubonic plague in that town. The cases

stated to have occurred from June 5th to the 11th appear to have been few, and are said to have shown themselves in pilgrims that had returned from Mecca, and who were natives of Yemen, of Hadramut, of Abyssinia, and of Sudan. Mecca, however, and every other part of the Hedjaz, are stated to be free from plague. The Constantinople Board of Health was convoked on June 9th to propose measures for stamping out the outbreak in Jeddah, and for preventing it from spreading in the Ottoman dominions. The board decreed that cases of plague are to be placed in special isolated ambulances established for the purpose; that the clothing and the bedding of plague patients are to be destroyed by fire; that the houses in which cases of the plague have occurred are to be disinfected with a solution of corrosive sublimate, and whitewashed with lime, and then kept unoccupied for twenty days. A medical commission is to be sent to Jeddah from Constantinople to superintend this work. A sanitary cordon is to be established to prevent communications between Jeddah and Mecca.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, July 7, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 59, scarlet fever 22, measles 61, typhoid fever 3.

HEAT PROSTRATION.—Ten cases of heat prostration, with one death, were reported in Boston on July 5th, and fourteen cases, with three deaths, in New York.

GIFT TO THE SALEM HOSPITAL.—Mrs. W. G. Webb has given \$10,000 to the Salem Hospital to be used for founding a home for convalescents. The gift is in memory of her husband, who died last winter and who was for many years one of the trustees.

THE ADDISON GILBERT HOSPITAL.—The Addison Gilbert Hospital, at Gloucester, Mass., is finished, and has been opened for patients. In 1888 the late Addison Gilbert bequeathed \$100,000 for the establishment of a free hospital in Gloucester, for the poor of the city. The trustees may, however, receive in aid of its maintenance such compensation as patients may be able to pay. Mr. Gilbert also left \$75,000 for a Home for Aged and Indigent Persons. The hospital, which is a substantial and well-equipped building, is provided with an operating-room fitted up according to the requirements of modern aseptic work, an accident-room and a dispensary. The building cost about \$50,000; and the plans contemplate the construction of two wards in the rear, one for men and one for women, which will be built as soon as required. Twelve free beds have been provided for by private subscription.

NEW YORK.

PIER ROOF-GARDENS.—The first of the new pier roof-gardens was recently opened by the Mayor with appropriate ceremonies, and it will doubtless prove a

great boon to the poor. It is located at the foot of Third Street, near a densely crowded tenement-house population, and extends several hundred feet into the East River. As it is entirely covered over, it affords ample opportunity for mothers to bring their children to be in the shade and get the benefit of fresh air from the water. At night the pier is brilliantly lighted with electricity and a band plays for the amusement of the public.

PUBLIC SHOWER-BATHS.—At last the plans for the first permanent public baths have been completed, and the erection of the building will be at once commenced. It is to be located on Rivington Street, east of the Bowery, and will cost about \$70,000. For sanitary reasons it was decided to have no swimming pool, but there will be an abundance of hot and cold shower-baths. There will be accommodations for about two thousand persons a day, and the baths are to be kept open summer and winter. For those desiring to swim ample facilities are afforded by the fifteen free baths of the city located at convenient points along the Hudson and East Rivers, which are open during the summer season.

LEGACIES TO HOSPITALS.—By the will of Mayor Lehman, who died on June 21st, \$15,000 is bequeathed to the Mount Sinai Hospital, \$5,000 to the Montefiore Home for Chronic Invalids, \$3,000 to the Lebanon Hospital, \$2,000 to St. Mark's Hospital, and \$1,000 each to the German Hospital and the New York Orthopedic Hospital and Dispensary.

CENTENARIANS.—Mary Ryan, a native of Cork, Ireland, died in the almshouse hospital on Blackwell's Island on June 29th, at the advanced age of one hundred and five. At least, this is the age given on the death certificate sent to the Board of Health. Samuel Elsey, the oldest man in Erie County, and probably in the State of New York, died in North Evans, near Buffalo, on June 28th. He was born in London, England, November 7, 1790, and was, consequently, one hundred and six years and seven and one-half months old. He was a farmer, and had lived at North Evans for about fifty years.

DEATH OF WILLIAM C. WEY, M.D.—Dr. William C. Wey, one of the most prominent medical men in Western New York, died at his residence in Elmira on June 30th. He was born at Catskill, N. Y., in 1828, and was graduated from the Albany Medical School in 1849. He then removed to Elmira, and passed all his professional life there. For many years he was Health Officer of the city, and also President of the Board of Managers of the New York State Reformatory, located at Elmira. In 1871 he was elected President of the Medical Society of the State of New York.

WEEKLY MORTALITY.—With the advent of hot weather there has naturally been some increase in the mortality of the city. During the week ending June 12th the number of deaths reported reached the excessively low figure of 660. In the week ending June

19th the number of deaths was 711, in the week ending June 26th, 717, and in that ending July 3d, 831, an increase of 114. In the last-named week there were 135 deaths from diarrheal diseases, and the mortality in children under five years of age was 440, against 291 in the week ending June 19th. In the week ending June 26th three deaths were reported from sunstroke, the first of the present season. In the week ending July 3d there were two (2) deaths from this cause. The outbreak of small-pox seems to have been controlled, as there have been no deaths from the disease since the week ending June 19th, when three deaths were reported from it. During that week there were 43 deaths from diphtheria, the largest mortality for some time previous, but since then it has been less fatal, the number of deaths from it in the week ending June 26th being 27, and in the week ending July 3d, 25. The mortality from pulmonary tuberculosis has decreased from 95 to 78, and the deaths from pneumonia continue the same, averaging about 75 a week.

Miscellany.

AN ARMY MEDICAL BOARD

WILL be in session at Washington City, D. C., during October, 1897, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before September 1, 1897, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character, and habits. The candidate must be between twenty-two and twenty-nine years of age, and a graduate from a Regular Medical College, as evidence of which, his Diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning November 1, 1897.

Further information regarding the examinations may be obtained by addressing George M. Sternberg, Surgeon-General U. S. Army, Washington, D. C.

A NEW DISPENSARY ABUSE.

A REPORT comes to us as we are about to go to press (as the *County Weekly* puts it), to the effect that a physician has been dismissed from one of the most fashionable dispensaries in a neighboring city (of course it could not occur in New York) for abstracting a fifty-dollar banknote from the purse of a patient.

The pocketbook was left upon the dispensary desk,

it is said, while the lady entered an adjoining room to prepare for examination. The plea made to the governing board by the physician was that he had been overworked, having treated over four hundred patients at the dispensary during the three days preceding the temptation which caused his fall, and that during this time he had been unable to procure but one full meal. Hunger, and the means at hand to appease it, may have proven too strong a combination for his overwrought nerves, but this naturally did not weigh with the board. The *clientèle* of the institution must be made to feel that while a patron is undergoing treatment his valuables are safe. The argument was used by one of the governors that, if the patients' money is to be taken from them, they might as well go to a physician's office and be done with it.

The crime of robbing a dispensary patient cannot be too severely punished, since such acts would soon deter many persons of wealth from patronizing these institutions. It is therefore most fitting that the culprit in the present instance will be forced to take his chances for the future in private practice.

There is something to be said upon the other side. It seems unwise for applicants to carry with them and display at the dispensary large sums of money, diamonds, and the like. It would surely seem to be in the nature of contributory negligence if in the future applicants for free treatment put temptation in the way of doctors, who after all are only human and often hungry. — *Medical Record*.

Obituary.

SURGEON W. H. H. HUTTON, U. S. M. H. S.

SURGEON-GENERAL WALTER WYMAN, of the United States Marine-Hospital Service, announces the death of Surgeon William Henry Harrison Hutton, of that service, June 14th, at the age of fifty-nine. After serving with distinction, as a volunteer, during the late Civil War, he was appointed assistant surgeon in the Marine-Hospital Service May 8, 1875, and was promoted to the grade of surgeon October 20, 1876. Surgeon Hutton, during his connection with the Marine-Hospital Service, served as commanding officer at the following stations: New York, Cincinnati, New Orleans, Detroit, Louisville, Mobile and Baltimore.

In addition to the above duties he rendered valuable service at Brunswick and Way Cross, Ga., and Camp Perry, Fla., in 1888, in enforcing the quarantine and other measures during the yellow fever epidemic of that year, and again at Brunswick, Ga., during the yellow fever epidemic in 1893. At Camp Perry he installed and was in command of the first detention camp which proved so successful in the management of the epidemic at that time raging in Jacksonville.

He was also placed in charge of the quarantine establishment at Sandy Hook, N. J., during the cholera scare in 1892, and later, in the same year, rendered efficient services in the establishment of the quarantine flotilla at Cape Charles. In 1894 he was detailed to inspect the quarantine stations along the Florida coast, and had temporary charge of the Gulf Quarantine during a part of the same year. For thirty-five years Surgeon Hutton has been serving his country in various capacities in war and pestilence, and always with a conscientious devotion to its interests, and with a zeal worthy of emulation. He was ever ready to obey a summons to duty, and oftentimes was a volunteer when epidemics threatened the country.

In his death the service loses one of its oldest and most efficient officers.

Correspondence.

IN NEISSER'S HOSPITAL.

BRESLAU, June, 1897.

MR. EDITOR:—Professor Neisser's hospital has already been described in your columns by Dr. Charles J. White; and it was through the kindness of his father, Prof. James C. White, that I was enabled to avail myself of its many opportunities. Before coming here, I wondered why the Munich men called Neisser the first teacher in Europe, and why even the Viennese, basking in the sunshine of the great Kaposi's presence, considered him a first-class man. I wonder no longer. It is because of the charming personality of the man. Without underrating his broad attainments and his powers of original research, he owes much of his success in teaching to his ability to interest while he instructs. It is worth one's while to see him in the clinic, surrounded by his students, asking this one to define some particular lesion on a patient's skin, another to observe the localization, then the size, the distribution, the symmetry; until, the puzzle having been put together, bit by bit, the diagnosis rises spontaneously and unconsciously to each one's lips. The teaching is done with all possible accessories. Photographs of chronic cases are taken from time to time, so that improvement or deterioration may be easily seen; wax models are made, and microscopical preparations are shown.

Treatment here embraces all sorts of agents, from the simplest forms of local application to electric baths and the Röntgen rays. To detail them would take too much time and space, and would not, perhaps, be particularly interesting except to the specialist. I think, however, that two diseases, namely, syphilis and gonorrhea, are of sufficient interest to all to warrant a description of the methods employed in this hospital for their relief. In attempting to briefly outline these methods, I shall supplement my own personal observations by quoting freely from one of Professor Neisser's recent articles, and also from late publications of his first assistant, Dr. Schäffer, taking only those points which seem to me important for our purposes.

Professor Neisser not only believes that mercury is the sheet-anchor in the treatment of syphilis, but also that it is the *only* specific. Other agents exist which are good adjuvants; but nothing which has any direct influence on the micro-organisms of the disease. Of the adjuvants, he naturally places the iodides in the first rank, but never accords them a higher place. He allows that in the later ulcerative manifestations, the iodides may cause the rapid disappearance of the apparent lesions, but contends that they never prevent their reappearance. Only mercury can do this. He uses iodide in the early period of the disease, if there be any severe pain, in the tertiary period, and in any stage of "malignant syphilis" in which it may be indicated. The dose rarely exceeds one gramme three times daily. Baths are also considered most important adjuvants. Daily baths not only favorably influence the specific work of the mercury already taken into the body, but also help elimination after the work is done, thus preventing intoxication. Private patients should, if possible, be sent to one of the many bath resorts for several reasons. In the first place, on account of freedom from business and domestic care, then on account of the necessarily regular habits of life, and finally, because of the good to be obtained from the daily bathing. The last reason is by far the most important. As that is, of course, impracticable for poor hospital patients, a substitute is offered them. It is found that sulphur and salt baths are perhaps the most efficacious. Therefore, what is called a "Vlemineckx's bath" is prepared; 150 grammes of Vlemineckx's solution is poured into an ordinary bath-tub, partially filled with water as hot as can be comfortably borne. Care should be taken that the tub be not of metal. When the patient is strong enough to bear it, he is allowed to remain in this bath from thirty minutes to an hour. This is given every other day. On the alternate day, hot air is introduced under the bedclothes for about one half-hour, and the patient remains an

equal length of time tightly covered. When innunctions are used, however, these baths must be omitted, since the daily washing, rubbing and drying would remove from the skin many particles of mercury which ought to be, and which eventually would be, absorbed. Besides, the sulphur would be apt to combine with the surface mercury and form an insoluble salt which could not penetrate into the system. During the progress of innunction, therefore, an ordinary bath only is enjoined once a week.

The mercury is used, when possible, by intra-muscular injection. A Pravaz syringe is used, and the following formulas are principally employed:

R	Calomel	.	.	.	.	.	.	.	.	5 gm.
	Alapurin	.	.	.	.	.	.	.	.	10
	Liq. Paraffin	.	.	.	.	.	.	.	.	35 M.
R	Hg. Thymol	.	.	.	.	.	.	.	.	5
	Alapurin	.	.	.	.	.	.	.	.	10
	Liq. Paraffin	.	.	.	.	.	.	.	.	35 M.
R	Hg. Salicyl	.	.	.	.	.	.	.	.	5
	Alapurin	.	.	.	.	.	.	.	.	10
	Liq. Paraffin	.	.	.	.	.	.	.	.	35 M.

When the alapurin is not used, the proportions of the calomel, hg. thymol or hg. salicyl, would be 3 to 27 of liquid paraffin. The injection is given every four or five days, according to circumstances. The gluteal region is the preferable site. This has been long thought among us a decidedly uncomfortable place to have an abscess, and especially so at meal times, but with proper precautions the danger is not great. At any rate, I have never seen such a complication. The calomel injection is the quickest and most efficacious, but the hardest to bear. Therefore, ordinarily, it is given in one out of every three injections, and the other salts are used the other two times. A five-percent. solution of corrosive sublimate and table salt in distilled water is also used, but, like the calomel, is found somewhat hard to bear. When the injection is not considered proper, or when, as in the polyelnic, the patient is not able to receive it at the stated times, innunction is generally prescribed. It is to be used as follows: first day, on the right arm; second, the left arm; third, the right leg; fourth, the left leg; fifth, the trunk; and on the sixth, suspend treatment entirely, and thoroughly bathe the whole body, scrubbing vigorously with soap, so that the skin may be well prepared to meet the new innunctions which are to be recommended on the seventh day.

The chronic intermittent treatment is used, and every patient should receive six or eight courses in the first three or four years of the disease. These courses consist of energetic and weak treatments with periods of intermission. The energetic treatments last about forty days; the weak ones, about three or four weeks. Neisser contends that each patient should receive one energetic course in each year. During the periods of intermission, the body should be kept in the best possible condition. Naturally, these rules must be amended to meet the individual case. Each patient receives a printed card, giving directions as to care in living (especially useful for out-patients), the precautions that he should take as to public drinking-glasses, towels, etc., as to the cleansing of his teeth (which should be done three times daily with a soft toothbrush, and without wounding the gums), and as to the avoidance of marriage during the first three or four years of the disease, and then only after consulting a physician. He is assured, however, that if he faithfully follows the directions given, he may eventually marry without danger to either wife or children. He is also especially directed that, if he have any other illness, no matter what its nature may be, it is his duty to show the card to his attending physician.

Internal treatment is never (or, at least, I have never seen it) given in the hospital. It is, however, considered in Neisser's articles. In internal treatment, full courses of baths are indicated fully as much as in the handling by injections. In the treatment of private patients, there is no choice as to which of the many bathing resorts they should be sent. Care only is taken, in uncomplicated cases, that there be a competent physician residing in the place. When there is, however, a complication, such as diabetes,

nephritis, or malaria, such resort should be chosen as is best suited for the complicating disease.

Constant search is being made here, clinically, chemically and bacteriologically, for the perfect remedy for gonorrhea, but thus far without full success. A remedy to be effectual in this disease should possess the following properties: (1) It should be able, in proper solutions, to penetrate to the deeper layers of the mucosa, and yet not too strongly irritate and wound the membrane. (2) It should destroy the gonococci. (3) It should not enter into chemical combination with albumin or the mucin bodies, and thus lose its bactericidal properties.

The medicaments which best meet these requirements are, first, the silver salts (argentomin, argonin, argentum nitricum, actrol, itrol); and next hydrag. oxyeyanum and ichtiyol. Argosol is purposely omitted from this list, because it is yet *sub judice*. It is the latest of all the silver salts, and is being tried in the wards and experimented with in the laboratory. So far, it promises exceedingly well. Permanganate of potassium is not used, because it is considered too astringent. Neither are the ordinary astringent media, such as alum, copper and zinc. It is believed that astringents do not penetrate into the deeper layers; that they close up the mouths of the glands and imprison the burrowing gonococci, which should be destroyed and washed out. According to this theory, the copious irrigations of a solution of permanganate of potassium, so frequently used in the anterior urethra, would be of little avail.

Of the silver salts, argonin is the least irritating, but the least penetrating, and is ordinarily used in anterior urethritis, by the patient himself, in a solution of about $\frac{1}{3}$ to 200. Argentomin is the next in strength, and is employed for irrigations of the posterior urethra in solution of 1 to 4,000. Argentum nitricum also for the posterior urethra, in solution of 1 to 3,000-4,000. These three salts are the ones principally employed, together with the hydrag. oxyeyanum 1 to 4,000-6,000. Icthyol is often used in strength of one to five per cent. Modifications of the treatment are necessarily being constantly made. Frequently the irrigations are suspended, for instance, and an instillation is made into the posterior urethra with an Ultzmann's catheter, or a Guyon. In these cases, the strength is increased, as for example, argentum nitricum, one to two per cent., may be used with good effect. Pencils or suppositories may also be considered of benefit. As a rule, argonin, being the least irritating, is the medicament preferred for a new and yet untried patient.

The same reagents are used in the gonorrhea of women, but in a slightly different manner from that to which we are accustomed. The urethra and the cervical canal only are treated. The vagina is kept clean, of course; but it is found that the vaginal pavement epithelium of women of experience offers little chance for the burrowing of gonococci. In the vaginae of children and young maids, however, the membrane is more tender, the epithelium is more generally cylindrical, and there is, therefore, greater necessity for careful and constant treatment. In ordinary gonorrheas of mature women, the urethra is carefully treated throughout its whole length with argentum nitricum, one to two per cent., as a rule, and then, perhaps, a pencil of ichtiyol is introduced. This is done, preferably, with an Ultzmann's catheter, and the cervix is treated with a Guyon. The vagina is thoroughly washed every day with clean, warm water. Neisser lays especial stress on the fact that we should never rely upon subjective symptoms as to the cure of a gonorrhea in women. Before being satisfied to suspend treatment, we should examine for gonococci; first, the urethra, then the meatus, next, any openings, inlets or folds about the urethral orifice, then the cervical canal, and finally any other inlets or outlets, especially noticing the secretion from the glands of Bartholini. He thinks that, if this were done properly and thoroughly, not only in every known, but in every suspected case, there would be fewer ascending gonococci, and much less after-suffering from infected tubes and ovaries.

Twice a week thorough examinations for gonococci are

made. The male urethrae are first gently stripped, and the resulting secretion is transferred to a clean slide. Next, a soft catheter is carefully inserted as far as the compressor urethrae, and the anterior urethra is washed out with a three-per-cent. solution of boric acid. The first part of the returning fluid is caught in a glass receiver, and any flocculent bits are placed on another slide by means of a platinum needle. When the anterior urethra is thoroughly cleansed, so that the fluid returns clear, the patient is instructed to pass his urine into another glass, and flocculent bits are again removed, as representing the secretion of the posterior urethra. If there be any suspicion of prostatic involvement, the gland is massaged through the rectum, and the resulting secretion collected. The various slides are marked, and afterward examined in the laboratory. The records of these examinations are as carefully kept as the temperature and pulse charts. If gonococci are not found, the patient is kept for a week without treatment, and then given an injection of nitrate of silver, and if there be no resulting micro-organisms, he is considered cured. The routine examination of women is of the secretion of the urethra, and the cervical canal. If, however, no gonococci are found in these places, then careful search is made of the parts before enumerated.

In this description I have omitted much, especially of the care of complications, and I fear that in other parts I have detailed even to the point of tediousness. I have been minute in describing some things, however, because they are not the ideas of a mere visionary theorist. On the contrary, they are the result of much patient investigation and much careful research on the part of a man, who was not only the original discoverer of the germ of gonorrhea, but who has been, perhaps, the first in the world in its scientific exposition.

While here, I have been much impressed with the thought of how much good such a hospital can do. I am not going to shock my good Puritan friends by suggesting a hospital for gonorrhea in Boston; but I see no reason why there should not be at least a ward for skin diseases and syphilis. Every other organ has its particular ward or its particular hospital. Why not the skin? It is surely as necessary to the general economy as any other essential organ of the body, and the results of its mal-treatment or neglect are generally far more noticeable. Many of the dermatoses are just as disabling and just as incapacitating from labor, as either pneumonia or typhoid, although, perhaps, not so prostrating. Many others are in fully as great need of careful, intelligent and frequent dressing as any of the surgical lesions. Why then, in our general charities, should we discriminate against dermatological patients?

Unquestionably, from a medical standpoint, cases of syphilis should be supervised by our local health authorities. At certain stages, the public welfare as imperatively demands the isolation of the patient as in any other of the communicable diseases. The instances of its innocent contraction are so numerous that one, nowadays, hardly records them. Such supervision and such sequestration are, however, impracticable in our present social conditions. But while a compulsory retirement cannot be enforced, it certainly seems senseless to practically forbid a voluntary one. We would not refuse hospital treatment to wounds received in a drunken quarrel. Why then be so relentless toward the victims of another and far more tempting encounter? Surely the one is not more disgraceful than the other. I am well aware that syphilis is treated in our almshouses; but almshouses are not hospitals, and neither should patients be compelled to become paupers. A female patient may, perhaps, find a haven in one of our numerous gynecological hospitals, but to the man no such opportunity is afforded. Let us hope that when the coming woman assumes the reins of government, she may, with an eye single to the interests of the coming babe, consider that man's sexual organs are as necessary to the great scheme of existence as her own, and that upon the healthful preservation of both depends the health of future peoples.

Yours very truly,

WM. G. MACDONALD, M.D.

Vaginal Extirpation of the Uterus and Adnexa in Pelvic Suppuration and Septic Puerperal Metritis and Peritonitis. The Causes of Death after Abdominal Section. Ectopic Gestation. By H. J. Boldt, M.D., of New York. Reprints. 1895-97.

Lecture.

PERFORATING WOUNDS OF THE EYE.¹

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I HAVE chosen the subject of "Perforating Wounds of the Eye," for this lecture, for the reason that it is a thoroughly practical one, and a practical knowledge of the special branches of medicine is what is most needed and desired, it seems to me, by the members of the general medical profession.

Perforating wounds, which are characterized by a perforation through the outer coat of the eye into its interior, must always be regarded as serious. In the first place, an object perforating the cornea or sclera rarely stops there, it goes deeper and usually results in a greater or less defect of sight; again, the object may carry septic material, or at least leave an opening through which micro-organisms may enter, and we have a second danger, that of septic infection; and, then, we have a third danger which is of still greater gravity, the danger of a sympathetic inflammation of the other eye.

Ocular injuries are, as a rule, emergency cases, and the larger proportion of them are first seen by the man in general practice. If he lives in, or near a city, he can if he chooses transfer the responsibility of the case to the oculist. If he is at a distance, it is necessary that something be done; and the future welfare of the eye often rests upon his ability to recognize the nature and gravity of the lesion and to prescribe appropriate treatment.

If a patient gives a history of an injury from some sharp instrument, like a pointed stick, scissors or needle, or from a flying bit of stone, steel, or other metal, the nature of the injury is at once suggested, and we look for the point of perforation. It is important to determine, first, the situation of the wound. A perforation through the ciliary region is to be regarded as the most serious, for the reason that the ciliary body is in all probability involved, and there is consequently a much greater danger of sympathetic trouble in the other eye than in wounds confined to the cornea, or to the sclera posterior to this region. It is also extremely important to determine whether or not the perforating object has remained in the globe. The fact that a foreign body is lodged in the interior of an eye adds greatly to the gravity of the situation. Even though it is very minute, has not entered through the ciliary region, and does not result in a marked defect of vision, a favorable prognosis cannot be given for the injured eye; and, unless the foreign body can be removed, there is again the added danger of sympathetic inflammation of the second eye. The nature of the perforating object will frequently assist us in settling this question. If it is a sharp instrument and not liable to break, there is little possibility of a fragment's being left in the globe, and we can usually decide the matter definitely by an examination of the object and seeing if there is any part of it missing. If, on the other hand, the injury is from an explosion, the breaking of a bottle, a lamp chimney, or something of that kind, it may be impossible to determine which piece caused

the perforation, or even to know its size. Our conclusions must then be drawn entirely from the condition of the eye; and the question unfortunately is not always definitely settled until we have removed the eye and opened it. Among the stone and metal workers there is often the history of a sudden blow from a small object, while sharpening tools or chipping stone; and if we can convince ourselves that there has been a perforation of the cornea or the sclera, we can feel fairly positive that the object is lodged in the interior of the globe. The patient may bring, as he frequently does, a bit of stone or metal which he is very sure "fell out" after it had struck the eye, but flying particles, having a sufficient force to cut through the cornea or sclera, rarely stop until they have gone considerably deeper, and, of course, cannot fall out again.

The question of infection by the perforating agent is also an important one to consider. In certain cases we can feel fairly confident that the object was free from septic material, and if suppuration begins that infection took place after the injury. In other cases, the chances are all in favor of septic material having been carried into the eye, and we should give a graver prognosis and adopt a more vigorous line of treatment. In locating a foreign body in the globe it is, of course, an advantage if we can know from which direction it came, and the patient can often inform us on this point with a considerable degree of accuracy. Having determined the foregoing points to the best of our ability, the eye should be systematically examined in order to find out to what extent the intra-ocular tissues have been involved. Before doing this it is best to make the eye anesthetic by instilling a two- or four-per-cent. solution of cocaine, and also to guard against septic infection during the examination; in fact, precautions in this latter direction cannot begin too early. The eye should be washed with a 1-5,000 corrosive-sublimate solution, the lids and adjacent tissues should be thoroughly cleaned, the examiner should look carefully after his own hands, and the dirty handkerchief which the patient invariably carries and mops the eye with at frequent intervals should be removed.

For convenience of description, perforating wounds may be divided into three groups: (1) those confined entirely to the cornea, (2) those involving the ciliary region, and (3) those in the sclera behind the ciliary region. When an object passes through the cornea, the tissues that are most liable to suffer injury are, of course, those situated just behind it, the iris and lens. In exceptional cases they escape completely, the object passing through the cornea into the anterior chamber, but not going deep enough to involve them in the least. Even then, if the perforation is not central, there is a chance of the iris being secondarily involved; for, if the anterior chamber is evacuated, as it usually is, the iris rests in contact with the corneal wound and may become firmly adherent to it. Also, if the perforation is of sufficient size we may have a prolapse, the iris being forced through the wound by the pressure behind it, and projecting beyond the corneal surface. It is exceptional, however, for the iris and lens both to escape when the cornea is perforated. It is not unusual to find the iris tissues extensively torn and lacerated, blood in the anterior chamber, the lens more or less opaque or even dislocated, and the sight reduced to a perception of light, and even this may be faulty in certain directions. Such extensive changes are not, of course, difficult to make

¹ An evening lecture delivered in the Graduates' Course of the Harvard Medical School, April 25, 1897.

out. When, however, the perforating agent is smaller, a bit of flying steel, for example, the extent of the injury may be overlooked unless considerable care is taken in the examination. At times, the corneal wound is so small that it is only made out when light is focused upon it by a strong convex lens, and may have closed so quickly that the anterior chamber is not evacuated. In this class of cases we occasionally see a little black point on the iris, in the neighborhood of the corneal wound, that suggests, in appearance, a foreign body lodged on its surface. Such a diagnosis should never be made, however, until the light has been thrown into the eye with the ophthalmoscopic mirror. Then you will probably find that what looked like a foreign body on the iris is really a perforation through it—it appearing black just as the pupil appears black by focal illumination, but giving a red reflex from the fundus by reflected light. This result will, of course, not be obtained if there is a very extensive opacity of the crystalline lens. After the pupil is dilated you are very apt to find a grayish opacity of the lens, and it is not uncommon to have this opacity take the form of a thin line extending backward from its anterior to its posterior surface. A foreign body may be found lodged in the lens; but if the grayish line of opacity extends entirely through the lens and if there is the history of a small flying particle striking the eye, it is reasonable to conclude that the foreign body has passed still deeper, and we must look for it in the vitreous, or even as far back as the retina or choroid. The vision may be nearly normal soon after the injury, and sometimes continue so for a very long period. A perforation of the lens, however, will usually result in a cataract; and blindness from this cause, from detachment of the retina or inflammatory changes, is to be expected sooner or later, if the foreign body remains in the globe.

A perforation through the ciliary region may be limited to that region, but more often it is a perforation involving the cornea as well. The wound is sometimes found extending entirely across the cornea into the ciliary region on one or both sides, and accompanied by such a general laceration of the intra-ocular tissues that it requires but little knowledge of ophthalmology to determine that the eye is hopelessly lost. A wound of the sclera does not stand out as clearly as one in the cornea, for the reason that it is apt to be obscured by the congestion and swelling of the surrounding conjunctival tissues. For this reason great care must be taken in the examination of corneal wounds extending to the periphery, to make sure that they do not run into the ciliary region. A ciliary wound, if extensive, may be complicated by a protrusion of the ciliary body, iris, vitreous or even of the lens. When small the edges may come into almost immediate apposition, and light must be thrown into the eye before we can judge of the amount of intra-ocular injury. A laceration of the ciliary body will naturally result in more or less hemorrhage into the vitreous, and this will be most dense in the neighborhood of the wound. If the perforation does not involve the crystalline lens we may be able to make out this blood-clot after the pupil is dilated, even by focal illumination. With reflected light, the red reflex of the fundus will be indistinct over this area, or may be completely obscured. Sometimes you will find a fairly isolated clot of blood in the vitreous at some distance from the wound; and, if the injury was from

a flying bit of metal or stone, it is not improbable that the foreign body is situated in this clot, and that it can be made out as the hemorrhage is gradually absorbed. The pupillary border in these ciliary wounds will not infrequently be drawn toward the point of perforation. The vision may be fairly good, but more often it is considerably reduced or completely lost. In perforations of the sclera posterior to the ciliary region the tissues that naturally suffer are the choroid, retina and vitreous. A prolapse of these tissues is not infrequently met with, and the loss of vitreous is sometimes so considerable that the tension is greatly decreased and the eye ball even collapsed. If, however, the wound is clean-cut and not of great size, the edges may come into almost perfect apposition and there be no protrusion of the intra-ocular tissues whatever. Ophthalmoscopically you may find the fundus completely obscured by an extensive hemorrhage into the vitreous chamber, or you may be able to make out the optic disc, the macula region; in fact, the only obscured portion may be in the neighborhood of the wound. Occasionally a case will be met with in which the wound is so slight, and vision so little interfered with, that we may doubt very much if the foreign body has really entered the eye, until we come across it during our ophthalmoscopic examination, suspended in the vitreous or imbedded in the retina or choroid. A careful examination with the ophthalmoscope must always be made therefore in cases giving a history of a bit of foreign substance striking the eye, even though the external signs of injury are slight or wanting. The vision, as in cases of perforation of the cornea and ciliary region, is often reduced to a perception of light or even to complete blindness. It may, however, be found practically normal, and sometimes continues so indefinitely.

It is a good plan in all perforating injuries to get some idea as to the amount of sight in both eyes, at the time of the first examination, and to make a record of it. The prognosis will, of course, be influenced by the amount of vision found in the injured eye, as will also, to a greater or less extent, the line of treatment adopted; aside from this, if recorded, it may prove of value in case of a medico-legal complication arising later. Many men in general practice now have hanging in their offices a cardboard of test-letters, which is found convenient in a great variety of cases. If, upon examination, the patient is found unable to distinguish even the largest letters at any distance from the eye, his ability to count fingers should be tested. If he cannot count fingers, then his ability to tell which way the shadow of the hand moves in front of the eye—failing this, his ability to distinguish between light and darkness. It is also important to know if he perceives light over the entire retinal surface, or if it is absent in certain directions. In making this test the room should be darkened and a dim artificial light placed at the side of the patient's head, and far enough back so that it will not enter the eye. Then, while he looks directly forward, the light is thrown into the eye with the ophthalmoscopic mirror from the sides, above and below, and he names or points out the direction from which it seems to come. If the light is made out quickly and accurately in all directions, we conclude, although vision is reduced to light perception, that the retina is still intact. On the other hand, if it is not detected when coming from some one or more directions, it is more than probable

that the retina has lost its function by detachment or some other change over that area, and the prognosis for sight, which may be bad enough any way, will be practically hopeless.

Inflammation, after a perforation of the cornea or ciliary region, is to be expected, although it does not invariably follow. If, however, the wound is in the sclera, posterior to the ciliary region, it is not unusual to find a complete absence of inflammatory symptoms. An inflammation may result simply from a contusion and laceration of the tissues, and be characterized by a serous or plastic exudation, or it may be caused by the entrance of infectious micro-organisms which are liable to give rise to a most rapid and destructive suppuration. To illustrate, a patient gives the history of an injury from some object like a bit of glass, which was probably sterile; upon examination, we find a perforation of the cornea four or five millimetres in length, which extends to its periphery. There is also a hole through the iris near its outer border, and the lens capsule is ruptured. Two or three days later, there is more or less pain in and around the eye; there is intolerance of light, lachrymation, well-marked circumcorneal injection, a contracted and sluggish pupil, and a few iritic adhesions. The iris is not much discolored, and there are no signs of suppuration; in fact, the symptoms are those of a simply plastic iritis, and it is not probable that sight will be lost as a result of inflammation, if the eye is properly treated. In another case, the perforating object is the point of a scissor-blade. We feel fairly confident that septic material has been carried into the eye and shall naturally be on the lookout for symptoms of suppuration.

The symptoms accompanying pus formation in the interior of an eye are variable as to intensity. Occasionally there is but little injection, no pain, photophobia or great discoloration of the iris, and the only thing which suggests suppurative process is a deposit of pus at the bottom of the anterior chamber. More often, however, if there is pus in the anterior chamber, the iris will be found swollen and greatly changed in color, the pupil contracted and perfectly immovable, and the aqueous hazy. This condition will probably be accompanied by intense injection, the conjunctiva perhaps forming a swollen, elevated ridge, that is, a chemosis, around the corneal border, and by severe supra-orbital pain. At another time, the iris may be only moderately inflamed, but when the light is thrown into the eye we find a hazy condition of the vitreous at some point, which, after a little assumes a yellowish tint, obscures the red reflex of the fundus more and more, and we conclude that pus is being poured out from a suppurating area in some part of the ciliary body or choroid. Suppuration may cease under appropriate treatment, and the exudation become gradually absorbed. It may, however, continue in spite of every thing that can be done, until the tissues of the eye are so extensively involved that sight is absolutely lost, and a shrunken, atrophied globe, which is worse than useless, may be prophesied for the future. A progressive suppuration may be slow and continue for a number of weeks, or it may be rapid, involving the entire globe within a few days after the injury, and give rise to the condition called pan-ophthalmitis. The symptoms of pan-ophthalmitis are very characteristic, and can hardly be mistaken for anything else. The lids become greatly swollen and reddened, the edema sometimes extending a considera-

ble distance from the eye, the globe is pressed forward, appears two or three times its normal size, and the ocular-conjunctiva is infiltrated and brawny. The cornea and anterior chamber may be cloudy, and present unmistakable signs of suppuration, or they may be fairly clear at first, so that we can look through the pupil, and get a yellowish reflex from the pus deposited in the vitreous. The globe feels hard to the touch, and there is no perception of light. Within seven to ten days from the beginning of the process we may expect the globe to perforate, most often near the sclero-corneal junction. With the escape of pus, the pain, which has been extreme, ceases, and the inflammatory symptoms gradually subside.

A sympathetic inflammation of the second eye is what is most to be dreaded in perforating wounds. If the wound is far back in the sclera, or if in the cornea without extensive incarceration of the iris, the probabilities of such a misfortune are not great. If, however, it is in the ciliary region, if there is extensive incarceration of the iris in a corneal wound or, if a foreign body is lodged in the globe, it is an occasion for much anxiety. When there is complete blindness, we can quickly relieve this anxiety if we like, by removing the injured eye. In many cases, however, the eye is not blind, or injured in such a way that it will be unsightly, and we do not feel justified in advising immediate enucleation. The inflammation may subside after a time, a useful amount of vision be retained, and the patient go through life without further trouble. On the other hand, we may examine the patient one day, and the second eye looks perfectly well in every respect—a day or two later, there is complaint of a blur, or possibly only a feeling of irritation. We examine the eye again, and find a slight circumcorneal injection, a contracted pupil with perhaps one or two adhesions, and a few small lymph deposits on the posterior surface of the cornea. We now have a sympathetic inflammation, and the probabilities are that the second eye will become blind in spite of the most skilful treatment. There can be nothing more depressing than the memory of such a case, which might have been prevented if the injured eye had been removed a few days earlier. Sympathetic inflammation is most apt to occur from the third to the eighth week after the injury; it may make its appearance much earlier; and it is sometimes delayed for years. In fact, there is not absolute freedom from this danger as long as the injured eye is retained. Too often, there are no premonitory symptoms to indicate that the second eye is about to become involved. We shall, of course, expect to find the injured eye inflamed at the time of the sympathetic outbreak, and the inflammation involving the ciliary body and iris. This inflammation is not necessarily of great severity, however; and I have seen at least two cases where the patients gave no history of redness, pain or other signs of inflammation in the injured eye at the time, or for some time preceding the development of trouble in the second eye. Such cases are, of course, exceptional. Tenderness on pressure in the injured eye is usually present, but it may be entirely absent. It is a symptom which should always be carefully looked for; and its presence in an eye that is blind, or is fast becoming so, may lead us to decide that immediate enucleation is advisable. The second eye may show signs of what is called sympathetic irritation, that is, it tires easily, there is more or less photophobia and lachrymation,

the pupil is contracted, and perhaps also there is a diminished range of accommodation. Sympathetic irritation may be absent entirely, however, the eye appear perfectly well until it suddenly becomes inflamed; on the other hand, it is present in a large number of cases that never develop sympathetic inflammation. As a premonitory symptom, therefore, it is not of the greatest value although its presence will always cause more or less uneasiness.

The nature of this trouble, that is, sympathetic inflammation, has not as yet been definitely settled. There is little doubt, however, of its resulting from infection, and the sheath of the optic nerve is the most probable route of the micro-organisms from the injured to the sympathizing eye. The disease usually makes its appearance in the second eye, as an iridocyclitis, though it has occasionally been noticed that the optic nerve was first involved. As already said, the inflammatory symptoms in the beginning are frequently of an extremely mild character. Pain may be entirely absent, the ciliary injection may be very slight, and the sand-like lymph deposits, which are found on the posterior surface of the cornea may be the only suggestion of serious trouble. These lymph deposits should be carefully looked for in suspicious cases, and will usually stand out clearly against the red background of the fundus with a +7 dioptric lens behind the ophthalmoscopic mirror, if the observer is within two or three inches of the patient's eye. After a little we shall have the more characteristic symptoms of iritis, the well-marked circum-corneal injection, the supra-orbital pain, the discolored iris and the contracted pupil, with the formation of posterior synechæ. Sight may be destroyed within a few weeks, but more often the process is gradual. Sometimes under vigorous treatment the inflammation comes to a standstill; redness almost entirely disappears; there is little photophobia or lachrymation; and though there is some exudation and numerous iritic adhesions, the patient still retains useful vision, and we are encouraged to think that the process has come to an end. It is usually a false hope, however. The eye again becomes injected; the pupil gets smaller; there is more exudation into the anterior chamber and vitreous; the iris becomes adherent to the lens, not only at its pupillary border, but even at its periphery; the vitreous degenerates; the tension of the globe decreases; and we have in the end a blind eye, or more likely, two blind eyes, with little if any chance of restoring sight to either of them. Such a possibility, which may be called the tragedy of ophthalmic practice, has to be constantly borne in mind in the treatment of certain perforating injuries to the eye.

Now, in regard to the treatment of perforating wounds. There is one condition, if present, that should be attended to at once, and that is a prolapse of the iris. If the case is seen two or three hours after the injury, it may be possible to reduce it by instilling a one-half-per-cent. solution of sulphate of eserine or, if this is not easily obtained, a two-per-cent. solution of nitrate of pilocarpine. Its reduction can, of course, be attempted later than this, although if it does not return to the anterior chamber after three or four instillations of the myotic at intervals of ten minutes, the chances are that it will not, and it is better to abscise the iris tissue as near the corneal surface as possible. An abscission of the iris should not be attempted, however, unless one has the proper in-

struments, a spring speculum, a pair of delicate forceps, and narrow-bladed scissors, either straight or curved. If it is not done properly there is danger of doing more harm than good in attempting it. The eye is to be thoroughly cocaineized, and great care must be taken to avoid traction on the prolapsed iris when grasping it with the forceps, as there is the danger of drawing out still more of the tissue. If the wound is in the sclera, and there is a prolapse of the ciliary body, choroid, or vitreous, no attempt should be made at reduction. In case of a prolapse of the ciliary body, the safest treatment, it seems to me, is immediate abscission. There is, of course, the possibility of the vitreous escaping, but this chance should hardly count against the practical surety of an incarceration of the tissue if it is not abscised. In a prolapse of the choroid and vitreous body immediate abscission is often desirable, in order that the edges of the wound may come quickly into good apposition, a moderate incarceration of the choroid, however, is not liable to give rise to any very serious results. If a wound in the sclera is small, it can be left alone or covered over with conjunctiva. If it is large, and especially if the flaps do not come into good apposition, it is safer to unite them with two or three fine sutures.

The early use of atropine is something which should never be neglected in injuries where the iris is liable to become inflamed; in fact, it is a pretty safe routine treatment in all injury cases, and it is only very exceptionally that any harm will result. In case of prolapse of the iris, where a myotic has been used, it is especially important to instill atropine as soon as the anterior chamber is re-established. The reason why atropine is so necessary in these injury cases is readily understood. If we have iritis we get adhesions; if we dilate the pupil at once, and are able to keep it so, we avoid them and get rid of one source of trouble for the future. Cases where this precaution has been neglected are frequently seen by the oculist, the patient presenting himself three or four days after the injury, with a pupil firmly adherent to the lens, and possibly also exudation into the pupillary area.

The precautions and treatment mentioned are not always necessary, for the reason, that in certain cases, the best treatment is immediate enucleation. Delay means pain, loss of time—which is to be considered in the case of a laboring man with a family to support—and, perhaps, blindness in the other eye. Immediate enucleation is the best course to adopt, (1) in cases where the injury is so extensive that there is no chance of restoring vision, and little probability of an eye that will look as well as an artificial one; (2) where the wound is in the ciliary region, and the sight is lost, even though the chances are in favor of the patient's recovering with a presentable eye; and (3) where vision is lost, a foreign body is lodged in the globe, and there is little possibility of its being removed. Of course, there are other conditions where it is probable that enucleation will be the best course to pursue, but there is some doubt, and we give the eye the benefit of the doubt for a few days, and wait developments. When there is no question in the mind of the physician that the eye should come out, its removal is to be advised and performed as soon as the patient's consent can be obtained. A delay of two or three days so soon after the injury will probably make no difference whatever; but a want of decision on the part of the physician, and a postponement from day to day,

will often result in the patient's taking a decided stand against an operation which he would have accepted without question if the case had been clearly and forcibly stated to him in the beginning. That the practical surety of one good eye through life is better than the chances of two blind ones, is my final argument in such cases; and it is one that most patients are usually fully capable of comprehending.

If immediate enucleation is not demanded, an effort must be made to save vision, or at least an eye that will not be a source of danger to its fellow. The plan of treatment will, of course, vary considerably with the nature of the injury; it is to be remembered, however, that all perforating wounds are serious, and demand the most careful attention on the part of the physician. If a foreign body is lodged in the lens, in the vitreous or some portion of the fundus, we may have no immediate inflammatory reaction, and it is simply a question of deciding what is best to be done in regard to the foreign body. A foreign body in the lens need cause little worry as long as it remains there. The probabilities are, however, that after a time it will escape into the anterior or posterior chamber, and give rise to a severe inflammation and one that will endanger the other eye; for this reason, its removal should, as a rule, be attempted. The best chance is offered, it seems to me, by extracting the lens and the imbedded foreign body with it. If the case can be kept under observation, it is better to wait until the lens has become partially or completely opaque before attempting this, for the reason, that in a non-cataractous lens, the cortical is extremely sticky and does not escape readily from the anterior chamber. It is also best to have an electro-magnet on hand, if the foreign body is steel. A foreign body in the vitreous or imbedded in the retina or choroid, is always a source of much anxiety, especially if the patient has useful vision, as he frequently has. If it is a bit of steel, it is often best to attempt its immediate removal by means of the electro-magnet, even if vision is not greatly impaired. The chances of removal are fairly good, although the prognosis for sight must be extremely guarded. However, if the patient understands that sight will probably be lost sooner or later any way, and that the danger to the other eye is considerable, he will usually be willing to take his chances. If it is a bit of stone, or some other object, it can sometimes be grasped with small forceps entered through the wound, or through an incision made in the sclera, though such good fortune is exceptional. Where the foreign body is removed there will be little danger of sympathetic trouble if the ciliary body is not involved, and the patient can retain an eye that will probably look well and possibly have useful vision. If the attempt at removal is unsuccessful, and if the case is complicated by severe inflammation, the eye should be enucleated. If the eye is not inflamed immediate action is not always demanded, though the patient must be kept under constant observation. The extraction of a foreign body from the globe is something which would hardly be attempted by a man in general practice, and the prevention and treatment of the inflammatory complications which are liable to arise as a result of perforating wounds will fall more within his province.

As I have already said, if the perforation involves the iris or ciliary body, inflammation of a greater or less severity is to be expected, and every attempt must

be made to combat it by appropriate and vigorous treatment. In the first place, it is advisable that the patient be kept in bed for a few days at least, and that the room be moderately darkened. It is also a good plan to give a saline cathartic as early as possible. If the eye has been bandaged, the bandage is to be removed and should not be worn, as a rule, during the patient's confinement to the house. In old patients, especially, a bandage worn constantly is liable to give rise to catarrhal-conjunctivitis, not infrequently characterized by a copious muco-purulent discharge. The reason for this is, that a large proportion of people beyond middle life, have a mild chronic conjunctivitis, and it is impossible to use strong enough germicidal solutions in an eye to entirely free it from micro-organisms. Bandaging the eye raises the temperature, prevents the escape of secretions, and these conditions naturally favor the development of germs. This fact is often made prominent in cases of cataract extraction. The eye is washed thoroughly with a 1-5,000 corrosive-sublimate solution, the lids and surrounding tissues are carefully cleaned and all the ordinary precautions are taken to render the operation as aseptic as possible. In spite of this, a well-marked catarrhal conjunctivitis may develop, which gets worse from day to day, and only subsides after the bandage has been removed. If the patient is obliged to go out there will be less liability of infection if the eye is bandaged for a few hours than if it is left exposed; also, in cases where the lips of the wound do not come into good apposition, it may be the only course to adopt, but, until the external wound is healed, the chances of infection will be much greater in the majority of cases, with a bandage than without it. The eye should be washed ten or fifteen times a day with a saturated solution of boric acid, the lids and the surrounding tissues, as well as the patient's hands, are to be kept clean, and a cold boric-acid compress should be applied to the closed lids. The patient must, however, be encouraged to open the eye at intervals of ten or fifteen minutes, in order to prevent a retention of secretions. The cold compress is of value for the first few days as an agent in decreasing the tendency to inflammation; after the development of an iritis or cyclitis, however, it is better to use hot applications. Atropine or some other mydriatic is to be used from the beginning, and continued until the inflammation is at an end. A one-per-cent. solution, three or four times a day, will, as a rule, dilate the pupil and keep it dilated; but at times greater frequency or a stronger solution is necessary to accomplish this, and in the more violent cases we may find the pupil getting smaller and smaller from day to day, in spite of everything that can be done. A pupil contracting under atropine is always to be looked upon as an unfavorable symptom, as it denotes an increased congestion and infiltration of the iris tissue.

As just said, hot applications are advisable after an inflammation is well established; and we can make use of a hot boric-acid solution, applied as an absorbent-cotton compress, for twenty minutes to half an hour, every few hours, or we can use the popular camomile fomentations. Pain is often much benefited by heat, and, when severe, fomentations can be used very frequently. Leeches are not very generally used at the present time, but they are still frequently employed by the ophthalmic surgeon, and in diseases of the iris and ciliary body, especially, are of undoubted

value. In cases where severe inflammation seems probable, it is my custom to apply two or three leeches to the temple as soon as the patient can be put to bed, and to use one or more daily until the inflammation begins to subside. Severe pain will often cease almost entirely after the application of a leech, and their application in the early part of the evening may insure a good night's sleep to the patient. In cases, also, where the pupil grows smaller in spite of the instillation of atropine, it is surprising to see how quickly a leech will sometimes cause it to dilate. Careful watching is very important, and a daily visit advisable, until the inflammatory symptoms become decidedly less marked. The case may be said to progress favorably when pain becomes less severe and frequent, when the injection becomes less intense, and the other symptoms characterizing an inflammation of the tissues involved begin to subside. If these symptoms become more marked from day to day, if the eye develops tenderness in the ciliary region when pressure is made with the fingertips, if sight decreases, we become anxious, not only in regard to the injured eye, but for the other as well, and the question of enucleation is one which it may be necessary to decide at any time.

There is, naturally, a chance for much individuality of opinion in deciding for or against enucleation, as it is impossible to say, in a given case, just how much danger there is of sympathetic inflammation. Where most expected it may never develop, and it may make its appearance suddenly and without warning. It is the duty of the surgeon, it seems to me, to regard the eye only as an organ of vision in these doubtful cases, and when it ceases to fulfil its function to sacrifice it rather than take chances of blindness in the other eye. It is in cases where vision remains and symptoms develop, like extreme tenderness on pressure, sudden irritation of the other eye, etc., that it is difficult to decide what to advise; and, unfortunately, no general rule can be laid down for our guidance. If symptoms of inflammation develop, a blind eye is, of course, to be removed at once. If the existing eye is not blind, and there is no strong probability of its quickly becoming so, it is better not to remove it, as it may be the more useful eye of the two in the end. In a case of pan-ophthalmitis, which may develop rapidly at any time if the eye has been infected, there is, of course, no question of saving the eye, and our aim should be to bring the suppuration to an end as soon as possible. When the symptoms are well enough established to leave no doubt as to the diagnosis, the eye may be incised with a small scalpel and then poulticed continually. Pain will usually cease in a few days, and after suppuration has subsided, the small, shrunken globe should be taken out. During pan-ophthalmitis there is fortunately little danger of sympathetic trouble, the reason possibly being that the lymph spaces are so completely closed by the swelling of the tissues that micro-organisms which give rise to the trouble, do not readily escape from the inflamed eye. Enucleation is practised by some surgeons during pan-ophthalmitis; and although the risk is not great, there have undoubtedly been cases of meningitis as a result, and it is just as well not to take chances.

I will close this lecture with just a word in regard to the treatment of sympathetic inflammation. Treatment should begin at once, and be carried on with the greatest perseverance. Atropine is to be instilled, leeches are to be applied, and the eye kept as free

from all irritation as possible. Complete darkness and rest in bed are desirable for the first few weeks at least. Mercurial inunctions are to be prescribed, and continued as long as the patient's condition will permit. The general health is, of course, liable to suffer more or less, and it may be necessary to modify the above treatment considerably.

Original Articles.

CHRONIC ULCER OF THE STOMACH.

REPEATED HEMORRHAGE, EXCISION OF ULCER, DEATH.¹

BY ELBRIDGE G. CUTLER, M.D.,
Visiting Physician, Massachusetts General Hospital,

AND JOHN W. ELLIOT, M.D.,
Visiting Surgeon, Massachusetts General Hospital.

T. N., AGED forty-seven, married, born in London, England, living in Roxbury, Mass., a tailor by trade, entered the Massachusetts General Hospital July 24, 1895.

His father, three brothers and one uncle died of phthisis pulmonalis.

He was a moderate drinker of alcoholic beverages and used twelve cents' worth of tobacco per week. He had had no venereal disease.

He had measles, scarlet fever and whooping-cough in childhood. Five years ago he had acute articular rheumatism, with purpura, no dyspnea or palpitation accompanying it. Jaundice twenty-one years ago. For thirty years had been subject to morning cough. Sputum scanty; no blood. Had always been subject to attacks of digestive disturbance, often of an acute character of late years.

Present Trouble.—For the last two years has suffered from severe distress in the epigastric region, having paroxysms of sharp gripping pain which doubled him up, coming on at variable intervals after meals; sometimes within an hour, sometimes as late as five hours. Food seemed to relieve; was often relieved by belching. No vomiting until within three months. Worked up to three months ago. For the last three months fairly constant pain in the region above the navel, not relieved by food as before. Solid food gives increase of pain, but pain persists on starvation. Vomited occasionally, at first food and bile. For the last six weeks has vomited once daily; as a rule, at 3 A. M. or thereabouts, in large amount, and containing sometimes food taken thirty-six hours before. The vomitus consisted of partly-digested food till five days ago, when he suddenly vomited two quarts of thick brown liquid, and felt very weak and dizzy afterward. Since then has vomited daily a brownish stuff containing coffee-ground-like matter but no bright blood. Has lost thirty-five pounds in three months. His color has become very white. No jaundice. Eyesight good. Never uses lead in his work. No pains in the limbs. No trouble with the urine. His work entails constant pressure of tools on the stomach.

Examination.—Face extremely anemic; of a white, glistening pallor. Skin everywhere very dry and flaky. Face somewhat wasted; body much wasted, but not emaciated. Pupils equal, react to stimuli. Tongue clean. Mucous membranes anemic.

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 17, 1897.

Heart apex in the fifth intercostal space in the normal line. Sounds feeble but clear. The lungs show a few fine moist râles at both bases behind. Abdomen is flat on the lower part, full over epigastrium and hypochondria. On inspiration epigastrium is bulged out by a rounded tumor tympanitic on percussion — apparently a distended stomach. Liver flatness begins at the eighth rib in the mammillary line and extends two inches below the costal border. Tenderness over the epigastrium general. A few small glands in the groin. Deep reflexes absent, superficial ones present.

Special analyses of the urine, blood, vomitus and stools, as follows:

Urine: Color pale, reaction acid, specific gravity 1.024. Albumin none, sugar none, bile none. Sediment scanty, and contains uric-acid crystals. Indican normal.

Blood: The red corpuscles numbered 2,100,000 in the cubic micro-millimeter; the white corpuscles, 12,000. Hemoglobin 35 per cent. The Ehrlich color analysis in 500 corpuscles gave polymorphonuclear neutrophils 73.8 per cent., lymphocytes 17.2 per cent., large mononuclear and transitional 7 per cent., eosinophiles 2 per cent., myelocytes 0. Many microcytes and macrocytes, few poikilocytes, one normoblast, no myeloblasts.

Patient allowed no food by the mouth, was given ice to suck and a nutrient enema every six hours consisting of peptonized milk three ounces, beef-juice two ounces, and one raw egg. He, nevertheless, vomited at 11 o'clock at night one quart of brown, tarry-looking matter, the consistency of porridge, containing no fresh blood. Vomitus contained free hydrochloric acid, a very small amount of lactic acid, hemin, no free blood, and very little food. Stools were light-colored, foul-smelling, and contained neither hemin nor blood.

For the next five days the patient was fed by nutrient enemata. There was no vomiting; but once or twice in the night there was pain in the stomach, which was relieved by chloroform-water. The nutrients were retained perfectly; and, as he complained of extreme prostration, two drachms of absolute alcohol had been added to each enema. The urine was thirty-five ounces in twenty-four hours.

July 29th. Stools contain no hemin. To-day two coddled eggs and one ounce of finely minced chicken were given for proteid diet at 12 M., to test the digestion leucocytosis. At 12 M. the white corpuscles were 7,650; at 4 P. M. the white corpuscles were 11,600; showing a digestion leucocytosis of 4,000.

The next day milk was given in small quantities at three-hour intervals, which gave no distress. The stomach was washed out after twenty-four hours' feeding, and much residue was obtained. The contents contained undigested food, lactic acid, no free hydrochloric acid, no blood. The stools that day (July 30th) contained some free blood. The white corpuscles, with constant feeding, continue at 11,000. Now on a diet of milk and lime-water, two ounces every two hours, alternating with albumin water, two ounces every two hours.

August 1st. Stomach wash. Very little food residue. Feels very comfortable. Stomach contents contain free hydrochloric acid, lactic acid, no blood. Stools liquid, hemin present. The food was omitted by mouth, and nutrient enemata every six hours were resumed again.

August 4th. Comfortable. No vomiting since first day. No blood in stools past three days. Sour belching at times; acidity relieved by bicarbonate of sodium, ten grains, p. r. n.

August 7th. Milk diet by mouth resumed.

August 8th. Vomited eight ounces of thick coffee-grounds at midnight, preceded by no pain or straining. The vomitus consisted of black, abnormally-changed blood. No hydrochloric acid. Lactic acid present. Food by mouth omitted again. Blood-count showed the reds at 2,450,000; whites, 6,000; hemoglobin, 38 per cent.

August 14th. As he was believed to have chronic gastric ulcer with recurrent hemorrhage, operative interference was then considered, and Dr. J. W. Elliot was asked to see him in consultation. He confirmed the diagnosis, but advised delay.

For the next six days he remained very comfortable, and was taken out into the open air daily in a box-bed.

August 21st. Blood: reds, 2,650,000; whites, 6,500; hemoglobin, 36 per cent. Strained soups were given.

August 23d. Mellin's food added.

August 24th. Gastric distress again. Looks and feels miserable.

August 26th. For two days has frequently regurgitated or vomited thin, sour, dark fluid (six or eight ounces in twenty-four hours), in which hemin crystals are found. No hydrochloric acid, a little lactic acid, some leucocytes. Omitted food by mouth. Urine normal.

As the patient was getting much weaker and was evidently bleeding continually, he was transferred to Dr. Elliot's service for operation. E. G. C.

OPERATION, BY J. W. ELLIOT.

When I first saw the case reported by Dr. Cutler, we agreed that an operation should be done. At that time the patient was doing pretty well. He had not had any vomiting of blood for several days; and I thought it would be wise to wait and see how much improvement he would make. But, as often happens when you wait for an improvement, we lost a good opportunity. He had another hemorrhage, which made him still more anemic, and he came to the surgical side in a very poor condition. As it turned out, it would have been better to have operated when I first saw him and Dr. Cutler gave me a good chance.

When he came to my ward, he was very white, pulse 100, temperature 100°. I operated as soon as I could. On opening the abdomen, the pyloric end was found to be a hard mass of cicatricial tissue nearly as thick as my wrist, and extending up on to the lesser curvature of the stomach. On incising the pylorus, the obstruction was found to be complete or nearly so. The cicatricial tissue in the stomach from the inner side was rough and friable, and in a very degenerated condition; and this extended over a large surface, so that the operation of leaving the disease and cauterizing it seemed to me out of the question. I therefore decided to excise the pylorus and all the diseased tissues, and take out about one-fifth of the stomach, including the whole of the lesser curvature on the anterior and posterior sides. The operation was not very difficult. There was no bleeding and everything went smoothly; but when I came to sew up the stomach, I found that in taking out the lesser curvature I had made a pointed

pylorus, that is, the part of the stomach remaining after the disease had been excised was long and narrow. To make a well-shaped stomach it would have been necessary to excise more than one-half of the stomach. However, I finished the operation, and the new pylorus was rather narrow, but still much wider than a stricture would be; you could put your finger through it easily. The man stood the operation without any shock, and seemed to be doing very well for two days. He was fed by nutrient enemata. On the third day he awoke in pain; the temperature went to 101°, and the pulse to 120. From that time on he sank and died. I opened the abdominal wound to see if the stitches had given away, and could find no evidence of anything wrong about the suture of the stomach. He died on the fourth day. At the autopsy no peritonitis was found, no leak from the stitches, but the stomach was full. He had not been allowed to take anything by the stomach, and why it should have been full I do not know. I do not know what he died of. He was in very poor condition, but he stood the operation well.²

In regard to the general subject of surgery of the stomach, it is to-day in a very interesting and promising condition. In 1879 Péan did the first operation of resection of the pylorus, with a fatal result. In 1881 Billroth began to operate, and had the first successful pylorotomy. In 1881 Woelfler invented the operation of gastro-enterostomy, which is anastomosis of the stomach with the intestine, intended also to relieve stricture of the pylorus. In 1882 Loretta brought forward his operation for dilating the narrow pylorus by opening the stomach and putting the finger or an instrument in and dilating. From 1881 to the present day great progress has been made and more and more cases have been reported. In 1895 or 1896 they were in large numbers and many of them successful.

As the matter stands now, there are for the relief of this difficulty eight operations to be considered: first, resection of the ulcer itself; second, resection of the pylorus; third, gastro-enterostomy; fourth, Loretta's operation; fifth, pyloroplasty, which consists in cutting the stricture lengthwise and sewing it up transversely; sixth, opening the stomach and cauterizing the ulcer; seventh, the combination of a resection of the pylorus and an anastomosis with the bowel; lastly, the closure of the perforated ulcer. From the very abundance of these inventions the surgeon, when he opens the abdomen and sees the condition of the stomach, either stricture or ulcer, has a very complex problem in his mind. All these operations have certain advantages and certain disadvantages in a given case, and they all have different mortalities; so to use them properly, one must keep in mind just what these mortalities are and apply the right operation for the special condition. As an example, take gastro-enterostomy, in which the mortality is lower than in pylorotomy; but in making an anastomosis you sidetrack a piece of intestine and food remains stagnant and makes irritation and trouble in that part. Moreover, although the mortality is less, the disease is not necessarily cured, especially if it happens to be malignant disease.

Now I take it that what this Section would like to

bear is just what can be done at the present day for the various conditions which in these cases, come up and what the chances of cure are: I will try to condense it, and shall not go into the details of operations. We will begin, first, with the perforated ulcer. The perforated ulcer, of course, is a desperate thing; the abdomen is filled with the contents of the stomach and acute peritonitis begins at once. One would naturally suppose that nothing could be done for this condition. I supposed the mortality would be 95 per cent. I had a case myself which died at once after sewing up a perforated ulcer and washing out the abdomen. As a matter of fact, in the last two years there have been six or seven cases which got well after washing out the abdomen and sewing up a perforated ulcer. The only statistics I could find is a collection of a small number of cases by Pariser—43 cases, with 10 cures, a mortality of not over 75 per cent., which to me is astonishing considering the probability of septic infection of the peritoneum. Perforations of the bowels, with extravasations of the feces, are almost invariably fatal; and the only way to explain the difference is that the contents of the stomach are not so infectious as the contents of the bowel.

Then the next thing to be considered is what are the chances for cutting out the ulcer before it has perforated, simply cutting out a V-shaped piece. The mortality of those operations up to date is 50 per cent.

Then pylorotomy, of course, is the great curative operation in these cases. Pylorotomy means cutting out the pyloric end of the stomach and sewing the duodenum to the stomach. This operation at first had a very high mortality. Billroth had a mortality of 60 per cent. It has gradually been reduced to about 40 per cent.; and Czerney, who is one of the best operators, has a mortality of 35 per cent., and Kocher in his last nine cases had only two deaths.

Gastro-enterostomy may be done for ulcer, this leaves the base of the ulcer to heal with lessened irritation from the intestinal contents. Its mortality is about 30 per cent.

Then Kocher has opened the stomach on account of ulcer, cauterized it, and made an intestinal anastomosis in order to carry the stream of digestive fluids past it, in two cases, with good results.

Next let us consider what can be done for stricture of the pylorus, the result of ulcer. The operations are pylorotomy, with a mortality of 35 per cent., gastro-enterostomy, mortality 30 per cent.; and Loretta's operation, which has a mortality of about 15 or 20 per cent. The mortality is lowest in Loretta's operation; yet the disease is not necessarily cured by this operation, and from what we know about strictures in other parts of the body, it seems very probable that after dilating a cicatricial pylorus the stricture may return. It has the danger also of possibly tearing the pylorus in dilating; and in that case it would be very awkward to mend, much worse than doing a resection at once.

Pyloroplasty is one of the best operations in suitable cases that can be done. It is founded on an idea which is involved in the modern treatment of strictures of the ureter and various other organs. (Illustrated by drawing on blackboard.) If we have here the pylorus and here the strictured part, the cut is made down through the stricture so, then the cut is spread open so, and still more widely until the sides are brought together in this way. Starting with a cut, it is spread open until this side is sewed to that,

² Autopsy per wound. No signs of peritonitis. Stomach full of fluid; duodenum empty. No leak about the stitches. The temperature throughout stay at hospital was from 98° to 99° F. until August 24th, when it rose daily to 99.5° to 100.5°, 101°, 102°, 103°, died. Pulse between 80 and 90 till August 24th, when it rose daily till death.

making a straight line at right angles to the cut. Dr. Beach has recently done a case of that sort with great success. In a suitable case, where the stricture is small and movable, it is a very good operation, and the mortality is quite low. Corazza collected 53 cases, with only 6 fatal ones, 12 per cent.

The technique of these operations is now pretty well settled, and the mortality will not be much lower until the diagnosis is made quicker and the operation is done earlier. Early exploratory incisions would lead to many more cases. Of course, I have no idea that the majority of chronic ulcers of the stomach ought to be treated by operations. I understand from the literature that 85 per cent. of them get well, consequently I should not think of suggesting that an ordinary chronic ulcer be operated on if it is doing well. It seems to me there is no question in a case like Dr. Cutler's, a cicatricial stenosis of the pylorus with exhausting hemorrhages; I think that is a clear indication. One of the German authorities I happened to come across to-day suggests that an operation on an ulcer is indicated whenever any severe symptoms appear. I suppose he meant by that whenever it was doing badly in any particular way, when the pain became too severe, or when hemorrhages come on, or when the medication or washing out became inefficient. It is at present difficult to state exactly the indications. I should like to hear what some of the medical men think the indications are.

J. W. E.

So far as I know, Mikulicz³ was the first to operate for uncontrollable hemorrhage in gastric ulcer. It was in a patient being treated for constant hemorrhage from an ulcer of the pylorus. The ulcer was energetically cauterized with the thermo-cautery, and the narrowed pylorus was divided and sewed up, so that a new pylorus was formed (pyloroplasty). The patient died of collapse and circumscribed peritonitis three days after the operation.

Küster⁴ operated in a case of uncontrollable hemorrhage from a gastric ulcer with good result, by cauterizing with the Paquelin cautery the base of the ulcer which was adherent to the pancreas. He also did gastro-enterostomy because of an existing cicatricial stenosis of the pylorus. The hemorrhage stopped and the patient recovered.

Rydgier excised an ulcer of the stomach in which life was threatened from bleeding, successfully, as did also Billroth and Lauenstein with success. Kleef did the same operation, but without a favorable outcome.

Fleiner⁵ considers excision to be indicated in inveterate gastric ulcer where the conditions do not allow of an appropriate diet and proper care.

The two mistakes in this case of ours were in giving the diet by the mouth to obtain the digestion leucocytosis, which was unnecessary, the diagnosis being already established, and in the delay of the operation. I am convinced that if operation had been done earlier, before the patient had become so reduced, he would have stood a better chance to battle for his life.

E. G. C.

LORD LISTER and Prof. Müller have been elected members of the Imperial Academy of Sciences, Vienna.

³ Mikulicz: Zur operation Behandlung des stenosirenden Magen-geschwürs. Verhandlungen der deutschen Gesellschaft für Chirurgie, 1887, Band 16, Seite 337.

⁴ Deutsche med. Woch., 1894, No. 24.

⁵ Volkmann's Klinische Vorträge, No. 103, Seite 85.

A CASE OF ACONITE POISONING.¹

BY R. W. GREENLEAF, A.M., M.D., BOSTON.

ON January 11, 1897, Mr. C., fifty-two years of age, took by mistake for tr. rhei, between two and three drachms of tr. aconiti rad. He had mixed it with half an ounce of milk of magnesia in water. Burning of the fauces resulted immediately. His son, shortly afterwards, gave a mustard emetic. It not acting, he gave two doses of zinc sulphate, gr. xx each. The time, including procuring the emetics and free emesis, was about thirty minutes.

I was then sent for, but, being in attendance elsewhere, Dr. F. R. Tower kindly responded, arriving some ten minutes later. The chief symptoms then were, burning of the fauces; tingling of the lips, hands and feet; and restlessness. The pupils were slightly dilated. The pulse was 80 and of fair strength.

Tr. digitalis, m. xii, was given by the mouth, and at once rejected. A copious water enema, followed by one of brandy, oz. i, and tr. digitalis, m. xii, was next given. A half-hour later prostration came on, with labored breathing, weak pulse and sense of intense cold. Tr. digitalis, m. xii, and strychnine sulph., gr. $\frac{1}{30}$, were given subcutaneously. The foot of the bed was raised and heaters were applied.

The prostration being alarming, Dr. C. H. Underhill was called in consultation. Brandy was then given subcutaneously several times.

On my arrival, three hours from the ingestion of the poison, the condition was as follows: prostration marked; icy perspiration universal; respiration labored and variable, averaging 32, pulse at times not felt at all, when felt scarcely perceptible, slow and irregular; nausea and occasional vomiting of mucus; tingling of extremities and epigastric pain. Pupils reacted equally and were of normal size. Mentality clear. Remarkably calm, though apprehensive of impending death. Speaking required much effort.

Strychnia, gr. $\frac{1}{30}$, was again given subcutaneously. Brandy, oz. i, with equal parts of water by enema, and repeated twice in half-ounce doses. The condition continued precarious for another hour, with heart sounds irregular and scarcely audible. Atropine sulphate, gr. $\frac{1}{30}$, was then given hypodermically. This was followed by increased strength of the respiration and pulse and by drying of the skin. At this time the patient complained considerably of peripheral tingling and of intense burning pain in the epigastrium. As the vomiting had continued, we at first gave champagne, half an ounce, which was at once rejected. A sinapism was then applied to the epigastrium, and bismuth subnitrate, gr. x, given by the mouth and retained. This was repeated twice in hour intervals. Milk, in half-ounce doses, was given every half-hour.

The condition now, after five hours, gradually improved. In eight hours the pulse was of fair strength, regular and about 80 per minute. Respirations were about 28. In nine hours he began to complain of rectal tenesmus and to void small mucous and bloody stools. These symptoms persisted annoyingly some six hours, and finally yielded in three hours more, after rectal irrigation with warm water, a Rochelle powder by the mouth, half an ounce, and later ol. ricini, half an ounce, taken in capsules. As the urine had not been passed during the day, he was catheter-

¹ Read before the Clinical Section of the Suffolk District Medical Society, February 17, 1897.

ized fourteen hours after taking the poison. Six ounces of somewhat concentrated urine were collected.

From this time on no other treatment was given, save bismuth, gr. x, at intervals of six hours, and lime-water with milk.

On the following day he felt very weak, but the heart was acting well. The gastro-intestinal pain was quite severe, and all food but arrow-root, milk and ice-cream was avoided. He passed small quantities of urine from time to time, and also some mucus with the otherwise normal stools. For a week the epigastric burning and the tingling of the extremities continued, and then gradually wore away. The tingling was of a peculiar character, mapping out to the patient, as it were, successive areas. In this way he felt that he could localize the urethral orifice of the bladder and the cardiac orifice of the stomach. This sensation did not leave the anus till about the tenth day. Up to the fourth day the submaxillary glands were quite tender and painful. At the end of a week an ulcer, two inches in diameter, formed on the left scapula region, and two small ones on the hips, presumably from burns. The latter are healed, but the former still has a small granulating surface. The patient is outdoors daily, but full strength has not yet returned.

In comparing this case with others, its interest is found to lie in its rarity, the dangerous character of the drug, and the lessons to be learned for the treatment of possible future cases.

Aconite poisoning is exceedingly rare, considering that the drug is an ingredient of a common liniment and is almost a household word from its free use to-day. Enough cases are reported to make a sufficient basis for study. Woodman and Tidy in their edition of 1877, p. 354, report 33 cases and refer to eight others collected from medical journals and works on toxicology between 1807 to 1872. Dr. G. H. Tucker reports, in the *New York Journal of Medicine* for 1854, p. 222, 53 cases, similarly collected.

The alkaloids of the aconite plant are found in both leaves and root, but are strongest in the root, from which the present official preparations are derived. Aconite root has been mistaken for horse-radish root and caused fatal poisoning. Death has resulted from one drachm of the tincture on several occasions. Twenty-five minims in one case and twenty-five drops in another have resulted fatally. One-tenth of a grain of aconitia would prove fatal in a man, and one-fiftieth has produced alarming symptoms. On the other hand, recoveries have taken place after the ingestion of as large doses as one and a half ounces of the tincture. The acute symptoms appear in from a few minutes to an hour. Death usually results within three or four hours. In one case it occurred in twenty minutes. On the other hand, it has been delayed as much as twenty-four hours.

H. C. Wood and others report at length on the pharmacology of aconite. The effects of slowing the heart, of embarrassing respiration, of rendering peripheral nerves anesthetic, and of chilling of the body without affecting cerebration are ascertained. The exact way in which these effects are produced still appears open to question.

The pathology presents little that is characteristic. Conditions found in deaths from asphyxia are sometimes present. The gastro-intestinal tract is apt to be congested, perhaps quite as much from the action of irritant emetics as from the effect of the aconite.

Regarding the treatment of aconite poisoning, it appears that we are rather better equipped for success than was hitherto the case. In the 41 cases referred to by Woodman and Tidy in 1877, 67 per cent. died; and it is noteworthy that neither digitalis, atropia, nitrite of amyl or heat are mentioned as among the agents used. They include sulphate of zinc, finely powdered animal charcoal "as suggested by Headland," the stomach-pump, ammonia, brandy, strong coffee, tea, liniments and friction to limbs and spine, sinapism to stomach, and slight galvanic shocks to heart. They also state that "much has been said about the mutual antagonism of strychnia and aconite, and, judging chiefly by their different effects, they have been regarded as mutual antidotes."

Of 20 cases collected from references in the "Index Medicus" for the past ten years, six resulted fatally. Of these death was reported as occurring in one case in two hours (from two drachms of the tincture), in another in one and a half hours (from three drachms of the tincture), and in one in sixty-five minutes (from one ounce of the tincture, B. P.); time not stated in three cases. In the recoveries the duration of acute symptoms was from one to nine hours, the average being four and seven-tenths hours. In one case of recovery one and one-half ounces of Fleming's tincture had been taken. In another seven and a half drachms of the (U. S. P.) tincture.

Appended is a list of these references, together with a summary of the treatment of each case. Their number is not enough to base statistics upon, but they are of interest as evidencing improved treatment. In these cases the symptomatology was the same as that usually given in works on toxicology.

From the various data now available I would briefly summarize the treatment of aconite poisoning as follows: Empty the stomach with the stomach-tube as soon as possible and wash out thoroughly at the time. If one cannot get a tube, use active emetics, as zinc sulphate, or better still apomorphia. For local measures, tannic acid, charcoal (introduced to the stomach in a dry state, as by konseals), and oils may possibly be of value. Potassium permanganate might also help if the stomach does not contain food. They are of no use after removal of the poison, and measures to produce this should take precedence of any others. To combat the effect of poison already absorbed, antidotes should be given hypodermically. For this purpose none of the above are of value. In reviewing the reported cases, it seems to the writer that much valuable time was lost in some cases by attempts at medication by the mouth. The tendency to emesis and the altered absorptive conditions of the stomach are the contraindications. For antidotes, digitalis, atropine sulphate, strychnine sulphate, alcohol and ammonia subcutaneously; nitrite of amyl by inhalation; hot and concentrated alcohol, as brandy, by enema; and galvanism for stimulation of the respiratory and cardiac centres, are of value, in the order named. Perhaps galvanism should be ranked relatively more highly. Opium and camphor have also been recommended. As to dosage, the rule of pushing a drug to the point of its physiological action is to be observed.

Regarding other measures, a very important one is that of keeping the patient warm. He should be wrapped in hot blankets. In the use of heaters especial care should be taken to prevent burns, as the

skin is largely insensitive; moreover, the internal pain is so great as to overshadow external pain. A point of practical importance, not mentioned in the text-books, is that of wrapping up the head and applying heaters there. This apparently gave especial comfort to our patient. Elevating the foot of the bed is of some use.

In the treatment during convalescence, a simple diet, as of milk, whites of eggs, arrow-root, ice-cream, etc., is best. Of drugs, protectives and demulcents, bismuth, flax-seed and oils are of value. For tonics, rest, food, fresh air, massage, electricity and, perhaps, strychnia and iron, are of importance, in the order named. While some patients have been reported as well on the next day, it is not uncommon to have convalescence delayed many days, even weeks.

APPENDIX.

CASE 1. P. F. Brick, M.D., of Iowa. Journal American Medical Association, 1887, vol. viii, p. 567. Tincture, seven drachms. Recovery. Emetics, morph., gr. 1-2; ex. digitalis, fl. gtt. 6; strychnia sulph., gr. 1-160; brandy, oz. 1; all hypodermically. By the mouth, two gallons of warm water; ex. digitalis, fl. gtt. 20; coffee, pints 11; whiskey, pints 3; ex. nucis vom. fl. drachm 1-2; port wine, pint 1-2.

CASE 2. T. H. P. Baker, M.D. American Practitioner and News, Louisville, 1887, vol. iv, N. S., p. 122. About eight drops of concentrated fluid extract. Recovery. Emetics, coffee, whiskey (dessertspoonful). Heat. Friction and sinapism.

CASE 3. C. C. Bradley, M.D. New York Medical Record, 1887, vol. xxxii, p. 155. Fleming's tincture, one and one-half ounces. Recovery. Emetics, brandy, ether, digitalis, ammonia carb. Amyl nitrite and warmth.

CASE 4. S. Barnett, M.D. New York Medical Record, 1887, vol. xxxii, p. 761. Tr. aconiti rad., one-half ounce. Recovery. Brandy by mouth and hypodermically. Ether. One quart of cold black coffee. Heat and posture.

CASE 5. Clara T. Dereum, M.D. Medical and Surgical Reporter, Philadelphia, 1889, vol. lxi, p. 376. Amount not known. Patient intoxicated at the time. Symptoms of acute poisoning. Recovery. Emetics, brandy, ammonia and digitalis by the mouth. Sixty minims of tr. digitalis, hypodermically. Heat.

CASE 6. Byron F. Dawson, M.D. Medical and Surgical Reporter, Philadelphia, 1890, vol. lxii, p. 7. Tr. aconiti, amount not known. Child, sixteen months. Marked toxic symptoms. Recovery. Brandy and fl. ex. digitalis, frequently repeated in spite of vomiting.

CASE 7. Benj. Edson, M.D. New York Medical Record, 1890, vol. xxxviii, p. 365. Tr. aconiti, two drachms. Death.

CASES 8, 9 and 10. Dr. Edson mentions certain other cases known of, but not treated by him, three of which died. The amounts taken in these were from one to four drachms.

CASE 11. L. M. Whannel. British Medical Journal, 1890, vol. ii, p. 791. Tr. aconiti (B. P.), one ounce. Death in sixty-five minutes. Mustard, lavage, heat, ether and brandy subcutaneously.

CASE 12. Ditto. Fleming's tincture, one drachm. Recovery. Zinc sulph., tr. digitalis, m. 20, hypodermically. Whiskey, oz. 1, by mouth; followed by calomel, gr. 8.

CASE 13. T. F. H. Smith. British Medical Journal, 1893, vol. i, p. 1109. Fleming's tincture, one teaspoonful. Recovery. Mustard, sp. ammon. comp. (B. P.), tr. bellad., brandy.

CASE 14. Henri E. R. Altenloh. New York Medical Journal, 1893, vol. lxvii, p. 358. Ex. acon. fl., four drachms. Recovery. Emetics: atropine and brandy subcutaneously.

CASE 15. G. H. Tuttle, M.D. Boston Medical and Surgical Journal, 1891, vol. xxv, p. 678. Tr. aconiti, seven and a half drachms. Recovery. Mustard, digitalis and brandy subcutaneously; digitalis, nux vom. and brandy by rectum; ether and ammonia by inhalation; brandy and ammon. carb., by mouth later.

CASE 16. Ditto. Mentioned by, but not seen by Dr. Tuttle. Tr. aconiti, five and a half drachms. Death.

CASE 17. M. A. Warriner, M.D. New York Medical Record, 1891, vol. xxxix, p. 521. Preparation not noted. Four teaspoonfuls. Recovery. Sulphate of copper, digitalis, wine by mouth; whiskey by rectum; whiskey, strychnia, gr. 1-25; digitalin, gr. 1-50, hypodermically.

CASE 18. S. Q. Robinson, Assistant Surgeon, U. S. A. Boston Medical and Surgical Journal, 1892, vol. cxxvii, p. 192. Tr. ac. rad., two drachms. Recovery. Apomorphia, stomach-tube, tr. digitalis, m. 25, sp. ammon. arom., m. 45, brandy, drachms 2, subcutaneously, heaters, sinapism to precordia.

CASE 19. Wm. Hardman. British Medical Journal, 1893, vol. i, p. 1320. Tr. aconiti (B. P.), thirty minims. Recovery. Salt and water, one and a half hours after poison. Zinc sulph., two hours after poison. Charcoal, brandy and water by mouth.

CASE 20. J. D. Leigh, M.B. Edinburgh Medical Journal, 1895, vol. xl, p. 638. Preparation not stated. Five drops. Recovery. Belladonna and strophanthus, champagne, brandy, heaters.

Clinical Department.

A CASE OF ATROPINE POISONING.¹

BY H. F. VICKERY, M.D.

THIS last week I had a case of poisoning of a mild degree from the use of the British Pharmacopœia's unguentum atropinæ upon the intact skin of the breasts of a patient whose child had been dead some days before delivery at term. My object was to prevent the secretion of milk. The nurse had been warned what the symptoms of atropine poisoning were, and no damage was done. The strength of this ointment is eight grains to an ounce. It had been applied to both breasts, with pressure, for three days, when this occurred. The pupils were much dilated with paralysis of accommodation; the throat dry; the heart rapid, (partly, however, from fright, because it was 160 when the nurse took it, and after I talked with the patient a while it came down to 120).

No serious symptoms developed. The disturbance passed away; but it illustrates the fact that ointments are capable of producing physiological effects through the unbroken skin.

It may be added that very little milk was secreted, and that the breasts gave no trouble whatever.

New Instruments.

A NEW MODIFICATION OF THE HIP SPLINT.¹

BY JOHN DANE, M.D., BOSTON.

THE groundwork for the splint shown in the accompanying picture is what has long been known as the "Thomas knee splint." To this has been added a Burrell screw extension, by which it can be somewhat lengthened as occasion may demand. At the bottom there is a windlass and cog-wheel, whereby traction can be made upon the ends of a plaster extension applied to the leg. At the top it is fitted with a pelvic band similar to that now used upon the Taylor hip splints; but so adjusted by means of a hinge joint, that it can be carried sideways when the splint is being put on, and then locked into position by a simple key. The rather broad leathers are sewed to the outside upright, and go thence around the leg and the inside upright as well, lacing up in the front. The upper one is worn as high as possible, the top of the lower should come just below the patella. The perineal strap (when one is necessary) is made of linked window chain, padded with felting and covered with Canton flannel. This is riveted to the splint behind, and fastened in front by being slipped over a hook. When the proper length has been found, all superfluous links of the chain are cut off.

The advantages claimed for the new splint are:

(1) That while it is as easy to adjust upon a sensi-

¹ Shown before the American Orthopedic Association at its Annual Meeting held in Washington, D.C., May 4, 1897.

² Read before the Clinical Section of the Suffolk District Medical Society, February 17, 1897.

tive hip as the common form with two detachable perineal bands, it is more firm when in place.

(2) That it cannot be put on wrongly nor worn too high up, as one so frequently finds the splints which depend for their position upon the length of two adjustable perineal bands.

(3) By replacing the counter-pressure of the yielding perineal straps upon the soft tissues of the groin with that of a rigid metal ring pressing against the tuberosity of the ischium, a firm point of resistance is substituted for a yielding one, and danger from cutting and chafing much reduced.

(4) It is impossible for ignorant parents in out-patient clinics to apply the traction first, and then try and tighten the perineal straps afterwards: the counter-pressure is here the first point established.

(5) It is impossible for a child to loosen the perineal straps and so avoid an uncomfortable amount of traction during the night.

(6) By making the movable perineal strap (where one is necessary) of metal chain, and cutting it to the desired length, it obtains an unyielding and yet flexible means of support and one that cannot be worn too loose.

(7) By means of the broad leathers, passing around both uprights, the leg is held more firmly in the correct position with less constriction than in the common splint with a single upright, and the tendency to genu-valgum or subluxation of the tibia is greatly lessened.

(8) When used for a walking or convalescent splint, the windlass attachment can be cut off. The round ends of the upright are then bent at right angles with the shaft for the last half inch or so and can be slipped into either end of a small piece of tubing fastened to the heel of the shoe. If the length of the upright has been so fixed that the heel of the foot does not quite come into contact with the heel of the shoe, the weight of the body will, when standing, be supported about equally by each of the uprights of the splint. As a consequence, in walking, the customary unpleasant sideways lurch due to the necessity of bringing the centre of weight over the single outside upright of the ordinary splint, is in a great measure done away with.

THE Harben Gold Medal of the British Institute of Public Health, for distinguished services to the Public Health, has been presented to Professor Pettenkofer, of Munich.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR meeting, February 17, 1897, the President, DR. W. F. WHITNEY, in the chair.

DR. E. G. CUTLER and DR. J. W. ELLIOT read a paper on

CHRONIC ULCER OF THE STOMACH; REPEATED HEMORRHAGE; EXCISION OF ULCER; DEATH.¹

DR. LIEBMANN: Regarding Dr. Cutler's case, one thing is not clear to me—that there was any stagnation of food in the stomach, or whether there was any great distention or dilatation of the stomach. We know that, in a complete stenosis of the pylorus, there must be stagnation of the food, and consequently dilatation. However, I may not have grasped that, and would be very thankful to the doctor if he would mention it to me. This case puts me in mind of one of my own, a fatal case, some months ago. It was a man forty years old. When he came to me he did not complain of vomiting, but great pain, constant burning, a boring sensation; but as he was not very intelligent, I had to bring it out that he had pain half an hour after eating. The first time I examined him I found a flat resistance in the region between the umbilicus and the lower margin of the ribs; and later he came back to me after a short interval of improvement, and I could palpate a tumor in the region of the pylorus. I analyzed the contents of the stomach, and found considerable free hydrochloric acid, more than normal. There was very poor digestion of starch. I did several washings-out, and he felt better. In this case there was a considerable stagnation of food after a fast of twelve hours; still I could not make out decided distention of the stomach. The man was not in a cachectic condition. He had lost flesh, like all people who suffer from ulcer; but there was no pallor, no yellowish tint of the skin, and, in short, there was not the aspect of a man suffering from malignant disease. The presence of much hydrochloric acid spoke, as I thought then, against the diagnosis of malignant tumor; and I diagnosed ulcer of the stomach, with hyperplasia or hypertrophic tumor resulting from the ulcer present.

We must remember, though, that the books lay down the rule, that in ulcer of the stomach very rarely there is a tumor to be found, and if a tumor is found, that in itself would speak for malignant disease. Still, there are some cases recorded by Rosenheim and by others where there was no doubt that cancer of the stomach resulted from the ulcer, and that they were both present at the autopsy, the ulcer still persisting, on the ground of which had sprung up a cancer. This man had not vomited except a couple of times; he had never seen any blood escape from his lips. On closer examination he admitted he had seen some dark-colored dejections years ago. I found some hemorrhoids; so I got off the track again. I put him into a private hospital, and commenced to treat him there with much better results than before. I used lavage every morning, and the stomach contents cleared up. After the third or fourth lavage, the wash-water was almost clear; so I thought I had impressed the case favorably, and I was emboldened by this improvement. He felt

¹ See page 54 of the Journal.

hardly any pain. The diet was milk and oatmeal, prepared the way Dr. Fleiner in Heidelberg prepares it. That was all the food I gave him; and emboldened by the improvement, I used a remedy which Fleiner and his old associate Kussmaul recommend highly in bleeding ulcer of the stomach—the use of lavage, and then the introduction in the tube of large doses of bismuth. I commenced to use first about one drachm suspended in water, the patient lying on the stomach so as to spread the powder in close contact with the ulcer. He rapidly gained, and I hoped for the very best. One night I was called in a hurry. The man had had a fearful hematemesis and melena—bloody, tarry dejections. Then I mentioned operation. There was no consent. On the third or fourth night he was taken with another hemorrhage from the mouth, and died with it.

In connection with this case I would say that in the future I would never try to use this remedy, at least not at such an advanced stage of the ulcer. I thought by this treatment I might have brought on hemorrhage. Even lavage would be, in my opinion, a dangerous remedy in these cases. It was lucky the hemorrhage did not occur during my using the lavage.

DR. WHITNEY: I should like to ask Dr. Elliot, when he spoke of the mortality after operation, whether he meant the immediate or remote effects of the operation, and what was the limit of time set for a successful case? Also, in the cases where there had been perforation and the gastric contents were in the abdominal cavity, how long after the accidents had taken place were the operations done?

DR. ELLIOT: These mortalities which I have tried to give are collections of 400 or 500 cases from all sorts of sources; and I cannot give any accurate statement of time. I take it to mean the recovery from the resection until the stomach is in working order. It is the immediate mortality; it is not the remote mortality, I am sure. The shortest time in those cases of perforation was five hours. That case recovered. No case recovered after the perforation had existed twenty-four hours. It was considered, in the judgment of the operators who summed up the cases, that altogether the best chance was in the first twelve hours, rather a poor chance anywhere after twelve hours, and almost no chance after twenty-four hours. I should state that one case was brought to the surgical ward, after a perforation, in such poor condition that an operation was considered inadvisable, and after a long illness the patient recovered.

DR. CUTLER: In reply to Dr. Liebmann's question about dilatation of the stomach, we diagnosticated that, and thought we proved it. In the first place, the person when he came in or shortly afterwards vomited material, according to his story, which he had taken thirty-six to forty-eight hours before. We got in the stomach wash some of the food we had given him twenty-four hours before; and it was pretty evident that his absorptive capacity was not great. I did not feel justified in blowing him up to see how much he would hold. The diagnosis was pretty conclusive from the time I saw him. His personal appearance and history were such that we could not go astray on the diagnosis.

With reference to Dr. Hewes's observations,² on the gastric juice in health, it seems to me they are the most valuable we have had up to this time, as they are the most numerous of any I have in mind at the pres-

ent time. They are very carefully carried out and very valuable, and I think they will give us a good deal of information. He is to be congratulated on the careful and conscientious manner in which he has worked up his subject. I am sure they will be of the very reatest value to us.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

ELEVENTH ANNUAL MEETING, WASHINGTON, D. C.,
May 4-6, 1897.

(Concluded from No. 2, p. 40.)

SECOND DAY. — WEDNESDAY.

URETHRO-RECTAL FISTULA.

DR. JAMES P. TUTTLE, of New York, read a paper with this title. He first reviewed the literature on the subject, and referred to the comparative rarity of this condition, which consists of a fistulous tract between the urethra and the rectum. The principles underlying the successful treatment of these fistulae, briefly stated, are as follows, and differ but little from those laid down by Duplay:

(1) Remove all obstruction to the passage of urine or intestinal contents through their normal channels. This involves the treatment or removal of rectal or urethral stricture, polypi or other tumors, and the overcoming of sphincteric spasm and obstruction at the anus.

(2) Protect the parts from the abnormal passage of urine or fecal matter and gas.

(2) The therapeutic and surgical treatment of the fistulous tract itself.

The application of stimulating agents or cauterization should be patiently tried before resorting to more radical measures.

After describing the various operations that have been resorted to in these cases, Dr. Tuttle gave a brief report of three cases of urethro-rectal fistula coming under his care. In the first case the fistula opened into the rectum about half an inch above the external sphincter and was large enough to easily admit the end of the index finger. The floor of the urethra was absent to a considerable extent, and required to be rebuilt. There was considerable though not excessive connective-tissue deposit about the opening, and a stricture of the membranous urethra anterior to the fistulous opening. After several days' preparation and treatment to sterilize the urinary and intestinal secretions, he operated on August 30, 1896, as follows:

The sphincter was thoroughly incised and all the cicatricial tissue cut away with scissors, thus freshening the edges of the fistula at both ends. The intestinal wall was then dissected from its anterior attachments, up to a point three-quarters of an inch above the fistula and half an inch to each side. The stricture of the urethra was then operated on by perineal section, the incision being carried backward into the fistulous opening. A flap was then dissected from the soft tissues at either side of the urethra large enough to replace that portion of the floor which had been destroyed. These were sewed together with catgut sutures over a full-sized sound introduced through the meatus in order that the calibre of the canal might be

² Read at the meeting, but not as yet published.

accurately re-established and no pocket left. The fistula being thus closed, the sound was withdrawn and the fresh perineal wound and anterior incision in the urethra left unsutured. The edges of the intestine were then sewed together with chromicized catgut, and the rectum packed with iodoform gauze, a drainage tube having been introduced for the escape of gas. A soft, No. 12 catheter was introduced into the bladder through the meatus and fastened there. It seemed to cause no inconvenience, and was left in for eighteen days, the bladder and perineal wound being irrigated daily with Thiersch's solution. The perineal incision was loosely packed with absorbent gauze and dressed with an ordinary T bandage. Convalescence was uneventful, the perineal wound healing in about six weeks. The patient left the hospital December 1, 1896, perfectly well.

Two other cases were reported by Dr. Tuttle in which the operation proved successful.

DR. SAMUEL ALEXANDER called attention to the fact that these cases not infrequently relapse after operation. Personally, he had been very unsuccessful in operating on this class of fistulae, and he thought that a good result in many instances was due to the fact that the fistula was a very small one and that there was not a great amount of cicatricial tissue.

DR. J. BLAKE WHITE mentioned the importance of keeping the urine from coming in contact with the wound after operation. In urethro-rectal fistulae of traumatic origin an operation would be much more likely to prove successful than in those cases where the condition is the result of a syphilitic or tuberculous infection.

DR. BRYSON could recall only two cases of urethro-rectal fistula which were not of tuberculous origin. The speaker said that when a stricture of the urethra or rectum existed in these cases, it should be removed before any other operation was undertaken, as by removing the stricture we give the fistula an opportunity to heal.

The discussion was continued by DR. FULLER and then closed by DR. TUTTLE.

PRIAPISM.

DR. R. W. TAYLOR, of New York, read a paper on this subject. He stated that this affection may be divided into the following classes:

(1) Priapism observed in infants and children, induced by reflex action, in cases of long, tight, adherent prepuce, of stone in the bladder or prostatic urethra, and of worms in the rectum.

(2) Priapism in adult subjects, symptomatic of stone in the bladder, stone in the prostatic urethra, stricture, cystitis, and observed during retention. In these cases the uneasy or painful sensation is felt in the glans penis, while the body of the organ usually is only moderately congested and sometimes curved downward or laterally. This condition disappears upon the removal of the cause.

(3) Priapism symptomatic of gonorrhea, with perhaps involvement of the corpus spongiosum and downward curvature. This condition is painful and transitory, and may occur several times during the night. In cases of downward curvature of the penis due to inflammatory engorgement of the corpus spongiosum and spasm of the musculature of the urethra, the term *chordee* is applied.

(4) Priapism due to the ingestion of cantharides,

which is a form that is seldom or never seen now, since this drug is so rarely used in medicine.

(5) Essential priapism. The latter form, which was the only one considered by the author, may be divided into four varieties:

(a) Priapism caused by injury to the spinal cord (either high up or low down) and by blows or violence inflicted upon the perineum.

(b) Priapism which is a symptom of cerebral or descending spinal-cord disease.

(c) Priapism which occurs after alcoholic and sexual excesses.

(d) Priapism which comes on a person in ill health in whom it is difficult to obtain data as to local injury and causation, and in which cases there is now a tendency to look upon leukemia as the etiological factor.

Prognosis.—Few definite statements can be made as to the prognosis of priapism of any form. In those cases in which injury to the corpora cavernosa or thromboses can be made out, incisions may greatly expedite the cure. The existence of spinal disease necessitates a guarded prognosis. In very much run-down neurasthenic subjects, in sexual perverts, and in those suffering from leukemia the chances are that the priapism will be very persistent and that relapses are apt to occur.

Treatment.—In surveying the results of treatment of the cases of priapism already published, one is forced to the opinion that nothing like a routine method can be laid down. This much, however, can be stated with emphasis: Chloroform narcosis has failed in every case in which it has been used; ice usually does more harm than good; electricity has no value, and may even be harmful; and leeches to the number of sixteen and forty have failed to produce any amelioration in the condition of the penis, and have been injurious in their depletory effects.

The speaker said that his own preference in dealing with these cases is to resort early to moderate and tentative incisions into the most turgid part, or into parts which are the seat of continuous pain, or into nodular masses in all probability the result of traumatism. It is always good practice in priapism to use either the potassium salt alone or in combination with mercury, when a history of antecedent or present syphilis is elicited. A number of cases are on record in which the condition was relieved by potassium iodide. Bromide of potassium, chloral, belladonna and morphine may be of benefit, especially during paroxysms. Hot baths, hot and cold spinal douches, sponging with hot water, spinal cauterization, anodyne poultices and perhaps ice-bags may be found beneficial, but the latter must be guardedly used. Any ephemeral or systemic disorder should receive appropriate treatment.

DR. BRANSFORD LEWIS reported a case of persistent priapism, of a moderate degree, which was cured by ligating the dorsal artery of the penis on each side.

DR. J. WILLIAM WHITE said that in some of these cases, where there is an exudate which constitutes a mechanical cause of the priapism, it might be well, if other measures failed, to try thyroid extract, which modifies the nutrition and sometimes causes absorption to a remarkable degree.

CHRONIC CONTRACTION OF THE PROSTATIC FIBRES ENCIRCLING THE VESICAL NECK.

DR. EUGENE FULLER, of New York, read a paper

with this title. He stated that the condition to which he referred as chronic contraction of the prostatic fibres encircling the vesical neck represented a pathological change in the part, and was totally different from what the French writers (Civiale, Roux, Velpeau and others) have termed "neuralgia of the vesical neck" or "contraction of the vesical neck." The chronic contraction to which he referred, however, bears a relationship to the functional one in that it represents a pathological state which may apparently result from functional contraction or spasm in cases where, owing to some settled disorder of the sexual apparatus, the rectum, the kidney or other organ, functional contraction of the vesical neck has existed as a prominent symptom for a long period. The contraction is permanent, rigid, and does not relax even under profound anesthesia. If a periceal incision is made in such a case, and the finger passed into the membranous urethra in an attempt to enter the bladder, the fingertip will find itself tightly engaged in a ring-like contraction in the deepest portion of the prostatic urethra, where under normal circumstances the canal should be wide, funnel-shaped and elastic, merging itself into the vesical cavity in such a manner that it is impossible simply from the feel to determine just where the urethra ends and the bladder begins. The presence of such a contraction, however, cannot be detected by means of a good-sized sound passed through the urethra. If the surgeon feels carefully with the finger-tip he will discover the urethra just in front of the circular contraction to be roomy and somewhat pouched. The mucous membrane of the entire portion of the deep urethra will ordinarily feel perfectly normal and free from any evidences of previous inflammation. The condition is not associated with prostatic hypertrophy. After the contraction has been thoroughly ruptured or cut through, little evidence will be left to the feel to indicate the nature of the lesion which previously existed. Dr. Fuller said he had thus far been unable to procure a histological examination of the unusual condition, as all of his patients suffering in this manner had recovered as the result of the operation.

The clinical symptoms prominent in cases of this nature, and in fact it might be said the only true symptom dependent on the lesion itself, was an inability, either complete or partial, to void urine. This inability is of gradual development and may at first be intermittent in character, but after a time it becomes permanent. Next in order, the patient experiences temporary attacks of complete retention. For a number of hours he may be unable to urinate. Early attacks of this nature may pass off of themselves as a result of rest, sitting in hot water, etc.; but after a time it will be found necessary to employ a catheter and empty the bladder on one or several occasions before nature will reassert herself. Finally, all power to urinate naturally is lost, and permanent recourse to the catheter is necessary. If pain or other symptoms be present, they are due either to the existence of some disorder of the sexual apparatus, kidney, etc., which has acted as the originator of the trouble at the vesical neck, or else to vesical infection, which has resulted from instrumentation or stagnation of urine due to the retention. These symptoms are of slow development.

A diagnosis of this condition has to be made largely from the clinical history of the case, together with an exclusion of other causes which may produce impediments to urination.

The only treatment for chronic contraction of the prostatic fibres encircling the vesical neck which in the writer's experience had shown any favorable results consists in thoroughly rupturing or cutting through these fibres. This can be accomplished by means of the finger or the knife, as the case may be, introduced through a perineal incision. Perineal vesical drainage should be practised after the operation. This treatment in his hands has been followed by complete disappearance of all subjective symptoms.

Dr. Fuller then detailed the histories of four cases of this affection coming under his observation in which an operation was required to relieve his patients.

DR. CHISMORE said that Dr. Fuller's paper very accurately described a condition which he had met with on several occasions. In all of those cases, with one exception, the result of operative measures was as stated by the reader of the paper.

DR. ALEXANDER said that this condition of contracture of the prostatic fibres had been first called to his attention by Dr. Keyes, and a number of such cases had come under his observation. His own conviction was that the condition did not consist merely of an affection of the fibres, but of the whole substance of the prostate, and that the muscular contracture of the bladder was the active way in which this morbid condition of the prostate manifested itself. The sudden attacks of retention he thought were to a great degree the result of congestion.

DR. BRYSON said it would be interesting to learn of what these contractures consisted, whether of hypertrophy of the tissues normal to the parts, or of a deposit of abnormal, cicatricial tissue.

DR. BANGS said he was inclined to think that the cases described in Dr. Fuller's paper were of quite common occurrence. The etiology had been in his mind traceable to some antecedent inflammation or disturbance of the prostatic urethra. He had also observed that where there is a loss of harmony between the circular and detrusor fibres, with residual urine, the cases are not cured until the bladder is drained and harmony restored between the different muscular parts of the organ.

DR. ALEXANDER said that complete division of the fibres in this class of cases is not always as harmless a procedure as might be inferred from what had been said. Three instances had come under his observation where incontinence of urine followed the operation.

DR. FULLER, in closing the discussion, said that this contracture of the prostatic fibres was not a rare condition, but the cases had never been systematized, and little attempt had been made to ascertain their etiology. The speaker said that while incontinence may result from the operation, it is usually only temporary. All operative interference should be avoided in a case where the vesical symptoms are entirely due to a neurosis, or where there is a suspicion of locomotor ataxia.

TUBERCULAR NECROSIS OF THE PROSTATE.

DR. EUGENE FULLER read a paper on this subject. He stated that tuberculosis in connection with the prostate is spoken of in most text-books as a common occurrence. Most of the writers, however, use the term "prostate" very loosely, it being made to include, besides the prostate proper, the neck of the bladder, the deep urethra and the seminal vesicles, together with their ducts. Dr. Fuller expressed the

opinion that while tuberculosis in connection with the deep urethra and the genital tract is of common occurrence, tuberculosis of the prostate is rare.

DR. CHISMORE said that Dr. Fuller's observations on this subject were wholly in accord with his own. In one case coming under his observation the tubercular disease almost surrounded the prostate, and yet that organ was not involved.

DR. ALEXANDER said that tubercular necrosis of the prostate alone does occur at times, without any involvement of the mucous membrane either of the bladder or prostatic urethra, and the ulceration may find its way into the rectum without any injury to the urethra. During the past year he saw one such case.

A NEW METHOD OF REMOVING POLYPOID GROWTHS FROM THE BLADDER.

DR. GEORGE CHISMORE, of San Francisco, said this method was discovered by him accidentally. It consists of the introduction into the bladder of a litholapaxy catheter attached to an aspirator; by means of suction the growths are caught in the eye of the instrument, and by gentle traction and slight to-and-fro movements they are torn from the attachments and drop into the reservoir of the wash-bottle. This method of removing polypi, Dr. Chismore said, he considered justifiable in cases of emergency, until more radical measures could be resorted to. It is particularly valuable in those cases where the bladder is filled with clots, and retention from over-distention is present, with its attendant suffering.

DR. BANGS said that in one case of polypi of the bladder he had employed applications of hot boric-acid solution with very good success.

DR. BRYSON said he had never seen a papilloma of the bladder which did not eventually prove to be malignant.

DR. FULLER expressed the opinion that the method of treatment described by Dr. Chismore might be advantageously employed in combination with the cystoscope. In some cases he thought a more radical operation was indicated.

DR. WATSON reported a case of recurrent vesical papilloma coming under his observation. He was surprised to hear that there was so little hemorrhage after the operation employed by Dr. Chismore. Personally, he preferred to have the bladder open, so that any severe bleeding could be promptly checked.

DR. CHISMORE, in closing the discussion, said he did not offer the method as a substitute for more radical measures, but one which might prove of value in an emergency. Instead of producing hemorrhage, it checked it.

DR. WILLIAM JUDKINS, of Cincinnati, reported a case of

RECURRENT STONE IN THE BLADDER OF A CHILD.

When the boy was seven years old, a calculus weighing 93 grains was removed by suprapubic cystotomy. Seven months later a second stone, weighing 85 grains, was removed by median lithotomy. An interesting point in connection with the case was the rapidity with which the second stone formed.

DR. CHARLES L. SCUDDER, of Boston, described A CASE OF NEPHRECTOMY FOR CYSTIC ADENOMA IN A PREGNANT WOMAN.

The patient was a woman, three months pregnant,

with a tumor in the left lumbar region. The tumor was aspirated and some fluid withdrawn, which contained, among other matters, a large quantity of bile. A few days later nephrectomy was performed, the left kidney, from which the tumor originated, being removed. The pathologist reported that the case was one of cystic adenoma of the kidney, with a tendency to hyaline degeneration of its contents. The case, Dr. Scudder said, was of interest for several reasons. It is unusual to find bile pigment in a cyst of the kidney. The operation did not interfere with the completion of gestation. A subsequent pregnancy was normal in every respect. It required seven days after the operation for the remaining kidney to secrete what now is the normal amount of urine, namely, about 900 c. c.

DR. G. W. ALLEN, of Boston, made a

REPORT OF A CASE OF HERNIA TESTIS.

J. C., twenty years of age, came to the Boston Dispensary on February 20, 1897, with long-continued gleet and what appeared to be an ordinary epididymitis of three weeks' duration. Four days later a prominent swelling, as large as a hazel-nut, was seen over the front of the testicle. It was conical in shape, and the overlying skin appeared tense and thin. It resembled a tubercular abscess of the epididymis. Upon incision there was a very slight flow of thin pus and a bulging out of soft, yellowish-gray, spongy tissue, which suggested testicle and proved to be such. Some sloughing of the testicle and the skin continued and the former gradually protruded more and more for two or three weeks, by which time the sloughing tissue had separated and a very slow process of repair had set in, which, however, is not yet complete. The incision was enlarged, and several unsuccessful attempts made to cover over the testicle with sound skin. The cavity of the tunica vaginalis gradually filled up with granulations, and there is now a simple granulating surface, as large as a five-cent piece, with a small area of testicle in the centre. A month after the patient's first visit a sore appeared on the prepuce which became indurated in due time and was followed by a secondary roseola. This apparently excludes syphilis as a cause of the orchitis. No evidence of tuberculosis could be discovered.

THIRD DAY. — THURSDAY.

A POSSIBLE AID TO THE DISCOVERY OF THE TUBERCLE BACILLUS IN THE URINE.

DR. JOHN P. BRYSON, of St. Louis, read a paper on this subject. He stated that in the course of his routine work he had accidentally discovered that when tubercle bacilli were present in the urine, they were much more abundant in the residual than in the tidal urine, and in some cases they were found in the former while in the latter they were absent entirely. This fact has led to the suspicion in his mind that the bladder, in some cases, acted as a trap to catch and retain the bacilli, and he thought it even possible, under favorable circumstances, especially where there was blood and pus in the urine and where the bladder did not completely empty itself, that the bacilli might reproduce themselves there.

Recently, Dr. Bryson said, he had instituted some observations in order to learn the relative difference in the residual and tidal urine. These experiments were carried out as follows: The patient was requested to empty his bladder as completely as possible. A

catheter, properly sterilized, was then introduced, and the residual urine, which sometimes consisted of only a few drops, was drawn off. The result of these experiments, taken as a whole, showed a remarkable difference between the number of bacilli found in the tidal and in the residual urine.

DR. EDWARD MARTIN said that his results in searching for the tubercle bacilli in the urine was mostly negative, certainly in the early stages, and sometimes even when there was profuse suppuration. They were only found in exceptional cases.

DR. CHISHMORE said that his experience with cases of tuberculosis of the genito-urinary tract had led him to be very wary of instrumental interference where it could possibly be avoided. The clinical symptoms will often give a strong suspicion of tuberculosis long before the bacilli can be identified.

DR. W. K. OTIS said the tubercle bacilli are only found when there is an opening in some portion of the genito-urinary tract which allows them to escape into the urine. The urine may be full of pus, and yet the bacilli are absent unless there is an open lesion.

THE RELATION OF OXALURIA AND URIC-ACID EXCESS TO GENITO-URINARY INFLAMMATIONS AND DISORDERS.

DR. BRANSFORD LEWIS, of St. Louis, read a paper on this subject. After calling attention to the paucity of literature bearing on it, Dr. Lewis reported a number of cases coming under his observation. He gave the following as his conclusions:

(1) Both oxalic- and uric-acid may appear in the urine, either in a physiological or a pathological manner.

(2) When pathological, they may exert certain injurious effects on the genito-urinary organs.

(3) These effects may be either the inciting of disease where there has been previous health, or they may act by rendering more serious and resistant to ordinary methods of treatment other inflammations and disorders (gonorrheal, etc.) of those organs.

(4) The uric-acid element is not always frankly evident as a causal or complicating factor in such cases; and

(5) When recognized, it is neither more nor less easily controlled than where its disease-manifestations occur in other organs of the body.

(6) When either the oxalic- or uric-acid element is acting injuriously in the ways mentioned, systematic treatment (dietary, medicinal and hygienic) is demanded, and may even take precedence over the local measures that are usually considered sufficient in such inflammations or disorders.

DR. J. WILLIAM WHITE said that he had been in the habit of associating the uric- and oxalic-acid diatheses chiefly with nervous affections of the genito-urinary tract, such as impotence or pseudo-impotence, rather than with the infective inflammations of the urethra. He had observed two cases of hematuria where the presence of the blood was inexplicable on any other theory than that it was due to the uric-acid diathesis.

DR. BANGS said it had long been his practice to study these pathological changes in the urine and their relation to the urinary tract, and it appeared to him that when these acids are present in excessive amounts they render the urethra more vulnerable and more

susceptible to those conditions which we recognize as chronic.

DR. WATSON said he had observed a number of cases of acute urethritis in persons who had never been exposed to gonorrheal infection and whose urine contained an excessive amount of uric acid or urates; those cases, he said, yielded to systemic treatment more readily than an ordinary gonorrhea would have done. He mentioned a case of intermittent hematuria in a man who suffered from persistent oxaluria.

DR. BRYSON said he had often observed that the presence of uric- or oxalic-acid crystals in the urine aggravated inflammatory conditions of the bladder or urethra.

DR. LEWIS, in closing the discussion, said he had observed one case of persistent hematuria which depended on the presence of oxalate-of-lime crystals in the urine. In the treatment of the oxalic-acid diathesis, a meat diet was indicated, while in the uric-acid diathesis, a vegetable diet was preferable. As regards drugs, the speaker said he had often obtained good results from the salicylates, preferably in the form of salophen, which does not disturb the stomach as much as salol.

DR. WILLIAM K. OTIS, of New York, exhibited an INSTRUMENT FOR PHOTOGRAPHING THE INTERIOR OF THE LIVING URINARY BLADDER.

The following officers were elected for the ensuing year: President, Dr. J. William White, of Philadelphia; Vice-President, Dr. James Bell, of Montreal; Secretary, Dr. Wm. K. Otis, of New York.

It was decided to hold the next meeting of the Association at Sing Sing, N. Y., in June, 1898.

Recent Literature.

System of Diseases of the Eye. By American, British, French, Dutch, German and Spanish authors. Edited by WILLIAM F. NORRIS, A.M., M.D. and CHARLES A. OLIVER, A.M., M.D. Vol. I, pp. 670. Philadelphia: Lippincott. 1897.

This is the first System of Diseases of the Eye written in the English language. It contains about fifty monographs upon various subjects relating to the eye and the surrounding parts, which have been conveniently arranged in four volumes, and each article has been carefully prepared by some one who has shown an especial familiarity with the subject. The first volume, which is a collection of eleven papers upon the embryology, anatomy and physiology of the eye, has only recently been published; and if the three other volumes, which are promised to follow at intervals of several months each, are as satisfactory as the one at present before us, the need of something similar to the "Handbuch" of Graefe-Saemisch in German or the "Traité Complet" of de Wecker and Landolt in French will be no longer felt.

The late John A. Ryder, Ph.D., Professor of Comparative Embryology, University of Pennsylvania, to whom the Section on Development of the Eye had been assigned, has succeeded in making a subject usually so difficult to understand both interesting and easy of comprehension. He describes the human mammalian embryo, the cell-aggregate, and its differentiation into the different germinal layers. The

appearance of the medullary plate and its transformation into the medullary canal are explained, and then the reader is carried rapidly along through the formation of the cerebral vesicles and their off-shoots, the optic vesicles, and their subsequent invagination giving rise to the globe and lens. The progress of the globe from its lateral to the anterior position, together with the formation of the oral and nasal cavities and the out-growths forming the nose and face, are gone into with great thoroughness. The author has not hesitated to introduce many very good cuts, and has borrowed largely from the works of others upon the lower animals, whatever material may seem to him to be necessary to explain obscurities in the text when they arise. The different parts which go to make up the eyeball are then considered separately, and their development traced step by step from the primitive germinal layers. After which comes for consideration the innervation of the globe, the origin and growth of the optic tracts and their connection with the cerebral centres, accompanied by several excellent reproductions of Bernheim's own plates. The description of the development of the extrinsic muscles of the globe and lids concludes this portion of the work.

The next paper, which has for its title "The Anatomy of the Orbit and the Appendages of the Eye," has been very well written by Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy, Harvard University, who has treated the subject topographically as far as possible, with an endeavor to give an accurate description of the various parts and their relative position one with another. For example, when describing the bony framework of the orbit, he says, "The practitioner needs to know which parts are strong and which are weak, and also what are to be found on the other side of the walls." In view of the importance of a clear understanding of topographical relations, transverse frozen sections at different levels were made especially for this work, and by a more or less diagrammatic representation give an excellent idea of the difference in thickness of the walls, the position of the sinuses and ethmoid cells. A series of antero-posterior frozen sections, as presented, effectually do away with the belief in the existence of a three-sided canal formed by the cornea and closed lids for the passage of tears. That simplicity has been an aim of the writer can be seen from a quotation taken from that part of the paper which describes the capsule of Tenon: "As the complications of this membrane are limited only by the perverted ingenuity of those who describe it, let it be understood that in this paper is meant only the capsule around the globe"; and later, "Although the fibrous tissue of the sheaths of the muscles is undoubtedly continuous with that of the capsule of Tenon, it seems unnecessary to make them expansions of the latter." The relations of the vessels and nerves are carefully explained, and the paper closes with a brief synopsis of the orbital contents as they appear when viewed from above.

It is impossible with the limited space at command to give an adequate conception of the comprehensive treatment that the next section of the work, entitled "The Anatomy of the Eyeball and the Intra-orbital Portion of the Optic Nerve," has received by Frank Baker, M.D., Ph.D., Professor of Anatomy, University of Georgetown. The subject has been handled

very broadly without attempting to adhere to the conventional lines of strict anatomical description. Thereby has resulted a very readable and instructive collection of data following along one after another in logical sequence. Dimensions, both the result of personal observation and what it has seemed fitting to select from the work of others, are recorded with great patience. An extensive knowledge of embryology, physiology and histology has been freely drawn upon, and other sources of information appear as foot-notes, which in themselves form a lengthy bibliography that makes this part of the treatise of value in an historical sense. Theories that have recently emanated from anatomists and physiologists intended to throw light upon questions now being discussed, are given proper consideration; and throughout this paper there is noticeable a commendable spirit of fairness, as well as a moderation in accepting statements which at first might not seem to be sufficiently supported by evidence.

George A. Piersol, M.D., Professor of Anatomy, University of Pennsylvania, has, in his description of "The Microscopical Anatomy of the Eyeball," produced what would form quite a pretentious volume if published separately. The subject has been handled quite cleverly, and is well worth attentive reading. The passage of non-diffusible substances from the anterior chamber into the canal of Schlemm, recently found by Leber to depend upon the amount of aqueous humor which had escaped previous to the injection, clears up obscurities regarding the relations of these parts, but the nature of the communication still remains to be settled, although it is probably by minute clefts between the epithelial elements of the walls of the channel. The question of the existence of dilator fibres in the posterior layers of the iris and their possible connection with delicate spindle cells found in that region is very well presented. The retina must now "be considered to be a peripherally placed portion of the nervous system, and not merely as a complex percipient apparatus of light stimulus," although there still remains much uncertainty regarding the mode of light transmission from the percipient elements to the nervous centres. Every nerve cell is also to be regarded as "an independent individual element," which neither forms networks with its own and other cell ramifications nor has actual union with them. Recent observations have shown conclusively the presence of large neuroglia cells within the supporting tissue of the optic nerve which closely resemble smaller cells found in the fibre layer of the retina. The zonule of Zinn is made up of fibres running in different directions, and entirely independent of the hyaloid and the canal of Petit, that annular-appearing canal, triangular on section, no longer exists as such, but is really a locality of intercommunicating spaces forming a part of the posterior chamber. The writer, in attempting to include within prescribed limits practically all that is accepted in the histology of the eye, has succeeded remarkably well with a difficult task.

Dr. Alex Hill, of Cambridge, England, insists that a correct appreciation of "The Intracranial Portion of the Visual Apparatus," can only be obtained by taking it in connection with embryology, physiology and pathology. The methods of investigation are so intricate and the results obtained so incommensurate with the amount of work done when the territory of

the brain has been invaded that such research is more in harmony with the tastes of the inquiring neurologist than the busy ophthalmologist. Facts, such as are now accepted as true, are ably presented, and the many problems still vexing the investigator offer incentive for further effort in this direction. The anatomical portion of the volume concludes with a paper which deals with "Congenital Malformations and Anomalies of the Human Eye," and the title fully defines the nature of the paper, which is in great part a compilation of much that is reminiscent to those who have been acquainted with the professional activity of William Lang and Treacher Collins at the Royal London Ophthalmic Hospital.

The Physiological portion consists of a series of articles entitled "The Dioptrics of the Eye," by Edward Jackson, A.M., M.D.; "The Perception of Light," by T. McKeen Cattell, of Columbia College; A translation of a paper by Eugen Broadhun, M.D., of Berlin, on "Binocular Vision"; "Normal Color-Perception," by William Thomson, of Philadelphia; and "The Photo-Chemistry of the Retina," by Carl Mayo, M.D., of Heidelberg, translated by J. A. Spalding, M.D. It has not been thought advisable to attempt to give in detail a description of the matter and views embraced by these titles, for that is found to be impossible. Let it suffice to say that the individual writers have succeeded so well with their task that the results justify their selection. This first volume of the promised system is worthy of careful reading from cover to cover, and will undoubtedly create a lively interest in those which are to follow.

W. D. H.

THE LATE DR. WILLIAM T. LUSK.—At a meeting of the medical board of St. Vincent's Hospital, New York, on June 14, 1897, to take action on the death of Dr. William T. Lusk, it was resolved to give expression to the deep sorrow of the members of the board at the death of one who had labored so long and so well for the institution and for its inmates, and of a colleague who, by his courtesy and geniality, had won the high esteem of his associates. It was further resolved to express to the family of the deceased the condolence of the members of the board, and to forward a copy of the record of this action to the medical journals.

THE PROGRESS OF DERMATOLOGY DURING THE VICTORIAN ERA.—In the fourteenth century, as stated by Horner, diseases of the skin were classified under three heads: one consisted of those which could be cured by the use of sulphur; the second, those which could be cured by mercury; and the third, those which the devil himself could not cure. But science has made some progress since Satan's efforts as a dermatologist proved to be futile, and it must be conceded that during recent years few specialties have made such gratifying progress as that which deals with the treatment of diseases of the skin. A history of the progress of dermatology during the Victorian era would make an interesting chapter in connection with all the other records of wonderful achievements associated with the Queen's glorious reign. — *Medical Press and Circular*.

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MEDICAL RETICENCE.

In a recent trial in this State a medical witness was obliged by the court to reluctantly testify to facts in a former patient's history, which he had regarded as confidential, and it must have seemed to him that he was made to violate one of the cardinal principles of his profession. What protection has a patient, may well be asked, if even after his death his physician is compelled to reveal secrets which have been reposed in him of a delicate, compromising, or damaging character in a time of sickness and suffering?

No doubt most of the readers of the JOURNAL are familiar with the now celebrated English trial based upon the sacredness of professional confidences, which took place during the past year. Apropos of this trial, Charles Mercier, M.B., of London, has published an admirable paper in a recent number of the English *Journal of Mental Science*, entitled "Medical Reticence," which we wish might be read by any of the brethren who entertain doubts as to their professional duty in refraining from revealing their patients' secrets.

"Only when our inquiries are unrestricted and our means of obtaining knowledge unfettered," Mercier truly says, "can we gain such an insight into the nature of a malady as will justify us in determining on its treatment. For this reason we demand from our patients unlimited candor. This principle we hold justifies us in disregarding the pride of men, and the natural modesty of women. We demand from them answers to our most searching questions on their most private and delicate affairs. We require them to put themselves into unseemly postures, and to submit to humiliating manipulations; and our demands and requirements are unreservedly conceded. But they are conceded assuredly upon the implied understanding that so great a concession carried with it a corresponding obligation, and that obligation is the obligation of secrecy."

He goes on to say that "in these latter days medi-

cal men have become lay confessors. The consulting-room has taken the position of the confessional, as the place where all hearts are open and no secrets are hid."

The conclusion at which Mercier arrives is, "that a medical man is not, under any circumstances, justified in revealing the confidence of a sane patient without the patient's consent." He is careful to make the limitation of the patient being *sane*, because in certain cases, the rule cannot be applied to all confidences of the insane, as, for instance, where the insane person confesses that he has concealed a weapon with a view to killing some one.

We regret that we cannot give a fuller abstract of Mercier's paper, as it goes into many points of interest which arose in the English trial already referred to. The moral which we wish to draw is, that the medical man cannot be too careful in holding the confidence of his patient as a sacred trust, which he must guard and protect as scrupulously as he would his own honor. Expression with us in these days is made so easy that we are too apt to wear not only our hearts, but our thoughts and opinions upon our sleeves. Let us see to it that we cultivate the virtue of silence which is golden, and refrain even from medical gossip about our patients, which, though often toothsome for the moment, is lowering to a high professional standard.

In a previous editorial on "Privileged Communications to Professional Men" (Vol. CXXXIV, p. 349), we commented on the discreditable fact that in some of our States, Massachusetts among others, the courts are allowed to, and do, compel physicians to reveal professional secrets, although lawyers are protected in their refusals. Inequality and injustice in law is, however, no excuse for laxity of personal trustworthiness.

MEDICAL NOTES.

A STATUE OF PIROGOFF.—One of the events of the International Congress at Moscow will be the unveiling of a statue of Pirogoff.

THE GERMAN GYNECOLOGICAL SOCIETY.—The Seventh Congress of the German Gynecological Society was held this year at Leipzig, on June 9th and two following days, under the presidency of Professor Zweifel. Among the subjects discussed were Retroflexion of the Uterus and Placenta Previa.

THE FRENCH CONGRESS OF SURGERY.—The Eleventh Congress of the French Association of Surgery will open at Paris at the Faculty of Medicine on Monday, October 18th, at 2 o'clock, under the presidency of Dr. Gross, Professor of the Faculty of Medicine at Nancy. "Two questions have been submitted to the Congress: first, Contusions of the Abdomen," by M. Demons, of Bordeaux; second, "The Indication for Operation and Treatment of Cancer of the Rectum," by MM. Quenu and Hartmann, of Paris.

BOSTON AND NEW ENGLAND.

THE MASSACHUSETTS STATE BOARD OF HEALTH WILL FURNISH TETANUS ANTITOXIN.—We learn

that the State Board of Health has prepared, at its Bacteriological Laboratory, a limited supply of tetanus antitoxin, which will be furnished to hospitals and physicians on application, as occasion may demand.

J. M. DA COSTA, M.D., LL.D.—At the annual commencement of Harvard University, on June 23d, the honorary degree of Doctor of Laws was conferred upon Dr. J. M. Da Costa, of Philadelphia.

PAUL F. MUNDÉ, M.D., LL.D.—At its recent commencement, it being also the centenary of the Medical School, Dartmouth College conferred the honorary degree of LL.D. on Dr. Paul F. Mundé.

THE NEW HAMPSHIRE STATE ASSOCIATION OF BOARDS OF HEALTH.—The second meeting of the State Association of Boards of Health was opened in Concord on July 12th, with a large attendance. Dr. George Cook, of Concord, presided, and papers were read by Prof. Robert Fletcher of Dartmouth College on "Public Rights vs. Personal Liberty in Health Affairs," and by Prof. F. W. Morse, of Durham, on "The Farm Water-Supply." At the afternoon session papers were read by Dr. L. Pope, Jr., of Portsmouth, on "Pure Milk," and Dr. C. H. Shedd, of North Conway, on "Sanitation of Our Mountain Resorts."

NEW YORK.

THE MORTALITY OF THE HOT WEATHER.—During the week ending July 10th there were reported 966 deaths, an increase of 135 over the week preceding. This increase was, of course, attributable to the hot weather that prevailed. Of the total number of deaths, 215 were due to diarrheal diseases, and there were 545 deaths in children under five years of age; while the number of deaths directly from sunstroke was 10. There were but 2 deaths from measles, the smallest mortality from that disease for many months, and the number of deaths from pneumonia, 65, was also the smallest for a long time. There was one death from small-pox, and none from typhoid fever.

EFFECTS OF HEAT AT THE STATE CAMP.—Last week was a busy one for the hospital corps at the State Military Camp at Peekskill, where the heat was intense; and during the week 657 prescriptions were filled. On Saturday, July 10th, six cases of heat prostration were reported.

COPPER POISONING AT A PICNIC.—The village of Wappinger's Falls, near New Hamburg, on the Hudson, where there are a number of large manufacturing establishments, was in a state of panic for a day or two after its celebration of Independence Day. On Monday, the 5th, a picnic, given in a grove in the vicinity under the auspices of the Catholic Societies, was attended by about one thousand of the inhabitants, and of these, nearly one-half were taken ill with symptoms of cholera-morbus. In consequence, the three physicians of the place, as well as the medical men of all the neighboring towns were very hardy worked. It was supposed at first that the illness was due to ice-cream poisoning, but investigation showed that a con-

siderable number of those attacked had eaten no ice-cream, while all had partaken of ham sandwiches. A chemical analysis of pieces of the ham used for making the sandwiches showed the presence of metallic matter, and it was then ascertained that the ham had been cooked in a boiler lined with copper. Fortunately, no deaths resulted, but some of the patients had quite a narrow escape.

DEATH OF DR. IRA B. READ.—Dr. Ira B. Read, for many years one of the most prominent physicians in Harlem district of the city, died at his residence on July 4th. He was an enthusiastic and active member of the New York State and County Medical Associations, of both of which he was one of the founders. He was graduated from the Medical Department of the University of Michigan in 1867. During the Civil War Dr. Read served in the 101st Ohio Regiment, and his funeral services were held in the Harlem Presbyterian Church on July 7th under the auspices of the Alexander Hamilton Post, Grand Army of the Republic.

Miscellany.

THE RESULTS OF A YEAR'S ENDEAVOR TO LESSEN THE DISPENSARY ABUSE AT THE RHODE ISLAND HOSPITAL, PROVIDENCE.

In the *Atlantic Medical Weekly* for June 19, 1897, is published an abstract of a paper on this subject read before the American Academy of Medicine on May 29th, by Dr. F. T. Rogers of Providence, R. I.

The method pursued at the Rhode Island Hospital, and which was put in operation on April 1, 1896, is the following:

Prominently displayed in the main entrance of the out-patient building is a large placard stating that the services of the attending physicians are given gratuitously and are extended only for such patients as are too poor to pay for the needed attention and that no others will be treated. A similar statement is printed upon each admission card. No patients are admitted to the clinic without a card or letter of recommendation from some medical man, agent of a charitable association or some person well known to the authorities of the hospital, unless they sign a statement that they are unable to pay for such service and desire charitable aid,—save under these exceptions:

- (1) Emergency cases, recent accident or sudden illness.
- (2) The illiterate, evident pauper class, and foreigners who would not be likely to know of such a rule or understand it.
- (3) Any patient concerning whose ability to pay there is a doubt, yet who would possibly suffer by failure to receive immediate attention.

When a patient who is not supplied with a letter of recommendation applies for treatment he is first seen by the admitting officer who inquires of the applicant the name, address, occupation, age, number of children and their ages, and occupation, with the wages earned by the applicant and the children. Next, inquiry is made for the reason for applying for charity and by whom the patient is recommended.

If the replies to the questions are satisfactory, the book is signed by the patient, who thus acknowledges his poverty and asks for charitable aid, and he is admitted to the clinic; if, on the other hand, there is any reasonable doubt as to the truth of the statements, he is told to return with a verification from some medical man or his employer.

The fiscal year of the hospital ends on October 1st, and for the five years preceding, the number of new patients was

1891	1892	1893	1894	1895	1896
5,042	6,392	6,866	8,163	8,469	7,990

This plan was inaugurated April 1, 1896, and was in force during the last half of the fiscal year 1896.

From October 1, 1895 to April 1, 1896, the new patients were	5,038
From April 1, 1896 to October 1, 1896, number who applied	2,952
	<hr/> 7,990
Rejected during last half of year	684
Number of new patients admitted	<hr/> 7,306
April 1, 1896 to April 1, 1897, first year of new plan, number of new patients applying	5,597
Number rejected	1,032
Number of new patients admitted	<hr/> 4,565

The average yearly increase from 1890 to 1895 was 856, and under the old régime it is fair to estimate that at least this increase would occur and 9,325 new patients would apply for aid during that year. During the first half 5,038 did apply, or at the rate of 10,076 for the entire year, which is beyond our estimate, but at the middle of the year the new order went into effect and the new applicants for the balance of the year were but 2,952, and of these 684 were denied admission.

Among the applicants during the first half of the year there were 107 who were taxed in the city of Providence as owners of real estate for an aggregate of \$310,340; during the second half 77 who were taxed for \$228,040; or during the entire year for just \$38,380 over a half-million dollars.

The maximum amount was \$15,000 and the average was \$2,927. The average per month during the first six months was \$51,000; the largest, \$80,000; while during the last half of the year the average was about \$30,000, and the largest amount during one month was \$52,000.

No one will claim that these people are deserving of free medical service, and we can without fear of contradiction charge a saving of three and three-tenths per cent. to the plan. During the year some sixty old cards were taken from patients who had been in attendance for months, yet who were found to be taxed for varying amounts.

There were 194 who were earning an average weekly wage of over \$14, with either no dependants or were aided largely by other wage-earners in the family.

It is an exceptional case when a man who earns \$56 a month under such circumstances should be dependent upon charity for his medical service.

There were 653 applicants who were told that their statements of financial condition did not warrant their admission to the hospital unless corroborated by a letter from their physician or employer, and of these but 101 were ill enough to return with such a letter. The remaining 552 either got well very suddenly or else could not produce such evidence.

To summarize: Of the 5,597 actual applicants 931, or 16 per cent., were on their own statement not deserving of aid. Of 262 personally investigated cases, 87 were found unworthy.

The attendance upon the dispensary has been lessened over 4,000 new cases per year. If one-quarter of these be allowed to be unworthy, the plan adopted by the hospital has weeded from the ranks of hospital pauperism over 41 per cent. of unworthy applicants.

From a study of the results attained at the Rhode Island Hospital, Dr. Rogers feels justified in assuming—

(1) That the class of people who frequent charitable clinics because they can get free treatment and who think it a bit of shrewdness to thus beat the profession will in a large degree be debarred from further attendance.

(2) That those who seek such advice because they do not know to whom to go, yet who are able and willing to

pay a moderate fee are, by such a plan, without offence, referred to some physician, and another large class of habitual attendants is done away with, lessening the work of the dispensary and increasing that of the profession.

(3) That the worthy poor are in no sense prevented from obtaining needed aid.

Any plan which will do away with the unworthy, lessen the number who are ignorant of the scope of a charitable institution, and care for the worthy, surely has some features to commend it for trial.

The factors which are not affected by this plan are those which concern the hospital and the profession. Hospital corporations sometimes forget that they owe to the profession that which is even a chance to do just this work; the scramble for hospital appointments tends to lead the hospital authorities to think everything legitimate that comes their way. They fail to see why, when so many are anxious to do this work there should be any protest, and I firmly believe that if there were a united opinion among the profession to-day and that personal ambition and personal animosity could be laid aside, the solution of this problem would be in sight.

The man who gives gratuitous medical service from pure philanthropy takes from the profession a certain something which is essential not only to the education of the physician but to his success in life.

Correspondence.

THE GERMAN CONGRESS FÜR INNERE MEDICIN.

SPECIAL REPORT FROM BERLIN.

BERLIN, June 18, 1897.

MR. EDITOR:—The Congress für innere Medicin brings together so notable a body of men that even in Berlin, where private hospitality and other attractions cause a certain dispersion, one has an unusual opportunity for seeing and hearing the leaders of German medicine. Professor Leyden was detained in Bukarest, "crowning his work," as a daily paper put it. His place as presiding officer was filled with much tact by Prof. Oskar Schmidt, of Frankfurt, a. M.

The paper prepared for formal discussion did not excite as much interest as might have been expected. On chronic articular rheumatism Professor Baumbler described so minutely the present knowledge as regards nature, variety and causes, that little more could be said. Ott, of Marienbad, went with equal minuteness into the matter of treatment, but without bringing forward anything new. Rheumatic diseases became more actual when Chvostek and Singer described their investigations, the results of which have already been published. Chvostek insisted, as before, on the absence of bacteria in the local lesions of acute rheumatism, holding, therefore, that the lesions are of toxic origin, the toxins coming from some such source as an intestinal, tonsillar or pleural infection. Hereditary weakness of the joint tissues, traumatism and lesions of nerves are, according to him, important causes of the localization of toxins in the joints. Chvostek recognizes important differences in the clinical picture of rheumatism in different subjects, and denies that it is sufficiently typical to permit us to speak of it as a single disease.

Singer finds bacteria in all cases of rheumatism, not in the synovial membrane or the exudate, but in the peri-articular tissues and even in the muscles. These bacteria are not specific, but represent various pyogenic forms. He therefore places rheumatism among pyemias in the broad sense, and believes that angina is a common starting-point. Singer considers scarlatinal and gonorrheal arthritides typical rheumatic affections. Schüller presented specimens obtained by operative treatment of subacute and chronic arthritis. In the hyperplastic tissues he found bacilli in all cases, and often cocci. In the specimens, however, the organisms were so numerous as to suggest the idea of acci-

dental association. Von Noorden reported observations made by him on persons taking the popular lemon-juice "cure" for rheumatism. Some of them took two dozen or more lemons a day, and often expressed themselves as feeling better. Von Noorden found almost no alteration of metabolism, but severe dyspeptic symptoms, with constipation usually developed. Von Noorden spoke of the importance of carrying out reducing treatment in obese persons with chronic arthritis.

Following Professor Unverricht's very able paper on epilepsy, Flechsig reported some interesting observations made by him on the excretion of (sodium) bromide in that disease. A patient taking ten grammes a day for eight days, excreted in that period thirty-nine grammes; one taking nine grammes a day for three days excreted eight grammes, and one taking eight grammes a day for three days excreted only two and a half grammes. Flechsig advised the administration of large quantities of sodium chloride, and the use of vegetable diet, during bromide treatment, in order to assist in excretion.

Eulenbergh, as referee on Basedow's disease, described at length the present position of that symptom-complex. Matthes, of Jena, reported some observations on nitrogen excretion before and after removal of the thyroid in two cases. In both, the excessive excretion of nitrogen was lessened after the operation. Feeding the dried thyroid removed from one patient increased the nitrogen excretion in the other. Magnus-Levy said he had found similar alterations in patients with Basedow's disease after spontaneous improvement, and thought the operation acted by the removal of an injurious organ. F. Müller mentioned cases of Basedow's disease improved by the use of thyroid treatment, and compared them to cases sometimes observed, in which the Basedow symptoms subside as the thyroid grows larger.

Of the addresses by special request, that of Behring received most attention. The subject was "Therapeutics Founded on Experiment." The value of diphtheria antitoxin, Behring thinks, is now established; and he claims that tetanus antitoxin would also be found practically useful if applied earlier. All hospitals should keep it ready for emergencies. Marmorek's anti-streptococcus serum and Maragliano's tubercle-serum were declared useless. Behring does not think we have as yet a remedy for tuberculosis, and is not very sanguine regarding the discovery of such a substance. However, he admits the necessity of further investigation. Behring says the physical and chemical properties of antitoxins will never be known. He put it aphoristically: "It is not antitoxic matter, it is antitoxic force"; a force that may be carried in certain albuminous substances as iron may carry magnetism. Incidentally he asserted that antitoxins cannot be obtained from toxins by electricity.

Liebreich's address on the "Goal of Modern Medicamentous Therapy" was given on the following day, and received equal attention and almost as much applause. Liebreich repeated his well-known views of bacteriology and animal experiments, denied the value of diphtheria and tetanus antitoxins, and insisted on the efficacy of cantharadin as a remedy for lupus. (He has, by the way, a large practice confined to lupus patients.) He accused bacteriologists of erecting theories, making great claims, and then never giving protocols of experiments. He was eagerly taken up and among the most effective of his opponents was Goldscheider, whose demonstration I shall mention later. So far from being humorists, as Liebreich claimed, bacteriologists had never claimed, as far as Goldscheider knew, there could be a tetanus, for example, without cells. On the contrary, they showed the changes induced in the cells by the bacterial products, as well as the preventive action of the remedy. Baginsky defended diphtheria antitoxin on purely clinical grounds, and Behring showed the antiquity of some of Liebreich's alleged proofs. A number of personal explanations followed.

An interesting innovation in the programme of the Congress consisted in devoting an afternoon to demonstrations of cases and specimens. Timed by inexorable sand-glasses,

Ewald and von Jaksch kept the demonstrations going at a rate that was bewildering.

[Pardon the digression, Mr. Editor, but a set of sand-glasses might prove a boon in societies whose presiding officers are more merciful to the speaker than to the auditors. In this Congress they have a set, in different sizes and colors, corresponding to the various lengths of *referate*, paper and discussion, so that all men can see how time flies. To be sure, I have seen the presiding officer tap the glass with his pencil, whether by reason of nervousness or as a study in experimental physics I do not know.]

In demonstrating a little girl on whom he had had a resection made for serous pericarditis, A. Fraenkel made the interesting statement that on opening the thorax, the heart, instead of lying deep in the fluid, as it is supposed to do, floated on the surface. Although the patient is now apparently well, Fraenkel was not over-sanguine as to the ultimate prognosis. Baginsky opposed operations of all kinds, including puncture, in pericarditis.

Goldscheider showed a man with muscular hypertrophy of the leg following femoral thrombosis. In conjunction with Flatau, he showed beautiful sections of the whole spinal cord, and preparations of ganglion cells with various kinds of degeneration. Very striking were those from animals treated with tetanus toxin, with and without antitoxin.

Renvers showed a man with cirrhosis of the liver and hemorrhagic diathesis. He suggested that the latter was due to a poison in the body which under ordinary circumstances would be dealt with by the liver. He has seen a similar condition in a patient with cirrhosis who acquired diphtheria.

Langerhans demonstrated the larynx of a patient who was treated with the new tuberculin. As the lesions seemed very limited the case seemed a promising one, and the treatment was carried out with a persistency that can only be called brutal, as the patient grew steadily worse after the first few days of treatment. Post-mortem, widespread lesions were found in the lung. Langerhans denied that these could have been present when the treatment was begun, and also the suggestion of Petruschky that the patient might have had sepsis, though his statements did not seem to carry conviction to all present.

Among a number of interesting specimens shown by O. Israel was a fetus with enormous edema. The liver was extremely cirrhotic. A skiagram showed very clearly the absence of both rachitic and syphilitic changes in the bones, but Israel considered the liver probably syphilitic.

I can mention only a few of the many papers read. Lenhartz gave an interesting account of his later experience with lumbar puncture. He called attention to the value of the operation in severe chlorosis. The intracranial pressure is always high in such cases, and the removal of some of the fluid (in twenty cases) gave great relief. In tuberculous meningitis he found the bacilli frequently absent. He found that many cases of cerebro-spinal meningitis, and especially rapidly progressing fatal cases, were associated with Fraenkel's pneumococcus, and thought it premature to consider all cases of epidemic meningitis due to the meningo-coccus intracellularis. Fürbringer said that in his later cases he had not found tubercle bacilli as often as before, even with the aid of the centrifuge. As he expressed it, "the diagnosis of tuberculous meningitis by lumbar puncture is of as little value to the physician as the cystoscope or Widal's reaction." Lenhartz punctures with the patient lying on the side, but Fürbringer still uses the sitting posture. Krönig thought failure to find tubercle-bacilli in spinal fluid was often due to puncturing too high up. He punctures low down for diagnosis, high up for treatment. He showed a needle for puncturing the spinal canal which is free from the risk of aspirating. Lenhartz, in closing, mentioned a case of meningitis with typhoid bacilli (all tests) in the fluid, but no typhoid lesions in the abdominal organs.

A. Fraenkel described the clinical features of acute leukemia, with which he has had so remarkable an experience. He is no doubt right in thinking the disease is

often mistaken for purpura hemorrhagica. Benda, the efficient prosecutor of the Urban Hospital, demonstrated the histological preparations from a number of the cases, showing the entrance of the lymphocytes into the circulation.

P. Jacob, Engel and Pässler reported observations on leucocytosis which have already been published.

A very valuable paper, which must be read in full to be appreciated, was that of Goldscheider on the "Importance of Irritation in Pathology and Therapeutics, in the light of the Neuron Theory."

Perhaps the most important scientific paper was that of Rosenfeld, of Breslau, who went farther than in his well-known work on phloridzin poisoning, and denied the occurrence of fatty degeneration altogether. His method of proving this is as simple as possible. Dogs are starved and phloridzin poisoning produced. The fatty degeneration which occurs in normal dogs is either absent or very slight, depending on the amount of subcutaneous fat in the animal. If, however, starved dogs are fed on foreign fat, say mutton tallow, and then poisoned, fatty degeneration occurs, but the fat in the degenerated cells is sheep fat, as can easily be demonstrated. Similar experiments may be made with phosphorus poisoning, even in lactation, if a bitch be converted into what Rosenfeld calls a "sheep-fat dog," the milk is sheep's milk. So Rosenfeld proves that the fat in so-called fatty regeneration is not the product of cell break-down. There is a degeneration, but not a fatty degeneration, and fat is only found in such cells if there is labile fat in the body (or to a small extent from carbohydrate food). Perhaps this indicates an attempt at the regeneration of the cells.

An interesting case of hepatic intermittent fever was reported by F. Pick, of Prague.

There was an exhibit of apparatus and pharmaceutical preparations, unfortunately rather crowded in small rooms. German pharmacy seems to be making rapid progress in the way of concentrated, not to say appetizing preparations. The only novelty I saw was an improvement on the glycerine suppository,—a neat little wooden cross-piece attached by a string, to keep the suppository in the place where it does the most good (as the circular says). F. Pick showed a very useful instrument for testing the temperature-sense, with which the results can be read off in half-degrees Centigrade, and also an attachment for the ordinary dynamometer which permits it to be used with almost any set of muscles. The sliding microscopes of Leitz, with which one can go systematically over a large section, were very useful in examining the sections of the whole brain, showing its development, by Flechsig, and the sections of the whole cord, by Flatau.

Dr. Kaiserling showed a number of pathological specimens prepared after his method. Some of them are nearly a year old, and all show not only a remarkable preservation of color, but also a striking retention of the natural structural appearance. Quite as interesting in their way were the wax models of pathological specimens made here by Dr. Paul Berliner, certainly the finest of their kind I have seen. Dr. Berliner now has a much larger series than when he exhibited at the World's Fair, made from specimens from Virchow's demonstrations.

Very many "radiograms" were shown, some of them very good. Professor Bianchi had announced a demonstration of his phonendoscope, but did not give it, at least in public.


The entertainment programme of the Congress included an opera (*Hänsel und Gretel*) and ballet at Kroll's, and a dinner at the Zoological Garden. The most effective speakers at the latter were Quineke and Virehow, but in all cases the native custom of beginning the speeches after the soup and having usually two after each course insured the speaker an audience.

It may be permitted to add that foreigners attending the Congress für innere Medizin are warmly welcomed, are certain to find it both pleasant and profitable and to feel in their hearts a response to the toast *Vivat, floreat, crescat!*

G. D.

METEOROLOGICAL RECORD

For the week ending July 3d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro.		Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'hr.		Rainfall in inches
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S. . . 27	30.10	61	70	52	45	45	46	N.W.	W.	9	8	C.	C.	1.03 .05 .01
M. . . 28	30.08	68	80	56	46	41	44	W.	S.W.	12	12	C.	C.	
T. . . 29	30.07	67	75	59	54	52	73	N.W.	E.	8	7	F.	O.	
W. . . 30	29.76	62	79	52	56	55	90	S.	N.E.	10	10	R.	F.	
T. . . 1	29.79	71	85	57	50	72	75	E.	N.	4	16	C.	O.	
F. . . 2	29.83	71	82	64	67	72	70	E.	S.W.	5	8	C.	O.	
S. . . 3	30.07	66	72	60	88	94	91	W.	N.E.	5	12	O.	O.	
 . . . 4	29.94	77	58				70							1.09

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 3, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Percentage of deaths from					
			Deaths under five years.	Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Cerebro spi- nal mech.
New York	1,868,000	831	440	25.32	9.36	16.20	3.84	.72
Chicago	1,619,226	388	146	13.74	11.96	10.66	3.64	
Philadelphia	1,214,256	—	—	—	—	—	—	
Brooklyn	1,160,000	—	—	—	—	—	—	
St. Louis	570,000	218	99	15.18	11.50	16.88	1.38	
Baltimore	550,000	238	140	40.74	7.14	36.12	2.10	.42
Boston	517,732	136	42	14.60	12.41	2.92	6.57	2.19
Cincinnati	405,000	99	—	14.14	10.10	7.07	2.02	
Cleveland	350,000	93	43	9.63	2.14	5.35	2.14	1.07
Pittsburg	285,000	—	—	—	—	—	—	
Washington	277,000	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	
Worcester	105,050	35	16	22.88	8.58	8.58	8.58	
Fall River	95,819	45	28	39.96	11.11	37.74	2.22	
Nashville	87,754	32	14	21.91	9.39	18.78	—	
Lowell	87,143	26	10	19.25	3.85	15.40	—	
Cambridge	86,812	21	7	—	23.80	—	—	
Charleston	65,165	—	—	—	—	—	—	
Lynn	65,220	14	4	7.14	14.28	—	7.14	
New Bedford	62,416	22	11	29.05	—	16.60	4.15	
Lawrence	55,510	23	13	30.45	—	21.75	—	8.70
Springfield	54,790	22	2	12.45	12.45	4.15	—	
Holyoke	42,364	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	
Salem	36,062	8	1	—	25.00	—	—	
Brocton	35,753	—	—	—	—	—	—	
Malden	32,894	5	1	20.00	20.00	—	—	20.00
Chelsea	32,716	10	4	10.00	10.00	—	—	10.00
Haverhill	31,405	12	3	16.66	8.33	8.33	8.33	
Gloucester	29,775	—	—	—	—	—	—	
Newton	28,350	10	2	10.00	30.00	—	—	10.00
Fitchburg	28,392	9	12	—	—	—	—	
Taunton	27,812	9	1	—	11.11	—	—	
Quincy	22,562	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	
Waltham	21,812	4	1	—	—	—	—	
Everett	21,575	6	1	33.33	—	—	—	
Northampton	17,448	—	—	—	—	—	—	
Newburyport	14,794	6	1	—	16.66	—	—	
Amesbury	10,920	—	—	—	—	—	—	

Deaths reported 2,375: under five years of age 952; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fever) 523, diarrheal diseases 353, consumption 240, acute lung diseases 215, diphtheria and croup 73, whooping-cough 21, cerebro-spinal meningitis 20, typhoid fever 18, measles 17, scarlet fever 16, erysipelas 5.

From whooping-cough New York 9, Chicago 5, Baltimore 2, Boston, Providence, New Bedford, Springfield and Everett 1 each. From typhoid fever New York 5, Cincinnati 4, Chicago and Baltimore 2 each, St. Louis, Boston, Nashville, Worcester and Springfield 1 each. From measles New York 11, Chicago 3, Cincinnati, Cleveland, Providence and Lowell 1 each. From scarlet fever New York 9, Chicago and Lawrence 2 each, St.

Louis, Boston and New Bedford 1 each. From erysipelas New York 4, Baltimore 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending June 26th, the death-rate was 15.7. Deaths reported 3,310; acute diseases of the respiratory organs (London) 142, measles 167, whooping-cough 77, diarrhea 68, diphtheria 46, scarlet fever 29, fever 17.

The death-rates ranged from 9.9 in Brighton to 22.3 in Salford; Birmingham 17.0, Bradford 14.4, Cardiff 15.3, Gateshead 12.4, Hull 12.3, Leeds 14.3, Leicester 11.8, Liverpool 20.9, London 14.6, Manchester 19.5, Nottingham 13.0, Sheffield 18.4, Swansea 15.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 3, 1897, TO JULY 9, 1897.

The leave of absence to take effect about July 24, 1897, granted CAPTAIN WILLIAM F. LIPPITT, JR., assistant surgeon, Fort Leavenworth, Kan., is changed, to take effect when his services can be spared by his post commander, and is extended one month.

A board of officers to consist of COLONEL WILLIAM H. FORWOOD, assistant surgeon-general, MAJOR GEORGE W. ADAIR, surgeon, MAJOR WALTER REED, surgeon, MAJOR JAMES C. MERRILL, surgeon, CAPTAIN LEONARD WOOD, assistant surgeon, is constituted to meet at the Army Medical Museum Building, in this city, on Monday, September 27, 1897, at 10 o'clock, A. M., for the examination of candidates for admission to the Medical Corps of the Army.

MAJOR LOUIS M. MAUS, surgeon, is relieved from temporary duty in the office of the surgeon-general of the Army, and will on August 2, 1897, report for duty at Fort Hamilton, N. Y., relieving MAJOR PAUL R. BROWN, surgeon.

MAJOR BROWN, on being thus relieved, is ordered to Fort Keogh, Mont., for duty, relieving MAJOR EZRA WOODRUFF, surgeon.

MAJOR WOODRUFF, on being thus relieved is ordered to Fort Trumbull, Conn., for duty, relieving CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon.

CAPTAIN HENRY P. BIRMINGHAM, assistant surgeon, upon being relieved from duty at Fort Trumbull, Conn., by MAJOR WOODRUFF, will proceed to Chicago, Ill., and report for duty as attending surgeon and examiner of recruits, relieving CAPTAIN NORTON STRONG, assistant surgeon.

CAPTAIN STRONG, on being thus relieved, is ordered to Fort Myer, Va., for duty, relieving CAPTAIN WILLIAM H. ARTHUR, assistant surgeon.

INTERNATIONAL CONGRESS, LARYNGOLOGICAL SECTION.

At a special meeting of the Oto-Rhino-Laryngological Society of Moscow, held on the 21st day of June, 1897, it was decided that a "bureau" should be instituted for the convenience of members of the Twelfth Section of the Twelfth International Medical Congress (Otolological and Rhino-Laryngological Section).

The object of this bureau will be to give all information needed, not only as to matters concerning the Congress, but as to all other matters where our visitors may require assistance or information.

This reference bureau will be open from 7 to 9 P. M., from the 13th to the 19th day of August, in the Doctors' Club (Bolschaya Dmitroffka), and during the meetings in the room of Section Twelve, B (Laryngo-Rhinology).

I. N. SCOTT, President.

SOCIETY NOTICE.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.—The American Association of Obstetricians and Gynecologists will hold its tenth annual meeting at the Cataract House, Niagara Falls, Tuesday, Wednesday, Thursday and Friday, August 17, 18, 19 and 20, 1897, under the presidency of Dr. James F. W. Ross, of Toronto. The railways have granted reduced fares on the certificate plan to all who attend the meeting; the Cataract House has made a reduction from its regular tariff of charges.

WILLIAM WARREN POTTER, Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Gastric Ulcer, Pyosalpinx, Puerperal Sepsis, Vesico and Urethro-Vaginal Fistula, Vaginal Stricture, Operation, Second Pregnancy, Colpo-Episiotomy, etc. By E. J. Mellish, M.D., Chicago. Reprint. 1897.

Original Articles.

A CASE OF LIGATURE OF THE INNOMINATE ARTERY FOR ANEURISM.¹

BY GEORGE W. GAY, A.M., M.D.

LIGATION OF INNOMINATE ARTERY FOR ANEURISM, INVOLVING INNOMINATE, SUBCLAVIAN, AND COMMON CAROTID ARTERIES; FAULTY ASEPSIS; HEMORRHAGE ON THE THIRTY-SECOND DAY; LIGATION OF COMMON CAROTID ARTERY; DEATH ON THE FORTY-SECOND DAY FROM REPEATED HEMORRHAGES.

MRS. M., widow, thirty-nine years of age, born in New Brunswick, had been in the Boston City Hospital several times for various affections — anemia, cardiac stenosis, pelvic cellulitis, and movable right kidney — previous to her last illness. The maternal side of her family was phthisical, the mother having died of that disease; otherwise her family history was negative.

The present illness dates back two years, when she first began to notice the three most prominent and most permanent symptoms, namely dyspnea, dysphagia, and painful pulsation at the root of the neck. The difficulty in breathing was accompanied by severe paroxysms of coughing, which often compelled her to sit up in bed for hours at a time. The pulsation or throbbing in the lower part of the neck was attended by a dull aching pain, which extended into the right axilla and through to the back. The dyspnea, the pain, and the throbbing were all very much aggravated by physical exercise, or mental excitement. The difficulty in swallowing had become so marked that solid food could not be taken at all, and she was obliged to swallow liquids slowly, carefully, and in very small quantities at a time to avoid painful choking sensations. She had violent headaches at times, and for several weeks before coming under our care, she had suffered from considerable pain in the upper part of the abdomen, and from a mild diarrhea.

During the past six months all of this woman's symptoms had grown steadily worse, and she had become an invalid, unable to do anything to support herself. She had lost flesh, color and strength, and was in a pitiable condition. Having been under the observation of Dr. M. P. Smithwick for a long time, he, recognizing her disease, as well as her serious condition, admitted her to the hospital on my service October 19, 1896.

The patient was a rather spare woman with dark hair and eyes, a fairly calm temperament, and good courage. To the right of the median line of the neck, just above the sterno-clavicular articulation, was a diffused pulsating tumor about an inch and a half in diameter. The pulsation was plainly seen as well as felt, and was much more violent than upon the opposite side of the neck. The pulsation in the carotid artery above the tumor and in the radials was normal to the finger. No difference could be detected between the arteries in the wrists, either in strength, fulness, or rhythm. No change could be felt in the coats of the superficial arteries.

The tumor was situated underneath the lower end of the right sterno-mastoid muscle, at the usual point of bifurcation of the innominate into the carotid and

subclavian arteries. There was no edema or discoloration of the skin, and no deformity aside from the tumor above mentioned.

A blowing systolic murmur was to be heard all over the cardiac area, loudest at the apex, and extending up the aorta, to and a little above the tumor. No distinct thrill was noticeable. Nothing to be noted about the eyes and ears. The voice was hoarse, and she was troubled more or less with mucus in the throat.

Below the ribs to the right of the median line was to be felt a mass the size of an orange, which was somewhat tender and painful at times, and was thought to be a movable kidney. No signs or symptoms of any other affection were found. The lungs were sound, and the urine was normal.

The diagnosis was a fusiform aneurism of the innominate, subclavian and carotid arteries. To determine its lower boundaries, and to ascertain if the arch of the aorta was involved, Dr. F. H. Williams carefully examined her chest with the x-ray, and has kindly furnished the following report:

"After careful examination of the patient with the fluoroscope, both Dr. Munro and myself were confident that the aneurism did not extend below the lower border of the clavicle. A radiograph of the neck and greater portion of the thorax, although not satisfactory as a picture, because the patient moved, showed nevertheless the outline of the portion of the aneurism above the clavicle. The x-ray examination of this case is of interest, since it indicates that aneurism may be detected, when surrounded by tissues, such as muscles, which are much denser than the lung tissue with which in the thorax they are chiefly contrasted; and, further, the statements based upon the x-ray examination were verified at the autopsy."

Rest and all the usual methods of medical treatment having been faithfully tried without giving any permanent relief, the dangers, possibilities, and probabilities of surgical measures were explained to the patient, and the decision of the matter of treatment was largely left to her. After due consideration she decided upon an operation; and it was done in public on Tuesday, October 27, 1896, with the very efficient assistance of Dr. John C. Munro.

Operation. — The patient having been etherized, was placed in the Bigelow chair, hoping in this way to gain more convenient access to the parts, than if she were placed upon the table. A curved incision, commencing over the anterior border of the right sterno-mastoid muscle three inches above the clavicle, was carried downwards and inwards over the left sterno-clavicular articulation to a point three inches below the top of the sternum. This incision was joined by another three inches in length over the right clavicle. The triangular flap, composed of skin, superficial fascia and platysma muscle was raised, exposing the double origin of the sterno-mastoid muscle. Both portions of this muscle were carefully divided upon a director close to the bones. The cellular tissue was dissected away, exposing the sterno-hyoid, and sterno-thyroid muscles. The fibres of these two muscles were separated, not cut, and held aside with retractors. A medium-sized vein crossing them transversely was divided between two ligatures. This was the only vessel requiring ligation before reaching the innominate artery.

The right sterno-clavicular articulation, including about an inch of the clavicle, and as much of the upper

¹ Read before the Boston Society for Medical Improvement, February 22, 1897, and to be published in next series of the Boston City Hospital Reports.

and outer part of the sternum, was removed readily and easily with bone and gouge forceps. A direct and easy access to the innominate was thus obtained. The sheath of the artery was carefully divided between two small vessels plainly seen, thus avoiding any oozing at the bottom of the deep wound, which is always annoying besides consuming time. The innominate artery was easily separated from its sheath with the index finger which passed down to the arch of the aorta below, between the innominate vessels and the trachea and esophagus behind, and between these vessels and the pleura to the outer side. The innominate artery was about two inches in length, and at its upper part was about an inch in diameter, that is, nearly or quite double its usual size. It gradually increased in diameter from the arch of the aorta, its origin, to its termination. Nothing else abnormal was found in the exploration, and three ligatures of braided silk were applied in the following manner: the first was placed three quarters of an inch above the aorta, and slowly tightened. The second was applied half an inch higher up. The third was merely to reinforce the second, and was applied at the same place. The ligatures were all passed from within outward, although there was sufficient space to allow of their being carried in the opposite direction, if found to be more convenient. They were readily placed in position with a large aneurism needle, tied in three square knots, and cut short.

The wound was closed with silk sutures, a few strands of silk at the angle serving as a drain for the first day or two, and a dry aseptic dressing applied. The right hand and arm were wrapped in cotton wadding, and the patient was removed to her bed. She was in good condition. Pulse 84 at left wrist; color good; respiration natural. The operation lasted about an hour and a half, but it was practically bloodless. Only one vessel was divided, and that was done because it was in the way. The innominate veins, the internal jugular vein, and the pneumogastric nerve were not seen during the operation. There was no "foaming" of the cellular tissue, which occasionally gives so much trouble in deep operations about the neck. There were no mishaps of any sort apparent during the operation. Everything was done deliberately and with care; no hurry nor excitement.

The only immediate effects noticed from securing the ligatures were cessation of pulsation in the tumor, the arteries above it on the right side of the neck, and in the corresponding radial artery. She came out of the ether well, and had no vomiting. Complained only of a little soreness at the site of the wound.

About seven hours after the operation a slight pulsation was detected in the right radial artery. It was synchronous with the left radial, but never increased any in strength or volume during the patient's life.

The day after the operation the patient was very comfortable. Pulse 75, temperature 99°. Had no difficulty in swallowing except from the mucus, which gave her a little trouble. No cough nor dyspnea; no dizziness nor headache; no numbness of right hand and arm; no change in right pupil. In short, to all outward appearances, she was doing perfectly well. Took one-twelfth of a grain of morphine under the skin last night.

Fourth day. Patient comfortable. Pulse 80, temperature 99.5°. Wound dressed and drainage removed. It was dry, clean, and presented no signs of mischief

going on underneath. Took food very well, and slept fairly well.

Sixth day. Pulse 92, temperature 100.4°. This being the crucial day for bacteria, the dressing was removed, and the wound found to be infected. The flap was red and swollen. The discoloration was not confined to the suture punctures, but was more general. A little purulent matter was escaping from the angle of the wound whence the silk drainage was removed forty-eight hours before. Thorough irrigation with corrosive solution and peroxide of hydrogen was ordered every four hours, hoping thereby to check the suppuration, if the infection should chance to be superficial.

The patient was very much more comfortable than before the operation. All of her old troublesome symptoms had disappeared. She breathed easily, swallowed readily, and had no cough nor painful throbbing at the site of the aneurism. The operation had thus far produced very little disturbance of any kind.

Tenth day. Wound entirely healed, except at angle of the flap, where there is a small sinus which extends upward under the skin an inch and a half; redness and edema have disappeared; discharge less. Frequent dressings continued. Codeina, in half-grain doses, occasionally at night for restlessness. Takes food well. Stimulants not required. No medicine, except as stated above.

Fourteenth day. Discharge from sinus very slight. Pulse and temperature normal. Is very comfortable in every way; reads the papers as usual.

Nineteenth day. Disturbed by an alveolar abscess due to decayed teeth. Relieved by incision and poultice. Marked pulsation is to be felt over the right common carotid artery near its origin, accompanied by a distinct systolic murmur.

Twenty-third day. Sinus appears to be closing; discharge very slight. Patient natural in appearance, and comfortable. No complaint.

Twenty-seventh day. Had some pain in cardiac region last night. No disturbance in pulse or temperature. In good condition to all appearances. Discharge from sinus very slight.

Thirty-second day. Hemorrhage. Syringed out the sinus this morning; and while debating as to the necessity of enlarging the opening, blood began to well up from the aperture. It came slowly, not in a gush or in jets; easily controlled by making pressure for a few moments with the finger over the upper end of the sinus.

Patient was immediately removed to the operating-room and etherized. On sitting up the sinus an inch, a cavity the size of a small almond was exposed, at the bottom of which was a sinus an eighth of an inch in diameter extending inwards in the direction of the deep ligatures.

In view of the facts, that the secondary hemorrhage in these cases frequently comes from the distal end of the vessel,² and that for weeks there had been distinct pulsation in the right common carotid artery, thus justifying the possibility of that vessel being the source of the hemorrhage, the artery was exposed and tied with a silk ligature about an inch above its origin. Wound closed completely, and the old sinus packed with iodoform gauze. Patient bore the operation well, and was none the worse for it to all appearances.

Thirty-fourth day. Very comfortable day yesterday

² Dr. H. L. Burrell: Transactions of the American Surgical Association, vol. xiii, p. 291.

but pulse and temperature rose steadily all day, the former reaching 108 and the latter 104.5°. At midnight there was a pretty smart hemorrhage, which had ceased before the house-officer reached the ward. No syncope, but a good deal of fright and mental disturbance, as might be expected. She is more feeble, and looks paler than would be supposed from the amount of blood lost. May be partly due to sepsis, although externally the wound looks well enough. Pulse 80 to 108, temperature 97.8° to 99.3°. She is evidently wearing out from the effects of the hemorrhages, sepsis, and mental strain. For restlessness or pain she receives an occasional dose of half a grain of codeina sulph.

Thirty-fifth day. Another hemorrhage last night, more profuse than the other two; and the patient was more prostrated by it.

Thirty-sixth day. Very comfortable; no hemorrhage. Stitches removed from carotid wound, which had healed by first intention. Pulse 100, temperature normal. Pale and weak. Takes food fairly well. No delirium.

Thirty-eighth day. Some difficulty and pain in moving right arm; it feels numb and cold to herself. Suppuration from open wound very slight. No hemorrhage.

Thirty-ninth day. Profuse hemorrhage this morning; quickly and easily controlled by pressure. Steadily growing weaker.

Forty-first day. No more hemorrhage until this morning, which like all the others was easily controlled by pressure. Pulse weak and soft, and with the temperature continued to rise all day, the former reaching 120, and the latter nearly to 105°. Patient weaker, and has been a little delirious at times for past few days.

Just before midnight a severe hemorrhage occurred, from which she did not rally, although the bleeding stopped of itself by reason of syncope of the patient. She was nearly pulseless; sighing inspiration; unconscious. Quick and powerful stimulation failed to sustain her; and she died in about an hour and a half, or early in the forty-second day of the operation and the eleventh day of the hemorrhage.

THE AUTOPSY.

An autopsy was made on December 7, 1896, by Dr. Leary. The following is his report:

Clinical Diagnosis.—Aneurism.

Woman about forty years old. Well developed, well nourished. Operation wound extending along the anterior border of the sterno-cleido-mastoid muscle, five centimetres below angle of jaw to just below the right sterno-clavicular articulation. The wound in its upper portion healed, the portion to the right of the sterno-clavicular articulation closed by stitches. A thin, bloody, watery fluid exuded on pressure. This wound was dissected down upon. The tissues surrounding it were infiltrated with blood, and it extended down to the innominate artery, around which was formed a cavity about the size of a walnut, filled with clotted blood, fibrin and serous fluid. The dissection was continued up the neck as far as the bifurcation of the carotids, and along the chest to three centimetres beyond the origin of the subclavian artery, and from hence down to the heart, the heart and above vessels being removed in mass. At a point about two centimetres above the arch of the aorta and surrounding the remains of the innominate artery, was a thickened mass, in the centre of which was the above-mentioned cavity which corresponded to the pre-existing aneurismal sac.

This cavity contained the remains of the innominate artery, around which were found at a point two centimetres above the arch, two silk ligatures together. One centimetre above this arch was a single ligature, and just below this point the continuity of the artery was lost. The divided ends were shreddy and covered with fibrin. A probe could be passed directly through the innominate artery into the arch of the aorta. About four centimetres above the bifurcation of the innominate, the common carotid artery was tied. The ends of the ligature could be seen projecting, but the remainder of the ligature was concealed by newly-formed tissue. The artery above and below this point was closed by a thrombus. The subclavian artery with its branches—thyroid axis, vertebral, superior intercostal and submammary—were much dilated. All other arteries and veins met with in dissection were also much dilated. Some of these vessels showed small, slightly-elevated, yellowish patches, particularly the subclavian artery.

Abdomen.—No excess of fluid in peritoneal cavity. Peritoneal surface smooth. Intestines and mesentery very anemic.

The appendix about seven centimetres long, lying over brim of pelvis.

Both pleuræ adherent to diaphragm. Free in other parts. The lungs showed some emphysema; universally pale; bloodless except around the cut vessels, where there was some staining. The right lung, lower lobe, showed an old, healed area, with adhesion to the chest wall.

The bronchial glands much pigmented, and some of them calcareous.

The pericardium normal.

Heart. Weight, 300 gms. In the right ventricle in the columnæ carneæ was a hard, calcareous mass beneath the endocardium. On one of the mitral cusps, well up towards its attachment, was an elevated, firm, yellowish area about the size of a split pea.

Liver. Weight, 1,080 gms. Bloodless; markings normal.

Spleen. Weight, 140 gms. Pulp slightly increased. Follicles not distinct. Trabeculæ and blood-vessels apparently normal.

Kidneys. Weight, 240 gms. Relation of cortex and pyramids normal. In the left kidney was noticed an area, about the size of a pea, containing yellowish, softened material. In the right kidney were several small pin-head areas with the same yellowish material, evidently purulent. In one place, along the edge of a pyramid, there was a row of six or seven of these small areas.

Smears from the contents of these areas showed many pus cells, and cocci occurring singly and in groups.

Stomach, intestines, pancreas and adrenal glands normal.

Uterus normal. Tubes bound down on both sides by adhesions. On the right side, connected with the par-ovarian, was a cyst about the size of an English walnut, with thin walls, and containing a clear serous fluid.

Heart not opened.

The aorta showed several slightly-elevated, yellowish patches, not calcareous, more marked just above the bifurcation into the iliaes. The first left intercostal artery is obliterated just above its origin; and beyond this point is much dilated, as is also a small branch running off from it.

Anatomical Diagnosis.—Operation wound with remains of aneurismal cavity. Rupture of the innominate artery, one end of which had three ligatures. Myocarditis. Arterio-sclerosis with obliteration of lumen of the first left intercostal artery. Multiple abscesses of kidney. Par-ovarian cyst. Acute hyperplastic splenitis.

Cultures.—Operation wound, two colonies of staphylococcus pyogenes aureus; heart, staphylococcus aureus; liver, three colonies of staphylococcus pyogenes aureus; spleen, eight colonies of staphylococcus aureus; kidney, 53 colonies of staphylococcus pyogenes aureus, colon bacillus.

MICROSCOPIC EXAMINATION.

Dr. Councilman reports as follows:

Microscopic examinations of the tissues were made at various places, including the innominate. A section through a portion of the innominate included between the two ligatures shows the media of the artery folded upon itself and cut through at one point. The remains of the ligatures are found in the tissue. The ligature is infiltrated with pus cells and with a few granulation-tissue cells. The artery appears to be necrotic; it contains no cells, and only the remains of the elastic and muscular tissue can be made out in it. The wall of the artery contains very few pus cells, an invasion having taken place at only a few points. In this section of the tissue there are numerous masses of micrococci. These are found principally in the wall of the artery at the point ligatured, and in the remains of the ligature. The section embraces the adventitia and the adjacent tissues. These are all infiltrated with pus cells, bacteria and hemorrhage.

Sections of the innominate, one centimetre above its origin from the aorta, shows at this point small masses of thrombi adherent to the intima. The intima is thickened and degenerated. The media is in high degree sclerotic. The adventitia of the artery here forms a part of the abscess cavity which represented the original aneurismal sac. It is infiltrated with hemorrhage and pus cells, and shows here and there, in the tissue single silk fibres, the remains of the ligature at this point. In the wall of the aneurism itself only here and there portions of the arterial wall could be distinguished. The whole tissue was infiltrated with pus cells and bacteria.

Section of the carotid artery passing through its origin from the innominate shows it to be occluded by a thrombus which extended into the innominate. The portion of the innominate artery included in this section was in high degree degenerated.

The results of the microscopic examination show a high degree of arterio-sclerosis of the innominate artery at the point of the aneurism. The artery at the point of origin of the carotid was also extensively degenerated. The original aneurismal sac was converted into the wall of an abscess, and only the remains of the tissue of the artery could be distinguished in it. At the point of ligature of the innominate the artery was folded on itself, fractured at one place, and the tissue here invaded by bacteria and leucocytes. From the number of bacteria found at this point, it would appear that this probably represented the original point of infection of the artery.

This operation failed because the asepsis was imperfect. The asepsis was imperfect because of the uneven and faulty action of the sterilizer. It was a comparatively new machine, and its work was supposed to be reliable. At that time the failures had not been sufficiently numerous to excite suspicion. Great care was taken in making all the preparations for the operation, as well as in doing the operation itself; and we were at a loss for an explanation of the unfortunate and unexpected result until Dr. Lovett took cultures from the braided-silk ligatures, such as were used in this case, and found staphylococci. He also found, that while the gauge upon the outside of the sterilizer showed a germicidal temperature, a self-registering thermometer inside showed that the temperature was not always raised sufficiently to render the silk sterile. At the autopsy Dr. Councilman found the greatest number of bacteria in and about the ligatures. These facts would seem to afford a reasonable explanation of the infection of this wound, and hence of the probable failure of the operation.

That this patient should live six weeks, and be ten or eleven days in bleeding to death from one of the largest arteries in the body that is ever tied, and the lesion be within three or four inches of the "power station" — the heart — is surprising, to say the least. One would naturally suppose that the first hemorrhage

would be sudden, profuse and fatal; while the fact was, that a moderate hemorrhage seemed to relieve pressure in the arterial system sufficiently to stop the flow of blood without treatment of any kind. Ligating the common carotid artery did no good nor harm. The patient was not disturbed at all by the operation, and the wound was healed in three days. The blood came from the proximal and not the distal portion of the vessel.

The comparatively slight disturbance to the patient produced by this operation was remarkable. Aside from the stiffness and soreness in the neck upon motion or in clearing her throat of mucus, there was very little suffering. She took one-twelfth of a grain of morphia the first night after the operation, and no more sedative of any sort for several days. I can see no reason why ligation of the innominate artery should not be almost as successful as tying the common carotid. It is largely a matter of asepsis, and herein lies the principal advantages of modern surgery in the ligation of arteries. Formerly, as we all know, the dangerous period was that of the separation and expulsion of the ligature. The moment that process is done away with, as in closed aseptic wounds, then all danger from secondary hemorrhage ceases.

As showing the immunity from cerebral symptoms in these operations, allusion may be permitted to the justly celebrated case operated upon by Dr. J. Mason Warren,³ in which he tied both common carotid arteries for an aneurism by anastomosis of the face and neck. The operations were only a month apart, and yet the only unpleasant symptoms following were drowsiness, and a slight faintness on trying to raise his head from the pillow after the second operation. These symptoms were transient. He recovered from each operation in ten days, and was alive and well three years later. These operations were done in 1845, before the days of anesthetics and antiseptics, and hence are of greater interest and value.

The writer tied both common carotid arteries a few years ago for aneurisms in a young man. The operations were about one year apart. No disturbance of any sort followed either operation. Union took place by first intention, and the convalescence was short and satisfactory. He was alive and able to work for about three years after the last operation.⁴

Recent experience shows the importance of applying two ligatures to this vessel to insure complete and permanent closure of its lumen. They should be placed about half an inch apart, if space will allow. The distal ligature is depended upon to permanently close the vessel, and the proximal one acts as a "break-water" to protect the first from the powerful concussion of the arterial current. In Dr. Borrell's case the proximal ligature, knot and all, cut its way through the arterial coats, and was found inside the vessel, the lumen of which had been restored. Had there been but one ligature, the results could be easily imagined. The distal ligature had accomplished its object perfectly.

In aseptic wounds the lesions made by the ligatures are promptly protected by the new reparative material, thus averting any danger from hemorrhage. In Thomson's⁵ case of ligation of the innominate artery with a single ligature of ox-aorta, death from hemor-

³ Surgical Observations, with cases, p. 446.

⁴ Not long afterwards he was found dead in his bed in the morning.

⁵ Cause not known to the writer.

⁶ International Encyclopedia of Surgery, vol. iii, p. 538.

rhage occurred on the forty-second day. No traces of the ligature were found at the autopsy. The vessel was not completely closed, the clot extending through a small chink in the ligatured portion and being continuous with that in the subclavian and carotid arteries. As all of these thrombi were solid, and could not be dislodged with a stream of water from a syringe, it was concluded that the hemorrhage came from the vertebral artery. It is fair to suppose that an additional ligature might have completely occluded this vessel, but owing to the local sepsis the result would doubtless have been the same. And furthermore it should be said, that the aneurism (subclavian) was well advanced toward consolidation. The constriction had probably been sufficient to stop the current in the sac, and that is the object of all operations.

It does not seem wise to divide the innominate artery between the ligatures to relieve axis tension, as has been done with apparently good results, in tying the carotid and other large vessels. The violence of the systolic impact, the strain upon the proximal ligature, and the tendency of that thread to cut through the arterial coats, the unreliable character of the proximal thrombus, the lack of the firm lateral support, which is present in the neck, thigh, and around other large arteries, the fact that the innominate artery is surrounded by loose cellular tissue, suspended, as it were, in soft non-resisting structures, would all seem to militate against the practice of severing this artery for fear of secondary hemorrhage. The writer has divided the carotid artery twice between the ligatures, and the subclavian and brachial once each. The retraction of the ends of the vessels within the sheath was marked and satisfactory in all but the brachial artery, the divided ends of which retracted very slightly, if at all. Union by first intention followed in all these cases, and hence the results were satisfactory.

As to the method of doing this operation, the writer fails to see wherein any great improvement can be made over that so clearly described by Dr. Burrell in 1895.⁶ The only variation made in the present case was in removing the sterno-clavicular articulation with bone and gouge forceps instead of a trephine. The operation was practically bloodless, only one vessel, the anterior jugular vein, being divided between ligatures to get it out of the way. No other large vessel or nerve was seen during the operation, except the innominate artery. The cellular tissue was carefully divided between two forceps by gentle strokes of the knife, instead of being torn or picked out of the way with a director.

The collateral circulation in these cases forms an interesting anatomical study for any one disposed to work it out. In a general way it may be said to become established through the left carotid and vertebral arteries, the Circle of Willis, the corresponding arteries of the right side, also through the thyroid arteries, the intercostals, especially the superior, the mammary, the profunda and princeps cervicis, and doubtless through many other smaller vessels of the arterial system. It is to be remembered that in ligation or other obstruction of any large arterial trunk, myriads of arteries, previously too small to be dignified with a name, take on a sudden dilatation and growth, and become the avenues of a large quantity of blood. The nearer the heart the obstruction is located,

the more pronounced is this change in the vessels. It is in this manner that the nutrition of the brain is maintained at a point which enables it to perform its function under these extraordinary circumstances. Arterial anastomosis is so free in the upper part of the trunk that almost any vessel may be ligated without fear of resulting gangrene. Perfect asepsis is the key to the situation. With that, success is probable; without it, failure may be expected in a majority of instances.

AN INCIDENT IN THE HISTORY OF VACCINATION.¹

BY W. S. EVERETT, M.D., HYDE PARK, MASS.

THE subject of vaccination may have been exhausted long ago so far as any interest attaches to its discussion, and its fabric may be worn threadbare—even to darning and patching—by the attrition of argument by friend and foe. But there are some incidents in the history of the war that it has waged in winning its way to its present unassailable position that are worthy, not only of lasting remembrance, but of being placed fairly and squarely upon some prominent and elevated pedestal, to be observed, known, acknowledged and remembered by all men everywhere. There are some facts demonstrative of its value, and of its power as an annihilator of one of humanity's greatest scourges, that are too valuable and too decisive to be permitted to be forgotten, and that must never be lost to sight or hidden under oblivion's veil.

I have in my possession—and will show it to you by and by, if anybody takes interest enough in it to care to see it—a small gilded picture-frame, some four and a half by six inches in its dimensions, similar to those that are yet sometimes seen hanging upon the walls of ancient dwellings that have come down through successive generations to their present occupants and whose garniture and furnishings have always remained unchanged. They usually contain a silhouette of some ancestral head. This one of mine is a very harmless and innocent-looking little affair, in its diminutive quaintness, but connected with it is a bit of history that, it seems to me, justifies an attempt to rescue it from obscurity and to make it known to the world. Instead of the ancestral silhouette, there is fitted to it a piece of paper or of parchment I am unable to determine which—on which is written, in an elliptical space which is bounded by a huge serpent whose extremities are made to meet, in a bold, distinct, and though small, a clearly legible hand, a brief legend, which, I should think, in connection with this topic, might make it of interest to medical men. And so I have brought it here for you to look at, if you wish.

Tradition tells us that there was a banquet here in Milton on the 25th day of October, 1809, that was attended by a notable gathering; that chief among that company, and in whose honor it had been planned, were twelve children—eight boys and four girls. The archives of the town of Milton have carefully preserved a record of the transactions that led up to it and Rev. Dr. Teele, in his "History of Milton," has collated the facts and so arranged them that they will always be accessible to those who shall be interested in their perusal. The circumstances that had brought

⁶ Op. cit.

¹ A paper read at a meeting of the Dorchester Medical Club held at the house of Dr. H. P. Jaques in Milton, March 11, 1896, and published by vote of the Club.

that company together, and had made that day a general holiday, were these:

The position of vaccination as a preventive of small-pox was not as firmly established in 1809 as it is now. It had its friends and its advocates, and it had its opponents and its foes. We, who are strong and confident in the assurance of its protecting power, but who yet meet many opponents who are ready to contest every claim that is made for it still, can hardly realize the bitterness with which it was then assailed. Its friends here in Milton were sufficiently enterprising, resolute and progressive, to avail themselves of its protection, and to subject it to the most rigid tests.

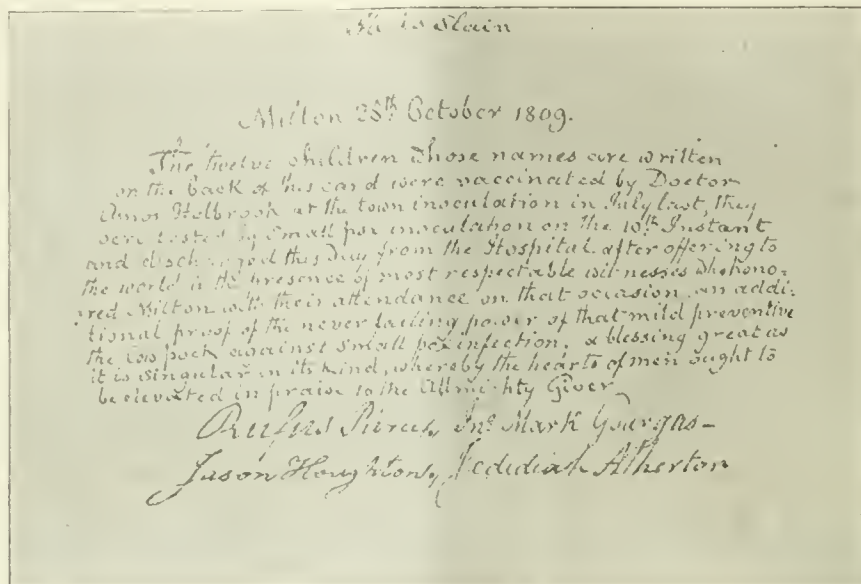
The town records will help us now. It is there on record that at a town meeting held July 8, 1809, a committee was chosen to take into consideration any

kine pock, and might be so inclined, might repair to be treated with inoculation from small-pox itself.

September 25, 1809. At the special town-meeting held this day, it was "voted to procure a place for a hospital where persons should repair who were to be tested with small-pox inoculation, and no person should be allowed to leave the hospital without a certificate from Dr. Holbrook," who, the committee had arranged, should superintend the whole transaction.

We hear no more from the committee till October 30th. But great things had been going on. They then made their final report at a town-meeting held on that day. They reported that the parents of twelve children had been found who were willing that their children should be tested with small-pox inoculation.

How in the world the parents of twelve children



measures for inoculating with kine pock, such individuals as had never had small-pox, and to report at an adjournment of this meeting to the last Saturday in August. August 26, 1809, this committee reported "that they had procured certificates from respectable physicians calculated to remove all doubt that the kine pock — if really had — is a perfect preventive of small-pox." They had also agreed with Dr. Amos Holbrook to inoculate with, and carry through said kine pock, any inhabitants who might wish to secure themselves against small-pox. Under this arrangement, 337 persons were so inoculated.

We come now to a fact that shows the spirit of the community that was represented at that town-meeting, and the determined character of the men who were having the matter in charge. That committee evidently were not chosen at random nor without due consideration of their fitness for the duty and service that was required. They declared at that same August town-meeting that they should not feel that their trust had been faithfully executed, until some decisive test had been made, and some persons tested with small-pox inoculation; and they made a request that a special town-meeting be called in September, to appoint a place where persons who had been inoculated with

could be found, in the state of feeling that then existed in regard to vaccination, who could be induced to submit their children to this crucial, if not cruel test, was one of the many marvels of that excitable period, and is beyond our comprehension now. But they were found; and it can only be explained upon the theory that great trials develop great characters, and that a victim is always ready for the sacrifice, when a great principle demands a great defence. These twelve children were taken to the house of one Stephen Horton, who had contracted to make his house a hospital for the occasion, and to have the care and custody of the children during the period that they were confined there. For this service he was paid twenty dollars. At his house, on the 10th day of October, 1809, in the presence of "respectable witnesses" as the record has it, they were inoculated with small-pox virus obtained from Dr. Welch, of Boston, who testified to having furnished pure small-pox material for vaccination.

The respectable witnesses to this transaction, were the President of the Board of Health of Boston and their physician, and others whose names are appended to the certificate.

The committee made their final report on the 30th, as has been stated, and they reported that these twelve

children had been inoculated with pure small-pox material on the 10th inst., had been kept under strict observation and surveillance until the 25th, when they were discharged, without a single instance having occurred that presented any indication of the disease.

The town record modestly refrains from any allusion to the pomp and ceremony attending their discharge. But it was thought that such an occasion was deserving of a suitable recognition, and so the ovation that has been alluded to was planned.

The final act in the demonstration of that October afternoon was the distribution or presentation to each of those twelve children of a certificate similar to the one I have in my possession now.

The committee, in making their final report on the 30th, state that such a certificate had been distributed to each of those twelve children who had been discharged from the hospital on the 25th; and a statement of the whole transaction was prepared and is preserved in the archives of the town, where it has lain for nigh a century, and where it is to be found to-day.

And that is all. The occasion has passed. The tumult, the excitement, the agony of suspense are gone. Who approved, and who opposed this measure, matters not now. Friend and foe have ceased contending; they who demanded this trial of faith, and the victims who offered the sacrifice, are silent; and none are now living who witnessed the scene.

But the fact remains, immovable as the mountains, unending as eternity, unchanging as truth. Twelve children here in Milton have been vaccinated with bovine virus, have subsequently been inoculated with pure unadulterated, unmitigated, unmodified virus of small-pox itself, and have escaped without a sign or a manifestation of the disease. The facts are fully authenticated. They are beyond denial. They are beyond dispute. There they stand. And there—like Bunker Hill and Lexington—they will stand forever.

It is, of course, quite possible that this may not be the only instance where this test of the power of vaccination has been applied, though no such application of the test has come to our knowledge thus far. If there are other instances, and if they have resulted as favorably as in this instance, they simply render the test more decisive; if there have been failures, they have not been made known; and if this should be found to be the only case where such an experiment had been tried, then this simple and unpretentious little certificate (a representation of which is shown on page 78) and such of its fellows as have been preserved, become the lonely, if not the only, silent and yet eloquent, undisputed and indisputable witness, after all these many intervening years, of one of the most momentous happenings of modern times.

The legend within the ellipse is here transcribed:

MILTON, 25th October, 1809.

The twelve children whose names are written on the back of this card were vaccinated by Dr. Amos Holbrook at the town inoculation in July last; they were tested by small-pox inoculation on the 10th instant, and discharged this day from the hospital, after offering to the world in the presence of most respectable witnesses who honored Milton with their attendance on that occasion an additional proof of the never-failing power of that mild preventive, the Cow Pock, against small-pox infection, a blessing great as it is singular in its kind, whereby the hearts of men ought to be elevated in praise to the Almighty Giver.

The signatures to this certificate are

RUFUS PIERCE,
JASON HOUGHTON,

JNO. MARK GOURGAS,
JEDIDIAH ATHERTON.

All these are names that have stamped their impress upon Milton history. The name of Gourgass has disappeared; but the names of Pierce, Houghton and Atherton are well remembered still.

Over the head of the serpent whose body surrounds this legend, is the inscription, "He is slain."

The names of the twelve children who were subjected to this test and are referred to in the certificate as being on the back of this card must not be omitted.

They are—

JOSHUA BRIGGS,
THOMAS STREET BRIGGS,
MARTIN BRIGGS,
CHARLES BRIGGS,
CATHARINE BENT,
RUTH C. HORTON,

SAMUEL ALDEN,
BENJ. CHURCH BRIGGS,
GEORGE BRIGGS,
JOHN SMITH,
SUSANNA BENT,
MARY ANN BELCHER.

They are all now dead. How many of the certificates that were distributed to them on that afternoon have been preserved is not known.

Dr. Teele has copied one into his history, and perhaps others may be heard from hereafter, though these are all of which any knowledge has yet been obtained.

The one copied by Dr. Teele differs somewhat in its phraseology, while it certifies to the same fact.

The one here shown was not one of the twelve that were given to the children. It never left the posses-



sion of one member of the committee that superintended the whole transaction, and by whose authority they were prepared and issued, and whose names are appended thereto. This particular one was retained by Jason Houghton, whose name appears among its signatures, and was preserved by him with great care, so long as he lived, as being among the most valuable relics of his time. It had its place in his farmhouse (a picture of which is shown, as being of some interest in this connection) there upon the banks of the beautiful Lake Wissahickon (now a part of our park system) here in Milton, during his subsequent life, a period of nigh forty years. It then remained among the family relics, until, two generations afterward, the estate changed ownership, and the treasures and heirlooms of a century and a half, were broken up and dispersed. Since that dispersion it has been in my hands. Its genuineness cannot be questioned. It represents an undoubted fact of history. It is just what, and all, that it claims to be. And it has seemed to me to be of sufficient importance and significance to be worth making its existence known.

A METHOD OF INDUCING LABOR. — Kossmaun recommends the injection of a drachm of glycerin within the cervix to induce labor.

A SEXUAL STUDY OF THE SIZE OF THE ARTICULAR SURFACES OF THE LONG BONES IN ABORIGINAL AMERICAN SKELETONS.

BY GEORGE A. DORSEY, PH.D.,

Assistant Curator of Anthropology, Field Columbian Museum,
Chicago, Ill.

It seems to be pretty well established that there is a fairly distinct and constant line of demarcation in the size of the head of the humerus and the head of the femur for the two sexes in European skeletons. That this would hold good for these bones in prehistoric or savage races has been questioned by some anatomists. From the literature at hand I am not able to learn that the subject has been investigated with any degree of fulness, and indeed statistics on the subject for European skeletons even are not numerous.

The most general reference to the subject that I have seen is to be found in a paper by Prof. Thomas Dwight.¹ Speaking of the sexual differences of the arm, he says: "The articular ends of bone of both arm and forearm come to the rescue, but I regret that I have no series of measurements large enough to quote." And in another place he says:

"The small size of joints is characteristic of woman. They are the greatest diameter of the head of femur and the greatest transverse breadth through the condyles. The average diameter of the male head is 4.8 cm., that of the female 4.15 cm."

The only other observations, in addition to those of Professor Dwight's, with which I am acquainted are to be found in the valuable paper of Prof. David Hepburn on the Femur.² In that paper he gives the measurements of the diameter of the head of the femur in the skeletons of a large number of different races. His results are very interesting, for they confirm, at any rate so far as the femur is concerned, the results which I have reached in the present inquiry. Professor Hepburn has not arranged his measurements so that the mean average diameter of the two sexes can be seen at a glance, but from his tables I have selected such races as are represented by skeletons of both sexes, and have then determined the average for each sex, results of which are as follows:

Maori, males (5) 45 mm., females (1) 42 mm.;
Australians, males (6) 44 mm., females (1) 33.5 mm.;
Hindoo, males (2) 47 mm., females (1) 36.5 mm.;
Laplander, males (1) 42 mm., females (1) 38.5 mm.;
Eskimo, males (1) 46 mm., females (1) 40.5 mm.;
Andaman, males (4) 37 mm., females (2) 35 mm. A comparison of these figures, together with mine, with those for Europeans, lends a suggestion to the possibility that, as in many other parts of the skeleton, sexual differences in the size of the articular surfaces have gone on further in the European than they have in the lower races of men.

The largest single diameter found by Professor Hepburn was 57 mm., in a British male; the smallest was 34 mm., in an Andamanese female. The maximum and minimum diameters determined by me are 54 mm. and 38 mm. In none of the Andamanese skeletons did the diameter of the head of the femur reach 40 mm. This is as we should expect, for the Andamanese have an average stature of only 1,492 mm.,³

and are, therefore, among the shortest people in the world.

The following two sentences from Professor Hepburn are especially interesting: "This diameter [of the head of the femur] was also found below 40 mm. in two Australian, two Negro, two Hindoo, two Lapp, two Sandwich Islander, and one dissecting-room femur; and in all of these cases they were from females. Except among the Andamans, no male femur had a head diameter less than 40 mm."

With the view of testing the observations of Professor Dwight on the European humerus and femur, and of Professor Hepburn on the femur in the tribes of the Pacific and Indian oceans, I have examined 135 skeletons which come from three widely separated regions of America. The first group comprises 19 Kwakiutl, 15 Sanitch, and 6 Chinook skeletons from the Northwest Coast; the second group is from the prehistoric mounds of Ohio, and comprises 27 skeletons; the last region represented is Peru, and includes 6 skeletons from Cuzco, 7 from Arica, and 50 from the Necropolis of Ancon. These may be regarded as fair representatives of the better class of aboriginal Americans. I may note also that I have examined only adult skeletons in which all the epiphyses were firmly united; and the sex in every instance has been determined by the pelvis, no skeleton having been considered in which the pelvis was not present.

After some deliberation I decided upon three measurements, namely, the maximum diameter of the head of the humerus and the head of the femur, and the maximum transverse diameter of the head of the tibia through the condyles. It would probably have been as well to have taken also the transverse diameter of the lower end of the femur through the condyles; but as Professor Dwight had found this measurement "less conclusive," I substituted the head of the tibia in its place. It would have made an interesting study to have noted also the size of the articular surfaces in connection with the length of the bones, but I did not have the time for this. I am convinced of the correctness for American bones of Professor Dwight's observation, "that in the woman there is a fairly regular increase in the size of the head, corresponding with the increase in the length of the femur." But I am not equally well convinced of his second observation, that "among men this is not so."

Before considering the three sets of measurements I may mention that in a recent study on the scapula of the Northwest Coast Indians, I measured the dimensions of the glenoid cavity in 20 specimens and found that in the males it measures 41 by 30 mm., and in the females 35 by 25 mm. It was shown, furthermore, that in not a single instance did the longest female cavity equal the shortest male cavity, and that in only one instance did the broadest cavity in the female series equal the narrowest of the males. One other point should be mentioned here, as the facts are brought out in the measurements but are not shown in the tables. There seems to be no uniformity in the comparative size of the heads of the humerus and the femur in the same skeleton. Thus, in the male series of the Northwest Coast tribes, the head of the humerus exceeds in size the head of the femur seven times, while the head of the femur is the larger nine times; in the female series each is the larger just eight times. This same observation holds good for both the Ohio and Peruvian series.

¹ The Range and Significance of Variation in the Human Skeleton, Boston Medical and Surgical Journal, July, 1894, pp. 73 and 97.

² The Platymetric, Pliastic and Popliteal Indices of the Race Collection of Femora in the Anatomical Museum of the University of Edinburgh, Journal of Anatomy and Physiology, October, 1896.

³ Report of Anthropometric Com., B.A.A.S. Report, 1883, p. 271.

I. NORTHWEST COAST INDIANS.

As the measurements from the three peoples from this region are so nearly alike, they may properly be considered together; and we have, therefore, 21 males and 19 females. The comparative frequency of distribution of the diameters of the articular surfaces for both sexes may be seen in the following table:

TABLE I.—NORTHWEST COAST INDIANS.

Humerus.			Femur.			Tibia.		
Mm.	M.	F.	Mm.	M.	F.	Mm.	M.	F.
39		2	39		2	65		2
40		6	40		4	66		3
41		4	41		5	67		5
42		4	42		6	68		5
43		2	43		1	69		1
44	3		44	1.	1	70		1
45	2		45	4		71		1
46	4		46	5		72	3	
47	3		47	3		73	1	
48	2		48	3.		74	1	
49	4		49	2		75	3	
50	1		50			76	2	
51	1		51	2.		77		
			52			78	1	
			53			79	3	
			54	1		80	2	
						81		
						82		
						83	2	
						84		
						85		
						86	1	
Mean.	47.0	40.7	Mean.	47.2	41.1	Mean.	77.2	67.3

It is seen that the line of separation is clean cut, except for the femur; here a single measurement overlaps. The other two series are emphatic in their results. Thus, if we take the average for both sexes for the humerus as 43.5 mm., it will be seen that the measurement of no female humerus exceeds it, while that of no male falls below it. The range of variation for the tibia is, as we might expect, greater than that for the other two bones.

II. MOUNDS OF OHIO.

The skeletons here represented are from ancient graves and mounds in the Little Miami Valley, and are all prehistoric. Although two or three localities are represented, the material is so homogeneous that it may be considered as a whole. The measurements comprising 20 males and 7 females, are distributed as shown in Table II.

The line of demarcation here between the two sexes is not quite so sharply drawn as it was in the preceding one. It is to be noted, however, that the greatest amount of agreement is, as we might expect, in the

diameter of the head of the tibia. For the humerus and femur the differences between the two sexes is still a decided one and sufficiently marked to be of great value.

III. PERU.

Of the Peruvian skeletons, six are from the vicinity of Cuzco, being equally distributed between the two

TABLE II.—MOUNDS OF OHIO.

Humerus.			Femur.			Tibia. *		
Mm.	M.	F.	Mm.	M.	F.	Mm.	M.	F.
40		1	40		1	67		1
41		2	41		2	68		
42		2	42		1	69		1
43		1	43		2	70	1	1
44	2		44			71		2
45	3		45	2	1	72	1	1
46	3		46	1		73		
47	5		47	6		74	1	
48	2		48	6		75		
49	4		49	2		76		
50			50	1		77	3	
51			51			78	2	
52	1		52	2		79	4	
						80	4	
						81	1	
						82	1	
Mean.	47.0	41.5	Mean.	47.8	42.1	Mean.	77.9	70.0

sexes; seven from Arica, three being males and four females; and 50 from Ancon,⁴ each sex being equally represented. Although skeletons from the first two localities are slightly taller in stature than those from Ancon, the difference does not affect to any appreciable extent the averages between the two groups, so that I have put them into a single table. (Table III.)

The result here shown is very satisfactory and even conclusive. Thus, in the humeri of 31 females there is not a single measurement which equals the lowest of the male series. The line of separation between the two sexes for the femur and the tibia is not so sharp as it is for the humerus, but it is very nearly so and in fact is more so than we might expect when we take into consideration the fact that the skeletons from Ancon are from people of exceptionally short stature, while those from Cuzco and Arica represent people of rather more than average stature. Another point which may be noted, although of no particular consequence, is the fact that in the South American humeri no measurement exceeds 48 mm., although in both the Northwest and Ohio groups some of the measurements exceeded 50 mm.

Combining the results as shown in Tables I, II, and III, we have Table IV, which gives the distribution for 135 skeletons.

For reasons which have already been given, this

⁴ It may be proper to state that the Ancon skeletons were taken at random from a much larger number which are in the Museum. The number 50 was arbitrarily chosen because it was thought sufficiently large to be considered as representing the entire series.

table is not perfectly conclusive in its results, for the skeletons from Ancon are from very short people, while those from the Ohio Mounds and the Northwest Coast represent people who are above the average in stature. For this reason we might be prepared to find the largest measurements of the females of North America equalling or surpassing the smallest males from Ancon. Thus, to take a single instance, if we

crepancy in stature between the North and South American skeletons, but the dividing line for the two sexes, between 71 mm. and 72 mm. is almost as sharp as it is in the femur, and makes the tibia a valuable aid for the determination of sex.

In conclusion, apart from the value of any one of these three bones as important and practically decisive factors in determining sex, we must not lose sight of

TABLE III.—PERU.

Humerus.			Femur.			Tibia.		
Min.	M.	F.	Min.	M.	F.	Min.	M.	F.
36		1	38		1	62		2
37		5	39		6	63		3
38		7	40		8	64		1
39		6	41		7	65		5
40		6	42		6	66		3
41		6	43		1.	67		5
42		1	44	1	3	68		4
43	1		45	7		69		
44	9		46	7		70		5
45	7		47	6		71	1	3
46	7		48	5		72		1
47	4		49	4		73	3	
48	2		50			74		
			51			75	9	
			52	1		76	3	
			53	1		77	2	
						78	8	
						79	2	
						80	3	
						81	1	
Mean.	45.3	39.0	Mean.	47.0	40.8	Mean.	76.5	66.9

analyze the figures given for the humerus we shall find that of the three females with a diameter of 43 mm., two come from the Northwest Coast and the other one from Ohio; while of the 13 males with a diameter of only 44 mm., three are from the Northwest Coast, one from Ohio, and nine from Peru, seven being from Ancon and two from Cuzco.

But even if these considerations be waived, the results of Table IV are remarkably decisive. Thus, if the maximum diameter of the head of the humerus of any American skeleton measure 44 mm., the chances are extremely great that it is a male; if it measure 45 mm., it is a male to a practical certainty. The inferences to be drawn from the measurements of the femur seem almost, if not quite, equally valuable; and it would almost seem that we could determine sex from the femur alone with a great deal more certainty than we could from the skull. After Professor Dwight's disparaging remarks about his results from measurements through the condyles of the femur, I was quite unprepared for the results which have been derived from the tibia. The range of variation is, to be sure, greater than it is for either the humerus or the femur; and this, it may be repeated, is largely due to the dis-

TABLE IV.

Humerus.			Femur.			Tibia.		
Min.	M.	F.	Min.	M.	F.	Min.	M.	F.
36		1	38		1	62		2
37		5	39		8	63		3
38		7	40		13	64		1
39		8	41		14	65		7
40		13	42		13	66		6
41		12	43		4	67		11
42		7	44		4	68		9
43	1	3	45	13	1	69		2
44	14		46	13		70	1	7
45	12		47	15		71	1	6
46	14		48	14		72	4	2
47	12		49	8		73	4	
48	6		50	1		74	2	
49	8		51	2		75	12	
50	1		52	3		76	5	
51	1		53	1		77	5	
52	1		54	1		78	11	
						79	9	
						80	9	
						81	2	
						82	1	
						83	2	
						84		
						85		
						86	1	
Mean.	46.3	37.3	Mean.	47.3	41.0	Mean.	78.5	67.4

the original purpose of this inquiry, which was: What light do American skeletons throw on the theory that the articular surfaces are larger in the males than in the females? or to put it in Professor Dwight's words, "that the small size of joints is characteristic of woman"? The answer is, perhaps, best given by repeating the averages as determined in Table IV.

The average maximum diameter of the head of the humerus in the male is 46.3 mm.; in the female, 37.7 mm. The average maximum diameter of the head of the femur in the male is 47.3 mm.; in the female, 41 mm. The average maximum diameter of the head of the tibia through the condyles in the males is 78.5; in the females, 67.4 mm.

THE STATUE OF CHARCOT, by the sculptor Falguière, is nearly finished, and will soon be erected at the Salpêtrière.

ON THE OCCURRENCE OF RETINAL HEMORRHAGE AFTER MIDDLE AGE, AND ITS BEARING ON THE DURATION OF LIFE.¹

BY HASKET DERRY, M.D., BOSTON.

THE history of the following case will serve as a fitting introduction to the present paper.

Mr. X. Y., aged sixty, consulted me a few years since. From having had excellent vision for objects both far and near, assisted, of course, in regard to the latter by glasses corresponding to his years, he had only recently come to notice a considerable difference between the two eyes. On testing him in regard to this point I found that, while the vision of the left eye was normal, with the right eye he could barely count fingers held ten feet away. There was no external change, but the ophthalmoscope showed the presence of innumerable spots of fresh hemorrhage into the retina, scattered over the entire field, as well at its periphery as in the immediate vicinity of the nerve.

Mr. Y. had been for years actively engaged in public life, and had not long previously undergone much excitement and fatigue in contesting an important election, and had only recently acted as counsel in a protracted and excited trial. He was a man of large frame and full habit, weighing probably two hundred pounds or more. He paid no attention to physical exercise, and had for three years enjoyed no vacation whatever. Numerous affairs of consequence were even then engrossing him.

I felt justified in assuring him that the disease of the eye was probably the forerunner of something worse, unless he wholly changed his course of life. Weakened retina implied weakened cerebral arteries, and it was easy to realize what that meant. I advised complete rest for several months, as well as a change of surroundings.

The patient viewed the situation intelligently, and talked it over for an hour, dwelling on the absolute necessity of keeping his numerous professional engagements, and the consequences that might ensue from any neglect on his part of the important interests that had been confided to him.

This was in July, and I never saw him again. A year from the following February he came out of the court-house, in which he had been trying a case, started to walk home, but quickly grew confused, staggered, and had to be placed in a carriage. He grew rapidly insensible, manifested all the signs of an attack of apoplexy, never regained consciousness to a full extent, and died on the third day.

The subject of the connection of retinal hemorrhage with the condition of the general health is not dwelt upon by writers on ophthalmology at any length. I have looked over all the accessible literature that has appeared since the invention of the ophthalmoscope, and have been surprised to find how little is said in regard to the matter. The subject is ordinarily dismissed in a few words. All authors are, however, agreed that, occurring in the aged, the symptom is an ominous one. While its effect on sight need be but temporary, capable as it is of a considerable measure of repair, and ordinarily affecting only a single eye, it has a bearing on the duration of life that is full of significance. It may betoken an atheromatous condi-

tion of the cerebral arteries, and be due to a similar state of things in the retinal vessels, which, however, the ophthalmoscope fails to detect. Or there may be a cardiac lesion, ordinarily hypertrophy of the left ventricle.

Thus the symptom is one of great importance, and the prognosis serious. The detection of the disease is easy for one who has a moderate acquaintance with the examination of the interior of the eye. The cases themselves are far from infrequent. And the warning given by their occurrence may be practically utilized for the regulation of important business interests. Life itself may often be prolonged by abstinence from exhausting labor, by appropriate relaxation, and the following a suitable regimen.

I am not aware that a series of these cases has ever been followed up, and the result given to the profession. Many difficulties lie in the way of such an undertaking. The ophthalmic specialist differs from the family physician in his ability to keep track of his patients. With many, indeed it may be said with most, a single interview is all that is had. People come from points more or less distant for the purpose of consultation, and on obtaining an opinion return to their own adviser. It is very hard to learn anything relating to their subsequent history.

During the past two years I have gone over all the cases of retinal apoplexy I could find in my records, and endeavored to obtain fresh intelligence in regard to them. By correspondence with relatives and physicians, as well as occasional reference to the obituary columns of the daily press, I have in some instances been enabled to follow them along. Out of ninety I have succeeded in tracing the course of events in only thirty-one. The youngest of these patients was forty-three, the oldest eighty-three, the average age being therefore slightly above sixty-two.

Beginning with the youngest I have arranged a tabular statement as follows:

1. Male. Age forty-three. Very large single hemorrhage, of sudden occurrence. In five weeks vision had wholly returned. Fourteen years later patient alive and well.

2. Male. Age forty-five. Numerous fine hemorrhages scattered over entire fundus. Patient, hitherto engaged in active and engrossing business, gave it up entirely and, from this time forward, led a life of comparative leisure. But the attacks recurred from time to time, and he died of cardiac disease sixteen years later.

3. Female. Age forty-six. In right eye extensive hemorrhage, scattered over macular region, as well as remote parts of fundus. A single splash of blood in other eye. Vision had been for several months observed to be imperfect. Her family physician reported "cardiac hypertrophy, a systolic murmur, and irregular action." Eighteen months later she was seized with convulsions, became unconscious, and died the next day.

4. Female. Age forty-six. Numerous small scattered retinal apoplexies at periphery of fundus in one eye. Vision has been obscure for several months. Examined by Dr. Knight she was found to have well-marked aortic regurgitation. Six months later she had embolism of right hand, two days later of right foot; death supervened in a few days.

5. Female. Age forty-seven. Dark-red spot of blood directly over macula in one eye. Previous

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

notes show that, ten years before, two small hemorrhages had been seen near the optic nerve, in the other eye. Dr. Knight examined the heart at that time, and found it normal. The hemorrhages disappeared. Four months after the last attack patient died of apoplexy on a railway train.

6. Male. Age forty-eight. Vision of left eye impaired for three weeks. Numerous small spots of hemorrhage in macular region. Vision one-eighteenth. Sight was ultimately regained, in great measure, and the patient was reported well fourteen years later.

7. Male. Age forty-nine. Very large, fresh hemorrhage just above optic nerve of one eye. Patient much overworked, made to relinquish business and take a journey. Recovery complete, well four years later.

8. Male. Age fifty-six. Blur over right eye for six weeks. Large hemorrhage found near nerve, also numerous smaller ones at periphery of fundus. Some improvement took place, though sight was never completely restored. Died of paralysis two years later.

9. Female. Age fifty-eight. Sudden failure of vision in one eye, numerous fine retinal apoplexies found scattered over fundus. Died of cardiac disease nineteen years later.

10. Male. Age fifty-nine. Small retinal hemorrhage in one eye. Died suddenly of apoplexy, in his state-room on a steamer, about two years later.

11. Female. Age fifty-nine. Vision of one eye suddenly fell off several months ago. Numerous small retinal hemorrhages scattered about macular region. Ten months later died of apoplexy.

12. Male. Age fifty-nine. Within two weeks great failure of vision in each eye. Dilated one pupil and found numerous retinal apoplexies. Other eye similarly affected, as nearly as could be seen through the small pupil. This was in August, and patient died of paralysis the following winter.

13. Male. Age sixty. (Case quoted at commencement of article.) One eye affected for two weeks, enormous number of fine apoplexies. Examined in July; a year from the following February fell in the street with an attack of apoplexy, and died in three days.

14. Female. Age sixty. Failure of sight for two months, due to retinal hemorrhages. Eighteen months later died suddenly of apoplexy.

15. Female. Age sixty-two. Numerous retinal hemorrhages in one eye with corresponding failure of vision, the whole lasting six weeks. Two years later was reported to be in good health, but died of apoplexy seven years afterwards.

This patient was a sister of Case 6.

16. Female. Age sixty-two. Within six weeks rapid failure of vision of each eye. Large hemorrhage in each retina. Patient was six months under observation, and the hemorrhages repeatedly recurred. Is reported to have died of heart disease three years later.

17. Male. Age sixty-three. Several bright splashes of blood near lower edge of optic nerve. Had noticed trouble with eye for a week. This was the middle of March. April 9th a fresh hemorrhage was observed to have taken place. May 8th he fell dead of apoplexy, while sitting at his desk.

18. Male. Age sixty-five. Dimness of one eye observed for a month. A number of small blood spots over macula. His physician wrote concerning

him that he had valvular disease of the heart, apparently at aortic orifice, together with enlargement. Case terminated fatally in less than two months.

19. Male. Age sixty-five. A very large number of small retinal apoplexies in macular region, of recent occurrence. No apparent cause. Vision much impaired, but was subsequently regained, and patient was well and hearty seventeen years later.

20. Male. Age sixty-six. Sudden appearance of spots of retinal apoplexy over macula of one eye. Vision never returned; patient died suddenly of apoplexy three years later.

21. Male. Age sixty-six. In November, 1876, hemorrhages near right optic nerve; in April, 1877, fresh attack; in 1881 the other eye became similarly affected. In August, 1883, died of apoplexy while sitting at the table.

22. Male. Age seventy. In May, 1874, there were several small fresh hemorrhages over left macula. In 1884 patient was in good health, though vision had not returned. In 1890 is reported to have died of "old age."

23. Female. Age seventy. Retinal hemorrhages in each eye, right affected a year, left three weeks. Three weeks later died suddenly of heart disease.

24. Male. Age seventy-two. Vision of one eye greatly impaired for six months. Numerous retinal hemorrhages. General health excellent. Two and a half years later saw him again, no return of vision, health as before. Two years afterwards had an apoplectic seizure, and at the end of two years more died of paralysis.

25. Female. Age seventy-three. One eye only affected, and that within a few days, great failure of vision, hemorrhages scattered over fundus. Patient reported to have cardiac trouble, but no opportunity for examination was offered. Five months later died of heart disease.

26. Male. Age seventy-three. Vision of left eye had been imperfect for a few months. Extensive retinal apoplexies. Two years later had paralysis of the left side, and two years after that died of uremia.

27. Male. Age seventy-four. For two months has observed what he terms a "black ball" before one eye, with much failure of sight. Retinal hemorrhages scattered in all directions. A year later died of apoplexy.

28. Male. Age seventy-six. Right eye affected two weeks, large patches of freshly effused blood in retina. Four years afterwards died of apoplexy.

29. Female. Age seventy-six. Extensive retinal hemorrhages around periphery of left fundus, failure of vision being quite recent. Nine years later died suddenly of heart disease.

30. Male. Age seventy-eight. Four days ago noticed failure of vision in left eye. Numerous bright splashes of blood surround optic nerve entrance. Came from his physician with a diagnosis of cardiac disease, there being a mitral murmur. Died of heart disease a year later.

31. Male. Age eighty-three. Left eye had failed for three years, vision now restricted to distinguishing moving hand. Large spot of effused blood over macula. Sight never returned, but the patient lived on six years, and died finally of inflammation of the bladder.

We have here then, a total of thirty-one persons, between the ages of forty-three and eighty-three, sub-

jects of retinal hemorrhage. Twenty-five of these died after brief illnesses, some indeed with the utmost suddenness. Eleven of this number died of heart disease, fourteen of apoplexy. Five were at last accounts living, their average age being fifty-four, and their cases followed up an average of thirteen years. Another, a man of eighty-three died, six years after he came to me, of an affection of the bladder.

While, therefore, the effusion of blood in the retina cannot be said to uniformly portend danger to life, it has certainly a grave significance, increasing directly with the age of the patient. That it is often overlooked there can be no question. Within a few days I received a visit from a lady aged seventy, who had consulted me fourteen months before. The eyes were then examined separately, both as to vision and ophthalmoscopically, and found to be in the condition that would be expected at her time of life. She saw distant objects with either eye equally well. On the occasion of her second visit she complained that the use of her glasses had of late been attended with difficulty, and she found it impossible to support the continued use of the eyes on near objects. She came supposing that she needed a change of glasses. One eye remained normal, while the vision of the other had fallen off nine-tenths, and there were numerous retinal apoplexies. Of the occurrence of this accident she had not the least idea. Unwilling to alarm her I stated the case to the daughter who accompanied her, gave directions for the treatment of the patient, and wrote to her son, advising a speedy arrangement of any unfinished business matters.

And this is the practical point involved. An early diagnosis, and the consequent recognition of the possibility of sudden death, not only leads to the settlement of business interests that, in the event of an unexpected demise, might seriously suffer; but causes advice to be given that may sensibly prolong the days of the patient. Auscultation, thus suggested, may detect the presence of an hitherto unsuspected cardiac lesion. And in any case suitable diet, leading a regular life, and above all the avoidance of exhausting work or excessive mental activity, have lengthened many a life thus threatened. I cannot doubt but that, if the patient mentioned in the commencement of this paper had followed the advice that was earnestly given him, had retired from his engrossing and exhausting work and taken the vacation he so much needed, a valuable and valued life might have been long preserved to the community. He was a man of powerful physique, and apparently in the prime of his powers, both bodily and mental, when the apoplectic seizure, of which he had full warning, came so suddenly upon him.

These cases must of course be referred back by the specialist to the family physician, to whom indeed their diagnosis ought to be by no means impossible. The patient is generally advanced in years, vision is suddenly impaired, and in a single eye, a general mist or blur being the symptom complained of. Cataract makes its presence more gradually felt, while glaucoma can be recognized by the tension of the eyeball, the enlargement of the pupil, and the characteristic encroachment on the visual field. If there is no reason to suspect either of these diseases, a retinal hemorrhage is, under the circumstances already mentioned, at least probable. To enlarge the pupil, which is ordinarily necessary, a weak solution of scopolamine

may be used, and the degree of familiarity with the ophthalmoscope, which now does or should enter into the training of every physician, enables the observer to make a certain diagnosis.

Medical Progress.

REPORT ON PROGRESS IN THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

NEW PREPARATIONS OF TUBERCULIN.¹

DR. ROBERT KOCH, in this article, begins by discussing two kinds of immunity—the one against toxins and the other against the bacteria—and goes on to say that the ideal immunity is that which will protect the human body not only against one of the injurious agents but against all of the injurious agents produced by pathogenic micro-organisms; and these considerations play a great rôle in tuberculosis. All attempts made to secure in any numbers the absorption of unchanged living or even dead tubercle bacilli by the subcutaneous tissue, by the peritoneal cavity or by the circulation, failed; and as it was then proved that bacilli in an unchanged state could not be used for purposes of immunization, an endeavor was made to render the bacilli absorbable by some chemical attack, and to this end they were treated with dilute mineral acids or with strong alkalies under boiling heat. As this also failed of its purpose, the absorbable constituents were extracted from a mass of tubercle bacilli in order to use them for purposes of immunization; and experimenting with glycerine extraction led to the discovery of tuberculin.

Tuberculin has the valuable property of producing a characteristic reaction in animals and man affected with tuberculosis, when introduced subcutaneously in very small quantities, and may be utilized in the recognition of tuberculosis in the earliest stages. The fear that, in consequence of the reaction, the tubercle bacilli would be rendered mobile and would then be transmitted to healthy animals, has been shown in many thousands of tuberculin injections, made upon cattle as a test, to be perfectly groundless.

The further use of tuberculin consists in its employment in the treatment of tuberculosis. As an unmistakable improvement in the tuberculous process occurs after every reaction produced by tuberculin, it would seem proper to continue the reaction as long as any improvement shows itself. But this improvement cannot be indefinitely continued, as the reaction against tuberculin is gradually lost, and with it, of course, the effect of the tuberculin; so that, finally, there comes a period of perfect immunization against the tuberculin, and this period may last for several months. This immunization has no effect upon the tubercle bacilli themselves, it is a pure toxic immunity, and not a bacterial immunity. Unfortunately, the reaction against tuberculin is very often lost before there is anything like a perfect cure of the disease, and a relapse sets in which must again be treated with tuberculin reactions so soon as the capability of reaction is established. Still, treated in this way, with the necessary skill and patience, a cure, or at least very great

¹ Deutsche med. Woch., April 1, 1897, translation in Cincinnati Lancet-Climate, April 24, 1897.

improvement, may be secured, if not in all, at least in very many cases of uncomplicated tuberculosis.

Dr. Koch goes on to say that tuberculin would, therefore, be the best agent for the treatment of tuberculosis were it not that he has in the mean time succeeded in securing from cultures of the tubercle bacilli preparations which immunize the body against the tubercle bacilli themselves. The writer then describes what he calls, for the sake of brevity, the T A preparation (T for tuberculin; A, because the preparation is an alkaline extract). Experiments with T A showed that very small doses produced quite similar reactions to those obtained by tuberculin, but they were of longer duration, and the capability of reaction lasted longer than in the case of tuberculin; but the chief advantage was that the results obtained were more constant, so that relapses were fewer and farther apart. This preparation was abandoned because abscesses developed under pretty high doses at the point of injection; these abscesses were perfectly sterile and could have only been produced by the dead tubercle bacilli from which the T A preparation was not perfectly free.

Experiments made with T A led the writer to understand that under no circumstances could tubercle bacilli be absorbed in the undestroyed state, but this desired absorption might be obtained by breaking them up mechanically; and he was strengthened in this idea by observations which he had made in the chemical treatment of tubercle bacilli. Tubercle bacilli contain two peculiar chemical bodies, which both belong to the group of unsaturated fatty acids. One of the fatty acids is soluble in dilute alcohol and is easily saponified by soda lye; the other is dissolved only in boiling absolute alcohol or ether, and is hardly at all saponified. Both take on the so called tubercle bacilli stain, that is, they are colored intensely red by carbol fuchsin, and keep this color after treatment with dilute nitric acid and with alcohol. Now, as in this treatment the first of the two fatty acids is dissolved in alcohol and withdrawn from among the microscopic objects, there remains in this coloring treatment, when it is applied to the tubercle bacilli, only the second fatty acid, insoluble in cold alcohol. This acid fixes the stain, and is thus the carrier of the color peculiar to tubercle bacilli. The fatty acid may be slowly driven out of the tubercle bacilli by hot soda lye, and the process of separation may be easily followed with the help of the microscope, in which it is seen that the fatty acid escapes from the bacillus in the form of stainable drops, which flow together to constitute larger drops, while the bacilli at first still maintain their form but have lost the specific coloring of tubercle bacilli, and have only that which belongs to other bacteria. These fatty acids form, as the microscopic picture of stained bacilli shows, a connected layer in the body of the bacillus; they protect it from attacks from without and are the cause of its slow absorption. The point was, how to destroy this protective envelope in order to make the tubercle bacilli absorbable. The first experiments in this direction failed but finally success came. Well-dried cultures were rubbed thoroughly in an agate mortar with an agate pestle until there was a diminution in the number of colorable tubercle bacilli, and at last only a few tubercle bacilli remained, and these were removed by placing the substance in distilled water and centrifuging it; the fluid could then be separated into

a perfectly clear transparent layer which contained no tubercle bacilli, and a solid, muddy sediment. This sediment was again dried, pulverized and centrifuged as before; and again there was a clear upper layer and the solid deposit. This process can be repeated until the whole mass of tubercle-bacillus culture is converted into a series of perfectly clear liquids.

Experiments made upon animals, and later upon man, were convincing that the preparation thus obtained was entirely absorbable and never produced abscesses if it had been thoroughly centrifuged and contained no colorable bacilli. It was soon seen that the first fluid only, differed essentially from those subsequently obtained in the experiment above described. The upper layer which resulted from the first centrifuging is designated as Tuberculin O (the O stands for *obere*, upper), or T O; while the rest, obtained after the first centrifuging, received the name T R (R for rest).

The conduct of T R in the presence of glycerine shows that it contains essentially the constituents of tubercle bacilli, which are insoluble in glycerine and which in a glycerine extract remain behind; while T O includes the parts soluble in glycerine. The test of the two preparations in animals and man coincides with this view. The T O approaches very nearly in its properties to the common tuberculin, and shows an effect almost exactly like that of T A (alkaline extract, already alluded to), except that no abscess formation is to be feared in the case of T O; but it has very little immunizing property.

The T R, on the contrary, has decided immunizing properties. It produces reactions in the tuberculous patient when too large a dose is used, but the effect is entirely independent of these reactions. While reactions must be obtained in order to accomplish curative effects with common tuberculin as well as with T A and T O, the endeavor was made, in the use of T R, to avoid reaction as much as possible and to make the patient insusceptible by gradual increase of the dose, as rapidly as it could be done, it is true, but at the same time to avoid as far as possible the larger doses; that is, endeavor was made to immunize the patient against T R and the tubercle bacilli. An individual who is immunized against T R no longer reacts to large doses of the common tuberculin, or of T O; in other words, he is immunized against all the constituents of the tubercle bacilli. Dr. Koch states that there can be no doubt of this property of the T R, as he has proved the correctness of the observation in a large number of cases.

The T R preparation, to be effective, must be made from extremely virulent cultures (tubercle bacilli are not so uniformly virulent as has been assumed); the less virulent furnish less effective or entirely ineffective preparations. The cultures should not be too old; in fact, they should be made as fresh as possible, that is, immediately after they have become perfectly dry. All chemical intervention should be avoided, as the T R appears to be very sensitive. For the same reason the cultures, as well as the preparations, should be protected from the light. The T O must be carefully separated from the T R, or there remains in the latter a more or less large quantity of T O, the injection of which produces undesirable reactions.

Dr. Koch discusses the danger to the private individual in making T R, and considers it for this reason

out of the question that it should be done with the hands in any large quantity; it should be made by machinery.

Injections of T R, as with tuberculin, are made in the back by means of a syringe which is easily sterilized. The fluid contains, to the cubic centimetre, ten milligrammes solid substance, and is diluted to the proper dose by the addition of the physiological salt solution. One five-hundredth of a milligramme should be used at first; and this dose is so small that it only in rare cases produces any reaction; but should this be the case, the dose may be still further diluted. Injections are made about every second day, and with such a slow increase of the dose that any marked elevation of temperature, even half a degree, is as much as possible avoided. Any elevation caused by the injections must disappear before the injection is repeated. As a rule, the dose has been increased to twenty milligrammes, and has then been stopped if no reaction followed, or injections have been made only after longer intervals.

If animals are to be immunized, as much as can well be absorbed should be used in the beginning—for a guinea-pig, for instance, two to three milligrammes, and correspondingly more for larger animals. In the case of tuberculous animals a much smaller amount must be used at the start, as even a dose of two milligrammes may under certain circumstances prove fatal. In the immunization of sound, and the treatment of diseased animals, everything depends upon using the largest possible dose that can be easily absorbed. This condition being satisfied, a large number of guinea-pigs were immunized so that they could endure repeated inoculations with virulent cultures without becoming infected. The point of inoculation disappeared without leaving any trace, and the neighboring inguinal glands remained in some cases for months entirely unaffected. In others they were enlarged, but without any visible tuberculous change. Tubercle bacilli could not be found in them.

In a certain number of animals the immunization was not complete at the time of the first inoculation. In these cases the point of inoculation had healed, but the inguinal glands had become caseous. The internal organs, on the other hand, were free from tuberculosis, while the control animals showed far advanced general tuberculosis of the lungs, spleen and liver.

Experiments made with tuberculous guinea-pigs gave the impression that full immunization sets in in two or three weeks after the use of the larger doses. A cure in tuberculous guinea-pigs (animals in whom the disease runs a very rapid course) may therefore take place only when the treatment is begun early, as early as one or two weeks after the infection with tuberculosis.

This rule holds good also for tuberculous human beings, whose treatment must not be begun too late. Such small doses must be given at first as to necessarily exclude any distinct immunization in the beginning, it is only when larger doses are reached, one-half to one milligramme, that the unmistakable effects of immunization are observed. A patient, then, who has but a few months to live, cannot expect any help from the use of the remedy, and it will be of little use to treat patients who suffer chiefly from secondary infections.

The T R preparation has been used in a tolerably large number of proper cases, and especially in lupus.

Three cases showed more improvement than is obtained by common tuberculin or by the T A preparation. The word *cure* is not used, as a sufficiently long time has not yet elapsed.

In phthisical patients the well-known violent reaction of tuberculin, with the temporary infiltration in the diseased lung tissue, was absent. A slight increase in the râles, which speedily disappeared, was, as a rule, the only local symptom attending the use of the T R preparation. The sputum diminished after a few injections, and there was a corresponding diminution in the number of tubercle bacilli, which soon disappeared altogether. The râles likewise disappeared, and the region of dulness diminished. The patients began to gain in weight from the beginning, and made essential gains by the end of the treatment. The zigzag line of the temperature curve, in cases which showed a daily variation of one degree Centigrade, or more, straightened itself by degrees and gradually reached the normal.

Dr. Koch closes by saying that the method which he has employed in the use of T R, namely, a gradual increase from the smallest subcutaneous doses up to about twenty milligrammes, may not be the best. Other methods, perhaps combinations with T R, or with serum preparations obtained by means of T O or T R, may lead more quickly and surely to the desired end; but he believes that further improvements in the preparations themselves are not to be expected.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR meeting Monday, February 22, 1897, Dr. A. L. MASON in the chair.

DR. GEORGE W. GAY reported a case of

LIGATURE OF THE INNOMINATE ARTERY.¹

DR. MASON inquired how many instances there are where patients have survived any considerable time, say, five years.

DR. GAY: Dr. Burrell gives a list of 29 cases, including his own. Mine would be the 30th unless others have been reported in the meantime of which I have no knowledge. Ten of these cases lived over one month. Three, besides his own, are reported as recoveries. One died at the end of ten years of hemorrhage from the original aneurism; Dr. Burrell's patient died in 104 days of arterio-sclerosis, and an enlarged and dilated heart. Two others are reported well at the end of six weeks; another died in 68 days of hemorrhage. The remainder of the ten died in periods varying from 33 to 43 days. The case herein reported makes 11 out of 30, that have lived more than a month after the operation.

¹ See page 73 of the Journal.

A HALF-CENTURY OF MEDICAL JOURNALISM.—The *New Orleans Medical and Surgical Journal* is celebrating its semi-centennial. It was established in 1844, but suspended publication during the years of the Civil War.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

FOURTEENTH ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4, 5 AND 6, 1897.

The following officers were elected for 1898: President, Dr. Edward O. Otis, of Boston. Vice-Presidents, Dr. Beverley Robinson, of New York; Dr. C. F. McGahan, of Aiken, S. C. Secretary and Treasurer, Dr. Guy Hinsdale, of Philadelphia. Council: Dr. R. G. Curtin, Philadelphia; Dr. I. H. Platt, Lakewood; Dr. S. E. Solly, Colorado Springs; Dr. J. B. Walker, Philadelphia; Dr. E. Fletcher Ingals, Chicago.

The President, Dr. E. FLETCHER INGALS, of Chicago, after reciting briefly the history of the Association since its organization in 1884, called attention to the great increase in our knowledge of the climatological possibilities in the United States, and urged the members to extend their studies to the effect of climate on various other diseases, in addition to those of the respiratory and circulatory organs. He briefly cited several cases illustrative of the benefits to be derived from various antiseptics and from an antiseptic atmosphere, and urged upon the profession the inutility of sending patients at all advanced in the disease away from home excepting under the most favorable circumstances. The paper closed with the following conclusions:

In addition to tonics, supporting or anodyne remedies, various antiseptics appear to possess great value in relieving pulmonary tuberculosis, but in order to get good effects it is imperative that the system be as nearly saturated with them as possible. They should be given at first in small doses but the amount should be steadily increased until the maximum dose is obtained; care being always taken not to disturb the digestive organs. For example, with the oil of cloves we may begin with five drops given in capsules from three to five times daily after each meal and in the middle of the forenoon and middle of the afternoon, the medicine always to be followed by a glass of milk. The second day the dose should be six drops, the third seven, and so on until a dose of twenty-five or thirty drops is given each time.

Creosote can seldom be given in sufficient quantities to have any material effect because of the disturbance of the digestive organs which it is liable to cause and because of its coagulating all albuminoids. The same may be said of carbolic acid.

The carbonate of creosote is much more bland, and may be given in doses of from five to sixty drops after each meal with the greatest benefit.

Guaiacol may be given in much the same way as the oil of cloves, though in somewhat smaller doses; but it is usually less easily borne than the carbonate of creosote or oil of cloves, and often cannot be tolerated in sufficient quantities. The carbonate of guaiacol may be used in much the same way as guaiacol itself, but most patients seem unable to take it in sufficient doses.

Iodine may be used as recommended by Shurly, with undoubted benefit, but it causes considerable pain and is open to the objection that it necessitates too constant attendance of the physician. It may also be used advantageously as an inhalant.

Patients should not be sent from home unless their financial and social position is such as to render the journey and sojourn easy and agreeable.

In the first stage of the disease patients should, as a

rule, go to a high altitude where the atmosphere is as warm as practicable. In the second stage they should be sent to a medium altitude. In the third stage, if sent anywhere, it should be to a low altitude and in most instances to a dry atmosphere.

When sojourning in a favorable climate, the patient should be out of doors as much as practicable during the pleasant portion of the day, and should avoid excessive heat, excessive cold and unusual fatigue.

Patients who have been improving under any course of medication should not discontinue it upon going to a different climate; and however valuable any remedy may appear, it should not be continued if it becomes clear that it is deranging the digestion.

Of anodynes to check cough, hyoscyamus, camphor, cannabis indica, stramonium and conium are of most value because they can generally be taken in sufficient quantities without disturbing the digestion, whereas opiates are usually deleterious in whatever form they may be employed.

The majority of patients sent from home in the latter stages of pulmonary tuberculosis are injured by the journey and their lives correspondingly shortened, though in a small percentage very great benefit is obtained.

Dr. S. E. SOLLY, of Colorado Springs, said that the great desideratum as to resorts was to get at facts and not opinions. He had encountered great difficulty in this respect in the preparation of his work on medical climatology. We want reliable data as to the nature of the soil, the slope of the ground, and many other features not always embraced in meteorological reports. As to the use of antiseptics, Dr. Solly said that in the present instance it is one of those rare occasions in which he cannot agree with the President. His own practice was to ascertain, when new patients presented themselves, whether the oil of cloves or the creosote or other antiseptic was doing well; if so, he continued it, on the principle that it was well to have something definite for the patient to do—some rallying point for good moral effect; as to most of the forms of specific medication, he believed that they exert their beneficial influence on the principle of "omne ignatum pro magnifico."

Dr. ROBERT H. BABCOCK, of Chicago, submitted

A BRIEF CONSIDERATION OF SOME POINTS IN THE
MANAGEMENT OF CONSUMPTION.

As the author's aim was to elicit discussion, his paper was suggestive. He agreed with Finlayson and others that the consumptive's temperature is not febrile until it reaches 101.3° F., and only then requires treatment. He first advises rest in the open air and regulation of the diet. If this does not reduce the temperature, he advises careful sponging or the use of small doses (one and a half to three grains) of antifebrine or some other non-depressing antipyretic an hour before meals, as suggested by Detweiler, for the purpose of promoting the secretion of free hydrochloric acid during digestion, it being absent during fever. Sweating he combats with picrotoxin and camphoric acid. Diarrhea is considered due to intestinal ulceration less often than is generally supposed, but rather to intestinal fermentation, and is treated with intestinal antiseptics rather than opium and astringents.

He inquired if laryngeal tuberculosis did not contraindicate high altitudes, and wished to learn from Colorado members why patients were often retained at

that high altitude after having developed laryngeal symptoms.

It is his belief that patients having recovered in high altitudes should not return to reside at their former homes in the East, although he has known individuals to do so without apparent harm. He wished to learn if the members did not consider such return unsafe and likely to bring on a fresh outbreak of the disease.

DR. CHARLES F. GARDINER, of Colorado Springs, read a paper on

THE DANGERS OF TUBERCULAR INFECTION AND THEIR PARTIAL ARREST BY CLIMATIC INFLUENCES.

The paper gave the result of an elaborate bacteriological study. Dr. Gardiner said that in reviewing the evidence of partial arrest of tubercular infection by climatic influence, all data of a general character have to be taken with great caution. The impression that in the arid or elevated regions of the world, consumption from being so rarely seen, is not communicated from the sick to the well, is not at all proved from such imperfect and unreliable statistics as have generally been brought forward. The immunizing power apparently possessed by a climate may be really due to manner of life, such as isolation and the like, day and night in the open air; or selected lives, such as the early settlers of any country live, who, to cope with its hardships, have of necessity to be the strongest.

It is, therefore, only after a country has been settled some little time that indoor industries, overcrowding and the general unsanitary environment of civilization, exert their full action, and that any reliable data concerning climatic arrest of infection, can with real accuracy be computed; as no experiment is accurate unless conditions are equal, or nearly so. Conditions are now, however, favorable for comparison, as the dry and elevated regions of almost the entire world have populous cities, whose inhabitants lead indoor lives, and whose environment closely approaches that of dwellers in the dense civilized centres from which our statistics have for years back been taken; so that at the present day, comparative statistics of tuberculosis, collected with care, show the relation between a seaboard town and one at an elevation of six thousand feet with a degree of accuracy and truth that leaves very little to be desired in a collection of scientific data.

In regard, therefore, to infection, the fact that so many consumptives are brought into such close contact with well people in Colorado Springs seems, no doubt, a clear evidence that a risk in proportion to the exposure must logically result. Theoretically considered, such an opinion, based on well-known laws and statistics of other cities, would be safe to follow, other things being equal; but other things are not equal. A factor of six thousand feet altitude comes in, and six thousand feet exerts a very strong and important action in limiting the extension of tuberculosis in Colorado Springs. This is, also, not an isolated instance; Colorado Springs is not alone in having such a low record. The low mortality from non-imported consumption contracted in Colorado Springs has its counterpart in other cities in this elevated dry belt. Even Denver, a city of 150,000 inhabitants, with tall buildings shutting out the sunlight, industrial occupations which are so conducive to tubercular increase, and, in addition, a large proportion of consump-

tive invalids scattered among its other inhabitants, had, as shown by the reports, only 64 deaths from non-imported consumption (less than half of a death to the thousand) in 1896. The average city would show 450 deaths per year to 150,000 inhabitants, without the climatic factor possessed by Denver. Dr. Gardiner sent out in April fifty circular letters to doctors in Utah, Arizona, Wyoming, New Mexico and Colorado, asking the number of cases seen or heard of by them, and the number of years each had practised in his present locality. In this way he took in fairly well the dry belt, some of which was at one thousand feet altitude only. The result from answers received was 203 years' observation in practice and 130 cases of non-imported phthisis reported—fully 80 per cent. of which were either from Salt Lake City, in native Mexicans in New Mexico, or in an altitude below three thousand feet. This compares well with results observed in other parts of the world.

The climatic influence that favors recovery from consumption, is no doubt composed of many factors. Very briefly they can be stated as follows: The tubercular germ, distributed as dust, is much more likely to lose its virulence exposed in a climate where the sunshine is so constantly present and the air so thin. The air cells of the average lungs are more used, more brought into healthy action at an altitude of six thousand feet; the increase, as told by the spirometer and by chest measurements, is very marked in newcomers to the dry elevated climates; and it follows that organs so exercised, both by increased ventilation and increased blood-supply, do not as readily become a suitable medium for the growth of tubercle bacilli.

DR. S. G. BONNEY, of Denver, detailed his
OBSERVATIONS UPON PULMONARY TUBERCULOSIS IN COLORADO.

He presented an analysis of 200 recorded cases selected from private practice during a period of two years. He discussed these cases with reference to the probable prognosis at time of arrival, and in stating the results he made a classification according to the physical signs and general condition. Then followed a brief summary of statistical and general observations relative to age, sex, distribution, previous environment, inherited predisposition; the extent and character of the tubercular involvement; the method of onset; the relation of climate to hemorrhagic cases; the relation of climate to cases exhibiting greater or less degree of functional nervous disturbance; the relation of climate to bronchial irritation. He discussed the complications, with special reference to tubercular laryngitis, and closed with general observations as to management.

AËRO-THERAPEUTICS AND HYDRO-THERAPEUTICS IN THE TREATMENT AND PREVENTION OF PULMONARY TUBERCULOSIS.

DR. S. A. KNOFF, of New York, in a paper with this title, spoke of preventive medicine as the medicine of the present. While hoping that preventive inoculation and sero-therapy would be the ultimate treatment for all acute diseases, he expressed doubts as to the discovery of a serum or toxin which would cure pulmonary tuberculosis when it had already worked its destructive process. He recommended continued research to combat the association of microbes manifested by acute exacerbation, and stated that his

own work in that direction with antiseptic serum had been encouraging.

In describing the anatomical, physiological and pathological peculiarities of the individual predisposed to pulmonary tuberculosis, he pointed out the remedies to overcome the insufficient air-supply to the respiratory organs, and the abnormally increased sensibility of the general, and especially the cutaneous, system to the slightest changes of temperature. He showed that the preventive treatment of consumption should begin with the child *in utero*, and be kept up throughout life. Dr. Kuopf completed his paper with a description of a thorough system of aëro- and hydro-therapeutics.

THE SALICYLATE TREATMENT OF HEMOPTYSIS.

DR. THOMAS J. MAYS, of Philadelphia, presented a paper with this title. He believes that such drugs as gallic acid, tannin, ergot, geranium, hamamelis, digitalis, turpentine, etc., although supposed to be sheet-anchors, are consummate failures in the treatment of many cases of hemoptysis. This, the author thinks, is due to the fact that they do not fill the gap which exists between what they can do and what we expect them to do. He holds that in many cases the arresting of bleeding from the lungs does not rest on our therapeutic agent's power to constrict the pulmonary capillaries, but on their influence in removing that toxic condition which weakens the wall of the blood-vessel and makes it permeable to its contents. Such a toxin he believes the rheumatic poison to be, which, he thinks, is more frequently engaged in bringing about hemoptysis than is usually suspected. At any rate, practical experience demonstrates that many a case of blood-spitting which is uninfluenced by any other internal remedy, yields to the salicylates of soda and cinchonidine, very readily. Several typical cases illustrating the utility of these drugs were recorded.

DR. JOHN MADISON TAYLOR, of Philadelphia, read a paper on

THE EFFECT OF CLIMATE UPON NEURASTHENIA AND MELANCHOLIA.

Dr. Taylor's conclusions are: (1) that change of climate is of relative insignificance in the treatment of neurasthenic states, although changes of situation quite frequently are of more or less importance; (2) that the most important element of change has to do with environment, including, not only change of place but of persons and things; (3) that it is important to outline what constitutes the essential points in this change of environment, so that the average practitioner may keep in mind such imperative conditions and modifications as the varying needs of the individual, his domestic and financial status, make necessary.

He discussed briefly the climatic conditions which make or mar success, and related his own experience, making special reference to the undesirability of radical changes inconsistent with the customary life of a patient, such as reversing the seasons, sending a dweller in the cold North to spend a winter in the tropical South. He noted the distinct harm wrought upon a highly sensitive nervous organization thrown out of balance by a prolonged residence on the seacoast or high mountain regions. And, lastly, he called special attention to the hurtfulness of rushing about from place to place in obedience to morbid impulses, the outcome of agitation due to disease.

DR. SANGER BROWN, of Chicago, presented a paper on

DISEASES OF THE NERVOUS SYSTEM AFFECTED BY CLIMATE.

Benefits from a temporary change of climate are due:

(1) To incidental influences, such as relief from responsibility, change of scene, an outdoor life and regular habits.

(2) To the influence of the climate in the promotion of the general health.

(3) To the direct effect of the climate upon the disease itself, as the healing influence upon the lungs popularly attributed to inhalation of the atmosphere of certain districts.

The first two are of much more importance than the last, even in pulmonary tuberculosis; for, unless they act, the disease invariably progresses. Their effects may be quite generally referred to the nervous system.

In general, individuals in good health but of the nervous temperament — natural instability of the nervous system — do badly in a high altitude; more particularly, however, in conditions where the nervous equilibrium is much reduced, as is often the case in the victims of overwork, in consumption, and in woman at the climacteric period, a very high altitude is not well borne. Tinnitus, insomnia, mental confusion, a tormenting sense of nervous tension, restlessness and apprehension are some of the most conspicuous symptoms in these cases. An inland dweller is sometimes affected in a similar way by sea air, but the symptoms are very much less in frequency and degree; indeed, I have not known tinnitus to be so caused.

A cold and sunny climate, with an altitude not above three thousand feet, is the one best suited to the restoration of a debilitated nervous system, no matter hardly to what cause this may be due. Providing the patient has enough nervous energy left to enable him to react, and if the kidneys are sound, it is surprising how slight the danger is in sending even a very frail invalid to a cold climate and keeping him much out of doors, if reasonable precautions are taken. I mean by a cold climate, one in winter in which the temperature ranges much of the time from 10° to 0°, as Ottawa, Ont., St. Paul or Winnipeg, and where in the summer it falls very frequently at night to from 36° to 46° F.

Too much is not to be expected from patients far past middle life, for the conditions of success depend upon the existence of latent nervous energy which the comparatively low temperature liberates. In the winter, at least, two or three months' residence in such a climate is usually a sufficient time to test its efficacy in a given case. Elderly people very often, and patients of any age sometimes, do better in a mild climate, like that of Central Texas or Redlands, Cal. Organic diseases of the nervous system are not directly affected by climate.

To briefly recapitulate: in debilitated states of the nervous system attended with such disturbances of function as simple melancholia, neurasthenia, neuralgia, insomnia, neuroses incident to the menopause and hysteria, a high altitude and the sea-shore are contraindicated; and while generally in such cases a clear, cold climate is most beneficial, a few cases do better in a mild inland climate. After a certain degree of improvement has taken place, this may frequently be advanced by sea or even mountain air.

(To be continued.)

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RECENT FOREIGN LITERATURE ON APPENDICITIS.

THE subject of Appendicitis has been attracting anew the attention of physicians and surgeons on the continent of Europe. At the meeting of the German Society of Surgery, held April 21st, the importance of early surgical intervention was emphasized. This was also, in part, the consensus of the discussion before the Société de Médecine et de Chirurgie Pratique at a recent meeting. The French medical mind has in the past been inclined to conservatism, and it has been regarded as good practice to wait a week or longer—even in severe cases—in the hope that this perityphlitic abscess might be well walled in from the abdominal cavity.

Paul Reynier, at the above-mentioned meeting, advocated this procedure. In the immense majority of cases intervention should be tardy, and by this he meant, put off till some time between the fifth and ninth day. He would except appendicitis in young children, which has little tendency to be attended with neo-membranous formation and walling in of the suppuration. His experience with appendicitis in adults leads him to call especial attention to the proneness of this disease to be followed by a peritonitis which is distinctly localized. Out of forty cases, he has seen but three deaths from general peritonitis. There is, therefore, a great gain in waiting till the peritonitis is localized in the cecal region, and adhesions are formed protecting the rest of the peritoneal cavity. In exceptional cases of the fulminant character, laparotomy should be performed at once, as soon as the diagnosis is made.

Dr. Louis Beurnier had little faith in the medical treatment of appendicitis. Every case of appendicitis is "of the province of the surgeon," and should be under the constant care and scrutiny of the surgeon, in readiness for an operation.¹ In many cases it may

be expedient to wait "till the acute period of the onset is passed, till the general condition is improved by injections of caffeine, and the local state is ameliorated by applications of ice," but the laparotomy should only in exceptional cases be deferred beyond the third or fourth day. He insists on the necessity of a free incision, prolonged well upward, so as to give plenty of room for exploration. If the pus does not flow by gentle manœuvres, use care in exploring with the finger so as not to break down adhesions. It is often better to leave the appendix *in situ*.

Dr. F. Verchère contributed to the same society a brilliant paper, in which he stated the view that there are two types of appendicitis, both having a different pathogeny and different clinical tableaux. There is no difficulty in accepting the two types; but is not the malignant form an aggravation of the simple benign type, due to the same microbes and toxins, only intensified by causes not yet well understood? We know that one type is relatively benign, characterized by a phlegmon of the right iliac fossa; this phlegmon may go on to suppuration, or it may remain "sero-fibrinous" and end in resolution. The sequels of the appendicitis may be those of an ordinary abscess opening externally or especially dangerous only if it bursts into the peritoneal cavity. Cases of this type do not show a marked degree of infection. The phagocytes of the individual affected, early display their protective activity in a sufficient degree to get the upper-hand of their bacterial adversaries, walling away from the abdominal cavity the seat of infection; and only a localized focus of suppuration attests the mischief wrought in the *vase close* of an occluded appendix.

The malignant type of appendicitis is appropriately called by Verchère "intestino-peritoneal septicemia." These cases are generally fatal, though a small percentage are saved by an early operation. Here there is intensification of the virus owing to favorable culture conditions in the "closed receptacle" and rapid absorption of toxins with generalization of the inflammation to the peritoneum and a speedy septicemic break-down. There may be but little localization of the mischief, and from beginning to end no suppuration.

Paul Reclus writes² on "The Pathogeny of Appendicitis." His paper deserves more notice than the limits of this article will allow. He shows that the *vase close* theory is more or less applicable to the disorder following all kinds of appendicitis; for when an inflammation is once started in that diverticulum, there is, owing to its peculiar shape and situation, the greatest tendency to stagnation of the contents, thus offering the very best culture field to bacteria of the intestine, notably the streptococcus and coli bacillus. But many cases of appendicitis do not start in the appendix, but are propagated from an enteritis of the colon and cecum, and it has been of late proved that appendicitis sometimes originates from general causes, as infectious fevers. But whatever cause may have been operative, "the structure of the appendix, its cana-

¹ Bull. et Mem. de la Soc. de Méd. et de Chirurgie Pratique, fasc. iii, 1897.

² Semaine Médicale, June 23, 1897.

licular form, its nature as a diverticulum make it the equivalent of a blind natural fistula where microbes stagnate and with exaltation of their virulence, invade its walls, cause ulceration and perforation, and easily by propinquity excite grave peritonitis."

It is interesting to note that the differences of opinion with regard to early operation, which were and are still mooted questions in this country, are dividing surgical opinion among our foreign *confrères*.

The trend of the best surgical opinion, abroad as well as at home, appears to be in favor of early operation in the fulminating cases; while, in a very large class of cases, namely, those of more moderate severity, surgeons are learning to wait until the height of the attack is passed, when the abscess, if it forms, can be opened with comparative safety, and the appendix, if it can be reached without danger of rupturing adhesions and infecting the peritoneum, removed. After the patient has recovered from this operation, the appendix may, if not obliterated, and still causing trouble, be removed with comparative safety.

There is also a large class of cases in which an exudate, although comparatively large in an acute attack, is entirely absorbed by natural processes, and no further attack may follow, or the appendix may be removed by the comparatively safe internal operation.

MEDICAL NOTES.

HONORS TO DR. PRUDDEN.—The degree of LL.D. has been conferred by Yale University on Dr. T. Mitchell Prudden, Professor of Pathology in Columbia University.

DEATH OF PROFESSOR FRESINIUS.—Professor Carl Remigius Fresenius, the great chemist, died at Wiesbaden, June 10th, of apoplexy. He was born at Frankfort-on-the-Main in 1818. He was made professor of chemistry at the Institute of Wiesbaden, and was the author of several works on chemistry which have a world-wide reputation.

BEDS FOR SICK AMERICANS IN LONDON.—As a memorial of the Queen's Diamond Jubilee the Americans residing in England have endowed a bed in perpetuity in each of the five leading London hospitals, each bed being endowed with the sum of £1,000. The beds will be especially for the use of Americans, but other patients may be received if all the Americans are well.

MUZZLING IN IRELAND.—Ireland has been subjected to the dog-muzzling order, the Irish Privy Council having been moved by Mr. Walter Long, M.P., to make the order, and this notwithstanding the fact that there is no rabies on the island, and no danger of any at present. It also appears that the importation of dogs is to be prohibited after September 18th.

DEATHS UNDER CHLOROFORM.—The usual number of deaths under chloroform anesthesia continues

to be reported in the *British Medical Journal*. A recent case, which occurred on May 17th at the Derbyshire Royal Infirmary, was that of a child who was to be operated for empyema, but died under the anesthetic before the operation could be begun. Artificial respiration and stimulants were of no avail.

POST-GRADUATE FACILITIES IN RUSSIA.—There are facilities for post-graduate study at the ten Russian universities and at the Army Medical Academy at St. Petersburg. Courses on various special subjects, varying from one to three months, are held, and the fee charged is a small one, averaging about \$2.50. There are abundant opportunities for graduates desiring to do original scientific work in the laboratories of the universities and hospitals.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, July 14, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 41, scarlet fever 15, typhoid fever 6. For the week ending July 21st the following cases were reported: diphtheria 44, scarlet fever 18, measles 23, typhoid fever 3.

A CENTENARIAN'S BIRTHDAY.—Mrs. Nancy Wood Kilburn, the oldest person in Worcester, celebrated her one hundred and second birthday anniversary on July 12th. Mrs. Kilburn was born in Westminster, July 12, 1795. She has living four children, eleven grandchildren and seven great-grandchildren.

VALUABLE BEQUESTS TO THE BOSTON MEDICAL LIBRARY.—The Boston Medical Library has received by bequest the medical libraries of the late Drs. Edward Wigglesworth, of Boston, and William G. Wheeler, of Chelsea. The former is composed almost entirely of books and periodicals on dermatology, and contains nearly everything published on this subject up to a short time before the death of Dr. Wigglesworth. The latter consists of books by early American writers, standard medical works, files of valuable periodicals and an excellent collection of books and monographs on obstetrics and gynecology. These gifts will greatly strengthen several departments of the library and add to its usefulness.

NEW YORK.

REPORT OF THE MAYOR'S COMMISSION ON SMALL PARKS.—At the last meeting of the Board of Education for the season, held July 14th, the report of the Mayor's Commission on Small Parks was presented. After calling attention to the great importance of the work for which it was appointed, the report stated that in the opinion of the committee one of the most practical ways of obtaining playgrounds for children in the congested tenement districts of the city was to secure the co-operation of the board in throwing open for public playgrounds the grounds around school-houses, and that there were seventeen school-houses in the district referred to with grounds available

for the purpose. In planning new schools the board was asked to select sites with reference to the suggestion made by the committee. It was also suggested that roof-gardens on the school-buildings might help to solve the difficult question of providing the tenement districts with sufficient breathing-places, than which nothing was more important for the health and character of the children.

THE SEATING OF SCHOOL-CHILDREN.—At this same meeting of the Board of Education the seating capacity of school-rooms was limited by the adoption of an amendment to the by-laws providing that in all buildings hereafter erected, primary rooms shall seat only fifty pupils each, and grammar grades only forty pupils; moreover, that in the primary rooms there shall be at least ten square feet of floor space for each pupil, and in the grammar grades, at least twelve square feet.

APPOINTMENT OF OCULISTS.—Drs. Charles S. Bull, Henry D. Noyes and A. Grünig, have been appointed expert oculists for the examination of public-school children.

APPOINTMENT OF ATTORNEYS FOR STATE LUNATIC HOSPITALS.—Up to the present time all the legal work in connection with the State Hospitals for the Insane has been carried on by the Attorney-General's Department, but at the last session of the Legislature a bill was passed providing for the appointment of a special attorney for each hospital in the State, at an annual salary of \$1,200; and something of a scandal has now been created by the announcement that the State Commission in Lunacy in making their new appointments have selected members of the Legislature who were chiefly instrumental in securing the passage of the bill.

A LECTURE on this subject by Prof. G. Sanarelli, director of the Institute of Experimental Hygiene in the University of Montevideo, a translation of which is published in the *British Medical Journal* of July 3d, cannot, in view of the fact that Professor Sanarelli is generally credited with the discovery of the bacillus of yellow fever, fail to be of great interest. The clinical, anatomical and bacteriological researches, the results of which are embodied in this lecture, were pursued partly at a lazaretto on the island of Flores, and in part at the Hospital of San Sebastian at Rio Janeiro. Although the bodies of those who die of yellow fever are often either sterile, or entirely invaded by the various common forms of pathogenic bacteria, which can in no way be considered as the cause of the disease, in certain cases, Sanarelli has found present in relative purity, the organism which he considers the cause of the disease, and has named the bacillus, ictteroides. The reason for the failure to find the bacillus in certain cases Sanarelli attributes to the fact that the cadavers are generally so completely in-

vaded by other microbes, which having gained entrance owing to the action of the bacillus ictteroides, eventually injure or cause its total disappearance.

The bacillus ictteroides must be sought for in the blood and the tissues, never in the gastro-intestinal canal, which is usually the seat of a luxuriant growth of the colon bacillus.

Sanarelli has found the isolation of the specific bacillus possible in 58 per cent. of the cases, and says that in some rare cases it may be effected during life. The reason for the difficulty of finding it is that the bacillus multiplies only to a small extent in the body before a quantity of toxin is produced sufficient to cause the grave picture of the complete disease. In the second place, the toxin, either by itself or in virtue of the profound lesions which it determines, especially in the digestive mucosa and the liver, facilitates in an exceptional way secondary infections of every kind. As the bacillus is found in the blood and the tissues, and never in the gastro-intestinal contents, the virus is manufactured, not in the intestinal canal, but in the blood and organs themselves.

The bacillus is small, with rounded ends, generally united in pairs in cultures, and in small groups in the tissues, and is pleomorphous. It is difficult to find in the tissues, except in cases where death has occurred without secondary septicemias, and even in these cases the number is so small that it is difficult to see in sections. Yet by the employment of suitable methods it may be found in the organs, usually united in little groups, always situated in the capillaries of the liver, kidneys, etc.

It develops well in all ordinary nutritive substances. In plate culture in ordinary gelatine it forms roundish colonies, transparent and granular. In time the colonies become opaque, but do not liquify gelatine.

The culture on agar-agar, presents a diagnostic means of the first importance. When the colonies develop in the incubator they assume an aspect which does not differ from that of many other microbial species—that is, they are roundish, gray, a little iridescent, transparent, with a smooth surface and regular margins. If instead of making them grow at a temperature of 37° C. they are left to grow at a temperature of 20° to 22° C., the colonies are like drops of milk, opaque, prominent, and with pearly reflections, completely different from those developed in the incubator. As this character, which for the present may be considered specific, can fortunately be obtained, even in twenty-four hours, it serves to establish, in the most rapid and certain manner, the bacteriological diagnosis of the bacillus ictteroides.

The bacillus ictteroides is a facultative anærobe, does not resist Gram's stain, slowly ferments lactose, more actively glucose and saccharose, but is not capable of coagulating milk; it strongly resists drying, dies in water at 60°, and is killed in seven hours by the solar rays, but lives for a long time in sea-water.

The specific microbe of yellow fever is pathogenic for the majority of domestic animals. In fact, whilst birds are completely refractory, all the mammals with which Sanarelli has experimented are more or less sensitive to the pathogenic action of the bacillus ictteroides.

It kills white mice in five days, causing a general septicemia, with fatty degeneration of the liver.

In guinea-pigs it produces, in very small or large doses, a cyclical febrile disease, which always ends in death after eight to twelve days.

In dogs, injection of the bacilli into the veins produces a violent process which resembles in many characteristics human yellow fever, and at the necropsy the lesions are almost identical with those observed in man.

From the results of his researches regarding solely the morphology, biology, and the comparative pathology of the bacillus *icteroides*, Sanarelli draws the following conclusions:

(1) Yellow fever is an infective disease due to a well-defined micro-organism, capable of being cultivated in our ordinary artificial nutritive media.

(2) This micro-organism, which I have provisionally called bacillus *icteroides*, can be isolated not only from the cadaver, but also during the life of the patient suffering from yellow fever.

(3) Its isolation generally presents almost insurmountable difficulties, due partly to the constant intervention of secondary infections, and partly to the relative scarcity with which it is encountered in the organism.

(4) Such secondary infections, nearly always due to determinate microbic species, as the coli bacillus, the streptococcus, the staphylococcus, etc., may burst into the organism even a long time before the death of the patient, and thus death is sometimes due more to them than to the action of the bacillus *icteroides*.

(5) It is probable that one of the causes which give to the yellow fever of man its protean character is the nature and the manner of development of these secondary infections.

(6) The yellow fever infection, as much in man as in the lower animals, represents a disease with a cyclical course. During this period the specific microbe is found in the organs in very small numbers, and it is solely at the end of the cycle, about the seventh or eighth day, that it multiplies rapidly, and invades almost suddenly the whole organism, generally accompanied by other microbes, probably coming from the intestines.

(7) Only in cases which terminate in this manner—that is to say, which regularly complete the disease cycle—can the specific microbe, diffused in the blood and organs, be found with comparative facility. When an intercurrent septicemia, or a precocious uremic poisoning, puts an early end to this disease cycle, it is extremely difficult, if not altogether impossible, to isolate the bacillus *icteroides*.

The remainder of the lecture gives an extremely interesting account of the visceral lesions of yellow fever, of the causes of death, the chief of which are the specific infection, secondary infections, or uremia, due to the acute parenchymatous nephritis, of the experimental effects of the toxin in man and animals, of the mode of infection, etc.

Suffice it to say that the toxin is found to produce the typical picture of the disease, as produced by the bacillus, both in man and animals, and that the mode of infection is uncertain. It is probably not by the alimentary canal, as shown by numerous records and experiments, and may possibly be by the respiratory tract, as the bacillus shows remarkable resistance to drying.

Points of great interest in the discussion for which we have not space, are the behavior of yellow fever on ships, and the evidence of the action of moulds in conserving and favoring the growth of the yellow fever bacilli. The limitations of space prevent more than a mere allusion to this part of the lecture, which will well repay perusal in the original, and which closes with the expression of a firm conviction that it will soon be possible to apply to man a preventive and curative treatment of yellow fever.

A QUALIFIED QUACK.

THE *Practitioner* publishes the following story, taken from a French newspaper. It certainly is an excellent illustration of the hold of quackery on the public:

In a fashionable quarter of Paris one "Alexis" does a roaring trade as a bone-setter and herbalist. To him one fine day there came a commissioner of police with an invitation to follow him to his office. The quack took the matter quite coolly, and, while preparing to obey the summons of the law, said to his servant, "Don't send any one away; I shall be back in a few minutes." The representative of the civil power hinted with a significant smile that his return might possibly be a little delayed. On arriving at the police office, "Alexis" asked the commissioner for a moment's private interview. This, after some demur, was granted. When they were alone, "Alexis" took from his pocket a diploma of Doctor of Medicine of the most authentic character, at the same time begging the astonished commissioner not to betray his secret, on the ground that he would lose all his practice if it were known that he was a regularly qualified doctor. He added, by way of explanation, that he had tried practice in the orthodox way and had nearly starved behind his brass plate. An inspiration came to him to start as a quack. He removed his plate, dropped his surname, gave himself out for a bone-setter—and he might have added, pointing to his rooms crowded with patients, "Si monumentum quaris, circumspice!" This interesting story carries its truth on its face. I do not know whether "Alexis," doctor though he be, has much knowledge of medicine, but he evidently knows mankind.

Correspondence.

TWELFTH INTERNATIONAL MEDICAL CONGRESS.

NEW YORK, July 19, 1897.

MR. EDITOR:—In a letter dated July 7th, Dr. H. Kummell, surgical director of the New General Hospital (*Neues Allgemeines Krankenhaus*) of Hamburg, in the names both of the local Hamburg and the general imperial committees of the Twelfth International Medical Congress, begs to invite American Congressists to inspect the hospital, and particularly the new hygienic establishments of the last few years. The medical men will be at the hospital daily, from 10 A. M. to 2 P. M. Still they request American Congressists to kindly notify them, if possible, of the days of their visits.

Very respectfully,

A. JACOBI, M.D.

THE WOODBRIDGE TREATMENT OF TYPHOID FEVER.

CLEVELAND, O., July 9, 1897.

MR. EDITOR:—If there is one thing which more than all else arouses the indignation of an honorable regular physician, it is to class him with, or compare him to, a "Cancer or kidney quack," and this has been done in the abstract of Dr. Upshur's criticism of the "Woodbridge treatment," in the report of the Medical Section of the American Medical Association, which appears in your issue of the 1st inst., in which these words occur: "The testimonials that had been filed regarding the efficacy of the treatment were of no more value than similar testimonials for some 'cancer cure' or 'kidney cure.'" The reports of honorable physicians, which are here compared to the "testimonial" given by the ignorant and deluded victims of the shameless quacksalvers, are the histories of cases of typhoid fever as seen at the bedside; and the circum-

stances under which they were rendered greatly enhance their value, and would, with a generous enemy, have shielded them from so infamous an attack. Reviewing these, it will be remembered that my announcement that typhoid fever can be aborted, was received with the bitterest dissent and a storm of the harshest kind of criticism; and for two or three years, the favorite amusement of "penny-a-liners" was to make sarcastic allusions to "the Woodbridge treatment." During this time a few physicians tried the treatment, were amazed at their results, and bravely published their reports, or sent them to me with kind words of encouragement. This emboldened me to ask for more reports, and I prepared a paper for the late meeting of my State Society here, which consisted almost entirely of brief quotations from these reports received up to that time, with clinical charts showing the most patient and painstaking observations—showing, too, that every procedure known to science had been called into requisition to verify the clinical diagnoses of the cases reported, and showing 5,449 cases of typhoid fever treated, with 105 deaths.

Since that paper was read on May 21st inst., I have received more than 200 additional reports, covering 2,408 cases treated, with 45 deaths; so that the record now stands 7,857 cases treated, with 150 deaths—or a death-rate of 1.90 per cent. and an average duration of illness in the 4,935 cases in which this is given, of 12.7 days. Hundreds of these observers are physicians of the highest social and professional standing, whose integrity has never been questioned, and it is their reports of cases and candid expressions of opinion which Dr. Upshur stigmatizes, as "testimonials of no more value than those given to some cancer cure or kidney cure"; and he does this after confessing that he has no practical knowledge on the subject, and showing by his allusions that he has very little theoretical acquaintance with it. Time, and the discriminating judgment of the medical profession enlightened by experience, will render a just verdict on the abortive treatment of typhoid fever.

I am, sir, most respectfully yours,

JOHN ELIOT WOODBRIDGE, M.D.

A CAUTION AGAINST THE USE OF ANTEFEBRIN ON EXTENSIVELY BLISTERED SURFACES.

BOSTON, July 13, 1897.

MR. EDITOR:—The present writer has just had to help care for a severe case of acetonalid poisoning in a young man of nineteen years, in which the drug was absorbed from an immense burn of the second degree involving the entire back, at least two square feet being affected.

On the sixth day after the accident, the discharge being rather profuse and offensive, the drug (acetonalid) had been used to hasten cicatrization and to render the wound less offensive.

From disuse of the old endermic method of administering medicine, we are apt to forget how much a recently blistered surface can absorb.

Four hours after the application this patient was in collapse, and with livid lips, black finger-nails and general cyanosis, he looked startlingly like a recently-drowned corpse. At times the pulse could not be felt at the wrist, and he could not be aroused except by the most powerful stimuli, and even these failed at the climax of his depression. When aroused, his mind was clear and no pain was complained of.


The treatment was cardiac and general stimulants, hypodermically and by the mouth, the application of heat and inhalation of oxygen gas. The acetonalid was wiped off with oil and vaseline from the burnt surface and zinc ointment and caron oil (one to four) applied. It was several hours before he could be pronounced out of danger.

Yours truly,

E. S. BOLAND, M.D.

METEOROLOGICAL RECORD

For the week ending July 10th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.				Relative humidity.		Direction of wind.		Velocity of wind.		We'eth'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...4	30.17	68	75	56	92	88	90	W.	S.W.	12	15	O.	C.	
M...5	30.01	80	94	66	82	74	78	S.W.	S.	8	8	C.	O.	
T...6	30.00	80	90	70	75	80	78	S.	S.W.	5	12	F.	O.	
W...7	30.13	78	84	71	89	72	80	S.W.	S.	5	12	O.	C.	
T...8	30.06	78	88	67	81	69	75	S.	S.W.	12	12	C.	C.	
F...9	29.89	83	93	68	72	71	72	S.W.	S.W.	10	13	C.	C.	
S...10	30.00	68	75	60	94	97	96	N.E.	N.E.	10	12	O.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 10, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrhical diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,060	966	545	28.60	9.60	21.50	—	4.30	
Chicago	1,619,226	584	253	33.84	9.01	28.05	—	1.70	
Philadelphia	1,214,256	506	236	8.93	7.60	—	—	1.33	4.75
Brooklyn	1,160,000	573	332	35.24	6.12	29.34	—	1.18	3.42
St. Louis	570,000	238	97	17.22	4.20	14.70	—	1.68	4.42
Baltimore	550,000	262	165	44.46	6.44	39.90	—	—	3.04
Boston	517,732	211	71	16.45	9.40	3.29	—	2.35	4.70
Cincinnati	405,000	189	—	14.04	5.91	9.72	—	2.16	.51
Cleveland	350,000	160	89	5.58	2.48	1.24	—	—	—
Pittsburg	275,000	188	106	31.27	1.06	28.03	—	2.12	1.06
Washington	271,000	140	53	27.72	8.24	23.52	—	1.68	1.68
Milwaukee	275,000	—	—	—	—	—	—	—	—
Worcester	105,050	35	16	20.00	11.44	5.72	—	—	—
Fall River	95,919	58	46	53.32	1.72	53.32	—	—	—
Nashville	81,564	28	29	15.48	5.16	13.76	—	1.72	—
Lowell	81,143	24	24	53.24	16.64	30.00	—	—	—
Cambridge	86,812	26	14	15.40	15.40	15.40	—	—	—
Charleston	65,165	—	—	—	—	—	—	—	—
Lynn	65,220	21	11	4.76	4.76	—	—	—	4.76
New Bedford	62,416	36	22	37.78	2.77	33.24	—	2.77	—
Lawrence	55,510	38	25	36.82	7.89	36.82	—	—	—
Springfield	54,796	22	11	24.90	4.15	8.30	—	—	—
Holyoke	42,364	—	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—	—
Salem	36,062	10	4	10.00	10.00	—	—	10.00	—
Brockton	35,853	—	—	—	—	—	—	—	—
Malden	32,894	6	1	—	16.66	—	—	—	—
Chelsea	32,716	14	4	21.42	21.42	—	—	7.14	—
Haverhill	31,405	12	—	16.66	8.33	—	—	—	8.33
Gloucester	29,775	—	—	—	—	—	—	—	—
Newton	28,990	12	2	8.33	8.33	—	—	—	—
Fitchburg	28,392	7	4	25.00	—	12.50	—	—	—
Taunton	27,812	12	2	—	—	—	—	—	—
Quincy	22,562	—	—	—	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—	—
Waltham	21,812	8	2	25.00	12.50	12.50	—	—	—
Everett	21,575	2	1	—	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—	—
Newburyport	14,794	6	1	—	—	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—	—

Deaths reported 4,475; under five years of age 2,094; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrhical diseases, whooping cough, erysipelas, and fever) 1,195, diarrhical diseases 886, consumption 335, acute lung diseases 245, diphtheria and croup 127, typhoid fever 36, scarlet fever 33, measles 28, whooping-cough 27, cerebro-spinal meningitis 24, erysipelas 11, small-pox 1.

From scarlet fever Philadelphia 13, New York 7, Brooklyn 4, Chicago and Boston 2 each, Baltimore, Cincinnati, Worcester, Lowell and New Bedford 1 each. From measles Chicago 8, Cleveland 6, Brooklyn 3, New York, Philadelphia, Pittsburg and Springfield 2 each, Baltimore, Lowell and Fitchburg 1 each. From whooping-cough New York 7, Brooklyn 6, Chicago 4, Boston, Cincinnati and Springfield 2 each, St. Louis, Cleveland,

Washington and Haverhill 1 each. From cerebro-spinal meningitis New York 7, Boston 6, Worcester 4, Somerville 2, Baltimore, Chelsea, Newton, Waltham and Woburn 1 each. From erysipelas Chicago 5, New York and Boston 3 each. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending July 3d, the death-rate was 14.7. Deaths reported 3,106; acute diseases of the respiratory organs (London) 127, measles 156, diarrhea 82, whooping-cough 77, diphtheria 41, scarlet fever 34, fever 19.

The death-rates ranged from 10.3 in Croydon to 25.4 in Preston; Birmingham 17.3, Bradford 12.4, Cardiff 13.8, Gateshead 15.0, Hull 13.2, Leeds 11.5, Leicester 14.3, Liverpool 21.1, London 13.5, Manchester 19.0, Nottingham 12.1, Sheffield 14.8, Swansea 12.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 10, 1897, TO JULY 16, 1897.

CAPTAIN CHAMPE C. McCULLOCH, JR., assistant surgeon, is relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect upon expiration of his present leave of absence and ordered to Fort Barrancas, Fla., for duty, relieving CAPTAIN WILLIAM C. GORGAS, assistant surgeon.

CAPTAIN GORGAS, upon being thus relieved, ordered to take station at New York City, and assume duties of attending surgeon and examiner of recruits, relieving CAPTAIN CHARLES RICHARD, assistant surgeon.

CAPTAIN RICHARD, on being thus relieved, is ordered to Fort Monroe, Va., for duty.

MAJOR WILLIAM H. CORBUSIER, surgeon, upon the arrival at Fort Monroe, Va., of CAPTAIN RICHARD, will be relieved from duty at that post and is ordered to Angel Island, Cal., relieving MAJOR BENJAMIN F. POPE, surgeon.

MAJOR POPE, upon being thus relieved, is ordered to Columbus Barracks, O., for duty, relieving CAPTAIN JAMES E. PILCHER, assistant surgeon.

CAPTAIN PILCHER, on being thus relieved, is ordered to Fort Crook, Neb., for duty.

CAPTAIN CHARLES F. KIEFFER, assistant surgeon, upon the arrival of CAPTAIN PILCHER at Fort Crook, Neb., is ordered to Fort Meade, S. D., for duty at that post.

FIRST-LIEUT. HENRY R. STILES, assistant surgeon, upon the arrival of CAPTAIN KIEFFER at Fort Meade, S. D., is ordered to Columbus Barracks, O., for duty at that post.

CAPTAIN BENJAMIN L. TEN EYCK, assistant surgeon, upon the arrival of FIRST-LIEUT. STILES at Columbus Barracks, O., is ordered to Army and Navy General Hospital, Hot Springs, Ark., for duty.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWO WEEKS ENDING JULY 20, 1897.

SAWTELLE, H. W., surgeon. To inspect quarantine stations on coasts of Louisiana, Mississippi, Alabama and Florida as far as and including Pensacola. June 29, 1897.

WASDIN, EUGENE, passed assistant surgeon. To proceed to Mobile, Ala., for temporary duty. July 3, 1897.

MAGRUDER, G. M., passed assistant surgeon. To inspect quarantine stations on the coast of Texas. June 29, 1897.

GREENE, JOS. B., assistant surgeon. On rejoining station at Detroit, Mich., to proceed to Cape Charles Quarantine for duty. June 28, 1897.

GRUBBS, S. B., assistant surgeon. To remain at Detroit, Mich., until further orders. June 28, 1897.

RUSSELL, HOWARD C., assistant surgeon. To proceed to New York, N. Y., for duty. July 1, 1897.

MURRAY, R. D., surgeon. Granted leave of absence for thirty days. July 10, 1897.

GASSAWAY, J. M., surgeon. Upon being relieved by Passed Assistant Surgeon P. C. KALLOCH, to proceed to San Francisco, Cal., and assume command of Service. July 9, 1897.

STONER, GEORGE W., surgeon. To inspect quarantine station for the port of New York, N. Y. July 10, 1897.

GODFREY, JOHN, surgeon. Upon being relieved by Surgeon J. M. GASSAWAY, to proceed to Detroit, Mich., and assume command of Service. July 9, 1897.

KALLOCH, P. C., passed assistant surgeon. To proceed to Cairo, Ill., and assume command of Service. July 9, 1897.

CARRINGTON, P. M., passed assistant surgeon. To inspect quarantine stations on coasts of Georgia, South Carolina, North Carolina and Virginia, beginning at St. Mary's, Ga., and continuing to and including West Point, Va. July 7, 1897.

PERRY, T. B., passed assistant surgeon. To proceed to Evansville, Ind., and assume temporary command of Service. July 6, 1897.

YOUNG, G. B., passed assistant surgeon. Granted thirty days' leave of absence from August 5, 1897. July 9, 1897.

SPRAGUE, E. K., passed assistant surgeon. Granted five days' leave of absence. July 6, 1897.

DECKER, C. E., assistant surgeon. Granted twenty-six days' leave of absence. July 7, 1897.

PROCHAZKA, EMIL, assistant surgeon. Granted ten days' leave of absence. July 1, 1897. Placed on waiting orders from and including July 11, 1897. July 10, 1897.

TABB, SHERRARD R., assistant surgeon. To proceed to Buffalo, N. Y., for temporary duty. July 6, 1897.

APPOINTMENT.

HOWARD C. RUSSELL, of the District of Columbia, commissioned as assistant surgeon, July 1, 1897.

BOOKS AND PAMPHLETS RECEIVED.

Cancer of the Rectum. By James P. Tuttle, M.D., New York. Reprint. 1897.

The Technique of Professor Keen's Surgical Clinic in the Jefferson Medical College Hospital. By Thos. Leidy Rhoads, M.D., Philadelphia. Reprint. 1897.

Tuberculosis or Carcinoma (?) of the Stomach; Exploratory Coeliotomy; Subsequent apparently Complete Cure. By W. W. Keen, M.D., Philadelphia. Reprint. 1897.

Address on the Unveiling of the Bronze Statue of the Late Professor Samuel David Gross, in Washington, D. C. By William W. Keen, M.D., Philadelphia. Reprint. 1897.

Resection of the Sternum for Tumors, with a Report of Two Cases and a Table of Seventeen Previously Reported Cases. By W. W. Keen, M.D., Philadelphia. Reprint. 1897.

Address in Surgery, delivered at the Semi-Centennial Meeting of the American Medical Association at Philadelphia, Pa., June 3, 1897. By W. W. Keen, M.D., LL.D., Philadelphia, Pa. Reprint. 1897.

Description of a Successful Operation for Blepharoplasty, Embracing the Outer Halves of both the Upper and the Lower Lids by a Single Split Flap taken from the Forehead for Epithelioma. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprint. 1896.

The Doctrine of the Internal Secretory Activity of Glands in Relation to the Pathological Anatomy of Sundry Morbid Conditions, Diabetes, Addison's Disease, Myxedema, Cretinism, Graves' Disease and Acromegaly. By J. George Adami, M.A., M.D. Reprint. 1897.

Processo Operativo Nuovo per la Cura Chirurgica del Cistocoele Vaginale. Pel Dott. Arturo De-Marsi, Comunicazione fatta alla Società Medico-Chirurgica di Bologna nell' adunanza scientifica del 19 Febbraio, 1897. (Con figure.) Bologna: Tipografia Gamberini e Parmeggiani. 1897.

Some Aspects of Infantile Syphilis, being the Hunterian Lectures delivered at the Royal College of Surgeons in 1896. By J. A. Coult, M.B. (Cantab.), M.R.C.P., formerly Professor at the College, Physician to the East London Hospital for Children. London: Rivington, Percival & Co. 1897.

Burdett's Hospitals and Charities, 1897, being the Year-Book of Philanthropy. By Henry C. Burdett, author of "Hospitals and Asylums of the World," "Hospitals and the State," "Pay Hospitals of the World," etc. London: The Scientific Press. (Limited.) New York: Charles C. Scribner's Sons. Boston & Chicago: D. C. Heath & Co.

Clinical Lecture on an Obscure Tumor of the Abdomen. Amputation of the Breast for Paget's Disease followed by Cancer. Tuberculosis of the Tonsil and Soft Palate, by a Method which avoided Splitting of the Cheek or Dividing the Jaw. Delivered at the Jefferson Medical College Hospital. By W. W. Keen, M.D., Philadelphia. Reprint. 1897.

The Menopause; A Consideration of the Phenomena which occur to Women at the Close of the Child-bearing Period, with Incidental Allusions to their Relations to Menstruation, also a Particular Consideration of the Premature (especially the Artificial) Menopause. By Andrew F. Currier, A.B., M.D., New York City. New York: D. Appleton & Co. 1897.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In Photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris. With explanatory wood-cuts and text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, DuCastel, Physicians to the St. Louis Hospital, with the co-operation of Henri Feulard, Secretary L. Jacquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part IX. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders. 1897.

Original Articles.

SOME CASES OF CYSTITIS IN WOMEN.¹

BY EDGAR GARCEAU, M.D.,

Surgeon to Out-patients, Free Hospital for Women, Boston; Clinical Instructor in Gynecology in Tufts Medical School.

CASE I. Cystitis of a year's duration caused by tuberculosis of the right kidney. Nephrectomy. Recovery.

Miss S. was a girl twenty-one years old. Her father died of cancer of the stomach, and there was a tubercular history in the family. She was delicate-looking and had a fair complexion. Since childhood she always had had some pain in the right lumbar region; and she says she could never run and jump as other children do, because exertion always brought a pain. When she was older, even going upstairs was painful. She was able to attend to her work (light housework), however; for the pain was by no means a prominent feature in her case. The symptoms on the part of the bladder began only a year before the operation was performed, which is remarkable in view of the probable long duration of the renal affection. Frequency of micturition was the first symptom, and later painful micturition during the act. The desire to urinate was irresistible, and there was also some tenesmus. Just before the nephrectomy she was urinating every fifteen minutes or so by day, and she had to get up four or five times each night. From the absence of purulent affections of the genital organs, and, in addition, from the fact that the meatus was well closed, Skene's labia being normal, and from the fact that the obstinate cystitis was of long duration and was present in a young girl with tubercular diathesis with a history of lumbar pain, it was thought that the cystitis depended upon tuberculosis of the kidney. Cystoscopic examination disclosed an inflamed bladder with ulcerations around the right ureteral orifice and also scattered throughout the rest of the bladder; the right ureteral eminence had disappeared, and its place was occupied by an ulcer with a yellowish base, presenting the appearance of gradual necrosis. The renal catheters were inserted in each ureter and the urine drawn presented the following characteristics:

RIGHT KIDNEY.²—Urea, 1.5 per cent. Much sediment, chiefly pus; contains also hyaline casts, renal cells, some blood and *tubercle bacilli*.

LEFT KIDNEY.—Urea, 3.5 per cent. Slight sediment, chiefly blood (trauma); nothing else.

Nephrectomy was performed June 20, 1896. Before operation palpation of the kidney was negative, there being no enlargement.

The kidney was removed by lumbar incision, without special difficulty on account of the thinness of the patient and the absence of adhesions. Unfortunately, the clamp on the renal end of the ureter was loosened accidentally, and the pus coming out infected the wound. This necessitated drainage and led to the formation of a fistula. At the end of the operation respiration became embarrassed and ceased altogether. Artificial respiration was done with good effect, and stimulants given. This difficulty was met with in another case, and is due no doubt to the constrained position on the side, which interfered with the action of the respiratory muscles. The convalescence

was uneventful, except that the bladder was still very irritable. As she was of a very nervous temperament, and as even the mildest irrigations were painful, it was thought best, when she was strong enough, to cauterize the ulcers with solid nitrate of silver. This was accordingly done under ether on July 10th, twenty days after the operation. Practically the whole bladder was cauterized. The result was gratifying. At once she urinated only four times a day and three times at night, and was perfectly comfortable. This relief has lasted eight months, or until the present time. The treatment during this period has been irrigations and vesical sedatives.

At the present writing the patient is urinating four times a day and two or three times a night. She has no pain whatever, is perfectly comfortable, and considers herself well. She has gained in flesh. The fistula in the loin, after discharging, from time to time, a silk ligature, has now become almost closed, and secretes only a drop of pus each day; an early, complete closure is looked for. A cystoscopic examination practised in May, showed a healthy bladder membrane, of normal pale-gray hue, with the exception of two or three suspicious-looking points having the appearance of tubercles. These were cauterized with solid nitrate of silver fused on the end of a probe. Inasmuch as the process can be watched and treated locally, and is of small extent, and from the fact that healing has been going on uninterruptedly for eight months, a complete recovery is hoped for.

It is of interest to note that, before nephrectomy, 900 c. cm. of urine was the daily average secreted, while, after nephrectomy, it at once rose to 1,200 c. cm., and remained at that point during the forty days during which it was measured.

The kidney removed was examined by Dr. Wm. H. Prescott, who found an abscess, the size of an English walnut, situated in the cortex of the kidney, which communicated with the pelvis; tubercles were found scattered here and there in some of the remaining portions of the kidney.

The point of interest in this case is that the treatment had been directed solely to the bladder, the kidney having been entirely overlooked. As has already been mentioned, pain in the lumbar region was not severe, and never had been, and the long history of pain was elicited only in the course of careful questioning. It is of great importance to note that an abscess of the kidney may exist without exciting marked symptoms which are strictly renal (see also Case IV). Early ureteral catheterization in these cases is therefore indicated. It is not supposed that the nephrectomy would have been very beneficial if the bladder had not been thoroughly cauterized. Such a sudden stimulus to cicatrization carried with it danger of subsequent over-contraction, and this was realized when it was done. Such a sequel did not, however, occur, for at the last cystoscopic examination in the knee-chest position, which allows the bladder to become distended, the viscus was noted to be of normal size. So far as the author knows, this method of treatment, carried to such an extent, is original, and would seem applicable to similar cases.

With reference to immunity from tuberculosis after nephrectomy for tuberculous kidney, the statistics of Palet³ are interesting. He reports two cases of Bar-

¹ Read before the Gynecological Section of the Massachusetts Medical Society, February 24, 1897.

² Examined by Dr. W. H. Prescott.

³ Palet: Des Resultats Immédiats et Éloignés de la Néphrectomie dans la Tuberculose Rénale, Thèse de Lyon, 1893.

denheuer and Martin,⁴ in which there had been no recurrence for eight years. These were the best results. Other cases collected were as follows: In 16 cases, no recurrence after six months; in 12, none after one year; in six, none after two years; in six, none after three years; in seven, none after four years; in one, none after five years; in three, none after six years. The general, immediate mortality of nephrectomy was, in 136 cases of renal tuberculosis, 37.5 per cent.

CASE II. Cystitis of seven months' duration. Double ureteritis or pyelitis, hyperemia of the kidneys, retroversion, purulent endocervicitis.

This patient was twenty-one years old and unmarried. For a year she had had severe backache and a leucorrheal discharge. But her principal trouble was referable to the bladder. She had to urinate every half-hour during the day and five or six times at night. Under these circumstances she lost her health, became thin, anemic and miserable. On examination, the uterus was found retroverted, and it was remarked that a purulent discharge bathed the meatus of the urethra. This proceeded from the uterine cavity. The meatus was not patulous. A cystoscope was introduced into the bladder and a severe grade of cystitis was seen. Injection of the blood vessels was universal; here and there small superficial ulcerations were observed with yellow bases; patches of inflamed lymphoid nodules redder than the rest of the bladder wall were thickly scattered about. The whole appearance corresponded to the class of cases described by Alexander,⁵ and to which he has given the name, nodular cystitis. The ureteral eminences were both injected, and were very prominent. The renal catheters were introduced into the ureters, and the urine drawn presented the following characteristics:

RIGHT KIDNEY.⁶—Urea 2.02 per cent. Slight sediment; small amount of pus and blood, uric-acid crystals; a few hyaline and fine granular casts, some very large; no tubercle bacilli.

LEFT KIDNEY.—Urea 1.26 per cent. Considerable sediment; much pus and blood, normal and abnormal; many uric-acid crystals, more than the right; occasional hyaline cast; a few round cells; no tubercle bacilli.

Amount of urine in twenty-four hours, 1,000 c. cm.

The treatment was correction of the retroversion, and insertion of a pessary; and local treatment of the bladder combined with vesical sedatives to dilute the urine and make it bland. In five weeks, under permanganate-of-potash irrigations, the cystitis was cured so that she urinated only three times a day and not at all at night. The leucorrheal discharge was beld in check by zinc-sulphate douches, and the pessary relieved the symptoms of retroversion completely. A cystoscopic examination was now made to discover why a slight amount of pus still persisted in the urine. The bladder mucous membrane was absolutely normal in appearance. It is feared, therefore, that the pus proceeds from the upper urinary passages, and that reinfection may happen. It is possible, however, that this may not occur if the bladder membrane remains intact for, as Bartianelli⁷ has pointed out, cystitis is never produced by micro-organisms unless there is some pre-existing pathological condition of the mucous membrane of the bladder. This result is confirmed by other observers, notably Biell and Kraus⁸ who injected

bacteria into the veins of animals, and who invariably found them in the urine, the bacteria not having given rise to cystitis in their passage through the bladder. A further proof of the innocuousness of bacteria in healthy bladder membrane is furnished by observations of medical students who are engaged in dissecting. Bacteriuria is not uncommon under these circumstances. The urine is frequently very foul and contains myriads of bacteria.

The etiology in this case is probably that of ascending infection through the meatus and urethra. It is probable that the infection extended up into both ureters and into the pelves of the kidneys. It is impossible to say definitely whether ureteritis or pyelitis is now present since the examination of the sediment is not conclusive. That both were present at the time before treatment was instituted is fairly certain—ureteritis, from the fact that the ureteral eminences were very prominent and deeply injected at the first cystoscopic examination; pyelitis, from the presence of casts, though these have since disappeared. Of the two, pyelitis is the more probable on account of the absence of severe symptoms which usually accompany ureteritis. This leads us to suspect that there may be, after all, a descending infection as well as an ascending one. Finally, there are those cases in which infection, at first ascending, may establish a chronic ureteritis or pyelitis, which, in turn, when the bladder has been cured, may act as a source of re-infection in a descending direction, and thus a vicious circle is established, which may explain the extreme obstinacy of some cases of cystitis (see Cases III and VI). That a cure of the bladder was possible with suppuration in the upper tract is quite remarkable.

It is thought that a recurrence is not unlikely in the present case.

CASE III. Gonorrheal cystitis of twenty years' duration. Double ureteritis. Prolonged local treatment. Cystotomy.

Miss F., forty years old, was a woman of slight build who contracted gonorrhea when she was twenty years old. Ever since that time she has suffered intolerably from cystitis. Her sufferings at times were so severe as to make her almost "frantic," and treatment has been during this time very unsatisfactory. Irrigations and medicines would relieve for a while, but were never permanent in their effect. The case was first seen by the author in June, 1896. At that time the patient was urinating twelve times a day and six times at night. Urination was not painful, and the suffering proceeded entirely from a constant irresistible desire to urinate, which may be expressed by the word "nagging." She was never free from it night or day. For the past few years sleep was procured only by taking drugs; she was, however, fortunate in having escaped the morphine habit.

The cystoscope showed the neck of the bladder and urethra moderately hyperemic, but here and there on the bladder wall were small red spots indicative of nodular cystitis. The blood-vessels throughout the bladder were injected. A long course of local treatment was now instituted, extending from June to November, 1896. At the end of this time, there being no improvement whatever, or at least only temporary improvement, the operation of cystotomy was proposed and accepted. This was accordingly done on November 2d; but, contrary to expectation, no immediate relief followed this treatment. The patient seemed to

⁴ Berlin, klin. Woch., 1890; No. 21.

⁵ Journal Genito-Urinary and Cutaneous Diseases, July, 1893.

⁶ Examined by Dr. W. H. Prescott.

⁷ Boll. del. Acc. di Roma, August 21, 1895, Fasc. 2-6.

⁸ Bacteriuria: Hermann Goldenburg, New York Medical Record, August 15, 1896.

be much worse. This was thought to be due to severe spasm of the sphincter vaginae, which retained the urine and interfered with drainage. But when this was allayed by sedatives and no relief followed, even some weeks after the operation, it was thought that the failure to get relief was due to a suspected ureteritis which was supposed to be on the left side. In July, a careful examination had been made with the result that a tender left ureter was felt *per vaginam* slightly larger than the right one. In addition to this, Reynold's⁹ symptom of ureteritis — pain on deep pressure at a point one inch above the middle of Poupert's ligament — was present. The ureteral eminences on both sides had always been prominent, but there had never been any eversion of the mucous membrane of the ureter. In order to make certain of the diagnosis both ureters were catheterized, and urine drawn from each one. The characteristics were as follows:

RIGHT KIDNEY. — Urea 1.13 per cent. Slight sediment, chiefly pus; some blood, many dense caudate cells; many medium-sized pavement cells; a few granular round cells of small size. No casts.

LEFT KIDNEY. — Urea .88 per cent. Much sediment, chiefly pus; some blood, many medium-sized pavement cells free and in sheets; some small round cells. No casts.

Incidentally it may be said that casts were never found at any examination of the urine. The diagnosis of double ureteritis, chiefly on the left side, was thus made evident, and the failure to secure immediate relief explained.

At present the patient is much more comfortable; the inflammation of the bladder is subsiding; she sleeps without the use of drugs, and is gaining flesh.

In this case it was regretted that early catheterization of the ureters was not done; much time might have been saved had a correct estimate of the lesions been made. Without a doubt the purulent ureteritis acted as a constant source of re-infection of the bladder. An early cystotomy should have been performed. The long duration of the disease should have been an indication of the involvement of the upper urinary passages.

CASE IV. Cystitis of four years' duration, preceded by attacks of renal (?) colic. Catheterization of ureters; nephrectomy; suppurative pyelo-nephritis, with multiple abscesses in the cortex; dilated ureter. Recovery.

Miss T. was a young girl, twenty-two years old, of medium height and good bony development. She was, however, much reduced in flesh by her long suppurative disease. Her early history was not remarkable, except that she always had suffered from severe sick-headaches. This suggested uric-acid diathesis, and further evidence of this dyscrasia was furnished by the history of three severe attacks of "cholera morbus" (renal colic?), as she expressed it. Two of these attacks happened between the ages of twelve and eighteen, before the bladder symptoms began; and the third attack happened in July, 1895, about three years after the beginning of the cystitis. Once only did she attribute the attack to error in diet; the other two came on in the night with great suddenness and prostrated her. The pain in all of them was referred to the pit of the stomach. There was no family history of rheumatism, and the patient had never suffered from this disease. She had not been nervous.

There had never at any time been any localized pain in either lumbar region; but there had been quite persistent backache, which was not localized but general, and had been looked upon as a symptom of general debility from long illness, and had not presented any characteristics worthy of special comment. Her general health had been much reduced, but there was no cough or other symptoms denoting any tubercular disease in any part of the body.

The trouble with the bladder began gradually in June, 1893. At first there was only frequent micturition, not attended with pain; in September the frequency had increased, and there was pain during the act. She had no rest night or day from the constant irresistible desire to urinate, and she soon became reduced to a state of chronic invalidism. The stomach retained its functions well until July, 1896. At that time there was an attack of gastritis, during which she could retain nothing but peptonized milk; it lasted five weeks and gradually disappeared.

The author saw the patient for the first time in January, 1897. The long duration of the case, the quantity of pus in the urine, the tubercular history in the family, and the powerlessness of local treatment to cure the disease, suggested at once tuberculosis of the kidney in the abscess stage. On the other hand, the probable uric-acid diathesis, with the history of probable renal colic indicated a possible calculous origin. Ureteral catheterization was proposed and accepted. Under ether the bladder was found to be in a state of intense inflammation. The left hemisphere was less inflamed than the right; in the right portion of the bladder there were numerous small superficial ulcerations with yellow bases. The left ureteral orifice was found after some search and a catheter put in up to the kidney; on the right side the landmarks were entirely gone, the ureteral eminences having been eroded by gradual ulceration. The orifice was finally located by seeing pus well up from a small pit-shaped depression near the centre of the trigonum in an anomalous position. A catheter was likewise introduced up to the kidney on this side. The ulcerations were now touched with fused silver nitrate.

The urine drawn presented the following characteristics:

RIGHT KIDNEY.¹⁰ — Urea .63 per cent. Pale color; large sediment, consists chiefly of pus; some round epithelium of small size; occasional hyaline cast; too much pus to determine the number of casts; a few doubtful calcic oxalate crystals; no *tubercle bacilli* and no *bacteria* of any kind.

LEFT KIDNEY. — Urea 2.40 per cent. Red color; slight sediment, consists chiefly of blood (traumatic); a few calcic oxalate crystals. No casts, no pus, no *tubercle bacilli* nor *bacteria*.

Dr. Prescott's diagnosis was pyelo-nephritis of the right kidney, of probable calculous origin; this in view of the absence of tubercle bacilli and the presence of the few crystals. It must be confessed that the author did not agree with this diagnosis, and was more inclined to favor the view that tubercle bacilli were present but not found — which sometimes occurs; the presence of calcic oxalate in the urine of debilitated persons is so frequently the rule and not the exception that these few crystals were regarded as a complication and of no special significance.

The kidneys were palpated under ether at the time of the cystoscopic examination, but *no abnormality could be detected in either of them*, and there was no apparent enlargement. At the operation, however,

⁹ Edward Reynolds: Some Aspects of Ureteritis in Women. Transactions of the American Gynecological Society, May, 1896.

¹⁰ Examined by Dr. W. H. Prescott.

the kidney was found to be about twice the normal size; but as it was adherent to the descending portion of the duodenum, it was held abnormally high and immovably fixed, so that it could not have been palpated externally. On vaginal examination the right ureter was thought to be a little larger than the left one. In view of the great amount of pus proceeding from the right kidney, and the small amount of work being done by it, as measured by the excretion of urea, it was deemed advisable to make an exploratory incision and if necessary do a nephrectomy. This was accordingly done on February 5th. A lumbar incision, extra-peritoneal, was made and the kidney was exposed. A soft spot presented which was aspirated and a small amount of pus obtained. No stone was felt. On incising the pocket it was felt to be single, and did not communicate with any other, nor apparently with the renal pelvis; but in view of the large size of the kidney and the long duration of the case and the small amount of urea, it was thought that the kidney was thoroughly disorganized. Such proved to be the case.

The nephrectomy was laborious and difficult on account of dense adhesions to the duodenum, and on account of the friability of cortical substance; the kidney was finally enucleated from its capsule and the renal vessels, small, tied off. The kidney was riddled with abscesses; there was no stone. The ureter was dilated to a very large size (as large as the forefinger), and its lumen admitted the little finger. This suggested stone in the ureter; but as the patient at this point stopped breathing, there was no time for investigating this point, so it was reluctantly left for a possible future operation. Artificial respiration was done and stimulants given; she rallied and the wound was closed, and she was put in bed.

The convalescence was uneventful. The daily amount of urine secreted after operation averaged 960 c. cm. in twenty-four hours. When last heard from, in May, the patient was free from pain, and was urinating once in three hours. She cannot hold her water longer than this and it is doubtful if she will be ever able to do so owing to the contracted condition of her bladder.

The pathological report¹¹ showed simple suppurative pyelo-nephritis with numerous abscesses in the cortex; the kidney was honeycombed with abscesses from the size of a bean to that of a walnut; careful examination failed to show the presence of tubercle anywhere. Cultures made from the pus aspirated were sterile. The process was therefore an old infective one at a stage when bacteria were no longer present.

In this case there were several points worthy of comment. In the first place it shows how far a pyelo-nephritis may progress *without giving any symptoms strictly referable to the kidney*. The absence of renal symptoms is probably due to the distensible nature of parenchyma of the kidney, as well as to the fact that drainage through the pelvis and ureter is almost constant. For these reasons pressure on nerves must be very slight; hence the absence of pain. The renal catheter was of the greatest aid in making the diagnosis. All the symptoms being vesical, it is easy to see how treatment should have been directed exclusively to that organ while the kidney, being the silent focus of the trouble, was overlooked. The adhesions of the kidney to the duodenum, which kept it abnormally high under the ribs, prevented the examiner from ap-

preciating its large size, and still further in this way masked the diagnosis. At the operation when a single pus sac was opened it was a question whether there were others or not; the long duration of the case, the size of the kidney, and the low amount of urea, made it probable that there were. Still it was a debatable point whether to do nephrectomy or simply drain, as has been advised. The dilated state of the ureter calls for special mention. It is probable, in the absence of tubercle bacilli, that the disease was in the first instance calculous, and that a stone had lodged in the ureter at some point, causing dilatation above it. Fenger¹² reports a case in which four stones were extracted, by lumbar incision, from the ureter at a point two inches below the renal pelvis; they had been arrested by a valve-like fold in the ureter. The patient recovered. Finally, the abnormal position of the ureteral orifice in the bladder, and the obliteration of the emience by ulceration, as well as finding the orifice by seeing pus well up, are facts to be borne in mind in dealing with a similar case.

(To be continued.)

ANOMALIES OF MUSCULAR BALANCE.¹

BY OLIVER F. WADSWORTH, M.D., BOSTON.

IN the short time allotted to me I can hope to give but a brief and imperfect sketch of my subject. And it must be admitted that the problems involved in the action of the ocular muscles and our attempts to remedy their deficiencies are by no means fully solved. Still, knowledge in this direction is gradually increasing.

The class of anomalies of which I am to speak does not include such faults of balance of the ocular muscles as cause an evident deviation of one eye, as in strabismus. Whether the want of balance be due to a preponderance of strength of one set of muscles over their antagonists, to a faulty position of the attachments of the muscles to the globe, or some other cause, the essential element in these cases is that the proper direction of the two eyes with regard to each other is habitually maintained, although at the expense of abnormal or excessive exertion on the part of one or more muscles.

The existence of such cases has long been recognized; the terms insufficiency of interni or externi to define them and of muscular asthenopia to denote the fatigue occasioned were long employed. As these terms imply, it was mainly to want of balance between the internal and external recti that attention was directed, and the condition was studied chiefly as it affected the efficiency of the eyes for near work. In the last ten years, however, a widespread interest in the subject has been aroused in this country, and it has become manifest that not merely are these defects of balance more frequent, but the functional disturbances to which they may give rise are more numerous and of greater variety than was formerly recognized, while their effects may be seriously felt in distant as well as in near vision.

As men are constituted, it was only to be expected that extravagant assertions should be made as to the importance and deleterious influence of these anomalies.

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

¹¹ By C. G. Cumston.

¹² Fenger: American Journal Medical Sciences, December, 1896.

Indeed, it seems to have been the publication of such assertions that first stimulated the recently awakened investigations. We are all of us cognizant of isolated cases in which a comparatively slight cause has produced grave functional disorders, but that is far from establishing a general law. A case of spastic torticollis which had persisted for years and was rapidly cured by the division of one of the superior recti muscles, I reported in the "Transactions of the American Ophthalmological Society," in 1889, but it does not follow that many cases of torticollis are of similar origin. The claim that a large proportion of cases of epilepsy and chorea owe their inception to faults of ocular balance, or to errors of refraction, or to both combined, and may be cured by the correction of these causes, has been sufficiently disproved.

The usual symptoms caused by imperfect balance of the ocular muscles are fatigue of the eyes, headache, which may be located at any part, but in my experience is most commonly referred to the back and base of the skull, vertigo and nausea. Even vomiting occurs in some cases, not depending on severity of the headache. Occasionally there are vicarious sensations. One of my patients complained of a coppery taste on the use of the eyes, which sometimes lasted throughout the following day. Dizziness in some cases is excited by moving objects and brought on by driving, or riding in the cars, or walking in a crowded street. In most instances the symptoms are not different from those with which we are familiar as caused by errors of refraction, and it may be said in passing that errors of refraction are much the more common source of such symptoms.

The defect of balance may be such as to incline the eyes to converge or to diverge, or to incline one eye to be directed higher than the other. And the latter defect may occur in combination with either of the others. The terms proposed by Dr. Stevens to denote these conditions have proved very useful. Thus esophoria denotes a tendency to convergence, exophoria to divergence, and hyperphoria a tendency of one eye to point higher. We say right or left hyperphoria according as the right or left eye tends upward. The amount of the defect is measured by the strength of the prism required to correct it.

There is general agreement that the conditions in which one eye tends to point higher, hyperphoria, is much more disturbing than esophoria or exophoria. And the reason for this is not far to seek. The natural ability of an eye to turn upward or downward with reference to the other in order to maintain binocular single vision is much less than its ability to turn relatively inward or outward for the same purpose. Fortunately, hyperphoria is much less common. Whether disability more frequently occurs from esophoria or exophoria there is not the same unanimity of opinion. My own experience leads me to the belief that exophoria is the more usual cause of trouble. Esophoria is indeed the more common, but a given degree of esophoria is of less consequence than the same degree of exophoria. On the other hand, it is not very uncommon to find an esophoria of so large an amount that, if the defect of balance were in the opposite direction there would almost inevitably be frank divergence, and hence no exophoria. For, as has been said, that a case should be classed among these affections both eyes must, in spite of the lack of muscular equilibrium, maintain the proper direction.

The position of balance in the primary position of the eyes, that is, when the head is erect and the eyes are directed straight forward toward the horizon, is usually different, so far as the lateral muscles are concerned, from that which exists when the eyes are directed somewhat downward and to a nearer point, as in ordinary work or reading. Formerly, in considering the question of balance the condition found at the reading distance was generally regarded as of main importance. Now, while the state of the balance at the reading distance is not to be neglected, chief emphasis is placed on the condition when the eyes are directed horizontally and to a distant object. Both theory and practice indicate that the latter view is the more accurate.

The methods now employed for the detection of faulty equilibrium are modifications and improvements of tests long in use. To describe them would make too great a demand on the limited time at my disposal and lead me into technicalities which I wish to avoid. It should be said, however, that in every case careful correction of errors of refraction should precede the examination of the muscular balance, and such examination should be made only while the glasses which correct any errors of refraction are worn. Only under this condition can the tests be considered reliable.

The means of treatment are mainly two — the wearing of prisms and tenotomy of the preponderating muscle. The first is but palliative and suffices to correct the defect only when it is of moderate degree, since prisms stronger than 4° or 5° cannot be worn with comfort on account of the color dispersion they produce, and for other reasons. If the amount of the defect is comparatively small, prisms may be sufficiently effective. And if, because of accompanying errors of refraction, glasses are to be constantly worn in any event, the addition of prisms may answer every demand. With higher degrees prisms can only partially correct; yet partial correction may give comfort.

The radical treatment, tenotomy, when successfully employed, offers decided advantages. By tenotomy alone can the greater defects be even approximately corrected, and although with lesser defects prisms may be efficient it is only on the condition that they be worn constantly, and this is often a not inconsiderable inconvenience. Yet the performance of tenotomy is not to be lightly undertaken. In the conditions with which we have here to do its amount must be determined with the utmost care, and not even the operation for cataract demands more skill and judgment on the part of the operator. Above all, the desired effect is not to be exceeded. An individual who all his life has been training a set of muscles to act in an abnormal way to overcome the defect, will, if he is suddenly called on to make those muscles act abnormally in the opposite direction, although in less degree, probably be in a worse state than he was before. It is decidedly better therefore to stop short of the total effect desired rather than to run the risk of exceeding it. And an operation that only approximately corrects is often all that is necessary. But if too much effect is unintentionally produced, the excess should always be immediately corrected, or even somewhat over-corrected, by bringing the severed tendon forward with stitches. To fulfil these requirements intelligently every tenotomy should be done under the anesthesia of cocaine, never under ether.

The exact amount of the defect it is not always

easy to determine. The application of the tests for its discovery requires judgment and experience and should be repeatedly made before a definite opinion is formed. As, in the state of refraction known as hypermetropia, the ciliary muscle, constantly called on to act to excess whenever any effort of vision is made, is often unable to fully relax when a glass neutralizing the hypermetropia is placed before it, so here, the muscle trained to excessive action often does not abandon such action readily and the true balance does not become apparent. It is therefore almost invariably better, even if tenotomy seems advisable, to precede it by the use of prisms for a few weeks. In this way we may learn something of the effect of at least a partial correction of the symptoms, and we not infrequently find that the defect is greater than at first appeared. It is, I believe, in great part owing to this inability of the muscle to readily give up its habit of excessive action that, in some cases, a few days or weeks after a tenotomy its immediate effect is found to have apparently diminished. Rarely the reverse occurs, the result of an operation which is at first satisfactory proving after a few days to be somewhat too great. Sometimes this excess disappears again after a time spontaneously. If it does not the tendon must be brought forward.

The number of persons in whom some want of equilibrium of the ocular muscles exists is very great. In the vast majority of them, however, the amount of the defect is small, and when it concerns only the lateral muscles, as is usually the case, is seldom of any importance. Moderate defects of balance in the muscles that raise and depress the eyes, and higher degrees in the lateral muscles, may and often do cause serious functional disturbances and require correction either by prisms or tenotomy.

It need hardly be added that in many cases the condition of the eyes is only one factor in the causation of the symptoms, even when these are the more common ones of ocular fatigue and headache, but it is none the less a factor to be reckoned with, and the correction of it alone many times will bring relief.

SOME PHASES OF LACHRYMAL OBSTRUCTION, AND THEIR TREATMENT.¹

BY DAVID HARKOWER, M.D., WORCESTER.

AMONG the most annoying and persistent troubles that we have to treat in connection with the eye, we find those of the tear passage not the least. The lachrymal secretions come from the lachrymal gland and from the conjunctiva and pass through the superior and inferior puncta into the passages that lead into the sac, and from that into the lachrymal duct and empty into the nasal fossa below the inferior turbinated bone. At the spot where the lachrymal sac passes into the nasal or lachrymal duct, is the point where we are liable to have most of the pathological obstructions that occur. In its course the lachrymal duct passes backward and outward from the vertical, the entrances to the ducts being nearer together than the exits.

The cases of lachrymal obstruction that present themselves for treatment are the acute and chronic. In the chronic case, the patient comes complaining of

epiphora, or tears running over the lids, and generally of a swelling in the region of the lachrymal sac; perhaps the swelling may be painful and tense, and often as big as a walnut. Sometimes when pressure is made on this swelling the contents consisting of pus and mucus can be forced out through the puncta — or more rarely through the nose. The immediate cause of this condition is some obstruction of the nasal duct. The tears can no longer find an exit into the nose, and begin to accumulate in the sac, which becomes more and more distended. The tears soon become decomposed and start an irritation of the mucous membrane lining the sac, which then undergoes an inflammation throwing out pyoid secretion which mixes with the tears in the sac. The contents then grow more turbid and resemble pus.

Constrictions of the nasal duct may come from inflammation of the mucous membrane in the nose, simple chronic catarrh, or from a scrofulous or syphilitic origin. The swelling of the mucous membrane may extend by continuity to the mucous membrane of the duct. In the ordinary forms of ozena there is no swelling, but cicatricial contraction of the nasal mucous membrane, which may lead to the constriction of the inferior orifice of the duct. Ulcers of the mucous membrane and polypi are also causes of obstruction at the nasal orifice.

The course is long, often extending years if nothing is done for it. The secretion that at first was purulent becomes mucous and viscid, the mucous membrane may atrophy and the distended sac contain nothing but tears, but the epiphora still remains.

A person suffering from this chronic form may have an acute attack of inflammation suddenly develop. The skin over the sac becomes reddened and greatly swollen, the swelling often extending to the lids, and to the conjunctiva which may become chemotic. There is generally a great deal of pain, so much so that the patient is deprived of sleep. After a few days the skin at the apex shows a yellowish point and becomes perforated, the pus discharges and the swelling gradually disappears. Afterwards pus followed by mucus, and later tears are discharged. As long as this fistula remains open the patient is safe from another attack, but if it closes up a recurrence may ensue.

In the treatment of the milder forms in which epiphora is the most annoying symptom we should always examine the nose, and if any trouble is found there it should be treated. Often uncorrected errors of refraction are a cause, and should also be carefully looked after. Suitable washes where there is only an irritation of the lachrymal tract are often of great benefit.

The large majority of cases are only benefited by operative treatment, and this, in my opinion, is best accomplished by a complete division of the stricture and the use of large probes. In all cases, acute or chronic, I operate as soon as it is possible to pass my knife straight into the sac, that is, if the parts are not too much displaced by the swelling. If there is too much swelling I use hot applications, and wait for a chance to let the pus out. Generally a day or two after this is done the duct is in such a condition that a proper opening can be made. I always use a Weber knife with a long shank, and Theobald's probes. I make the incision in the ordinary way. I insert the probe-pointed end in the lower punctum with the knife

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

straight up, then depressing the knife down and out 90 degrees, and with the cutting edge turned slightly toward the eyeball, I push forward until the point touches the inner wall of the sac. I then bring my knife up perpendicular, and holding it lightly but firmly, pointing slightly backward and outward, push it straight down until it reaches the floor of the nose. I then pull it back, turn it a quarter of a circle and push it down again, withdraw it nearly again and turn it a quarter more and cut again, and still once more, making four cuts down through the stricture. This is all done very quickly. I then pass the largest Theobald probe I can into the nose (generally a 12 or 14), bandage up the patient's eye and send him home, giving him a wash of boracic acid, dilute hydrocyanic acid, cocaine and water, to use freely. I probe the two following days with the same sized probe I used on the day of the operation. Then I probe every other day for the next week, then twice the next week, and once the next; then again in two weeks. This generally suffices although not always. If patients need any more probings, I am very apt to use a slightly smaller probe, especially if they have been three or four weeks without having any probe passed. I *never* leave the probe in. I pass it and immediately withdraw it.

In making the incisions in the stricture and dilating, we have a certain amount of exudation thrown out into the cuts; this cut is again forced open the next day, and at each succeeding probing, and another chance for a new exudate given. In this way when we are done with our probing, we have or should have four cicatrices that retract rather than contract, and leave us an opening through which tears can pass. The extended sac will generally diminish and return to nearly its normal size, or near enough to cause no further trouble.

When we have a largely distended sac that will not contract, there is ordinarily nothing left but extirpation or cauterization. No one will claim that all cases of epiphora or lachrymal obstruction can be cured. We have too many that are apparently just as badly off when they leave off treatment as when they began. I certainly think that the free incision of the stricture and the proper probing afterwards will do more in my hands than any other method that I have used.

Clinical Department.

A CASE OF DOUBLE OVARIOTOMY DURING PREGNANCY.¹

LABOR COMPLICATED BY UTERINE INERTIA.

BY R. A. KINGMAN, M.D., BOSTON.

THE case which I am about to report to you may well be considered ancient history, having occurred several years ago, and yet it presents several interesting and suggestive features, which render it worthy of record.

Lucy H., married, thirty-seven years of age, presented herself for examination at the Boston Dispensary in May, 1892. She stated that some eight or nine months previous she had consulted a prominent member of this Society who told her she had an ova-

rian tumor, but that there was no necessity for operation at that time.

Now, however, she had reason to believe she was pregnant, and for that reason sought further advice. The data were not conclusive; but it seemed probable that the pregnancy was of about two and one-half months' duration.

Examination showed a tumor of typical ovarian characteristics, extending to the lower ribs on the left. It was of a size corresponding to six or seven months' pregnancy. At its upper and left-hand margin there was a hard mass, the size of a man's hand, of limited mobility. At no point was pain elicited on palpation.

Crowded into the pelvis was a separate elastic tumor, which just filled the pelvic cavity. This was apparently continuous with the cervix, and was assumed to be the pregnant uterus.

May 30th the patient entered St. Elizabeth's Hospital, and was operated on June 1st. A median incision disclosed a cyst of the left ovary, which contained over a quart of clear fluid. The hard portion noticed at the upper left-hand margin proved to be a papillary mass which was adherent to parietes and viscera, but was easily separated from them.

The only unusual condition noted in consequence of the pregnancy was the extreme vascularity of the pedicle, which consisted of the whole breadth of the broad ligament. It seemed one mass of dilated, tortuous veins. This was ligated with pedicle silk, the cobbler's stitch being used.

The toilet of the peritoneum was being hastily performed, the desire being to expose the uterus as little as possible, when a second globular tumor was felt beneath the uterus. For a moment, remembering the diagnosis as made at the previous examination, I thought the lower tumor might be the pregnant uterus, the upper one being the bladder. This, of course, was a foolish thought, only excusable in view of my somewhat limited experience; and yet the two tumors were exactly in the median line, of the same size, and feeling almost identical to the fingers. Ocular inspection instantly showed that the lower tumor was another cyst, developed from the right ovary.

This was removed in the same manner, the same varicose condition being present.

The uterus was of the size of a very large navel orange.

The recovery of the patient was as comfortable and uneventful as could be wished, there being almost no shock and never any symptom of threatening miscarriage.

In order to follow this case to its conclusion I attended Mrs. H. in her confinement, which occurred December 17th, six and a half months after the laparotomy. Her pregnancy had been a comfortable one, and the scar had yielded but little.

I was called to her after she had been in labor about three hours, the pains at no time being strong. I found the abdomen no larger than it commonly is at eight months and on palpation noticed that the uterine wall was very thin, the fetal parts being felt with the greatest ease. The presentation was by the head, O. L. A., the os being almost fully dilated.

As I observed them, the pains were feeble and ineffectual, though the patient made great outcry with each one. They were regular and of proper frequency, but produced no result. The patient soon became unmanage-

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, February 24, 1897.

able, throwing herself about the bed and refusing utterly to make any effort at expulsion. Small doses of ether were given with a few of the pains, but with the effect only of making her happy and comfortable. No progress being made and none in prospect, the head being in the pelvis and so small that a single strong expulsive effort would have expelled it, I gave a very little ether and extracted the child with forceps. For this manoeuvre only one hand was used, and no appreciable effort was required.

The uterus was held continuously by myself, and the placenta was easily expressed after an interval of twenty minutes.

Immediately following the placenta there came a severe hemorrhage. The uterus refused to contract; in fact remained so soft and flabby that it could not be wholly compressed between the hand in the vagina and the external hand. Add to this the lack of a competent nurse and the fact that the patient persisted in trying to pull my hand away from the abdomen, and it will be seen that I had to work under difficulties.

For a time I held the flood in check by seizing the cervix in my fingers and compressing it firmly, at the same time jamming cervix and fundus together. After a time, however, the fingers would tire, and then the blood would spurt as badly as ever. Ice and hot water had been used in the mean time under my direction.

At this juncture it occurred to me to try vinegar, of which I had often heard but which I had never used. A large pledget of absorbent cotton wet in vinegar was accordingly thrust into the uterine cavity and compression used as before. The result was instantaneous. There was no more hemorrhage, and the uterus contracted so that I felt safe in removing the cotton at the end of half an hour.

This patient had a normal convalescence.

The baby was not weighed, but was certainly not over four and a half pounds. It grew rapidly, and at one year weighed about forty pounds.

The points of interest which I would briefly mention are as follows:

(1) The dangerous advice given by the first physician consulted. The impression is far too common that an ovarian tumor, being a benign growth, may be neglected.

(2) The occurrence of pregnancy in spite of the advanced cystic disease of both ovaries.

(3) The easy convalescence after operation, demonstrating the tolerance of the pregnant uterus.

(4) The evidence against the Tyler-Smith theory of the determining cause of labor. This theory supposes that labor comes on in consequence of the increased congestion and nervous disturbance accompanying the recurring menstrual epoch, though why the ninth or tenth rather than the eighth or eleventh is not stated. One of my friends called my attention to this so-called ovarian theory, and jokingly suggested that the ovaries being removed and the cause of the menstrual visus being therefore absent, I might find that labor would be indefinitely postponed. As a matter of fact, labor came on just when it was expected.

(5) The lack of development of the uterus and the small size of the child. Were these conditions due to the absence of the ovaries or to the cutting off of a part of the blood-supply? I am inclined to believe

that the presence or absence of the ovaries has little influence upon the development of the pregnant uterus. The ovarian artery, however, cannot but be an important factor, it acquiring the size of three to four millimetres in diameter at the close of the gestation period, being in fact only a trifle smaller than the uterine artery. The ovarian vein is said to develop until it exceeds the uterine vein in size, equalling the internal or external iliac. Complete closure of this portion of the uterine circulation must of necessity interfere to some extent with the development of the uterus and its contents.

(6) The resultant post-partum hemorrhage and the simple means by which it was controlled. Packing the uterus with iodoform gauze might have produced the same result and been a more surgical procedure, but it would have been less simple in its application, would have required more time, and it presupposes the possession of the gauze and sterilized instruments for its insertion. Vinegar is always obtainable; and in the two cases in which I have used it, the effect has been all that could be desired, and no evil after-result has been noted.

A CASE OF OVARIOTOMY DURING PREGNANCY.¹

PATIENT FIVE MONTHS PREGNANT; REPLACEMENT OF RETRODEVIIATED INCARCERATED FUNDUS; NORMAL LABOR AT TERM.

BY W. L. BURRAGE, M.D., BOSTON.

D. H., age twenty-six; married two years; one child, thirteen months; no abortions. First seen October 25, 1893. Had an attack of flowing in August, 1892, two weeks after her baby was born and had not flowed since except that she had a normal menstruation of five days, May 10, 1893. Was in labor five days; ether and forceps used; baby weighed ten pounds and a quarter; in bed three weeks after labor; nursed child. She noticed prolapse of the parts at the vulva as soon as she got up, and the condition persisted in spite of treatment by her doctor with packing and a ring pessary.

Early in September she thought she might be pregnant, being unable to eat her usual articles of diet, and having cravings as at her previous pregnancy. Accordingly she weaned her child. She noticed at this time that her womb came outside the body; and she suffered with dysuria and was unable to sit or walk with comfort. She also suffered from constipation and from pain above the pubes, that had been increasing in severity ever since. She complained chiefly of this pain when I saw her at the Carney Hospital, October 25, 1893. I found the cervix uteri enormously elongated, with as much as an inch and a half projecting from the vulva; deep laceration of the perineum; pelvis filled with a semi-solid tumor, apparently the retroflexed uterus about four and a half months pregnant. Above and on the right, lying on the pelvic brim, was a tumor of indefinite outline, the size of a cocoanut.

By forcible bimanual manipulation I was able to partly dislodge the pelvic tumor, and the patient was kept in bed until six days later, October 31st, when she was given ether and a thorough examination made. Dr. F. W. Johnson kindly saw the case with me in consultation. We found the fundus uteri out of the pelvis, and the cervix high; and we also made out a

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, February 24, 1897.

cystic tumor apparently of the right ovary, the size of a cocoanut.

On account of the limited space in the abdomen, and the rapidly growing uterus, it seemed best to remove the cyst by abdominal section. Having allowed a sufficient time to elapse after the etherization to prevent all fear of miscarriage, I performed ovariectomy November 10, 1893.

The incision was in the median line, three and a half inches in length, its upper end being half an inch above the umbilicus. The pregnant fundus presented in the wound, and above it on the right side a bluish, thin-walled ovarian cyst that was not fully distended with a fluid of the color and consistency of mucilage. Attached to the main cyst, which contained three quarts of fluid, was a bunch of smaller cysts with colloid contents, the largest being the size of a small orange. There were a few slight adhesions to the anterior abdominal walls.

The tumor was tapped, delivered and tied off in the usual manner. The pedicle was very vascular. I noted that the elongated Fallopian tube was not appreciably enlarged in its diameter, but that the ovarian ligament was much hypertrophied throughout its length. The left ovary was normal with the exception of a few small cysts in its substance, the largest the size of a pea. These were punctured.

The convalescence was uneventful. The wound healed by first intention, and being situated so high in the abdomen no abdominal supporter seemed to be indicated. The patient felt life on the day following the operation; and, as I think I have failed to note, she had felt fetal movements for three or four days before the operation. The temperature was normal, and the patient was up in three weeks.

March 17, 1894, or 280 days from June 10, 1893, she was delivered by Dr. J. L. Morse of a living male child weighing six pounds. The labor and convalescence were normal. Dr. Morse measured her pelvis and reported it as being slightly justo-minor.

Mrs. H. presented herself with her baby at my office, May 9, 1894. She had then a firm cicatrix, a quarter of an inch wide, in the abdominal wall. The uterus was of normal size, but low in the pelvis, and there was extensive injury of the pelvic floor and perineum. She was advised to have these injuries repaired. The mother and child were in perfect health.

Medical Progress.

REPORT ON DISEASES OF CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

BATHS IN SCARLET FEVER.¹

DR. SCHILL (Wiesbaden) reports his and Dr. Schellenberg's results in the treatment of 110 cases of scarlet fever by means of warm baths; 63 of the cases were treated by Dr. Schill since 1892, and 47 cases were treated by Dr. Schellenberg since 1893.

The baths were given twice a day during the first week, and once a day afterward. The temperature of the water was 28° R., and the duration of each bath was ten minutes. Only one of Dr. Schill's cases was severe. This case was complicated with a phlegmon-

ous inflammation of the submaxillary gland and with a nephritis. Of the 47 cases treated by Dr. Schellenberg, five could not be bathed, and one of these cases developed a nephritis. The course of the disease in the remaining cases was mild. Neither nephritis nor albuminuria occurred in any of them. The author alludes to the disturbances of function produced in the skin by the dermatitis of scarlet fever and to the importance of assisting these functions under such conditions.

Reference is made to the article of Ssokolow, entitled "The Perspiration of Children under Physiological and Pathological Conditions," in which the author says: "The perspiration is markedly diminished in scarlet fever. The immediate result of this diminution is to cause albuminuria from disturbance of function in the kidneys. Varnishing the skin with various substances almost invariably produces albuminuria. The application of vaseline over the body diminishes perspiration one-half." Greasing the skin is therefore harmful.

With the exception of the fingers, desquamation was not observed in the cases treated by baths. The epidermis is gradually removed by the daily bathing, and the scarlet-fever toxin has a chance to escape through the sweat glands. In this way the author accounts for the absence of complications and the mild course of the disease.

COR BOVINUM IN AN INFANT.²

M. Hauser exhibited an hypertrophied heart from an infant of eleven months. At the time of its death the child had had pertussis for five months and was very anemic. During the last five weeks of its life it suffered from dyspnea, but the author had not detected any organic malady which accounted for it. At the autopsy, the heart was found to be much enlarged; the walls of both ventricles were hypertrophied and the cavities dilated; there was passive congestion of the abdominal viscera. The only cause which could be detected for the above-mentioned conditions was the increased blood-pressure caused by the violent and prolonged cough.

ON THE EMPLOYMENT OF THYROIDIN IN CHILDHOOD.⁴

Alfred Dobrowsky considers briefly the work of other men in this direction, and then gives the results of his treatment of 30 infants and children with thyroidin. The cases were as follows: nine cases of parenchymatous goitre; eight cases of prurigo; one case of obesity; and 12 cases of idiocy and cretinism. Merck's tablets of thyroidin were used, each tablet of which contained 0.35 of thyroidin. Infants under two years of age were given from one-half to one tablet daily during the first week, and from one to two tablets daily afterwards. Older children were given one to two tablets daily during the first week, and from three to four tablets daily afterwards. The treatment was continued for from three weeks to three or four months. The patient remained under observation after the treatment was suspended. The article concludes with the following summary:

(1) Merck's preparation of dried thyroidin produces a loss of weight in both healthy and sick chil-

² Archiv. f. Kinderheilk., xiv, 255.

³ Soc. Clinique de Londres, 8 Janvier, 1897; Rev. Mens. des Maladies de l'Enfance, Avril, 1897.

⁴ Archiv. f. Kinderheilk., B. xxi, S. 54, 1896.

¹ Jahrbuch f. Kinderheilk., xliii, S. 260, 1896.

dren irrespective of special diet. The loss of weight reaches its maximum in about four weeks, after this time little or no additional loss of weight occurs, in spite of the continuance of the treatment. The loss of weight varied from 0.5 to 3.5 kilog. (1.1 to 7.7 lbs.). A gain in weight begins in from one to two weeks after the treatment has been discontinued.

(2) In case of parenchymatous goitre, thyroïdin produces a marked diminution in the size of the gland. The effects are observed in two or three days, and the maximum result is obtained in about three weeks. Further treatment merely hinders the recurrence of the swelling. Measurements of the neck showed a diminution of from one to four centimetres in circumference.

(3) An increase in the rapidity of the heart's action occurred in all cases soon after beginning the treatment. The tachycardia was not accompanied by subjective symptoms of palpitation and ceased as soon as the treatment was discontinued.

(4) A marked improvement occurred in all the cases of prurigo a few days after the treatment was begun. The itching ceased and the accompanying eczema disappeared. The skin became softer and moister and the children slept better and improved in their general condition. Relapses occurred in all cases in from one to thirteen weeks after the treatment was stopped. A renewal of the treatment produced the same temporary improvement as before.

(5) Practically negative results were obtained in the treatment of idiocy and cretinism. Of the twelve cases thus treated, two only showed a slight improvement in their ability to maintain an upright position and in one case slight improvement in the intelligence.

(6) The author was unable to detect any noteworthy effect produced upon the blood by the treatment.

(7) Increased thirst and diuresis were observed in almost every case. The amount of phosphorus was increased in the urine. Indican was constantly present in the urine and oftentimes increased. Albuminuria and glycosuria did not occur.

(8) The dried thyroïdin prepared by E. Merck was found to be reliable.

(9) The cautious employment of the remedy, beginning with small doses and increasing them gradually, convinced the author that the treatment was not dangerous. It is necessary to watch the patients carefully to detect idiosyncrasies and if the heart's action becomes irregular the treatment should be suspended.

(10) Thyroïdin is a reliable, but not radical, remedy in the treatment of parenchymatous goitre which has not undergone secondary changes. It is of value in the treatment of prurigo and obesity. It appears to be of little value in case of idiocy. It is of great value in cases in which from idiosyncrasy the treatment by means of iodine is impossible.

(11) Cessation of treatment is followed by relapse.

THE PRESENCE OF DIPHThERIA BACILLI IN THE THROATS OF HOSPITAL PATIENTS.⁶

E. Müller was led by the occurrence of several cases of diphtheria in one of the wards of Professor Heubner to make systematic bacteriological examinations of the secretions from the throats of all the children who were admitted into this ward. Daily exam-

inations were made of all the patients in this ward during a period of five months. The total number of cases examined was 100, and of this number, 24 gave positive results. None of the cases showed any traces of angina or stomatitis. Diphtheria bacilli were found in the throats of four of the eight children who were in the ward at the time when the examinations were begun. Positive cultures were obtained from six children at the time of their entrance into the hospital. In the remaining 14 cases, positive cultures were obtained after the patients had been for some time in the ward, the length of time varying from several days to several weeks. In some of these cases the patients occupied beds next to those in which were patients from whom positive cultures had been obtained. The length of time during which positive cultures were obtained in these cases varied from several days to several weeks. There were neither general nor local symptoms in any of the 24 cases at any time, although in a number of cases the bacilli were very virulent. Inoculation experiments were made from 12 cases; of these six proved fatal to animals in from twenty-four to forty-eight hours; the remaining six were less virulent.

Of the six cases in which the cultures were positive at the time of entrance into the hospital, one came from a family in which there had been several cases of diphtheria five weeks previously; two other cases were transferred from the ward for measles; of the remaining three no history could be obtained of contact with diphtheria.

ARRHYTHMIC ACTION OF THE HEART IN CHILDHOOD.⁶

O. Heubner's observations are confined to the occurrence of arrhythmic heart's action in children, exclusive of cases of organic heart disease and tubercular meningitis.

(1) As a manifestation of the toxic action of drugs this symptom occurred in one case of stramonium poisoning; not infrequently in cases of heart disease treated with digitalis; and in one case of afebrile appendicitis treated with large doses of opium.

(2) In dyspeptic conditions, possibly due to auto-intoxication from the intestines. In one such case the arrhythmic action of the heart formed one of a severe group of nervous symptoms, consisting of retraction of the neck, stupor, vomiting and fever. The attack ended in recovery after four days and with beginning convalescence a large quantity of acetone was present in the urine. In a second case of auto-intoxication, the same symptoms occurred together with convulsions. A strong odor of acetone was apparent in this case.

(3) In diseases of the abdominal organs, especially those accompanied by vomiting, in which, however, auto-intoxication was not evident.

(4) In the course of infectious diseases, especially during the stage of convalescence. One such case was that of a ten months old infant in whom the arrhythmic heart's action formed one of the symptoms of an obscure and severe infectious disease, possibly typhoid. Under this heading are included the cases of arrhythmic heart's action occurring after diphtheria, due to the action of toxin on the heart's muscle; less frequently cases of scarlet fever, with or without nephritis, but without organic lesion of the heart; and in some cases of scarlet fever in which the symptoms were by no means severe. The occurrence of this symptom after

⁶ *Jahrbuch f. Kinderheilk.*, B. xliii, S. 54, 1896; *Rev. Mens. des Maladies de l'Enfance*, Février, 1897.

⁶ *Zeitsch. f. klin. Med.*, 26 Bd, 5 u 6 H; *Jahrbuch f. Kinderheilk.*, B. xliii, S 355.

scarlet fever, measles, pneumonia and typhoid is much less grave than when it occurs in diphtheria.

(5) In anemic and nervous children, arhythmic action of the heart is not uncommon and has at times led to an incorrect diagnosis of tubercular meningitis.

Heubner refers also to the cases of arhythmic heart's action occurring in pale, rapidly growing children at the time of puberty, attributed by Kressig to the disproportion existing between the size of the heart and the size of the arteries, but says that he has not observed them.

(6) Arhythmic heart's action coincident with the presence of intestinal parasites.

(7) Arhythmic heart's action following psychical disturbances; during sleep (Czerny); following exposure to cold after a warm bath (Löschner); and probably of reflex origin.

(8) A so-called idiopathic arhythmic action described by Da Costa, which occurs in children from three to six years of age, oftentimes in several children of the same family. The symptom becomes more evident after deep breathing, and may be the only abnormality presented by the child.

How the arhythmic action of the heart is produced is not always apparent. In some cases it is the result of nervous influence. In tubercular meningitis it may be due to the pressure produced by an increased quantity of fluid in the ventricles acting upon the vagus at its place of origin in the medulla. In other cases it is caused by reflex irritation of the vagus produced through the medium of other nerves, such as the splanchnic.

In cases of poisoning the arhythmic action of the heart may be caused by the direct action of the poison in the heart's muscle, or by its direct or reflex action in the vagus at its place of origin. Occurring during or after infectious diseases, it is presumably due to the direct action of the toxins in the heart's muscle. The occurrence of arhythmic heart's action as a result of direct irritation of the vagus nerve itself is very rare. The cause or causes for its occurrence in anemic and rapidly growing children have not been satisfactorily explained.

It may be said that, as a rule, the duration of arhythmic heart's action in children is temporary, and that the treatment is dependent upon the cause. Da Costa recommends a certain amount of daily exercise, which should be carefully supervised to avoid overexertion, and which should be gradually increased; small quantities of food should be given frequently; and sea-bathing for the cases in which the symptom is habitual.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR meeting, Wednesday, February 24, 1897,
DR. F. W. JOHNSON in the chair.

PATHOLOGICAL SPECIMENS.

DR. E. GARCEAU showed two kidneys which were removed for suppurative disease.

DR. S. E. PALMER exhibited specimens from a

patient operated on at Carney Hospital in the service of Dr. Johnson.

K. L., domestic, single, age thirty-five. Family history good.

Patient says she had malaria two years ago, but with that exception was well until last spring, when she was troubled by frequent micturition, with some pain. In July of 1896, backache with sensation of weight in epigastrium. These three symptoms (frequent urination, backache and weight) increased until she was forced to consult a physician, which she did at the Boston Dispensary. He made a diagnosis of tumor in the pelvis, and sent her to the hospital. Before the operation temperature and pulse varied between 99 and 100. She entered the hospital February 8, 1897.

An incision about 11 cm. long being made by me in the median line, two large, whitish tumors were soon seen. These proved to be dilated tubes, adherent everywhere to the intestine, particularly to the rectum. The uterus was rather small and bladder adherent. These tubes, when removed, together weighed a pound. That on the right was the smaller, and, in turn, adhered to a mass which proved to be an encysted peritonitis lying on the dilated left broad ligament, which included an intra-ligamentous cyst. This was enucleated with the cyst wall and the broad ligament sewed up (the tubes having been first removed) with shoemakers' stitch, and fortunately without breaking.

I have brought them to show to-night, although somewhat shrunken, and therefore we have no pathological report. The rough sketch gives the size by measurement and the approximate shape.

The recovery has been almost without event. The temperature and pulse reached 100 two days after the operation, but soon fell. With urination there has been trouble—retention and some pain; but that is now relieved.

DR. E. W. CUSHING: This is a fibroid I removed yesterday. It is interesting, from one point, as showing how the fibroid started from one side of the uterus and how the tube starting from the lower part of the mass is extended clear around the tumor to the other side where it was cut off, and where it was strongly adherent to the side of the pelvis far down by the rectum. The tumor in growing on the left side had grown into the broad ligament so that the bowel was apparently adherent to, but really inserted into the peritoneum. This is a little bit of appendix epiploicum which was in apparently intimate union with the tumor. The growth could have been removed, I think, leaving the uterus, but I did not think it wise to do it. The other tube and ovary were diseased, firmly adherent, so it was impossible to remove the growth until clamps had been applied, so as to remove the tumor and uterus, leaving in place the tubes and ovaries which were removed afterwards. In removing it it appeared that the small mass was an outgrowth from the tumor. It was not until afterwards that it was shown to be the uterus. I bring the specimen as showing how many of these fibroids would be susceptible to the treatment suggested the last time, of getting it out through the vagina.

DR. RICHARDSON: This specimen of a hydrocele of the canal of Nück is rather unusual. The woman had apparently a left inguinal hernia. There was the history of hernia—a tumor which she said appeared suddenly on exertion, and which varied in size,

being sometimes larger and sometimes smaller, according to the position of the body. The tumor evidently contained fluid. I thought it either a hernia with incarcerated omentum and effused fluid, a rapidly growing soft sarcoma, or a hydrocele of the canal of Nück. I removed the tumor unbroken. There was a slight communication between the abdominal cavity and the hydrocele; yet it was impossible to force the contents of the hydrocele into the peritoneal cavity either before or during the operation.

DR. KINGMAN read a paper on

A CASE OF DOUBLE OVARIOTOMY DURING PREGNANCY.¹

DR. BURRAGE also reported

A CASE OF OVARIOTOMY DURING PREGNANCY.²

One or two observations come to me as a result of this experience and of hearing Dr. Kingman's paper. The question of operation in cases of pregnancy complicated by ovarian tumor comes up. In looking over the literature at the time I operated, I found a great many cases reported, and that the opinion seemed to prevail that the cause of miscarriage in these cases was the sepsis and not the operative interference; and I think it is held by most authorities at the present time that if the operation is aseptic, there need be very little danger. The condition of the tumor in my case was interesting. The cyst was not full; the walls were flabby. Whether that was an effort of nature to absorb some of the fluid it is impossible to say. We occasionally find tumors in which the walls are in this condition, and that has occurred to me as a possible explanation. With such a thin-walled cyst the danger of rupture as pregnancy progresses would be a serious one. We have to bear in mind that we know nothing of the nature of the contents of a cyst, the thickness of its walls or the chances of its rupture during labor or of its causing miscarriages or dystocia. On the chances it seems to me it would be far wiser to operate on cases where we can diagnose an ovarian cyst of any considerable size during pregnancy rather than to wait. The size of the child interested me. The patient had had a labor before this one in which the child weighed ten and a quarter pounds; and, other things being equal, this child's weight should have borne some relation to that of the previous one. We must take into account that the uterus in this case was wedged into the pelvis and its circulation interfered with, but it brings up the point how much influence cutting off the ovarian circulation by an operation had to do with the future development of the child. My case was operated on a little later in pregnancy than Dr. Kingman's, and it would be interesting also to work out the effect that the period of operation and the unilateral or bilateral character of it has on the blood-supply to the uterus and the development of the fetus.

DR. CUSHING: I have two cases hearing somewhat on this subject.

Some years ago I had a patient with an ovarian tumor, and she was six months along in pregnancy. The tumor was a tumor of the broad ligament, but it was about the size of a two-quart jar. It was growing rapidly, and as she was beginning to suffer I operated. There was no especial difficulty about the

operation except the question of avoiding hemorrhage. I was astonished at the size of the veins on the side where the tumor was; the ovarian artery was greatly enlarged, but the veins of the pampiniform plexus were something wonderful. There was no particular hemorrhage, recovery was prompt, and the subsequent delivery was normal.

I had another case more curious, not an ovarian tumor. Three years ago I was called in consultation by Dr. Cumston for a lady who was having hemorrhages and high fever and had had a chill. There had been some question of pregnancy; she had skipped one term, was somewhat nauseated. There was a mass on the left side. It was impossible to make an exact diagnosis. A provisional diagnosis was made of extra-uterine pregnancy or salpingitis. The patient was dangerously ill. Operation followed and the left ovary and tube were removed in the presence and with the assistance of Drs. Cumston and Derby. The tube contained pus and the adhesions showed a state of inflammation around it. The right tube was occluded, but the right ovary was not removed; only the occluded end of the tube, and the stump was closed lightly with fine catgut with the hope that perhaps there might be a useful tube saved. It is well known that several cases of pregnancy have occurred in women who have had one tube and part of the other removed. The uterus was about the size of a uterus at two months. It was supposed that probably that was owing to inflammation, and nothing was done to explore the uterine cavity. The patient made a good recovery. Two months afterwards the woman aborted and there was great wonderment as to whether the diagnosis was correct and whether the operation was proper, and why we did not pass a sound, etc. The operation was done for urgent symptoms; the uterus was not explored. It only shows how independent in the first three months the fetus in its sac is of a very considerable portion of the uterus, which may have hemorrhages, and may endure a sound being passed without provoking miscarriage. It was known there was gonorrhea in the husband, who was under treatment at the time for gonorrheal ophthalmia, and was a very sick man, with gonorrhea undoubtedly as the cause of it. It was easily inferred that the gonorrheal inflammation was at the root of the salpingitis; and the question naturally arises how pregnancy could have occurred with one tube actively inflamed and pus in it and the other tube occluded. It presents rather a curious problem, but it is clear that the occlusion of the tube and the violent symptoms occurred subsequent to conception.

In regard to operation during pregnancy it seems to me we can hardly lay down a hard-and-fast rule. Where the tumor is small, free, rising in the pelvis above the uterus, not growing very rapidly, I think there is much to be said in favor of waiting, because it is not very likely to cause trouble. Where the tumor is in such position as not to rise freely, the uterus wedged in any way, more or less adhesions binding down the uterus, and liable to cause miscarriage or rupture, I think operation is desirable and if rightly done, not particularly liable to interfere with the pregnancy. The question has been raised whether it is not justifiable to provoke abortion first and remove the tumor leisurely afterwards. I do not think that it is necessary or justifiable. There is nothing to show an abortion occurring a few days or a week

¹ See page 103 of the Journal.

² See page 101 of the Journal.

after an operation will seriously aggravate the condition of the woman or make the result of the operation worse.

DR. M. STORER: I am glad to hear Dr. Burrage take such strong ground about operating. Gordon recently collected 200 cases of ovariectomy during pregnancy, with a mortality of only three per cent. Ols-hausen and Dsirne have shown that cases of ovarian tumor which give symptoms enough to be diagnosed have, unoperated, a maternal mortality of about 25 per cent., and nearly one-half of the children are lost, while with early operation 80 per cent. are saved. If by operation we get such brilliant results, it seems to me that the rights of both mother and child demand it. The months most favorable for operation are for the mother the third and fourth, and for the child the second and third.

Should pregnancy be passed in safety the mother's danger is by no means over. An ovarian cyst is liable to many accidents during and immediately following labor. Mangiagalli, in 150 ovariectomies, had 11 emergency operations after labor for torsions, ruptures, etc.

There is an interesting question Dr. Kingman did not speak of, that of the growth of these cysts during pregnancy. There are two views: one, that owing to increased vascularity, the cyst tends to increase; the other, that, owing to functional inactivity of the ovaries during pregnancy, cysts tend to remain quiescent. Wells had a case of dermoid which during a number of pregnancies decreased regularly, and increased as regularly during the intervals. In spite of a few observations like this, I think most writers now hold that ovarian cysts do tend to grow during pregnancy; and I find in this an added argument for operation.

DR. RICHARDSON: I should like to speak of one case of ovarian cyst. A young married woman had, in the region of the right kidney, a tumor about the size of a child's head; low down in the abdomen, rather to the left, was another similar in size and feel. I removed the right ovarian cyst without difficulty; and proceeding to tap the left, I found that I was trying to tap a pregnant uterus. Fortunately the trocar was dull and the tumor thick-walled. The trocar did not penetrate the uterus. The woman recovered, went to term, and was successfully delivered. I have published this case in full in the *Boston Medical and Surgical Journal*.

DR. KINGMAN: Speaking about the necessity of operating rather than trusting to time in these cases, I want to speak of the danger of torsion of the pedicle following delivery in cases of ovarian cystoma. I believe that is recognized as quite a common occurrence. I saw one such case a year ago, in which a tumor the size of the uterus at term had apparently escaped attention, but after delivery, it fell into the position before occupied by the pregnant uterus with twist of the pedicle and the usual symptoms. The patient when I saw her had gangrene of the omentum. I believe it is safer to operate during pregnancy than to wait until after delivery, thus incurring the danger of torsion.

DR. GARCEAU read a paper on

SOME CASES OF CYSTITIS IN WOMEN.³

DR. CHADWICK: It is hard to pick out the points to allude to in this paper; but the series of cases is exceedingly interesting, showing how much can be ac-

complished by modern surgery in a class of cases formerly considered incurable. Two of them were patients whom I sent to Dr. Garceau — the first case of tubercular disease of the kidney, and the protracted twenty years' cystitis. In both of them the ordinary old-fashioned treatment had failed. I was glad to hear Dr. Garceau make at the end some discrimination between ordinary cases of cystitis which do not need the cystoscope, or to have the ureters catheterized. I think it is very important to bear that in mind; with the great advance which these two measures give us it is very natural to apply them to every case. It is not necessary, and it is harmful. I say harmful, because I have seen a certain amount of cystitis set up, and lasting several months, due to the use of the cystoscope in a woman who had not had cystitis before. At the same time that I sent these two cases to Dr. Garceau I was treating half-a-dozen others, all of whom were cured by me. These two cases I could not cure, and I sent them to him, and he has pretty nearly cured them. The result of operations for tuberculosis of the kidney I think is not fully established. In the first case reported the result has been admirable so far. The improvement of the girl has been very great and worth the operation. I do not feel sure as to the future. The risks are considerable. The immediate mortality of the operation seems to be nearly one out of three, according to the statistics compiled. I fancy the very best operators recently have much better results than that, but I have seen recently published statistics of 130 or 140 cases in which 39 per cent. died; I think that is greater than the operation has now.

There are dangers in the first place from shock. The danger from shock varies according to whether the lumbar or abdominal operation is done, though I do not think it is clearly established why the risk from shock is so great. I remember some years ago it being alluded to by Dr. John Homans, that a number of cases had had not merely death from shock, but sudden tremendous diminution in the secretion of urine in the first twenty-four hours after operation. It is not the extirpation of the kidney that diminishes the secretion of urine, because in a case about that time I removed a sarcomatous tumor as big as my two fists and left the kidney, yet the same sudden arrest of secretion took place. The shock seems to be reflex and to have nothing to do with the arrested secretion.

How far the lumbar operation is going to satisfy us I do not know as yet. It seems to me there is danger that the infection will have reached the ureter, which cannot be removed by the lumbar incision. If we turn to the abdominal operation, the danger from shock is two or three times greater than by the lumbar operation, and I think the percentage of mortality is much greater; but as far as I can see and as far as I have looked into the subject, the benefits thus far are fully established.

DR. RICHARDSON: There are two points in this paper which interest me particularly; the first negatively, because I have never seen in cases of pyelonephritis of tubercular or calcareous origin any prominence in the bladder symptoms. The very thorough and scientific methods used by Dr. Garceau in determining the condition of the two kidneys is very commendable; if employed in every case, it would give us information about the comparative condition of the kidneys by which we could avoid some of the errors of

³ See page 97 of the Journal.

renal surgery. I can bring to this discussion but one case of tuberculosis of the kidney, and in that case there were no bladder symptoms whatever. The patient, a woman of about forty-five, had symptoms referable chiefly to the Fallopian tubes. I opened the abdomen, and found both enlarged and tubercular. An enlargement of the left kidney had been previously detected. At the first operation the kidney was examined, and found to be much enlarged and apparently cystic. The symptoms reappeared soon after the operation. I thereupon explored, and removed a large tubercular left kidney. The tuberculosis was found to extend far down the ureter. I dissected it nearly to the bladder, where I cut it off. There were no bladder symptoms. This patient died of pulmonary tuberculosis within two or three months of the nephrectomy.

The reader's paper brings out in a strong light the importance of considering the kidneys in all cases of obstinate cystitis. The cases which I have seen, however, have been those accompanied by lesion of the kidney rather than of the bladder.

In connection with this subject I am interested in what has been said about the dangers of nephrectomy. By judicious selection of cases I am sure that the mortality in nephrectomies will be ten per cent. or less. Such selection, however, is indefensible on any ground, for every case, no matter how desperate, is entitled to the chance of renewed health which nephrectomy gives. If, taking the cases as they come, we give every patient that chance of recovery to which he is entitled, we shall find, taking the good, the bad and the very bad, that the average mortality will be large. I have operated in every renal case in which I thought that the patient had any chance of recovery—in cases in which it was clear that recovery could not take place without removal of the kidney, and in which the general condition was most unpromising. Though the mortality has been large in desperate cases, it has been small in the others. A recovery, under the deplorable conditions which prevail in advanced cases of hopeless pyonephrosis, is so gratifying that it seems justifiable to undertake nephrectomy even in the most desperate cases.

The examination of the ureter and the comparative efficiency of the two kidneys is very important, and ought to be carried out in all cases. I have never removed a kidney until I have found out that the other was there and comparatively normal. The determination of the amount of urine excreted, and its nature, is of great value; it is questionable, however, whether the method of Kelly is necessary in all cases. In many instances the diseased kidney is so blocked that all the urine excreted must come from the other kidney. With reference to routes there is some ambiguity in definitions. If we mean by the lumbar to make an incision through the back and take the kidney out between the last rib and the crest of the ilium, I am opposed to the route as unscientific and dangerous. If we mean by abdominal operation an anterior incision across the peritoneal cavity I think that is unnecessary and dangerous. I favor and practise the incision halfway between, by which we can first go into the abdomen and determine the condition of the other side; we can then make a retro-peritoneal extirpation of the kidney. By this route we enter the abdomen near the outer border of the colon; we avoid the first great danger of nephrectomy—that of taking out the only

kidney which the patient has; and we can prevent the commonest cause of death from the operation itself—hemorrhage. Finally, by this route we can determine all of the relations of the kidney, the extent and nature of the disease; in other words, we know exactly what we are doing. This is what I mean by the lumbar operation.

DR. CUSHING: I wish to congratulate Dr. Garceau on the results of these cases. I have seen something of his work and something of some of these cases; and I was very much impressed with his infinite patience, scrupulous cleanliness and minute attention to detail, all of which work together and are necessary in order to do this sort of work, and do it well as Dr. Garceau does it. It is really a little specialty within a specialty, this work on ureters, and it is very gratifying to see the developments and application of methods of precision to a department which I think many of us feel has been something of an opprobrium, and certainly something of a weariness, and often disheartening, to those who have had to take care of these long chronic cases. In regard to the first case I was somewhat sceptical as to whether it would do any good to remove the kidney in a girl where the bladder was already infected. It seemed as if the bladder would get worse or the other kidney degenerate; but the result has shown that the operation was useful and has been a great relief to her sufferings. Dr. Richardson has said precisely what I would have said in regard to the incision. The old lumbar incision in the region of the quadriceps lumborum is difficult and unsatisfactory, and a dangerous process, whereas the incision into the abdomen, not in the median line, but on the side, gives a very good field of operation, and can hardly be called a lumbar operation. The removal of the kidney by incision in the median line, however, is not particularly difficult, and has given in my hands very good results. I have had to do it several times by the median incision where the diagnosis was not well established in the beginning, and it is not particularly inconvenient, and gives a good chance to follow the ureter down as far as you want to.

In regard to the patulous urethra, as well as the urethral caruncles, which are sometimes so painful and bother the women so much, they are very easily cured by a very slight operation of removing a wedge-shaped piece from the lower part of the meatus (lower as the woman lies on her back) and bringing the edges of the wound together. I often have occasion to do it in conjunction with other operations, and it is a very slight thing to do, can be done without ether by local anesthesia, and remedies at once not only this patulous condition, which may lead to infection of the bladder, but the very distressing condition from which women suffer very much, which is commonly treated by all sorts of cauterization with little success.

DR. CODMAN: I have been a good deal interested in the subject of diagnosis of renal calculi with the x-rays, as it is a very difficult diagnosis to make, and seems to be the one thing outside of the use of the x-rays in fractures and bony displacements in the limbs in which Röntgen's discovery is likely to be of use. This diagnosis has been made with the x-ray twice in England. Vesical calculi have been reported also. I have tried six cases altogether on patients who had symptoms of renal calculi; and in none of them have I succeeded in finding a stone, although in some of them I have got fairly good photographs which show the outlines of

lumbar vertebræ and also ribs. The first case was a case of Dr. Richardson's at the Massachusetts General Hospital, where the patient had symptoms of stone and evidences of pus in the pelvis of the kidney. I photographed the patient, and there appeared a mark on the plate which was in the right place for a stone. Fortunately, before the patient was operated on Dr. Richardson suggested there might be a button on the man's clothes, and it proved there was a button on the back of the man's nightgown which showed through. Dr. Richardson operated, and found abundant pus; but there was no stone. Since then I have had five other cases, and one has come to operation and no stone was found. The difficulty is that the kidney is so far away from the plate, and standing in relation to some of the bony structures (lower ribs and spinal column), the contrast of any body in the kidney would not be brought out. The farther an object is away from the plate the more its shadow is blurred. There is another reason for the indistinctness of these photographs also. The x-rays, in passing through a thick opaque body, are more or less diffused the way ordinary light is in passing through a glass of water with an emulsion of fat in it. Hence the diffused light from all parts of a thick object blurs the sensitive plate to a certain extent, and makes the shadow of the opaque parts more ill-defined.

DR. CUMSTON: The writer of the excellent paper that we have just heard has given us the report of cases of vesical troubles due to, or kept up by, lesions of the kidney or ureter, and in which some pathological elements were found by urinalysis. We heartily agree with the reader that the catheterization of the ureters should not be practised unless some abnormal condition of the urine would lead us to suspect or suppose that there was present a lesion of one or both kidneys.

But what we desire to call the attention of this Society to are those cases of prolonged, chronic cystitis, in which nothing abnormal can be found in the urine. We have in mind three cases of this class actually under our care: one an elderly lady of some seventy-five years, and two young married women of about twenty-five or twenty-six. These patients have complained of dysuria and frequent micturition for a number of years, and their lives have been rendered unbearable by their bladders. In none was there a single abnormal element in the urine; and no lesion of the kidney or ureters could be detected. A carefully directed medical treatment was applied in two of our cases for over a year without the slightest benefit. Cystoscopic examination showed a marked hyperemia of the trigonum and fundus of the bladder. In all three the genital organs were perfectly free from any pathological condition.

In two of these patients we have recently performed vaginal cystotomy in order to keep up a constant drainage of the viscus, and much improvement is already remarked.

As to vaginal cystotomy, we prefer performing it with the thermo-cautery, because it is very rapidly executed and we think that the opening is very much less liable to contract and close up, as may happen when an incision and sutures are employed. Then again, with the thermo-cautery no sutures are needed, and thus the unfortunate result of their possible infection is not to be feared.

In the cases we have mentioned the only apparent

cause of the vesical symptoms was the extreme hyperemia of the fundus and trigonum; and we believe that this class of cases may be grouped with those of the so-called "irritable bladder" of the English writers, the pathology of which is for the present surrounded by obscurity.

DR. GARCEAU: In closing, there is one point which I wish to emphasize, and that is the ease with which an early diagnosis of suppurative disease of the kidney, whether tubercular or not, can be made. Heretofore suppurative disease of the kidney in the early stages has been suspected at most; but there has been no means of diagnosing this condition with accuracy. By using the ureteral catheters in cases in which the symptoms warrant such use, the urine can be drawn from each kidney, and the condition of each may thus be determined. The percentage of urea gives the working coefficient of the respective kidney, and is a guide to the actual work being done; while abnormal elements, such as pus, casts, etc., give valuable information as to the nature of the process going on. By resorting to this means of diagnosis an early extirpation is possible at a time when the patient's strength is not undermined by long suffering. The operation of nephrectomy need not be considered a very serious one, provided it is performed at a time when conditions are favorable for a successful issue. Before ureteral catheterization, nephrectomies were performed at a time when the kidney was thoroughly disorganized, and possibly the opposite kidney was affected; hence the large mortality. Reference is now made especially to tubercular suppuration.

Thus Newman gives a list of 33 cases of nephrectomies for tubercular disease, with 12 deaths, a mortality of 39 per cent.; which is not far from the mortality from nephrectomies for other diseases of the kidney. Of these 12 cases of deaths, in six the disease was far advanced, and in two both kidneys were affected with tubercle; hence the importance of an early diagnosis.

By means of Brenner's modification of Nitze's cystoscope ureteral catheterization in the male is possible, though more difficult than in the female.

It is to be hoped that far-advanced renal suppurative disease may soon be as rare as large ovarian or fibroid tumors. Ten years ago it was not uncommon to meet with these immense tumors, whereas to-day they are only exceptionally seen in practice. This is because they are removed early.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

FOURTEENTH ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4, 5 AND 6, 1897.

(Concluded from No. 4, p. 90.)

DR. FREDERIC I. KNIGHT, of Boston, read a paper on

THE CHOICE OF A SUMMER RESIDENCE IN NEW ENGLAND.

He said that there is often an opportunity for the medical attendant to be of great service to a family in indicating their summer residence, perhaps in reference to their characteristics as a family, or with special reference to an invalid or convalescent member. He has to choose between the simple air of the north country, the stimulating, rarefied air of the mountains, and the pure ozone-laden sea-air; but here again he

must choose between the island climate, the cold, stimulating air of the Beverly shore and the Maine coast, or the warm and to some enervating air of the south shore.

Dr. Knight called attention to two kinds of country places appropriate for summer residence, namely, places comparatively low in elevation, but far enough north to insure cool nights as a rule; and mountainous places which, according to their elevation, afford a dry, rarefied air very free from germs, cooler days, and often very cool nights.

We find also several kinds of sea places differing greatly one from another, and indicated for very different conditions of the system. The coast climate of New England varies greatly according to the varying exposure to the south and east winds. To be cool in summer on the New England coast one must be where the south wind blows directly from the sea. As the general direction of the line of the east coast runs nearly northeast the whole coast would have the south wind from the water if it were not for the interference of the two capes, Cape Ann and Cape Cod. North of Cape Ann as far as Hampton, N. H., where the coast line begins to turn decidedly to the east, and north of Cape Cod, especially between Cohasset and Boston, the south wind comes overland, and is a hot wind; whereas, along the eastern Maine coast, north of Hampton, N. H., and south of Cape Ann toward Boston, on what is called the North Shore, (that is, of Massachusetts Bay), including Gloucester, Manchester, Beverly, Marblehead, Swampscott and Nahant, the south wind comes from the sea. As you approach Boston from Lynn the effect of the Cape in meeting the south wind is felt, and at Boston it is a hot wind. On the south side of Cape Cod and along the southern coast of New England till it is modified by Long Island, one gets the south wind directly from the water. Everywhere north of Cape Cod the coast is exposed to the east and northeast winds, which may be very cold and raw. The shores of Buzzard's Bay are shielded from the east winds by Cape Cod, and Newport and New London receive the northeast wind modified by the same.

Dr. VINCENT Y. BOWDITCH, in discussing Dr. Knight's paper, spoke of the contrast between the enervating effect of the shore on the south side of Cape Cod and the stimulating effect of the north coast, especially the island portion of Maine. Another feature of the southern shore is the extreme moisture, whereas on the north shore articles of clothing do not readily become mouldy. Even the fogs have not the dampness characteristic of them in other localities. The light vapory mist which drives in frequently from the sea has no definite sense of moisture as it strikes the face, and in the midst of it the air frequently feels dry.

On the coast of Maine, again, the southwest wind, which in Boston has a debilitating, blustering, muggy quality, is delicious in its cool, bracing and even dry quality, as it courses over the colder water of that shore. This is especially noticeable on the islands along that coast, and the climate generally has more of the typical equability of island climates. The snows in winter are not so deep and do not last so long as on the mainland. In the vicinity of Mt. Desert doubtless the presence of the mountains there has an effect upon the quality of the atmosphere and would partly account for what is often spoken of, the

effect of sea and mountain air combined. Its peculiar dryness, even though on the coast, has been so marked often that I have frequently thought that certain phthisical patients who need a very bracing atmosphere might improve there, although I have never quite dared to recommend it for such cases.

Dr. SAMUEL A. FISK, of Denver, read a paper on DIGESTION VS. DRUGS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

In the course of his paper he said: The bacillus has assumed such monstrous proportions in our eyes, that he must be hunted and killed at any cost. It has been remarked that more patients have been killed with antipyrin than have died of *la grippe*—whatever that may be. I sometimes wonder whether the same thing could not be said of creosote and tuberculosis. My own experience has not been favorable to the use of creosote. I have seen it upset the digestion more often than accomplish anything else; and the best thing that I can say for it, is that it has the endorsement of a member of this Association, for whose opinion, based upon a large experience, I have great deference. In a large number of cases that I see, one of the first things that I have to do is to stop the creosote, and give calomel and potash.

In my opinion, no drug should be administered which interferes with the digestion, with the proper nourishment.

He quoted Dr. Trudeau, who writes in a recent article: "At the Sanitarium, the utmost attention is given to the alimentation of the patient and every attempt is made to induce him to take and digest as much nourishing food as possible. . . Little stress is laid on the administration of drugs, except when necessary to relieve symptoms; but cod-liver oil, the hypophosphites and arsenic are very generally made use of."

Dr. RICHARD COLE NEWTON, of Montclair, N. J., presented

SOME PERSONAL OBSERVATIONS UPON THE EFFECTS OF CHANGES OF CLIMATE UPON MEN AND ANIMALS.

His conclusions were as follows:

(1) That the change of climate from the Rocky Mountains to the sea-board is more severe and dangerous than the reverse, especially to young children and horses.

(2) That a medium, or even high, altitude is more beneficial than otherwise to nervous diseases and the diseases of women, as well as to phthisis, and is not unfavorable to rheumatism.

(3) That in the climate of Northern Texas and New Mexico, nephritis in all forms is exceedingly rare, while aneurism is somewhat common in the latter territory.

(4) Wounds do remarkable well in all the parts of the Southwest in which I served, even in Fort Sill, which is unhealthy by reason of malaria.

(5) That the ideally healthy and satisfactory life is a nomadic one.

(6) Let us remember that "*Cælum non animum mutant qui trans mare currunt*" (Change of climate does not bring change of disposition), nor, for that matter, of predisposition. Precious and even invaluable as change of climate often is, in a number of diseased conditions, it is not always what is most needed.

Let us more often be content with smaller doses of climate, and supplement them with larger doses of hygiene, both moral and physical.

As to his observation of diseases among the Indians, Dr. Newton said he saw but little. They seemed, in the Indian Territory, quite susceptible to malaria, had learned to beg for quinine, which they took greedily. Those who could talk a little English would hold out the hand and ask for "white powder." If a small amount was poured into the palm, the applicant would say, "Heap, heap."

While campaigning, or "scouting," as it is generally termed, with Indian scouts, he had heard them coughing all night long, and was told by the officer in command that they were very subject to colds, especially after they had taken a sweat bath. Once in a while, probably every two or three months, the New Mexican Indian builds a little oven or tent of withes, and covers it with skins, until it is nearly air-tight. He then heats a number of stones, lays them upon the floor of the little oven and covers them with a blanket. He will then crawl in and lie and sweat for two or three hours, after which he will run and plunge, naked, into an ice-cold stream. This procedure often results in severe colds.

DR. J. B. WALKER, of Philadelphia, read a paper on

OIL OF TURPENTINE AS A REMEDIAL AGENT.

He dwelt especially upon its effects in catarrhal affections and as a hemostatic where the lesion was in the mucous membrane. In gastric ulcer, whether for its influence on the ulcerative process or as a hemostatic, it ranks, *par excellence*, both for efficiency and acceptability by an irritable stomach. Given in small doses, two to ten drops in water, sweetened by the oleosaccharatum anisi, each dose prepared as taken, its acrimony is avoided, and the most sensitive stomach will retain it. In catarrhs, sub-acute or chronic, whether in stomach, bowels, or bronchial tubes or urinary tract, as a stimulant, attractive, reaching every mucous membrane of the body either in its ingestion or elimination, its virtues are invaluable, modifying secretion and influencing cell nutrition. In the winter coughs of the aged and infirm, its general stimulant action is an additional advantage to its local effect.

DR. R. C. NEWTON called attention to the value of turpentine as an application to wounds and also in nose-bleed.

DR. L. D. JUDD, of Philadelphia, related the histories of

TWO REMARKABLE RECOVERIES FROM MALIGNANT DIPHTHERIA.

Calomel was used in heroic doses in both. In one of the cases, an adult woman, he gave twenty grains at the first dose and ten grains every hour for thirty-five hours when a copious dejection occurred; smaller ones had preceded, but not until 365 grains had been given did we get the characteristic action; then the calomel was stopped. She ejected from nose and mouth at intervals during the exhibition of the drug large pieces of membrane, although no gargle or spray was used. We had little hope of saving this woman up to the time she had taken fifteen doses, or 160 grains; but from that time on she steadily improved in strength and appearance.

About every three hours a mild solution of chlorate

of potash was given during the treatment. Calomel was dusted over the initial lesion on the finger, which took on a healthy action. She made a splendid recovery, was only inconvenienced for a short time from the partial paralysis of the muscles of deglutition and impairment of the sense of touch in hands and feet. These symptoms rapidly disappeared under the use of faradization; there was not the slightest evidence of ptialism or other mal-effect. The remarkable specific action of calomel in large doses was here magnificently exemplified.

DR. JOHN WINTERS BRANNAN, of New York, said he was inclined to try Dr. Judd's method of treatment at the first opportunity. During the past four years he had seen some two or three thousand cases in the Willard Parker Hospital in New York, and his experience with calomel differed in some respects from that of Dr. Judd. In the first place, Dr. Judd stated that he had found calomel an aid in the diagnosis of diphtheria because of the slowness with which it produces catharsis in that disease. In the Willard Parker Hospital, it is the routine practice to give each patient small doses of calomel, repeated every hour or two, until the bowels are well opened. The results of this treatment are all that can be desired, and they are never obliged to resort to other laxatives.

In the second place, Dr. Judd said that he had never seen any hurtful or depressing effects from the large amounts of calomel he is accustomed to give. Here, again, Dr. Brannan's experience conflicts with his. It was the custom at one time in the hospital, previous to the introduction of antitoxin, to employ calomel sublimates for the relief of laryngeal stenosis. The stenosis was often apparently relieved, but it was noted that the patients were afterwards markedly anemic. In fact, in passing through the convalescent wards, it was possible to pick out by their pallor those patients that had been subjected to fumigation. It is true that the calomel was not administered in the manner followed by Dr. Judd, but in both cases the specific effect of the drug was sought and obtained, and Dr. Brannan thought that the harmful results would also be the same.

DR. C. C. RANSOM, of New York, read a paper on the

TREATMENT OF GOUT BY NATURAL MINERAL WATERS.

He outlined the many things to be considered in the selection of a watering-place for gouty patients. As a rule, such patients are nervous and irritable, and need a pleasant environment where they can be occupied and diverted and lead an out-of-door life, while their treatment is made a pleasure rather than a drudgery. The fact must also be borne in mind that results of treatment may be obtained from the hydro-therapeutic standpoint alone, irrespective of the mineral ingredients contained in the water used. The analysis of the water is, therefore, not alone sufficient in the selection of such a place, for unless the facilities for administering the waters are adequate, and the details of the bathing procedure are carefully carried out, the treatment, instead of doing good, may be productive of serious ills. While Dr. Ransom believes thoroughly in the internal administration of mineral waters, he holds that the most valuable mineral waters in the treatment of this disease are those that are used externally in the form of baths.

It is hardly conceivable that the chemical ingredi-

ents of most natural mineral waters are held in them in sufficient quantity to produce *per se* any marked curative effects upon the economy when taken internally. This is especially true of the alkaline mineral waters, the principle of whose action is to render alkaline the blood and the secretions. While not altogether decrying the use of alkaline waters, believing that they have some value in augmenting the secretions and stimulating functional activity, yet he does not believe that they alone should be depended upon to effect a cure, but should only be used as an adjunct to the bath treatment.

Dr. Ransom's experience with the mineral baths has been especially in the use of the waters of Richfield Springs, which are sulphur waters. He says: I naturally feel that this class of waters is unsurpassed in the treatment of the gouty diathesis, and I may be justified in my opinion by the most excellent results which I have obtained from their use — results which, so far as I can learn, have not been surpassed at any springs.

Dr. I. N. DANFORTH, of Chicago, presented a paper on

RENAL DISEASES AS AFFECTED BY CLIMATE.

He said: Speaking from my own personal experience and observation in the field of renal pathology, and especially with reference to the parenchymatous and interstitial nephritis, I am convinced that the former is not infrequently a product of malarial poisoning. I have seen cases repeatedly which I felt constrained to attribute to repeated or habitual exposures to malarial effluvia, and which I could attribute to no other cause. Many of these cases gave distinct histories of repeated malarial outbreaks of a tertian or quartan type, and admitted repeated visits to localities reeking with paludal poison.

In one case I found the plasmodia of A. Laveran, together with a well-marked malarial "cachexia," decided albuminuria, hyaline and epithelial tube-casts, and edema of the feet. All these symptoms disappeared under the use of quinine (18 grains given every forenoon in three equal doses), and the patient remains well at this time, six months having elapsed. It is not impossible that many of the cases loosely attributed to the "cold and wet" may really be due to malaria. A question of great interest is how tubal nephritis is produced by malaria. A very rational explanation is that it is due to the irritant effect of the plasmodia themselves upon the renal tubules or their epithelia. But this is conjectural, as I have never had the opportunity of examining a kidney in a case of malarial nephritis.

I have not been able to collect any trustworthy evidence as to the causation of interstitial nephritis by climatic changes, although I have sought diligently for such evidence.

The curative effect of a uniformly warm, dry climate, which is free from paludal poisoning, is unquestionable. I have seen the beneficial results of a residence in Algiers, the south of France, Northern Italy, Barbadoes, and the Indian Peninsula time and again. Our own Southern States are equally beneficial in localities where the moisture is not too great, but thousands of acres of virgin soil must be subdued by cultivation, and thousands of other acres of cypress swamps must be drained before patients can be sent to our South without a careful discrimination as to time and locality. The South of Europe has been sub-

jected to hundreds of years of close and severe cultivation, so that the sources of malarial poisoning are few and far between. Our "Sunny South" needs just that treatment to render it a salubrious and curative climate for Bright's disease, except in favored localities, which have already passed through the early stages of civilization and cultivation.

Dr. D. R. BROWER, of Chicago, in a paper on

CLIMATE IN RELATION TO THE NERVOUS SYSTEM, considered, among other diseases, insanity. While some cases are very much improved by proper climatic conditions, there is some difficulty in selecting a climate for this complex condition of the nervous system, even greater than for cases of tuberculosis. As a better knowledge of insanity is being diffused throughout the profession, a greater number of cases will be treated in private houses, in the homes of physicians and in ordinary hospitals, and this will give a better opportunity to obtain the modifying influences of climate in the disorders of nutrition that have developed this special form of nervous disease. There has been in times past too great a tendency on the part of the family physician to hurry off a case of insanity to the nearest and most readily accessible insane hospital, without properly considering the relations that climate may bear to this grave disorder. In the simple form of melancholia a moderately high altitude inland, because of its stimulating and tonic properties, is of service, especially in those cases that have originated in low-level and marine climates. In the treatment of this form of insanity, as in the treatment of insanity generally, Dr. Brower often moves patients from one institution or hospital to another, if the improvement has not been satisfactory or if it has not commenced; occasionally a stationary case is urged on to improvement and to recovery by a change in locality where the equipment of the institution may not have been even as good as the one from which the case has been removed. Slight modifying conditions are sometimes sufficient to turn the tide in this subtle affection from or toward recovery.

It is unfortunate that there are so few private hospitals for the insane located in moderately high-level climates. In the incipency of these cases of mental depression there is some advantage in travel with a well-selected companion in the climates indicated, such as the White Mountains, Adirondack Mountains, the mountains of Virginia and of North Carolina. In the mountains of North Carolina the conditions are favorable not only for the summer, but for winter residence in the neighborhood of Asheville and Linville. The latter is especially a very desirable locality. The Ozark Mountains and the lower levels in the Rocky Mountains also well represent the stimulating and tonic properties of elevation. The patient may be moved with advantage from one place to another, securing thereby mental diversion and a possible relief from the constant tendency to introspection. In the agitative form of melancholia, as well as in cases of mental exaltation, better results will be had in a low-level or marine climate. The sedative and soporific effects of a lower-level or marine climate are indicated in these cases, and the coasts of Southern California, New Jersey, Long Island, Massachusetts and Maine offer many localities specially well suited to this form of insanity; fortunately, in most of these several localities there will be found

excellent private institutions for the care and treatment of insanity. The milder cases of these forms of mental disturbance may be treated successfully in these several localities with the aid of a competent nurse or a travelling companion.

At the business meeting it was

Resolved, that the Association learns with much regret that the Weather Bureau has been obliged to discontinue the publication of, and the work exemplified in its recent publication, "Climate and Health."

Resolved, that this Association would urge upon the Secretary of Agriculture and the Chief of the Weather Bureau the desirability of resuming the said publication, and that the members of the Association urge upon the members of Congress from their States to furnish an appropriation for the purpose.

Dr. Hermann Weber and Dr. Charles Theodore Williams of London, were elected honorary members.

The following officers were elected: President, Dr. E. O. Otis, of Boston; Vice Presidents, Dr. Beverley Robinson, of New York and Dr. C. F. McGahan, of Aiken, S. C.; Secretary and Treasurer, Dr. Guy Hinsdale, of Philadelphia.

Bethlehem, N. Y., was selected as the next place of meeting.

Recent Literature.

Abdominal Surgery. By J. GREIG SMITH, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary, Professor of Surgery, University College, Bristol. Fifth edition. Vols I and II. London: J. & A. Churchill. 1896.

This fifth edition of J. Greig Smith's "Abdominal Surgery" may almost be considered a new work. Some of the sections have been re-written; many have new matter introduced. There are several articles on new subjects; for example, "The Surgery of the Abdominal Parieties," "Symphyseotomy," "Subphrenic Abscess," and "Surgery of the Ureters." The previous editions of the book have become so well known that it is only necessary to say that the high standard established by the author in his first edition has been maintained, and all possible improvements have been introduced. This work is to-day one of the standard works on abdominal surgery. The large experience of Mr. J. Greig Smith has enabled him to give to the work an individuality that is sadly missed in the majority of books. A thoroughly judicial spirit, a clearness of description and an attention to detail combine to make the work invaluable to the operating surgeon.

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. ABBOTT, M.D. Third edition. Philadelphia: Lea Brothers & Co. 1895.

The popularity of this book is attested by the appearance of a third edition. It has been considerably improved by the revision of some chapters and the insertion of new drawings.

The book may be heartily recommended, both to those who have use for clear directions concerning laboratory manipulations as well as to those who wish to gain some knowledge of the chief facts of bacteriology by reading.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, JULY 29, 1897.

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THE NEW TUBERCULIN.

THE first reports of cases treated with Koch's new tuberculin (tuberculin T. R.) are not altogether encouraging.¹ Professor Schultz, of Bonn, reports on nine cases treated according to the rules laid down by Koch in his paper of April 1, 1897. In several instances the general unpleasant symptoms which followed the use of the old tuberculin were observed. In one patient laryngeal lesions developed during the treatment, and the general condition was such that it was deemed best to give up the injections. Another patient, who had been gaining previously to the administration of the tuberculin, developed intestinal symptoms, lost flesh, and wished no further treatment. Four patients went through the course of treatment unchanged in general condition. One, having dry pleurisy, improved both locally and in general condition. The remaining two were out-patients, and improved during the treatment. Professor Schlutz thinks that it would be impossible to ascribe either the improvements or the ill effects to the action of the tuberculin T. R. Time alone will show the course of the disease in the patients who have gone through the "cure."

The report from Prof. B. Fränkel's clinic at the Charité Hospital comprises 19 cases, 15 of whom had completed the course of treatment. Of the total number of cases four were cases of lupus. Only four of all the patients were found who were able to receive the treatment according to the suggestion of Koch, that is, doubling the doses of tuberculin each time the injections were given. Of the symptoms which developed in the remaining patients the fever was the most serious. There seemed to be great variation in the material furnished as regards the symptoms produced; for example, using some freshly obtained material upon six patients who had previously shown no ill effects from the injection, a whole cubic centi-

¹ Deutsche Med. Woch., No. 28, July 8, 1897.

metre of the original fluid, five out of the six reacted with severe chills and fever from 104° to 106° F. Another patient, who had completed the treatment and had not reacted either to 40 mg. of the tuberculin T. R. or to 150 mg. of the old tuberculin, reacted fourteen days later to new material, with chills and fever.

Pulse and respiration increased proportionally with the fever in all cases. Other unpleasant symptoms complained of during the treatment were headache, dulness, pains in the limbs and palpitation of the heart. No enlargement of the spleen was observed and no changes of account were observed in the number of leucocytes. The weight of the 15 patients who had completed the course of treatment varied as follows: Seven increased in weight, two remained unchanged and five lost weight, in two cases 10 pounds. Urticaria or herpes were not observed. There was no abscess developed during the treatment though some reddening or infiltration of the skin and occasional swelling of the neighboring glands was observed.

No complaint was made by either of the writers that the tuberculin was not sterile, as has been the case in some of the material furnished by Italian and American experimenters.

The most which can be made out from these incomplete reports is that with the tuberculin T. R., as furnished by the manufacturers, results cannot be obtained to correspond with the results to be expected from reading Koch's article. And this is exactly what every-one would be led to expect, for the difficulties in the way of carrying out Koch's process are manifestly so great that the slightest error or carelessness is bound to give the unpleasant results of the old tuberculin reactions. That there will come something of value from this discovery is certainly to be desired; but it seems as though a better-known and more stable compound must be determined before the material can be utilized by the general practitioner.

A RESEARCH LABORATORY FOR INDIA.

ONE of the advantages which the world at large has derived from the extension of the British Empire has been the more comprehensive study of disease in forms not ordinarily met with at home. India and the Eastern possessions in general have afforded a most valuable and prolific field for scientific research in the etiology of diseases peculiar to those races and climates. The difficulties in the way of establishing adequate centres of research have been manifold, but progress has been constant and practically uninterrupted.

A plan is now on foot and has, in fact, been agitated for some time past, to establish one or more bacteriological institutes in the East for the special investigation of Indian diseases.

In reply to the suggestion that such an institute be established in commemoration of Victoria's long reign, the following paragraph in the *British Medical Journal*, and quoted as sent through the Foreign office, occurs:

Your proposal seems well calculated to attain those ends (namely, the investigation of Indian diseases), and there could be no more fitting commemoration of Her Majesty's long and beneficent reign. Every year there is an appalling mortality from malarial fever and from cholera, typhoid fever and other zymotic diseases. Snakebite and rabies also add to the annual death-roll. During the present year there has been a visitation of bubonic plague which, in addition to destroying many thousand lives, gravely imperilled the foreign commerce of India, on which the prosperity of the country so largely depends. The best hope of combating these diseases which are the cause of much suffering and loss of life, appears to lie in the development of bacteriological and cognate researches under scientific medical guidance, and carried on with due regard to medical requirements and the interests of humanity.

It is to be hoped that any political difficulties that may stand in the way of such a project may be successfully met, and that after the establishment of the institutes sufficient funds may be forthcoming to prosecute continuously the work undertaken. In that case, there can be no doubt that many matters of much scientific importance would meet the careful study they demand.

THE BACILLUS ICTEROIDES.

THE Legislature of Uruguay has bestowed upon Prof. Giuseppe Sanarelli, Director of the Institute of Experimental Hygiene of the University of Montevideo, the discoverer of the bacillus icteroïdes, the latest specific micro-organism of yellow fever, the honorary citizenship of Uruguay and a donation of ten thousand pesos in recognition of his distinguished contribution to science. At the same time the legislature records its regret that "the unhappy condition of the country does not admit of its doing more to evince its gratitude to a physician and nature-student who has already laid those regions under so many obligations."

Heat, moisture, darkness, want of ventilation, are favorable to the preservation of the bacillus of icteroïdes, as they are to that of most micro-organisms, but the common moulds of the atmosphere constitute the great protectors of this bacillus and explain its development and tenacity of life on board of certain vessels. Sanarelli has experimented with six species of moulds isolated at haphazard from the atmosphere of his laboratory; and all of these showed themselves capable, though in different degrees, of favoring the revivification and multiplication of his bacillus. He suggests the possibility of the existence, especially in localities where yellow fever is prevalent, of some mould hitherto unknown and endowed with truly specific and much greater favoring power.

He entertains a "well-founded" faith that it will soon be possible to apply to man a specific preventive and curative treatment of yellow fever. What he has done is of much interest. We most earnestly hope that his conclusions may be confirmed, and that his expectations of practical results to humanity will be speedily realized.

There are, of course, some of our fellow-citizens who will be greatly shocked that dogs and horses should have been inconvenienced in the course of these investigations; but even this may perhaps be forgiven

should a means result with which to check or to prevent a repetition of those outbreaks of yellow fever by which certain cities have in the past been devastated.

MEDICAL NOTES.

A JOHNS HOPKINS UNIVERSITY APPOINTMENT.—The trustees of the Johns Hopkins University have appointed Dr. John M. T. Finney to be associate professor of surgery.

APPOINTMENT.—The College of Physicians and Surgeons, Chicago—the Medical Department of the University of Illinois—has chosen A. H. Burr, M.D., adjunct professor of practice of medicine.

DR. C. THEODORE WILLIAMS has been requested to represent the University of Oxford at the International Medical Congress which will commence at Moscow on August 19th, and has accepted the nomination.

THE HULL BIOLOGICAL LABORATORIES.—The Hull Biological Laboratories of the University of Chicago were formally dedicated on the 2d inst. The address was made by Professor William H. Welch of Johns Hopkins University. The subject was "Biology and Medicine."

THE EFFECT OF CIVIL-SERVICE EXAMINATIONS.—It is stated that eighteen women who were recently examined under Governor Black's new civil-service scheme have suffered from nervous prostration as a result of the excitement attending the examination. The examinations were conducted on the question of the applicants' "fitness" for the positions they sought to occupy. If such is to be the general result of the new system, there can be no question that the scheme must be regarded a failure. It is, to say the least, unfortunate, that any new source of nervous break-down, which is not absolutely necessary, should be forced upon our public servants.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, July 28, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 25, scarlet fever 14, measles 16, typhoid fever 8.

AN ACT TO PROHIBIT THE USE OF POISONOUS SUBSTANCES IN THE PRACTICE OF DENTISTRY.—The next General Court of Massachusetts may be asked to pass the following bill:

SECTION 1. The use of any of the amalgams of mercury as a filling for dental cavities, or the use of red or pink rubber plates which contain mercury or any of its compounds, is hereby prohibited.

SECT. 2. Any dentist who shall violate the provisions of this act shall be punished by a fine of not less than fifty nor more than one hundred dollars, or by confinement for a period of three months in the county jail, or both, for each and every offence.

NEW YORK.

A PHENOMENAL APPETITE.—The following newspaper despatch from Burlington, N. J., July 17th,

would seem to break the record: "For some time past the appetite of Peter Cunningham, an employee of Shedaker's farm, had been enormous. He ate more than all the rest of the hired men and family, and his hunger could not be appeased. On Monday Dr. Stowell was summoned. He went to work, and yesterday, according to Cunningham and the doctor, the former was relieved of fifty-one small frogs and a worm forty-five feet in length. Both Cunningham and the doctor say they have made no mistake in the number of frogs and the size of the worm."

DEATH OF DR. WILLIAM M. THURMAN.—Dr. William M. Thurman, a well-known practitioner of New York, died at his residence in that city on July 21st. He was a graduate of the College of Physicians and Surgeons, New York, in 1864. Dr. Thurman was for many years identified with the St. John's Guild, and was among the organizers of its Floating Hospital and Seaside Hospital projects.

MIDSUMMER MORTALITY IN NEW YORK.—The midsummer mortality in the city is not at all excessive this season. During the week ending July 24th there were reported 920 deaths, a falling off of over 50 from the preceding week. There was no death from sunstroke, while in the week previous there were 14 from this cause. There was one death from small-pox, as in the week ending July 17th. There were 51 deaths from pneumonia against 35 in the previous week, the smallest mortality from this disease for about two years. The mortality among infants is naturally large at this period of the year, and of the 920 deaths, 516 were in children under five years of age.

Miscellany.

THE BICYCLE AGAIN.

THERE is still doubt in some quarters of the value of the bicycle as a means of promoting health. The *New York Medical Record* for July 17th discusses the matter editorially, apropos of an article on "The Hidden Dangers of Cycling," by Dr. Shadwell, who has previously written on the same subject. His view is a gloomy one, and would tend to consign the bicycle once and for all to disuse, at least so far as women riders are concerned.

No doubt a difference of opinion on the subject is still and always will be justified; but it will require many more statistics than are yet available to persuade either the medical or the general public that the disadvantages of wheeling outweigh its manifold and evident advantages. Individual cases must certainly be judged on their merits; and common-sense here, as in all other matters, must determine the point beyond which riding ceases to be an advantage. That its value is decided in many cases, no one with experience will now deny; that it is an abused form of exercise among some of its devotees every one is willing to admit; but no further generalization seems at present possible.

The writer in the *Medical Record* makes the dogmatic statement that "Any valvular disease should be an absolute bar to cycling, as the heart is the organ

principally exercised." This is undoubtedly a very safe position to take. At the same time it is rather amusing to turn to another journal, the *Deutsche Medicinische Wochenschrift*, and find that Dr. Siegfried, of Berlin-Bad Naubeim, reports a number of cases where the bicycle was used as the method of cure: in one patient we find the statement "arterio-sclerosis, marked arrhythmia cordis"; and in another, "cardiac insufficiency." Of course, Dr. Siegfried makes his patients understand that it is "curgymnastik, aber keinen sport." We ourselves know of a physician who is blessed with a double aortic murmur, and yet does the travelling necessary to a large practice on his wheel and has done so for several years past.

The *Record* sums up the matter well in the following paragraph:

The fact that there are dangers connected with cycling cannot be denied; these, however, are not hidden ones, but are more or less palpable to every observer. It may be said that there is danger in teaching the practice to the quite young. Properly, cycling should not be carried on to any extent while the body is undergoing development. Any valvular disease should be an absolute bar to cycling, as the heart is the organ principally exercised. Acute inflammation of the genital organs should forbid the use of the machine to women, although the exercise is often beneficial in chronic cases of uterine disease. The question finally resolves itself into one of moderation or excess, and the personal equation in this respect is variable. A healthy man may be able to do one hundred or one hundred and fifty miles without exerting himself; while another, to all appearances equally healthy, should not do more than forty or fifty. Cyclists are too apt to be carried away by the spirit of emulation, and when they do so with riders of a superior capacity they must expect to suffer. Each cyclist should be a judge of his or her own capacity.

In any case it is certain that, for good or ill, the bicycle has come to stay.

AN EFFORT TO CORRECT MEDICAL CHARITY ABUSES.

THE *Journal of the American Medical Association* prints the following:

"The medical profession in New York City has determined to make a united effort to correct the medical charity abuses, and for that purpose a joint committee composed of two representatives of each of the following societies have met and organized, namely, the New York County Medical Association, the New York County Medical Society, the New York Medical League and the Society for the Advancement of Medical Practice. The committee will sit through the summer, prepare plans and data, appeal to all the medical societies of the State for sympathy and aid, and have ready for presentation to the Legislature when it convenes next winter a bill meeting with the approval of the entire medical profession. We are pleased to see such harmony exist, and believe that by the united efforts of the various medical bodies throughout the State, the crying abuses can and must be corrected. The bill offered last year obtained the unanimous support of Senate and Assembly and only failed of becoming a law by the neglect of the Executive giving it sanction. Our best wishes are for the success of our brothers in New York, and we are sure that the whole profession in the republic gives them its moral support."

Correspondence.

THE PEOPLE OF THE STATE OF COLORADO ON RELATION OF FRANK JEROME vs. THE REGENTS OF THE UNIVERSITY OF COLORADO.

DENVER, COL., July 17, 1897.

MR. EDITOR:—This case, decided by the Supreme Court of the State of Colorado in an opinion written by Mr. Justice Campbell, and filed June 1, 1897, involves points of such interest to the medical profession, that I take the liberty of rehearsing some of the principal points and so calling it to the attention of the profession in a way that I have not seen done as yet.

The main issue was as to whether the Regents of the University of Colorado had a right to conduct the last two years of the medical course at Denver. To set forth the condition and the facts somewhat briefly, the University of Colorado was created by an Act of the Territorial Legislature, approved November 7, 1861. Article 2, Section 1, of said Act declares that "an institution of learning is hereby created, authorized, established and instituted at the City of Boulder, in the territory of Colorado." Section 12 of this same Act further declares that "said University shall be located at the City of Boulder." When Colorado was admitted as a State, and the work of education was being carried on by the trustees in the exercise of the authority conferred by the said Act, and while these provisions of the law were in full force, this institution was expressly adopted and declared to be a State institution and its location was specifically confirmed. Later on, the Supreme Court of the State (9th Colorado, page 626), held that the "location of the agricultural college and certain other institutions having been fixed by the Constitution, such locations cannot be changed except by the Amendment of the Constitution." A further section of the Act (Section 12, Article 9, of the Constitution) creates the office of the Regents of the University (Section 4,593) and provides that "the Board of Regents shall have the general supervision of the University, and the exclusive control and direction of all funds and appropriations for the University." Section 4,395 provides that "the University shall include a clinical, philosophical, normal, scientific, law and such other departments, with such course of instruction and elective studies, as the Board of Regents may determine, and a department of the physical sciences, and the Board shall have authority to confer such degrees and grant such diplomas and other marks of distinction as are usually conferred and granted by other Universities; and the Board of Regents is authorized and required to establish a preparatory department, which shall be under the control of said Board of Regents, as are the other departments of the University."

The italics are mine, and are intended to call attention to the fact that the Regents were only required to establish a preparatory department, and that there was no compulsion making it necessary for them to establish a medical department.

On the 5th of May, 1883, "it was agreed to establish and organize a Medical Department to the State University," and in pursuance of this resolution, the Medical Department opened for work in the fall of 1893, all of the instruction being given on the University grounds. All instruction was given there until 1892, when the Regents voted unanimously "that the Medical Faculty may conduct their lectures in Denver for said two years," (that is, the last two years of the three years' course), with the understanding "that the appropriation heretofore granted to the Medical Department shall not on that account be increased, and this resolution is with the further understanding that all graduating exercises shall be held at the University proper, and that the instruction for the first year of the course shall be given at the University; that this resolution shall remain in force until satisfactory clinical advantages can be had at the University." To

this end a building was rented, a free dispensary opened, and lectures given, by the Medical Department of the University of Colorado at Denver: the graduating exercises being held, degrees conferred, business office kept and the entire first-year course conducted at Boulder.

At this time there were already two medical schools in existence in Denver, depending on their tuition fees for their support, so that the coming of the State school, backed by the State's finances, and offering tuition free, or at a nominal fee, meant extinction or, at the best, a serious crippling. At this point the Attorney-General (Populist) of the State was appealed to; and he gave it as his opinion that there was no violation of the law in the conduct of the Regents of the State University. Then the District-Attorney for the County of Arapahoe was appealed to, and he refused to bring action. Then Mr. Frank Jerome, a citizen of the State of ten years' standing, and a resident of and a free-holder and tax-payer in the City of Denver, brought suit. The case was argued before the Judge of the District Court, and decided in favor of the Regents of the State University on the broad ground of expediency. The case was then carried to the Supreme Court, and it was advanced on the docket on the grounds that "the determination of a constitutional question is necessary to the decision of the controversy." It was contended by the Regents that Mr. Jerome had no right to bring suit, to which the Court replied that as the District Court "permitted the relator to file his complaint, at least, we must assume that such permission was given from its conduct of the case. No objection was made by the defendant in any form, either by motion, demurrer or answer, to the right of the relator either to bring or prosecute the proceeding." And it furthermore said, "unless, therefore, the proceeding may be maintained by a private party, it will be readily seen that there might be a miscarriage of justice, for if the Attorney-General, with the inconsistent duties imposed upon him by law, of representing both parties to the controversy, should conclude to act in the double capacity, or for any reason concede that the Regents should not be disturbed, there would be no practical way of correcting the wrong, however flagrant might be the conduct of which the Regents were guilty." As regards the principal question, the Court said "we do not find much difficulty in its determination," and further said "that the conducting of the last two years of the course in Denver is practically a removal of the Medical Department from Boulder scarcely admits of a reasonable doubt," and said still further "to run the school at Boulder, while the real work of the University in any of its integral parts is done elsewhere, could be an evasion of the letter and spirit of the statutes of the Constitution." It went on still further to say that the supervision of the Regents "must relate to, and be confined to the University, and all its departments, as located at Boulder and not elsewhere." The judgment of the District Court was reversed, and the "cause remanded, with instructions to grant the right prayed for by the relator excluding the defendant corporation from exercising the franchise of teaching medicine at Denver."


In accordance with this decision, the Regents are obliged to conduct their Medical Department, if they conduct one at all, at the City of Boulder. It is claimed that they are precluded from doing this properly, on the ground that Boulder does not offer sufficient clinical material. It will be seen that in 1850, when the Medical Department of the University of Michigan was established at Ann Arbor, the size of that city was 4,868, and of the State 397,654, and yet they had 95 students in medicine; and that in 1890, shortly before the second and third years of the medical course of the University of Colorado were moved to Denver, the population of Boulder was 3,300, and that of Colorado 412,198 (the conditions being about the same as existed at Ann Arbor in 1850); and that in 1890 the population of Ann Arbor was only 9,431, while the University had 375 students in medicine.

Very truly yours,

SAMUEL A. FISK, M.D.

METEOROLOGICAL RECORD

For the week ending July 17th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direcion of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
					8.00 A. M.	8.00 P. M.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S. . . 11	29.84	67	75	59	97	87	92	E.	S.W.	7	12	R.	O.	.07
M. . . 12	29.73	79	86	72	79	89	84	S.W.	S.	16	12	O.	C.	—
T. . . 13	29.80	76	81	71	87	91	89	S.	S.	24	16	O.	R.	.29
W. . . 14	29.81	74	77	70	78	86	82	S.	S.W.	42	13	O.	C.	.18
T. . . 15	30.04	76	85	66	73	76	74	S.W.	S.W.	6	10	C.	C.	—
F. . . 16	30.12	75	85	65	64	62	63	W.	S.W.	5	15	C.	C.	—
S. . . 17	30.18	78	88	68	66	83	72	N.W.	W.	3	6	C.	F.	—
	29.93	82	67	—	—	79	—	—	—	—	—	—	—	.54

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 17, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,868,060	977	534	32.40	10.50	24.70	.80	2.90	
Chicago . . .	1,619,226	981	246	40.32	7.56	35.07	1.47	1.47	
Philadelphia . . .	1,214,256	628	270	29.44	8.34	13.74	.95	2.85	
Brooklyn . . .	1,160,000	600	582	39.78	7.31	35.53	—	2.04	
St. Louis . . .	570,000	227	96	8.89	4.84	7.48	—	—	
Baltimore . . .	550,000	246	141	39.36	6.97	35.67	2.05	.82	
Boston . . .	517,732	181	62	17.60	11.55	7.70	1.10	3.30	
Cincinnati . . .	405,000	142	—	19.60	7.00	11.20	4.20	.70	
Cleveland . . .	350,000	134	83	31.08	3.70	29.60	1.48	—	
Pittsburg . . .	285,000	102	67	56.43	1.98	49.50	1.98	—	
Washington . . .	277,000	122	58	26.24	12.30	18.04	2.46	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Worcester . . .	105,050	36	15	33.24	5.54	27.70	—	5.54	
Fall River . . .	96,919	76	61	60.26	2.62	58.95	—	2.62	
Nashville . . .	87,764	32	7	6.26	34.43	6.26	—	—	
Lowell . . .	87,133	39	21	43.62	5.12	38.40	2.56	—	
Cambridge . . .	86,812	28	17	35.70	3.57	28.56	—	3.57	
Charleston . . .	65,165	—	—	—	—	—	—	—	
Lynn . . .	65,220	11	2	9.09	18.18	—	—	9.09	
New Bedford . . .	62,416	47	35	43.52	6.12	38.40	—	4.26	
Lawrence . . .	65,510	37	21	40.50	10.80	40.50	—	—	
Springfield . . .	54,790	20	8	25.00	15.00	20.00	—	5.00	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	8	3	—	12.50	—	—	—	
Brookton . . .	35,853	9	5	—	11.11	—	—	—	
Malden . . .	32,894	5	2	40.00	—	—	—	20.00	
Chelsea . . .	32,716	7	3	14.28	14.28	—	—	14.28	
Haverhill . . .	31,405	11	2	36.36	9.09	9.09	9.09	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	—	—	—	—	—	—	—	
Fitchburg . . .	28,392	8	2	12.50	25.00	—	—	12.50	
Taunton . . .	27,812	10	5	20.00	—	—	—	—	
Quincy . . .	22,562	5	3	20.00	20.00	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	3	0	—	33.33	—	—	—	
Everett . . .	21,575	3	1	33.33	—	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	1	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 4,221: under five years of age 2,196; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fever) 1,370, diarrheal diseases 1,130, consumption 339, acute lung diseases 184, diphtheria and croup 85, typhoid fever 42, whooping-cough 41, scarlet fever 26, measles 20, cerebro-spinal meningitis 20, erysipelas 5, small-pox 1.

From whooping-cough New York 8, Washington 7, Chicago 5, Philadelphia, Brooklyn and Cincinnati 4 each, St. Louis and Pittsburg 3 each, Boston, Cambridge and Woburn 1 each. From scarlet fever New York 11, Philadelphia 4, Boston, Haverhill and Taunton 2 each, Chicago, Brooklyn, Baltimore, New Bedford and Somerville 1 each. From measles New York 10, Brooklyn

4, Chicago 2, Cincinnati, Pittsburg, Providence and Fall River 1 each. From cerebro-spinal meningitis New York 9, Boston 5, Baltimore, Lowell, Somerville, Malden, Quincy and Everett 1 each. From erysipelas Philadelphia and Boston 2 each, New York 1. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending July 10th, the death-rate was 15.1. Deaths reported 3,192; acute diseases of the respiratory organs (London) 116, diarrhea 170, measles 143, whooping-cough 75, diphtheria 59, scarlet fever 33, fever 24.

The death-rates ranged from 7.3 in Croydon to 23.1 in Preston; Birmingham 16.4, Bolton 14.6, Bradford 13.8, Hull 15.3, Leeds 11.8, Leicester 11.3, Liverpool 20.0, London 15.1, Manchester 18.7, Newcastle-on-Tyne 14.9, Portsmouth 12.9, Sheffield 15.3, Sunderland 14.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 17, 1897, TO JULY 23, 1897.

Leave of absence for two months and ten days, to take effect upon being relieved from temporary duty at the Soldiers' Home near Washington, D. C., is granted CAPTAIN CHARLES M. GANDY, assistant surgeon, who will, upon the expiration of leave of absence, report for duty at Fort Mason, Cal.

CAPTAIN GEORGE MCCREERY, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits at Boston, Mass., and ordered to report for temporary duty at the Soldiers' Home near Washington, D. C., relieving CAPTAIN CHARLES M. GANDY, assistant surgeon.

So much of the order as directs FIRST-LIEUT. HENRY R. STILES, assistant surgeon, to report for duty, is amended, so as to direct him to report for duty at Fort Preble, Me., relieving CAPTAIN HENRY S. T. HARRIS, assistant surgeon.

The extension of leave of absence granted CAPTAIN ROBERT R. BALL, assistant surgeon, Fort Adams, R. I., is extended until October 15, 1897.

So much of paragraph 16, S. O. 162, A. G. O., July 16, 1897, as relates to the officers hereinafter named, is amended to read as follows:

CAPTAIN FRANK R. KEEFER, assistant surgeon, is relieved from duty at Washington Barracks, D. C., to take effect upon expiration of his present leave, and ordered to Fort Walla Walla, Wash., for duty.

CAPTAIN WILLIAM D. CROSBY, assistant surgeon, upon being relieved from duty at Fort Missoula, Mon., is ordered to Fort Sam Houston, Tex., for duty.

FIRST-LIEUT. ALEXANDER H. STARK, assistant surgeon, upon arrival of CAPTAIN CROSBY at Fort Sam Houston, Tex., is ordered to Washington Barracks, D. C., for duty.

CAPTAIN HENRY S. T. HARRIS, assistant surgeon, upon being relieved from duty at Fort Preble, Me., by FIRST-LIEUT. HENRY R. STILES, assistant surgeon, is ordered to Fort Washakie, Wyo., for duty, relieving CAPTAIN JOSEPH T. CLARK, assistant surgeon.

The leave of absence granted on surgeon's certificate of disability, to MAJOR WILLIAM C. SHANNON, surgeon, Jackson Barracks, La., is extended three months, on surgeon's certificate of disability.

CAPTAIN FRANK R. KEEFER, assistant surgeon, is relieved from duty at Washington Barracks, D. C., to take effect upon the expiration of his present leave of absence and ordered to Fort Sam Houston, Tex., for duty.

FIRST-LIEUT. ALEXANDER N. STARK, assistant surgeon, upon the arrival of CAPTAIN KEEFER at Fort Sam Houston, is relieved from duty at that post and ordered to Washington Barracks, D. C., for duty.

CAPTAIN CHARLES M. GANDY, assistant surgeon, upon the arrival of FIRST-LIEUT. STARK at Washington Barracks, is relieved from duty at that post and ordered to Fort Mason, Cal., relieving CAPTAIN GEORGE M. WELLS, assistant surgeon.

CAPTAIN WELLS, on being thus relieved, ordered to Fort Ringgold, Tex., for duty.

CAPTAIN HENRY S. T. HARRIS, assistant surgeon, on being relieved at Fort Preble, Me., is ordered to Fort Washakie, Wyo., relieving CAPTAIN JOSEPH T. CLARKE, assistant surgeon.

CAPTAIN CLARKE, on being thus relieved, is ordered to Columbus Barracks, O.

FIRST-LIEUT. WILLIAM E. RICHARDS, assistant surgeon, is relieved from duty at Fort Grant, Ariz., and ordered to report September 20, 1897, for duty at Fort Apache, Ariz.

FIRST-LIEUT. WILLIAM F. LEWIS, assistant surgeon, upon the arrival of FIRST-LIEUT. RICHARDS at Fort Apache, Ariz., is ordered to Fort McPherson, Ga., for duty.

CAPTAIN WALTER D. MCCAW, assistant surgeon, upon the arrival of CAPTAIN WELLS at Fort Ringgold, Tex., is relieved

from duty at that post and ordered to Fort Thomas, Ky., for duty.

FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, is relieved from duty at Fort Thomas, Ky., and ordered to Army and Navy General Hospital, Hot Springs, Ark., for temporary duty at that hospital.

CAPTAIN MARLBOROUGH C. WYETH, assistant surgeon, upon the arrival of FIRST-LIEUT. LEWIS at Fort McPherson, Ga., will take station at Baltimore, Md., and assume the duties of attending surgeon and examiner of recruits, relieving CAPTAIN W. FITZHUGH CARTER, assistant surgeon.

CAPTAIN CARTER, will report October 4, 1897, for examination as to his fitness for examination for promotion, and upon completion thereof, ordered to Fort Assiniboine, Mon., relieving CAPTAIN GEORGE E. BUSHNELL, assistant surgeon.

CAPTAIN BUSHNELL, upon being thus relieved, ordered to take station at Boston, Mass., and assume duties of attending surgeon and examiner of recruits.

CAPTAIN WILLIAM H. ARTHUR, assistant surgeon, will be relieved from duty at Fort Myer, Va., on October 1, 1897, and ordered to Philadelphia, Pa., and assume duties of attending surgeon and examiner of recruits, relieving CAPTAIN RUDOLPH G. EBERT, assistant surgeon.

CAPTAIN EBERT, upon being thus relieved, ordered to report October 4, 1897, for examination for promotion, and upon completion thereof, ordered to take station at Fort Missoula, Mon., relieving CAPTAIN WILLIAM D. CROSBY, assistant surgeon.

CAPTAIN CROSBY, on being thus relieved, is ordered to Fort Preble, Me., for duty, relieving CAPTAIN HENRY S. T. HARRIS, assistant surgeon.

MAJOR PAUL R. BROWN, surgeon, Fort Hamilton, N. Y., ordered to report to COLONEL CHARLES C. BYRNE, assistant surgeon-general, president of the Army Retiring Board, appointed to meet at Fort Columbus, N. Y., for examination by the board.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 17, 1897.

C. G. HERNDON, surgeon, ordered to special duty at Naval Reudzevous, Duluth, Minn., July 19th.

S. B. PALMER, assistant surgeon, detached from the "Texas," and ordered to the "Annapolis," July 20th.

F. L. PLEADWELL, assistant surgeon, detached from the "Constellation," July 17th, and ordered to the "Texas," July 20th.

G. B. WILSON, passed assistant surgeon, ordered to the "Constellation."

SOCIETY NOTICE.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—Meeting at Louisville, October 5-8, 1897. The Executive Committee met recently at Louisville, in conjunction with the Local Committee of Arrangements, the following being present: Drs. Stucky, Grant, Mathews, Love, Holloway and Reynolds. The railroads will make a round-trip rate of one and a third fare. The Address on Surgery will be delivered by Dr. J. B. Murphy, Chicago; the Address on Medicine by Dr. John V. Shoemaker, Philadelphia. Titles of papers should be sent to Dr. H. W. Loeb, Secretary, St. Louis, Mo.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Alcoholism. By J. M. French, M.D., Milford, Mass. Reprint. 1897.

Bullet-Wounds of the Abdomen. By W. E. Parker, M.D., New Orleans. Reprint. 1896.

Original Methods for Detecting and Measuring Abduction and Adduction of the Thigh. By Phil Hoffmann, M.D., of St. Louis, Mo. Reprint. 1897.

Lesions of the Retinal Vessels, Retina and Optic Nerve, Associated with Gout. By Charles Stedman Bull, A.M., M.D. (Columbia), of New York. Reprint. 1897.

Spontaneous Rupture of the Aorta Exclusive of Ruptured Aneurisms; with an Analysis of Fifty Cases. By Delano Ames, A.B., M.D., and W. Guy Townsend, M.D., Baltimore. Reprint. 1897.

The Hygienic, Educational and Symptomatic Treatment of Pulmonary Tuberculosis, with a Plea for Sanatoriums for the Poor. By S. A. Knopf, M.D. (Paris and Bell, N. Y.), New York. Reprint. 1897.

The Standard of Medical Education. The Address of the Retiring President of the Association of American Medical Colleges, Philadelphia. By J. M. Bodine, M.D. Reprint. 1897.

Original Articles.

THE TUBERCULIN TEST IN TEN CASES OF ACUTE PLEURISY.

BY GEORGE G. SEARS, M.D.,
Assistant Visiting Physician, Boston City Hospital.

THAT the interest in the rôle played by the tubercle bacillus in the etiology of acute pleurisy is by no means waning is shown by the frequent appearance of papers on this subject in periodical medical literature; but the methods adopted to determine the proportion of such cases are open to the objection that they are either inconclusive or too complicated for general clinical use. These objections are only partially applicable to the employment of tuberculin, which furnishes a simple and, within certain limits, an accurate means of diagnosis. In the cases which follow, the usual initial dose was one milligramme, a larger amount being given a few days later if no reaction followed. The absence in most instances of any marked constitutional disturbance was undoubtedly due to the small size of the dose, which was selected with a view of limiting the reaction to a rise in temperature and escaping the disagreeable symptoms which are apt to follow the administration of larger amounts, as well as the possibility of waking into activity some latent tubercular focus. These ten cases have been taken as they presented themselves in the ordinary course of clinical work without thought of selection, and while the number is small the results are perhaps sufficiently striking to warrant a brief report. They may be summarized as follows:

CASE I. M. D., age thirty, hostler. Admitted to the City Hospital, June 11, 1896. No phthisical family history. He has always been well up to eight days ago when he began to complain of a "stitch" in both sides, more severe in the right, which disappeared after a few days. This was followed by vomiting, chilly sensations, considerable cough and dyspnea. Physical examination showed flatness on percussion on the right side from the second rib in front and from the spine of the scapula behind. The heart was slightly displaced to the left. The temperature on entrance was 103.2° F., but fell gradually, and remained normal after July 5th.

June 12th. Aspirated, and 84 ounces of sterile serum were withdrawn.

June 26th. For the past ten days has been growing hoarse, and can now scarcely speak above a whisper. Examination of the larynx by Dr. Farlow showed "slight intra-arytenoid thickening, dusky redness of right cord with mobility less free on that side, no ulceration, no infiltration of the epiglottis." On July 6th he was given one milligramme of tuberculin at 8 P.M. At 1 P.M. on the following day his temperature rose to 101.2° F. Constitutional symptoms were very slight.

July 27. A slight deposit still remains at the right base. Voice has improved. Discharged.

CASE II. D. C., age thirty-five, laborer. Admitted June 16th. Family history negative. Always well up to eight days ago, when he began to complain of pain in left axilla, which was followed by a short dry cough and loss of appetite. He felt feverish at night, but kept at work up to two days ago. Examination gave the characteristic signs of a left pleural effusion extending up to the third interspace in front and the spine of the scapula behind. The temperature on en-

trance was 100° F. and during the following ten days it ran a somewhat irregular course, never, however, rising above that figure.

June 19th. Aspirated, and five pints of clear serum withdrawn.

June 20th. At 6 P.M., one milligramme of tuberculin was injected, and at one o'clock on the following morning the temperature rose to 101.5° F. No constitutional disturbance was noted.

July 3d. Dulness and diminished respiration and fremitus still remains at the base. Discharged.

CASE III. J. M., age six. Admitted June 16th. Family history negative. Four days ago began to complain of pain in the epigastrium and at the right costal border, accompanied by headache, restlessness, a short cough and dyspnea. The left chest was flat throughout, and the right border of the heart was displaced a little outside the right nipple. He was immediately aspirated, and a quart of sterile serum withdrawn. The temperature, which was 103° F. on entrance, returned to normal nine days later.

July 6th. At 8 P.M., .0004 gm. of tuberculin was given; on the following day at 1 P.M., the temperature rose to 103° . This was accompanied by slight flushing, but there were no subjective symptoms. He was discharged a week later. The left side was slightly retracted, but the heart had returned to its normal place and respiration could be heard to the base.

CASE IV. D. R., age fifty-five, ragpicker. Admitted July 17th. Negative family history. Six weeks ago was attacked by sharp, shooting pains in the right side, which were followed by cough and some dyspnea on exertion. He has not, however, felt ill enough to go to bed. Examination showed an effusion in the right pleura extending to the middle of the scapula behind and the fourth interspace in front. The temperature on entrance was 99.6° F. but later it remained within practically normal limits. No bacilli were found in the sputum.

One milligramme of tuberculin was injected at 6 P.M., July 23d; and on the following day at 5 P.M., his temperature rose to 102.4° .

August 7th. Fair respiration and resonance extend nearly to the base of the chest. Discharged.

CASE V. M. M., age thirty-two, laborer. Admitted August 4th. Family history negative. Has always been strong, but has lately been subject to a winter cough. Two years ago had "chaneroids." Three weeks ago, after exposure, he had a sudden severe pain in the right side, which was increased by coughing or drawing a long breath. He became thirsty and feverish, and had to give up work. For the past week he has had diarrhea. The physical signs were a counterpart of the preceding case. No evidence of syphilis was found. The temperature on entrance was 100° , but it rapidly returned to normal and remained there.

August 12th. Tuberculin (.001 gm.) was injected at 6 P.M. At 1 P.M. on the following day, the temperature had risen to 102° , and at 5 to 103° . The pulse and respiration were both accelerated, and there was some general discomfort.

August 19th. Slight dulness still remains over the lower portion of the right lung, but fremitus and respiration are present to the base. Discharged.

CASE VI. B. M., age fourteen. She was admitted August 6th. Mother is now ill with consumption.

Has never been very strong, and for about a month has been losing strength and flesh. Two weeks ago slept in a draft, and on the next day she began to complain of pain in the right side, which was increased by breathing and accompanied by cough with a little expectoration. The patient was a pale, poorly nourished, rather phthisical-looking girl. The heart was displaced to the left, and the right chest was completely filled with fluid. The temperature on entrance was 102.2° , and it remained somewhat irregularly elevated up to the 26th.

August 20th. One milligramme of tuberculin was injected, and in the following afternoon the temperature rose to 101° , which was slightly higher than usual; but it was probably a coincidence, as three milligrammes three days later had no appreciable effect.

August 31st. Considerable dulness still remains at the base, and fremitus is still absent, but respiration can be heard to the bottom of the chest. The temperature has been normal for five days, and patient feels much better. Discharged at own request.

CASE VII. J. B., age twenty-six, carpenter. Admitted August 9th. Two sisters died of pneumonia. Patient probably had syphilis several years ago. Has not felt as well as usual for the past year, probably attributable to alcohol, as he has been drinking hard. Two days ago, while in bathing, was very nearly drowned and felt much exhausted after being rescued. The following day he was taken with a severe pain in the right axillary region, followed by nausea, vomiting and dyspnea. On entrance marked friction was heard over the lower right front, which was later replaced by signs of effusion occupying the lower half of the right chest. The temperature remained elevated, (highest point 101.5°) for about three weeks. Tubercle bacilli were not found.

September 2d. A rise of one degree followed the injection of .001 gramme tuberculin.

September 6th. At 7 p. m., .005 gm.; at noon on the next day the temperature had risen to 102° , and patient felt so ill that he went to bed.

September 11th. Except for slight dulness, the signs have all disappeared. Discharged.

CASE VIII. P. M., age twenty-one, laborer. Admitted August 29th. Family history not known. Always well up to three weeks ago, when he began to feel poorly owing to pain in the right chest, cough, dyspnea and headache; but he managed to keep at work up to a week ago. The whole right chest was dull on percussion. The voice, the vocal resonance and the respiration diminished downward, and were lost toward the base. A coarse, leathery friction sound was heard over the upper portion of the front as low as the sixth rib, and also in the lower axilla and in the back. The temperature on entrance was 101.4° ; and it ran a somewhat irregular course during his stay in the hospital, never, however, exceeding 100° .

September 6th. Twenty-five ounces of bloody fluid were withdrawn by aspiration.

September 5th and 7th. Tuberculin (.001 gm.) was given, with no appreciable effect; but .005 gm. given on the 8th caused a rise of temperature to 102.4° within eleven hours. Constitutional disturbance was not marked.

September 11th. Signs of a slight deposit at the right base still remain. Discharged.

CASE IX. H. N., age thirty-six, washerwoman. Entered December 29th. One sister died of "lung trouble." Has always been well up to ten days ago, when she had a chill, with sharp pain in the left side. The expectoration was bloody for the first three or four days. The left chest was dull over its lower two-thirds, with faint bronchial respiration and diminished to absent fremitus. The heart was considerably displaced. The temperature was 102° , returning to normal by lysis on January 6th.

January 8th. Tuberculin (.003 gm.). On the following evening the temperature rose to 101.5° .

January 14th. Tuberculin (.005 gm.) in the morning. At 1 a. m. the following morning the temperature rose to 102.4° . Constitutional symptoms were slight.

February 3d. The signs at the left base have almost disappeared. Discharged.

CASE X. M. L., age eighteen, milliner. Admitted January 13, 1897. One brother died of consumption. Three weeks ago she "caught cold," and began to complain of pain in the lower portion of the left chest in front. She became somewhat feverish, and after a few days began to cough; but she kept at work up to four days ago, when she was obliged to give up, owing to the increasing dyspnea. The left chest was dull throughout, and flat from the second rib in front and from an inch below the spine of the scapula behind. The heart was displaced nearly to the right nipple. The temperature remained elevated for the first two weeks of her stay.

January 17th. Aspirated, and one pint of clear serum withdrawn.

January 29th. Three milligrammes of tuberculin were injected, and within four hours the temperature rose to 104° . Constitutional symptoms were very marked.

February 8th. A slight deposit still remains at the base. Discharged.

Of these ten cases one-half at least had no hereditary taint, and eight were in their normal state of health when they were suddenly attacked by the disease without discoverable cause other than a possible exposure to cold or wet. Of the remaining two the history in one of bloody expectoration suggests the probability that the pleurisy was secondary to pneumonia, while in the second the association with a consumptive mother and the gradual loss of strength and weight during the previous month gave ample ground for suspecting a tubercular infection; yet in every case but the latter the temperature, which had been normal or practically so for several days, showed on a four-hourly chart a well-marked rise, within twenty-four hours, varying from 101° to 104° , and then rapidly fell to its former limits, and in that case a larger dose might have been followed by a reaction, but she left the hospital before an opportunity of proving it was given.

CASE VII also deserves a word of comment from the presence of an earlier history of syphilis, which is also said to react to tuberculin. In the two or three cases, however, of late syphilis in which I have tried it no effect has followed the use of similar doses.

Although convinced that tuberculosis is a very common cause of acute pleural inflammations, I was not prepared for so high a percentage, which far exceeds any figures with which I am acquainted when the

results were based on bacteriological investigations. The nearest approach to it is in a series published by Eichorst where he got positive results in 15 out of 23 cases by inoculating guinea-pigs with the aspirated serum. It is, however, nearly identical with the results obtained in a series of 15 cases quoted by Netter, where 13 reacted to the tuberculin test. Combining the latter with the 10 cases here reported a total of 25 is given, of which 22 showed a positive reaction. But if tuberculin is the delicate reagent which it is claimed to be, and which there is good reason to suppose it really is, these figures cannot be accepted as an absolute criterion of the proportion of idiopathic pleurisies in which the tubercle bacillus is the etiological factor, since the possibility cannot be eliminated that they might be due to a coincident infection with some other organism of patients with a latent tubercular focus in some other portion of the economy, to which the reaction was due, and which would be a source of error whose importance could not be estimated.

Before closing a word should be said as to the reported dangers arising from the use of tuberculin as a diagnostic agent, about which much has been written. My experience in its administration for such purposes is limited to about 40 cases; but so far as it goes it shows that none is to be apprehended when it is given in doses only large enough to lead to an elevation of temperature. Such a dose rarely needs to exceed one milligramme, and frequently less than that quantity is sufficient.

THE DIAGNOSTIC VALUE OF TUBERCULIN.*

BY FRANKLIN W. WHITE, S.B. M.D., BOSTON.

DURING the past year, at the suggestion of Dr. F. C. Shattuck, a series of observations were made at the Massachusetts General Hospital to determine the diagnostic value of tuberculin injections. The injections were given to 123 ward patients, all adults, with the exception of one child of two years; 93 of these cases I report from personal observation; the results of 30 subsequent injections made by Dr. J. A. Capps are reported from the hospital records.

In selecting cases for injection, only those patients who were *afebrile*, or nearly so, and whose physical condition was fairly constant from day to day, were considered suitable.

In addition to the usual daily chart of the patient's morning and evening temperature, a four-hourly chart was kept, beginning at least twenty-four hours before the injection and continuing for several days after it. The injections were made with an ordinary hypodermic syringe, which was sterilized each time before using, by boiling the needle, and filling the syringe with 95 per cent. alcohol. The solutions used were 1 to 1000, 1 to 500 and 1 to 100 dilutions of Koch's tuberculin in distilled water, the solutions being made up freshly every day or two.

The injection was made, as a rule, deep into the muscles of the back or thigh. In 18 cases the injection was made subcutaneously in the arm; in some of which a local inflammation occurred which completely disappeared in a few days. The *deep* injection

is preferable, never producing any local phenomena beyond a slight stiffness in the muscles the day after injection, in about one-half the cases.

The doses of tuberculin given were one, two, five, seven, and ten milligrammes, obtained by giving one-half to one cubic centimetre of the above-named dilutions. At first, to avoid any possibility of an overdose, an injection of one or two milligrammes was given; and if this produced no reaction, it was followed in two or three days by an injection of 10 milligrammes. In a few cases, an initial injection of five or seven milligrammes was given. After treating about 35 cases in this way, it was found that the one and two milligramme doses could *not* be relied on to produce a reaction in tuberculous cases, and that the ten-milligramme doses had given no bad results; so the small, preliminary doses were omitted in the remaining cases.

Three tuberculous cases, which were given doses of five milligrammes, reacted promptly. As a rule, ten milligrammes of tuberculin were given at one dose for the sake of uniformity and to avoid the remarkable "tolerana" which is speedily established by the use of small repeated doses, and because it was believed that a dose of ten milligrammes would give a more definite characteristic reaction, both as regards temperature and constitutional disturbance, than a single dose, one-third or one-half as large.

There is much diversity of opinion about the size of dose which is most desirable in diagnostic work. Koch¹ says in his early articles that the smallest quantity requisite to produce an effect in healthy individuals is about ten milligrammes, that phthisical cases are more susceptible than surgical cases, and react to one or two milligrammes, and that tuberculous children react to one-half or one milligramme. Berthenson² states that one milligramme usually produces a fair reaction in tuberculous adults. Grasset³ used two-tenths or three-tenths for a first dose and if no reaction followed, five-tenths of a milligramme for a second dose, and believes that these small doses are useful in diagnosing early cases. There is, however, one serious objection to small repeated doses. Grasset, Neisser⁴ and Von Ruck⁵ admit that the patients may become habituated to them, and cite a number of cases of phthisis treated in this way without reaction.

Von Jaksch⁶ says ten milligrammes is too large a dose for diagnostic purposes, that five milligrammes is better. Speaking of children, Gaffie⁷ advises the use of a dose of one-twentieth of a milligramme. Kossel¹⁰ used two-tenths to one milligramme as a first dose, and if no reaction occurred, gave five or ten milligrammes two days later. As the temperature of children is very variable and easily affected by slight causes, he recommends a repetition of the dose causing reaction in all cases to be sure the temperature was due to the tuberculin.

The discrepancy in the size of the dose advised by different men may, perhaps, be partly explained by possible variation in the strength of different samples of tuberculin. There are, apparently, a number of conditions apart from the amount of tubercular process present upon which the febrile reaction depends, such as:

- (1) Individual disposition.
- (2) Size of dose.
- (3) Habituation of the patient to tuberculin.

* Read at a meeting of the Clinical Section of the Suffolk District Medical Society, March 17, 1897.

(4) Sex. Ruedi⁸ asserts that females react less readily than males. Our results do not confirm this statement.

(5) Time of injection. Rosenbach⁹ says that the febrile reaction after an injection in the morning is more prompt, higher and shorter than after one in the afternoon. In our cases, almost all the injections are made about 8 p. m. for convenience, and the reactions are of the type Rosenbach describes as "late reactions," slow in onset and long in duration, the temperature rising about eight and one-half hours after injection, and falling to normal after about twenty-nine hours. Compare this with Koch's description of a "typical reaction" with a temperature rising four or five hours after injection and lasting from twelve to fifteen hours.

There have been no bad results from our injections, the worst being a condition resembling a "touch of grippé," usually lasting a little over twenty-four hours in the reacting cases. No definite changes in local tubercular processes were, as a rule, discovered after the single injection. In classifying the cases, we arbitrarily define a "reaction" following injection as a condition of fever of 101° or over, associated with the ordinary febrile symptoms, general malaise, headache, anorexia, pain in the back, etc. In giving the injections to patients whose temperature and general condition was tolerably stable, the "reacting" patients were very readily distinguished from the "non-reacting" by the abrupt rise of temperature and constitutional disturbance following several hours after injection.

One hundred and twenty-three patients were injected with tuberculin, 45 of whom were tuberculous, 8 of whom were classed as "doubtful" and 70 of whom gave no clinical evidence of tuberculosis.

Reactions were obtained in 66 cases (see tables).

In 60 cases after	10 milligrammes.
In 1 case after	7 "
In 3 cases after	5 "
In 2 cases after	2 "

The temperature began to rise eight and four-tenths hours after injection.

The averages of the reactions in 66 cases are as follows:

Average maximum temperature	102.8
Average maximum pulse	115
Average maximum respiration	31
Average duration of fever	29 hours.

The following figures give the limits of variation in the reactions:

Longest period after injection before rise of temperature	24 hours.
Shortest period after injection	1 hour.
Highest maximum fever	106.2°
Lowest maximum fever	101°
Highest maximum pulse	160
Lowest maximum pulse	88
Highest maximum respiration	60
Lowest maximum respiration	20
Greatest duration of fever	84 hours.
Least duration of fever	12 hours.

On arranging results by sexes, we find that 68 males were injected, 36 cases or 53 per cent. reacted, with an average maximum temperature of 102.7°, and an average maximum pulse of 108; 55 females were injected, 30 cases or 54 per cent. reacted, with an average maximum temperature of 103° and an average maximum pulse of 123.

Now, considering the reacting cases in detail, we

find that a well-marked reaction was obtained in 29 cases where excellent evidence of tuberculosis was present, comprising:

Ten cases of phthisis with tubercle bacilli in sputa.

Eleven cases of bone and joint tubercle.

One case of skin and two of glandular tuberculosis.

Five cases of tubercular peritonitis.

No.	Diagnosis.	Dose in mg.	Rise of fever after injection in hours.	Maximum fever in degrees.	Duration of fever in hours.	Maximum pulse.	Maximum respiration.	Constitutional disturbance.
1	Phthisis.	10	5	104.	16	120	31	Marked.
2	"	10	5	102.	14	105	29	Moderate.
3	"	10	8	103.	28	112	32	"
4	"	10	8	103.3	28	120	38	Marked.
5	"	10	4	102.7	24	123	33	Moderate.
6	"	10	4	103.3	36	100	29	"
7	"	10	4	101.8	12	80	25	Slight.
8	"	5	8	104.	36	120	33	Moderate.
9	"	5	8	101.8	24	104	30	"
10	"	10	4	106.2	36	145	40	Marked.
11	"	10	5	102.	32	96	25	Moderate.
12	"	10	5	101.8	24	80	28	Marked.
13	"	10	4	102.6	20	120	..	"
14	Caries of rib.	10	12	102.2	24	120	44	Slight.
15	"	10	4	103.4	34	100	29	Moderate.
16	Spinal caries, [tarsal	10	6	104.	38	140	60	Marked.
17	Tuberculos. of meta-	10	12	101.9	20	120	35	"
18	" wrist.	10	12	105.	36	100	..	Moderate.
19	" metatarsal.	10	6	102.	24	140	..	"
20	" wrist.	10	10	102.3	16	88	25	"
21	" knee.	10	8	101.8	28	90	20	"
22	" wrist.	10	8	101.	24	92	24	"
23	" knee.	10	5	102.3	24	120	20	"
24	Spinal caries.	10	7	102.6	20	120	31	Marked.
25	Tuberculosis of knee.	10	12	102.4	36	108	..	"
26	Lupus.	10	12	103.8	60	102	..	"
27	Tubercular glands.	10	24	101.2	36	110	..	"
28	" [tis.	10	16	101.2	32	103	25	Moderate.
29	Tubercular periton-	10	8	105.	24	127	36	Marked.
30	"	2	4	103.2	32	160	45	"
31	"	10	8	104.8	20	104	..	Moderate.
32	"	10	3	105.	36	112	37	"
33	"	10	4	103.4	24	108	28	"
34	Chronic pleurisy.	10	8	104.	28	120	31	Marked.
35	"	10	4	104.2	24	140	33	Moderate.
36	"	10	7	101.	24	116	30	"
37	"	10	12	101.8	60	108	24	"
38	Acute	10	12	102.	20	100	26	Marked.
39	"	10	5	104.8	32	130	51	"
40	"	10	5	104.8	32	130	36	Moderate.
41	"	10	5	104.5	28	120	36	Marked.
42	"	10	16	103.	24	108	29	Moderate.
43	"	5	12	102.2	20	140	32	"
44	"	7	8	103.3	24	100	31	Marked.
45	Salpingitis, phthisis.	10	8	102.4	24	119	32	"
46	Bronchitis.	10	5	103	18	120	29	Moderate.
47	Chronic meningitis.	10	8	102.5	38	132	..	Marked.
48	Cerebral tumor.	10	4	102.5	24	147	30	Moderate.
49	Chronic diarrhea.	10	8	102.5	20	90	25	"
50	Salpingitis.	10	12	102.	20	100	24	"
51	Debility.	10	15	102.3	36	100	24	"
52	"	10	10	102.	32	105	22	"
53	"	10	8	103.	44	117	35	Marked.
54	"	10	12	102.	24	80	23	Moderate.
55	"	10	12	101.4	20	88	22	Slight.
56	"	10	8	103.5	24	113	21	Moderate.
57	"	10	12	104.	40	104	32	"
58	" [ritis.	10	12	103.7	68	110	30	Marked.
59	Rheumatoid arth-	10	2	101.7	56	140	..	"
60	Gastric dilatation.	10	8	102.	24	80	24	Moderate.
61	Enteritis.	10	1	103.8	84	132	32	Marked.
62	Chlorosis.	10	12	101.4	16	80	28	Moderate.
63	Abdominal tumor.	10	8	102.8	36	130	28	"
64	Spastic paraplegia.	10	20	103.2	48	108	32	"
65	Thigh fracture.	2	16	102.	20	110	29	"
66	"	10	9	102.5	24	98	31	"

Also, in 16 cases where the presumptive evidence of tuberculosis was very strong, comprising:

Three cases with a clinical diagnosis of phthisis, but without tubercle bacilli in sputa: one of these with a family history of phthisis, crackles and dulness at apex, sweats, loss of weight; one with pulmonary hemorrhages and signs at apex; one with cough and signs at apex, in bed seven months.

Four cases of chronic pleurisy: one with cough for

two years, sweats and loss of weight; one with loss of weight and crackles at apex.

Seven cases of acute pleurisy: one with bloody fluid and crackles at apex; one with a tuberculous knee eighteen years previous; one with a family history of phthisis; one with loss of weight and previous cough.

One case of salpingitis, with tubercular family history, signs at apex and loss of 40 pounds weight.

One spinal caries, with lumbar antero-posterior curvature with pain and tenderness.

Forty-five cases in all.

Reactions were obtained in a considerable number of cases where absolute evidence of tuberculosis was not obtainable, in one each of bronchitis, chronic meningitis, cerebral tumor, chronic diarrhea, salpingitis, rheumatoid arthritis, gastric dilatation, enteritis, chlorosis, abdominal tumor and spastic paraplegia; in two cases of thigh fracture and in eight cases of debility; 21 cases in all. Eight of these cases we class as "doubtful," as each may be fairly suspected of tuberculosis, but none give absolute evidence. We have drawn no conclusions as to the diagnostic value of the method from these cases. They comprise four cases of debility (two with tuberculous family history, one with cough for six months, one with cough for four months, sweats, loss of flesh, and having a tuberculous wife and child), also one case of salpingitis, one chronic meningitis, one chronic diarrhea, and one cerebral tumor.

The remaining 17 cases have nothing indicating tuberculosis in family or personal history (except debility and the loss of flesh) or on physical examination.

Adding these 13 cases to the 57 non-reacting cases, we find that of 70 patients giving no clinical evidence of tuberculosis, 18.5 per cent. reacted. It is fair to assume from these facts that tuberculin will cause a reaction in some non-tuberculous cases; and, on the other hand, this class of cases would probably be much smaller in our lists if we were able to rule out all cases of possible glandular or incipient pulmonary tuberculosis in which the reaction to tuberculin is the only evidence we have of the presence of the bacillus. To illustrate the small value of clinical evidence of some cases, we quote the following series: Kossell,¹⁰ speaking of 28 reacting cases among children of one to ten years of age, in only four of which clinical evidence of tuberculosis was present, says that in accordance with his experience at autopsies in such children, at least two-thirds of the remaining 24 cases are to be considered as tuberculosis of the bronchial or mesenteric glands.

Many writers report cases of reaction in the so-called non-tuberculous, some after small doses. For example, Kohler and Westphal¹¹, Leyden¹², Peiper¹³, Auerbach¹⁴, Post¹⁵, and Maydl¹⁶ report collectively over 30 cases reacting to doses of one, two, three and five milligrammes, and a number of other cases reacting to larger doses.

Granting that these cases reacting to doses of tuberculin as small as one or two milligrammes were really non-tuberculous, it is evident that we can hardly expect to ever make the injection test an absolute one; even when we have determined the smallest reliable dose for tubercular cases, we shall probably find occasional non-tuberculous individuals who will react to it.

In 57 cases † tuberculin was injected without reaction. In most of these cases the injection was made simply to test the method upon the non-tuberculous. In a considerable number of them it proved useful in making a diagnosis, which was confirmed by operation, or by the subsequent history of the case. There is no evidence of tuberculosis in a single non-reacting case.

As instances of its use in diagnosis, we cite the following non-reacting cases:

A case of supposed tuberculosis of the mesenteric glands failed to react; an operation proved it to be retro-peritoneal sarcoma.

A case of ascites, supposed to be tubercular peritonitis, failed to react; an operation showed no trace of tuberculosis in the abdomen.

A case of supposed hip-disease, with pain and stiffness, failed to react; subsequent history showed it to be an hysterical hip.

A case of marked general debility and anemia failed to react; blood examination showed it to be a progressive pernicious anemia.

Four cases of bronchitis failed to react; the lungs cleared up and the patients were discharged well.

Nine cases of general debility failed to react; all the patients were later discharged well.

It is interesting to note, in connection with the possible tubercular origin of acute serous pleurisy, that seven out of the eight of these cases reacted; four chronic pleurisies also reacted. In two of these reacting cases (one acute, one chronic) there were signs of incipient disease at one apex.

In looking over our results, we see that a well-marked reaction was obtained in every case where evidence of tuberculosis was present, and in a little less than one-fifth of the patients in whom no evidence of tuberculosis was obtainable.

We might infer from these results that the presence of a reaction after tuberculin indicates the presence of a tubercular process about four times out of five, and that the absence of a reaction indicates an absence of any tubercular process in the patient injected. We cannot, however, insist on this last statement in view of the results of other observers. All our cases of tuberculosis have reacted; whether this was due to the method of giving a single good-sized dose of tuberculin or to the limited number of the cases, or to the fact that very few were advanced cases, it is impossible to say. Previous writers have reported occasional rare and usually advanced cases of undoubted tuberculosis without reaction.

Berthenson² reports two cases, and Heron¹⁷ one advanced case of tuberculosis, with a fall of temperature after each injection. Ruedi⁸ reports an advanced case where constitutional and local reaction were present without any febrile reaction. Braun¹⁸ reports one advanced case. Post gives¹⁵ one advanced case, and Bobrick¹⁹ two advanced cases of tuberculosis without general reaction. Neisser⁴ says that old lung cases may react only locally.

In our experiments the general febrile reaction has been chiefly studied and regarded as the most reliable diagnostic phenomenon; and on this basis, the tuberculin injection for diagnosis is of least value in ad-

† These patients consist of cases of debility, rheumatism, neuralgia, anemia, convalescents from acute infectious diseases, tractures, bronchitis, serous pleurisy (one acute case), chorea, gastric ulcer, cancer of stomach and liver, ascites, pregnancy, salpingitis (gonorrheal), pyelitis, laryngitis, nephritis and gall-stones.

vanced cases, where, as is well known, the general reaction is slight and the local reaction marked, and is *most sure* where it is at the same time *most useful*, namely, in *early cases* which give a marked general and slight local reaction.

The difficulty or impossibility of observing the local reaction in many cases, especially the early ones, renders it of little value as a diagnostic point.

Objections have been raised to the use of tuberculin, even for diagnostic purposes, on the ground that there may be danger of poisoning the patient, or of stirring up latent tubercle bacilli and offering them a better opportunity for growth. We can only say that the method of diagnosis in our hands has been productive of no ill results, as far as we know, beyond a day's discomfort to the patient, and that the occasional dangers of continued tuberculin treatment of tuberculosis in general, including advanced cases, have not been met with in using a single dose of tuberculin for diagnosis in incipient cases. When we see the brilliant results obtained in the diagnosis of tuberculosis in cattle by this method, a correct diagnosis in over 99 per cent. of the cases, it seems as if a further experience in the observation of the reactions and a better knowledge of the most desirable dose were all that were necessary to make this a diagnostic method of the greatest value for man. It was a great advance when Koch gave us the method for finding the bacillus of tuberculosis, but before the diagnosis can be made by the microscope, it can usually be made without it. When we find the bacilli, our diagnosis is certain; but failure to find them does not exclude the disease. The tuberculin test is much more helpful in early diagnosis. An injection will show the presence of the bacilli long before the inflammatory process is apparent to sight or touch; and on the other hand, a negative result gives absolute surety of freedom from tuberculosis, which of itself is often of the greatest value.

We will summarize briefly as follows:

- (1) The tuberculin method is simple and easily applied. An absence of reaction after injection indicates almost invariably an absence of tuberculosis. The presence of a reaction indicates the presence of tuberculosis more than four times out of five.
- (2) The method is especially applicable to the diagnosis of incipient pulmonary tuberculosis and of glandular, peritoneal, pleural and bone tuberculosis, where the bacilli cannot readily be found.
- (3) The general febrile reaction is a more generally useful diagnostic phenomenon than the local reaction.
- (4) The use of small preliminary doses of tuberculin is to be avoided on the ground of producing a gradual tolerance and a loss of general reaction.
- (5) The size of the best dose for diagnostic work is a matter for further study. It is probably between five and ten milligrammes for adults.
- (6) Ruedi's statement, that females react to tuberculin less readily than males, has not been confirmed by our results.

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SOME CASES OF CYSTITIS IN WOMEN.¹

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(Concluded from No. 5, p. 100.)

CASE V. Acute nodular cystitis, purulent endometritis, fistula in ano, patulous meatus. Symptomatic cure in two weeks. Persistence of vesical lesions notwithstanding symptomatic cure.

Mrs. D. was a woman, forty years old, who had had three children and six miscarriages. She gave a history of ischio-rectal abscess, which left a fistula. Three weeks before examination she was attacked by frequent painful micturition, which compelled her to seek advice.

On examination the fistula was observed, and also a purulent discharge, which proceeded from the uterine cavity and bathed the meatus with pus. The pus had no difficulty in finding ready access to the bladder through a meatus which was markedly *patulous*. Cystoscopic examination showed a bladder which was greatly inflamed. The urethra, vesical neck, trigonum, and ureteral eminences were much injected, and on the eminences were several small yellow points. The blood-vessels of the bladder were all injected, and scattered about here and there were many nodules of hyperemic appearance. The whole wall was cloudy looking. The infection had evidently proceeded from the purulent endometritis. The treatment was, for a month, nothing but a mixture of equal parts of fluid extract of buchu and tincture of benzoic compound taken internally. Under this she improved so that at the end of a week from the time of beginning treatment she was completely cured symptomatically, and was urinating only three times a day and not at all at night.

In order to be sure that the bladder was normal, in view of the rapid cure taken in connection with the severe inflammation, another examination, a month after beginning treatment, was made, with the result that the appearances were found to be exactly the same as at the first examination. She then had injections of permanganate of potash solution; and these were continued for a period of two months, when another examination was made. The appearances had altered but little. There was perhaps a slight diminution in the degree of injection, but the nodules remained and the cloudy appearance as well. It looked like a severe case of cystitis. But on examining urine obtained with the catheter, it was found to be free from pus, in this respect differing from the urine at the outset of the disease. No more treatment is now being given, except that directed to the purulent endometritis. In order

¹ Read before the Gynecological Section of the Massachusetts Medical Society, February 24, 1897.

to avoid a relapse she was advised to undergo an operation for the cure of the fistula and the endometritis.

The condition of patulous meatus is one which demands some consideration, inasmuch as the author believes that this condition favors the development of cystitis.

The normal meatus is closed by two labia or eminences of its own, of small size, one on each side, as described by Skene.¹³ Further closure is effected by the mucous membrane of the upper urethral wall, which prolapses between the two labia, and helps still further to keep the meatus closed. Besides this, Luschka's sphincter, situated behind the vestibule closes the urethra still more effectually.

The author has never failed to find these labia in women who have not borne children; and a cystitis in such women, in the absence of lesions of neighboring organs, especially if of long duration, is looked upon as of renal rather than of local origin, for reasons which will be explained. In women of the child-bearing period these labia are frequently obliterated, and Luschka's sphincter stretched, so that a patulous condition of the meatus is present. This obliteration must be brought about by the stretching and laceration of the meatus during the passage of the child's head, or what is more frequently the case, a lacerated perineum leading to prolapse of the pelvic contents and finally of the urethra, and secondarily, to eversion of the mucous membrane of the urethra.

In old age the general atrophy of the genital organs does not spare these labia, for the author has frequently found them quite absent in old women, and the meatus presenting as a small pit with dry mucous membrane lining it.

If there is a purulent vaginal discharge under these circumstances, which constantly bathes the patulous meatus with germs, it is easy to see that entrance to the bladder might be more readily effected than if the meatus were closed as it is under normal conditions. It seems not improbable that the function of Skene's glands must be to secrete a fluid which is antiseptic in its properties. This idea was suggested to the author from the fact that the vaginal glands have a decidedly destructive power over germs, as proved by Barton Cooke Hirst. In a patulous meatus this secretion is no longer concentrated in a small space, but must be scattered over a larger area; and in cases of considerable patulousness the secretion must necessarily be spread laterally, as the openings of these glands are at the bases of the labia and the latter are everted outwards in a patulous condition.

The normal urethra is thus well protected from the invasion of germs. This is necessary from the fact that the vulva normally may be covered with germs, which, were there not some obstacle to their entrance to the bladder, would cause cystitis more frequently than they do. This seems to be proved by observations on children. Thus Trumpf,¹⁴ in studying cystitis in young children, found only 29 cases out of presumably a large number, for he concluded that cystitis in children is rare. All the children were from five weeks to three years old, at an age when diarrheal discharges would be spread over the vulva at each stool. All the children had diarrheas, and in all the cases except one the bacterium coli was found. Trumpf thinks that the infection took place through the urethra or

through the lymphatics. The rarity of the disease in children, when it is considered that the vulva is bathed almost constantly with the bacterium coli bacillus in conditions of diarrhea, would seem to prove that there exists an obstacle to the entrance of the germs into the urethra. This favors the view that the infection in these cases is through the lymphatics.

The sequence of events in the causation of cystitis may be the following: Childbirth, lacerated perineum, genital prolapse, patulous meatus, endometritis, and finally cystitis. In old women, in whom cystitis is by no means uncommon, the disease may be caused by a senile endometritis, or vaginitis, the infection being likewise introduced through a patulous meatus. It will now be understood why a cystitis in a *virgo intacta*, especially if the cystitis is of long standing, should excite the suspicion of renal origin; and in young girls with a tubercular history the ureteral catheters should be introduced without delay in order to discover which side is affected, so that the kidney may be extirpated at once.

CASE VI. Intermittent cystitis of eleven years' standing; hematuria; suspected renal calculus, photographed by x-rays, result negative.

Mrs. P., a married woman sixty-seven years old, began eleven years ago to pass blood-red urine. The hematuria came on suddenly, coincidently with some dyspepsia and some backache. This condition lasted a little while and gradually disappeared. Then there was an interval of five years, during which the urine was normal in color. The hematuria now reappeared suddenly, and lasted seven months; during this time so much blood was lost as to render the patient quite anemic, and she lost strength rapidly. During this attack pain was complained of, for the first time, in the left hypochondrium anteriorly. Under tonic treatment she gradually got better, and the red color in the urine disappeared. Then there was a period of rest for seventeen months; at the end of this time, which was in May, 1893, there was another attack of hematuria, and also severe pain in the left lumbar region, shooting up to the neck. The pain was so severe as to prevent sleep. This time the hematuria lasted six months. The amount of blood was never large, but it was enough at times to stain the urine quite red. The color was uniform, and there was no increase of color towards the end of urination. The bladder was now quite irritable, and she suffered a good deal from dyspepsia. The urine showed pus, blood, granular casts, and a few calcic-oxalate crystals. Exertion always increased the amount of blood in the urine.

In October of 1893 there was an attack of catarrhal jaundice. An examination of the urine, now quite pale, showed a distinct pus cast of large diameter. The lumbar pain was still present.

In June, 1894, she was fairly comfortable, with the exception of dyspepsia, which gave great suffering. Urine still contained a large amount of pus, but very little blood.

In July, 1895, she reported herself as quite well; no hematuria for a year, but pains in lumbar regions were still present.

In November, 1896, she was suffering somewhat from the pain. She noticed that when the sediment was abundant in the urine the pain was less. Dyspepsia continued. An examination made at this time showed some resistance over the left lumbar region, but no tumor. The meatus uriniarius was markedly

¹³ Skene: Diseases of Women, 1889, p. 614.

¹⁴ Trumpf: Kinder Arzt., vol. vii, No. 10.

patulous; vesical neck, sensitive; ureters on vaginal examination, not enlarged. Cystoscopic examination, rather unsatisfactory on account of nervousness, showed cystitis; urine contained much pus, but no casts were found. The cystitis was giving a great deal of trouble and the urination was frequent and attended with tenesmus. There had been no hematuria for two years. The bladder was now treated with permanganate-of-potash injections, and great relief given, but the pus persisted.

January 8, 1897, an examination showed the presence of an occasional cast and calcic-oxalate crystals; the latter had almost always been found in the sediment. A quantitative examination of the urine showed that the kidneys were doing an insufficient amount of work. Thus the amount of urine in twenty-four hours was only 900 c. cm.; urea, 11.34 gms.; phosphates, .765 gms.; chlorides, 6.66 gms.; total solids, 27.26 gms.; specific gravity, 1.013; albumin, a trace; sugar, absent.

At the present writing the patient is better; but the cystitis persists and the pus in the urine is in as large amounts as it was two years ago. No local treatment will check it. It is thought to be renal in origin. Suspecting a renal calculus, the patient was photographed by Dr. E. A. Codman, with the x-ray apparatus; the exposure was half an hour. The result was entirely negative, however, for no shadow was seen indicative of stone. This result was rather expected, however, for photography of renal calculi by the x-ray has been hitherto very unsatisfactory. Still Swain¹⁵ photographed a renal stone of calcic oxalate before operation, and at operation a stone weighing 148 grs., was found. Macintyre¹⁶ had five cases in which renal stone was suspected, but in none was a photograph of the stone secured. It is not stated if the cases were operated on subsequently. But in experiments on a cadaver this author succeeded in getting a picture of a uric-acid calculus inserted in the kidney. Raw¹⁷ performed the same experiments, and got a picture of the stone after an exposure of sixty minutes. Laurie¹⁸ performed the same experiments, and got a picture with an exposure of thirteen minutes; in his case the stone was uric acid. This result seems remarkable, for, according to Laurie's experiments, uric acid is very slightly more opaque to the x-ray than flesh, calcic-oxalate and phosphate-of-lime stones being much more so.

In view of the contradictory evidence thus furnished, failure to secure a photograph of the stone need not be considered as proving that the stone is not present. The picture of even the spinal column and ribs when taken with the x-ray is very indistinct, and requires careful examination to even make it out. It can readily be conceived, therefore, that a small stone weighing a few grains, and located in the renal pelvis, might easily escape detection. Such a stone was reported by Kelly.¹⁹ The history was one of persistent pyuria for ten years. The diagnosis was made by inserting a long renal catheter up to the pelvis of the kidney, when at once more urine flowed through the catheter than on the normal side in the same time, showing that there was some obstruction which acted as a ball-valve at the mouth of the ureter.

Confirmatory evidence was furnished by finding bits of uric acid in the eye of the catheter when suction with an aspirator was employed. A small stone 11 by 16 mm. was found in the renal pelvis at the operation. Thinking this might be a similar case, it was proposed to the patient to have the ureters catheterized. But the proposition was rejected, so that this valuable aid has to be dispensed with.

The history of the case is strongly suggestive of renal calculus. The persistent presence in the urine of calcic oxalate favors a diagnosis of this sort of stone; but inasmuch as calcic oxalate is so frequently found in debility of any kind, the presence of calcic oxalate in the urine does not carry with it that weight which it would if such were not the case. It is to be remembered also that oxaluria associated with severe lumbar pain is possible and yet no stone may be present in the kidney.²⁰ A simple pyelitis is improbable from that fact of the copious hemorrhages, yet it cannot be absolutely excluded. Uncomplicated cystitis is improbable from the nature of the hemorrhages, the red color having been uniform; while the other symptoms point to a renal rather than a vesical origin.

It is unfortunate that the patient refuses to allow catheterization, for there is every reason to believe that a positive diagnosis could thereby be made. If a simple purulent pyelitis were present, it could be treated locally by irrigating the renal pelvis by means of the long renal catheters; while if it were possible to diagnose calculus, an incision could be made for its removal.

From the study of these cases it is evident that cystitis may be merely a complication of more serious disease of the kidney, and that the symptoms of renal disease, if present at all, may be quite overshadowed by the annoying vesical affection. Not only in the early stages of renal disease may symptoms be entirely wanting with reference to the kidney, but likewise in late stages when the kidney is entirely disorganized, as in Case IV. In this case there was no pain in the kidney, nor other sign denoting the late stage of the disease, and the symptoms were entirely vesical. There is danger, therefore, that the bladder may receive all the attention on the part of the physician, while the focus of the trouble, the kidney, giving no symptoms, may be allowed to continue in the destructive process going on within it, which renders unavailing any treatment directed to the bladder. It is the author's belief that hitherto many of the failures to cure cystitis, even after cystotomy and prolonged drainage, are accounted for by the fact that constant re-infection of the bladder is produced by germ-laden pus proceeding from a suppurating kidney which through lack of symptoms has been undetected.

It is of the utmost importance, therefore, that the condition of the kidneys should be ascertained in cases of cystitis, in order that the treatment may be appropriate to the case. This is readily accomplished by drawing off the urine by means of the ureteral catheters inserted into each ureter through a Kelly cystoscope, and by subjecting the urine obtained from each kidney to microscopical and chemical examination. Only two cubic centimetres of urine are required to estimate, by Knop's hypobromite method, the percentage of urea; and this gives the exact working coefficient of the respective kidney; while examination of the sedi-

¹⁵ J. Swain: *Lancet*, December 19, 1896.

¹⁶ *Lancet*, July 11, 1896.

¹⁷ *Loc. cit.*, November 21, 1896.

¹⁸ *Loc. cit.*, January 16, 1897.

¹⁹ Howard A. Kelly: *Medical News*, November 30, 1895.

²⁰ J. R. Chadwick: A Case of Nephro-Lithotomy in which no Stone was Found. *Gynecological Transactions*, vol. xiv, 1889.

ment in the rest of the urine drawn gives valuable indications of the processes going on in the renal substance. Besides this, it is possible to determine by this means whether both kidneys are present or not. But it is not urged that indiscriminate catheterization of the ureters is to be done, and the question when to catheterize the ureters and when to refrain from doing so is an important one. The danger of infecting a healthy ureter or kidney by means of the catheter should not be overlooked. In deciding this point *acuteness* or *chronicity* of the disease must be considered, as well as *source* and *nature* of infection.

In the acute cases catheterization is not necessary, except in cases of suspected early renal tuberculosis. In a young, unmarried girl, with a non-patulous meatus, and with no local purulent affection of the genital organs, a cystitis of no discoverable etiology must always be looked upon with suspicion. If in such a patient there is evidence of tubercular disease elsewhere in the body, especially if there is a family history of phthisis, the urine should be examined at once for bacilli of tuberculosis. If these are found, it is presumptive evidence of renal tuberculosis; as primary vesical tuberculosis is rare,²¹ ureteral catheterization is imperative in order that the kidney may be extirpated at once. After the nephrectomy has been performed, the bladder may be treated locally through the cystoscope, and a favorable result looked for. In the chronic cases of cystitis the question may be more difficult to decide. Either the inflammation is strictly local and does not affect the ureters or kidneys, or else the infection of the bladder has proceeded from an infected kidney, and is therefore not primary but secondary in importance. A careful study of these cases is essential, and the ureteral catheters should not be introduced without due deliberation. An inflammation which has been caused by germs introduced through the urethra is probably confined to the bladder alone. The etiology must, therefore, be sought. A patulous meatus associated with a purulent vaginal discharge is sufficient evidence of source and nature of infection; so also is a history of gonorrhea; or a catheter infection; or an infection due to rectal disease and carried to the bladder by means of the lymphatics. If such a cystitis is not of too long duration, ureteral catheterization must not be resorted to. At the same time it is necessary to consider the probability of extension upwards of the inflammation into the ureters and kidneys. In long-standing cystitis this is very apt to be the case; so that ureteritis, single or double, is not an uncommon occurrence. This is one explanation of failure to cure cases of cystitis by cystotomy; and it would seem not unreasonable to catheterize the ureters of all patients before subjecting them to this operation with its attendant disagreeable features. The diagnosis of ureteritis without catheterization is very uncertain. The most positive sign is a thickened ureter felt vaginally; but if the thickening is too high up to be felt, it escapes notice. Much stress has been given to the fact that in ureteritis the mucous membrane of the ureter is apt to become everted at the vesical orifice and to present as a reddened mass of mucous membrane. But this is not a positive sign, for in at least two cases seen by the author, there was no such prolapse of the ureteral mucous membrane, and yet catheterization showed evident ureteritis.

When the source of infection is the kidney, the previous history of the case will sometimes throw light on the diagnosis, and may furnish enough evidence to warrant ureteral catheterization. Thus a history of persistent lumbar pain, lasting many months and accompanied by attacks of renal colic and hematuria, is presumptive evidence of renal calculus. Under these circumstances catheterization may furnish valuable aid in making a diagnosis. In the case of abscess of the kidney in which an abundant amount of pus is discharged into the ureter, a diagnosis can sometimes be made by seeing, through a cystoscope, the pus exude from the ureteral orifice; in these cases it is of value to catheterize the ureter in order to obtain urine so that the percentage of urea may be calculated. If a large amount is present and the affection is not tubercular, the treatment would be more intelligently given than if the working power of the kidney were not known; an attempt might be even made to cure the affection by washing out the abscess cavity by means of the long renal catheter.

Finally, the urine may at times furnish evidence of the source of infection. The presence of renal casts is significant, and so also are crystals.

Each case, therefore, must be studied by itself. An early diagnosis of suppurative disease of the kidney is of importance, and catheterization of the ureters must be undertaken early in order to prevent the insidious process of suppuration in a kidney from advancing to such a stage that the life of the patient is endangered. It may be predicted with some confidence that in the future far advanced suppurative renal disease will cease to be met with, for these cases will be diagnosed early and nephrotomy or nephrectomy will be resorted to at a stage when this operation is attended with but little risk.

CONTAGIOUS CONJUNCTIVITIS.¹

BY MYLES STANDISH, M.D., BOSTON.

CONTAGIOUS conjunctivitis, strictly speaking, embraces all the more acute forms of conjunctivitis, but in this paper I intend to treat more particularly of the group usually spoken of as purulent or blennorrheal conjunctivitis. In this group there are four principal classes: (1) the acute catarrhal conjunctivitis, commonly called pink eye; (2) ophthalmia neonatorum; (3) gonorrheal conjunctivitis; (4) diphtheritic conjunctivitis.

Under these heads there have been grouped in the past four distinct clinical pictures, which may be briefly summarized as follows:

(1) Acute catarrhal conjunctivitis. A disease of the conjunctiva in which there is great congestion, some swelling of the lids, and more or less muco-purulent discharge. The cornea is rarely infiltrated and the disease runs its course in from eight days to three weeks. The eye upon recovery is unharmed.

(2) Ophthalmia neonatorum. A disease which appears within the first week of the child's life, being characterized by a profuse purulent or muco-purulent discharge with congestion of the conjunctiva and often very considerable edematous swelling of the lids, the cornea often becoming infiltrated, necrotic, with sloughing of the corneal tissue, leaving dense, white cicatrices,

²¹ Birsch Hirschfeld found only four cases of primary vesical tuberculosis in 2,565 autopsies in the Dresden clinic.

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

which make the child blind for life. That this much to be deplored result occurs only too often is demonstrated by the fact that nearly 20 per cent. of all the blind under twenty years of age become so from this cause.

(3) Gonorrheal conjunctivitis. An acute disease produced by an infection with gonorrheal pus, marked by great congestion of the conjunctiva. Edematous swelling of the lids, often very great, and characterized by a profuse flow of creamy pus, yellow without mucus, which is sufficiently liquid to flow easily down the cheek upon the opening of the lids. The cornea generally becomes seriously infected, with sloughing of the corneal tissue, and perforation as a common result.

(4) Diphtheritic conjunctivitis. An acute disease marked as the previous ones have been by great congestion of the conjunctiva, which in the course of a few days is succeeded by a deep, gray-brown infiltration, which produces in the lids a brawny, inflexible condition, so that the upper lid apparently elongates and hangs over the lower lid down upon the cheek. This brawny, brown-gray infiltration also extends onto the conjunctiva of the eye to the margin of the cornea. There is no discharge except some lachrymation in which are occasional flakes of false membrane. The cornea soon becomes necrotic, sloughs, and the eye is lost.

The above descriptions have been classical for years, but in the light of modern bacteriology must be modified very considerably, and a new nomenclature which follows the bacteriological findings must be adopted. Such a classification of purulent ophthalmias would place some cases, which from the above description would be classed as gonorrheal, under the head of diphtheritic conjunctivitis, and some cases which would formerly have been classed as acute catarrhal conjunctivitis prove to be gonorrheal, and so on. In all cases this scientific accuracy of diagnosis may not be of importance, but in others the safety of the eye depends upon an early and accurate determination of the micro-organism present. I have, with the assistance of Dr. William Daly, made an investigation of all acute cases of conjunctivitis coming on my last two services at the Massachusetts Charitable Eye and Ear Infirmary, and this paper is a summary of the result of that investigation.

The first thing to be noted is that the disease known as acute catarrhal conjunctivitis is in reality a group of a number of mild infections often produced, it is true, by a bacillus, which has been described by Dr. Weeks of New York; nevertheless, it may apparently also rise from an infection with the pneumococcus, staphylococcus, streptococcus, and perhaps by other micro organisms, not excluding an infection with gonococcus, which may run so mild a course as to be mistaken for some of the other infections, although such instances are rare. A bacteriological investigation of ophthalmia neonatorum shows that almost all the cases which run a destructive course are due to an infection with gonococci, although within a few weeks I have seen a case in which a purulent conjunctivitis, originating within the first week of life, was due to an infection with Klebs-Löffler bacilli. The lighter cases of this disease have in my experience proved to be due to an infection with pneumococci. The fact that the majority of these cases are gonorrheal has made the success of the Credé method for the prevention of this disease.

In cases which present the clinical pictures of diphtheritic and gonorrheal conjunctivitis, experience has proved that bacteriological examinations are of the very greatest value, for many cases, which from the clinical pictures we have supposed to be gonorrheal, are, in reality, diphtheritic and the converse is also true to some extent, as I have seen brawny and infiltrated lids, dense infiltration of the bulbar conjunctiva with necrotic condition of the cornea and very slight, if any, purulent discharge, which upon bacteriological investigation proved to be infectious from gonococci.

From the standpoint of therapeutics, it is of greatest importance that a proper bacteriological diagnosis should be made in these cases and that from this examination the line of treatment should be decided, and not from the clinical appearance of the eye. The importance of this early diagnosis is, to my mind, due to the fact that in gonorrheal ophthalmia nitrate of silver is the only application which ever controls the disease, while in diphtheritic conjunctivitis I consider that nitrate of silver hastens the destructive process which is taking place in the corneal tissue. Conversely, it is my opinion that the diphtheritic condition of the conjunctiva and consequent necrosis of the cornea will generally be controlled by prompt and persistent use of antitoxin.

After these infections of the conjunctiva, the next most dangerous form of contagious conjunctivitis is the so-called granular lids or trachoma; if this is of bacterial origin the micro-organism has not as yet been recognized, nevertheless it will spread slowly through an orphan asylum, tenement house, or any other place where the poor are crowded together, unless special means are taken to prevent this result, leaving its victims handicapped for life and often nearly blind. Fortunately it is diminishing in this country and is, compared with a few years ago, seldom seen except among recent immigrants from the eastern end of the Mediterranean, Polish and Russian Jews, Armenians and others from that locality, and I may say in passing that the presence of acute trachoma in the conjunctiva of immigrants should be a good and sufficient reason for turning them back whence they came. A large proportion of these cases within a few months after their arrival become incapacitated and are public charges. And not only this, but were it not for the new cases thus introduced into the great tenement localities of our large cities, it is my opinion that the disease would soon become extremely rare in this part of the country.

From my experience in cases of purulent conjunctivitis and trachoma, I arrive at the following conclusions:

(1) That in all cases of purulent conjunctivitis, the diagnosis should be made by the bacteriological examination and not from the clinical picture.

(2) That in the two most dangerous diseases of this class, namely, gonorrheal conjunctivitis and diphtheritic conjunctivitis, a favorable outcome of the case depends upon a correct diagnosis, as proper treatment in one disease is of no benefit in the other and may even do harm.

(3) That in cases of ophthalmia neonatorum a bacteriological diagnosis is as important as in other cases of purulent conjunctivitis, and if such were made early and prompt treatment instituted, many a child would be saved from blindness.

(4) That in every case in which a parturient woman

has a leucorrhea, if it is not convenient to bacteriologically determine the cause before the birth of the child, Credé's method should invariably be employed.

(5) Immigrants with acute trachoma should not be admitted to this country.

PURULENT OPHTHALMIA FROM THE BACTERIOLOGICAL STANDPOINT.¹

BY WILLIAM J. DALY, M.D., BOSTON.

THE importance of an early bacteriological examination in purulent conditions of the conjunctiva has already been pointed out. The clinical picture in such conditions is oftentimes, it may be said in the majority of cases, of no value in helping us to determine the etiological factor, it being absolutely impossible in some cases to distinguish clinically in the beginning between

Acute contagious conjunctivitis,
Diphtheritic conjunctivitis,
Pneumococcus conjunctivitis,
Membranous conjunctivitis, not due to the presence of the Klebs-Löffler bacillus.

Another class of purulent cases in which the differential diagnosis without microscopical examination is one of great difficulty is that offered by the infants seen for the most part in out-patient departments of large hospitals. Here is to be made a differential diagnosis between

Gonorrheal ophthalmia,
Tear sac disease from pneumococcus infection,
Acute contagious conjunctivitis (rarer).

The bacteriological examination attendant upon the successful diagnosis of these cases may be said to be divided into two parts:

- (1) The examination of the smear.
- (2) The examination of the growths upon culture media.

The technique of the examination is very simple and consists in the preparation of the smear in removing from the conjunctival sac a small amount of the discharge with a platinum wire which has previously been heated in the flame of an alcohol lamp or Bunsen burner, then cooled in the water of condensation of a sterilized tube, and spreading the discharge in a thin layer upon an ordinary microscope slide.

This layer is then fixed by gentle heating in the flame, and a few drops of Löffler's alkaline methylene blue poured upon the slide. It is again passed through the flame, washed off with water and dried slowly in air or by warming.

That the smear is an important step will be readily appreciated by the statement of the fact that many cases of diphtheritic conjunctivitis (and from the experience of the last year and one quarter in the laboratory of the Massachusetts Charitable Eye and Ear Infirmary during the different services, notably that of Dr. Standish, over 50 per cent., approximately estimated, of all such cases) can be diagnosed immediately, and the eighteen to twenty-four or more hours' delay attendant upon culture development obviated.

It is also possible to recognize in this manner every case of gonorrheal conjunctivitis, although in these cases a second step is essential, which consists in bleaching the micro-organism with the Gram stain, as some

intra-cellular diplococci are found resembling the gonococcus which are associated with conjunctivitis and with a marked discharge, and which on treating with the Gram stain do not bleach.

The results of repeated observations upon the characteristics of this organism warrant the statement that it is the micrococcus subflavus with which one has to do.

That the early diagnosis by means of the smear is a boon to the physician who possesses an oil immersion lens, is apparent.

The second part of the bacteriological procedure in purulent conjunctivitis consists in the examination of the growths obtained by the inoculation of the different culture media from the conjunctival sac discharge.

In the consideration of the bacteriological appearances in these conditions, it would be better to confine the description to the appearances in the smears, as the recognition of the colonies on the culture media, and the demonstration of the bacteria from the culture tubes on the slide or cover-glass, is a simpler matter than the demonstration of the organism in the smear. Incidentally it may be said that during the course of this investigation a large number of cultures were made from the conjunctival sacs of healthy individuals who exhibited no ocular trouble, and although a number of articles have been published, especially in the German journals, to the effect that all healthy conjunctival sacs contain bacteria, the experience here showed that in a large number of cases (in some series 50 per cent. or more) the tubes showed absolutely no growth, the culture media used being, for the most part, blood serum, and occasionally gelatine and agar-agar.

In the order of importance from the prognostic standpoint, diphtheritic conjunctivitis is entitled to first consideration. Proceeding as described, a piece of the membrane or a slight amount of the discharge is transferred to the slide and stained. With the aid of an oil immersion lens are made out the brightly stained nuclei of the leucocytes, the fibrine strings and meshes and clumps of conjunctival epithelium.

In the fibrin meshes and in the conjunctival cell clumps are for the most part the bacilli, lying in groups, oftentimes of eight or ten, and exhibiting the typical characteristics of club-shaped ends, and clear unstained spaces in the rod. In marked cases the membrane may be stripped off and sections made with a freezing microtome. These sections are stained with Gram's stain for bacteria in tissues, and show the bacilli lying along the edges of the membrane in large quantities.

Membrane formation of such size is, however, not the rule. The gray, thin membrane occurring in patches on the palpebral, and less often on the ocular conjunctiva, is the form of this disease that generally comes to the practitioner's notice. In such cases, if the sterilized platinum wire be rubbed along the surface of the false membrane, the typical picture may be obtained in the smear.

In this connection, it would be well to state that a small number of cases have been noticed associated with decided membrane formation, in which the staphylococcus aureus was found on repeatedly taken cultures, and which in a few days cleared up wholly and without corneal involvement.

In considering the appearances in gonorrheal ophthalmia, the smear alone is to be relied upon, as it is next to impossible and certainly impracticable to grow this

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

organism upon the surfaces of the ordinary culture media. A small quantity of the discharge, having been spread upon the slide, is first stained with alkaline methylene blue, and the presence of intra-cellular diplococci ascertained. Another such slide is stained with Gram's stain, which consists in first coloring with auiline oil water gentian violet, washing with water, and then treating with the iodine, potass. iodide solution of Gram, again washing with water, finally with alcohol, and drying.

Under such treatment the cells lose somewhat of their sharp outline, but the principal change is in the organism; the dark-colored diplococcus, losing its intensity, is seen as a bleached, oftentimes rose-colored, organism, within the cell outlines, and characteristically grouped. The degree of the bleaching of the gonococci is in a direct proportion to the length of time that the bleaching reagent is allowed to remain upon the slide, and may be carried so far as to render the diplococci nearly invisible. It is often possible in this manner to demonstrate the invasion of the large hexagonal and becher cells of the conjunctiva by this organism.

A specific infection of the conjunctiva by the pneumococcus sometimes followed by corneal complications seems to be, from the number of cases seen, well established. Under such circumstances the discharge is thin, and may or may not be profuse. Generally it is poor in cellular elements, and shows here and there in the smear single pneumococci. The cultures from such eyes show small pneumococcus growths.

In those forms of pneumococcus infection associated with tear duct disease in young children, both the clinical and microscopical pictures are striking. In many of these cases it is impossible to tell clinically in such children whether we have to do with a gonococcus or pneumococcus infection.

The microscopical pictures presented by smears, however, are widely different. Here the pneumococci are found in large numbers, the discharge is profuse and containing fibrin-like strings. The appearances are enhanced by a capsule stain, and exhibit a different microscopical picture from that offered by the pneumococcus infection in the adult. In the cultures, large growths of pneumococcus are formed almost to the exclusion of other organisms.

Regarding the microscopical observations in acute contagious conjunctivitis, there is at present some doubt. Dr. Weeks, of New York, claims a specific bacillus in the bacterium bearing his name. He postulates that it is to be found in every case of this disease. The experience in the bacteriological laboratory of the Massachusetts Charitable Eye and Ear Infirmary does not bear out this assumption. In some few cases the organism that he describes has been found, exhibiting upon culture media the same biological characteristics, and in the smear being identical with those in smears made by Dr. Weeks himself, and kindly lent by Dr. Standish.

The vast majority of all such cases, however, show the commoner pyogenic organisms both in the smear and growth, namely, the staphylococci, streptococcus, and in some few other cases the bacillus xerosis and the bacillus pyocyaneus.

The object of this communication is principally to call attention to the fact that in those cases of contagious conjunctivitis where the clinical diagnosis in the beginning is difficult or impossible, the possessor of a

good microscope may ascertain the infection with which he has to deal, thus promoting early treatment, and using the cultures as a means of control.

Clinical Department.

A REPORT OF THREE CASES OF CANCER OF THE STOMACH IN WHICH HYDROCHLORIC ACID WAS PRESENT.¹

BY H. F. VICKERY, M.D., BOSTON.

It has been thought that the absence of hydrochloric acid in cancer of the stomach was a pretty constant symptom; and the somewhat remarkable coincidence of seeing three cases in one year all having hydrochloric acid present should be put on record. They were all three inmates of the Massachusetts General Hospital.

CASE I. Entered Dr. Shattuck's service in November, 1895. She was sixty-two years old. Digestive symptoms began about one year before entrance; in six months she had failed in weight from 160 to 97 pounds. The stomach was dilated. Vomiting was frequent, and at first there was no free hydrochloric acid found, but after she had improved somewhat it appeared. In December it is recorded that in four specimens of vomitus hydrochloric acid was present twice, and in January in nine specimens of vomitus hydrochloric acid was present five times. She improved decidedly, and was discharged much relieved in February. The great improvement, the presence of hydrochloric acid, and the absence of any tumor led to the belief that this was a case of dilatation of the stomach.

April 13, 1896, two months after she left the hospital, she re-entered, and came under my care. She had grown worse; and at this time no hydrochloric acid was obtained. A resistant mass could now be made out. She died in May.

Dr. Whitney reported: "On opening the stomach a large mass of new growth was found, extensively ulcerated, and directly continuous with a smaller mass in the liver. The growth was made up of large epithelial cells separated by a stroma of connective tissue. Diagnosis: cancer of pylorus, secondary cancer of liver, dilated stomach."

CASE II. A man, age twenty-seven, a native of Norway, and by occupation a cook, came under my care September 12, 1896. He had had some attacks of pain in the left hypochondrium as early as June, 1895, which were relieved by drinking hot water. These continued till December. Then he was free from symptoms until three and a half months before entrance to the hospital, when he had a good deal of pain, no longer relieved by hot water. At the time of entrance he had probably lost about 20 pounds; but he looked fairly well nourished, although he was pale. A tumor could be felt, which, however, was obscured when the stomach was blown up. The stomach was not dilated, and hydrochloric acid was present in the gastric juice as late as the 12th of September. The diagnosis was cancer of the posterior wall of the stomach. On the 17th of September he was transferred to the surgical side, and an exploratory incision was made; but it was evidently a cancerous growth

¹ Founded upon notes kindly furnished by Dr. J. A. Capps, Medical Intern. Read as a short communication at a meeting of the Clinical Section of the Suffolk District Medical Society, March 17, 1897.

which could not be removed. He died the 13th of October. The autopsy showed a cancer. The age of this patient is to be noted, twenty-seven.

CASE III. A man, forty-one years old, who had had digestive disturbance for about four months, with a good deal of vomiting. He was a very nervous man, and he had used at one time a great deal of tobacco. The stomach was not much dilated, holding two and one-half pints hydrochloric acid after a test-meal was present; lactic acid was absent; and the total acidity was increased, being 72 per cent., while the normal limits are 40-60 per cent. That is, this man, with what proved to be cancer, had hyperacidity; and the chances are that the acidity was mostly due to hydrochloric acid, for there was not a dilated stomach, lactic acid was absent, and fermentation did not seem to be excessive. A tumor could at times be felt; but he was very nervous, this hyperacidity was present, and he was uncomfortable on liquid food, so that I thought that possibly it might be a case of nervous dyspepsia, and I put him on full diet and doses of bromide of potash. For a time he improved very remarkably; but it was a merely temporary improvement, then he went on in the way of a cancer. Dr. Cabot attempted to prolong his life by sewing the stomach to the intestine. I think that the patient was perhaps more comfortable afterwards. He died May 11th, having been in the hospital a little over one month.

Dr. Whitney reports: "A hard, irregular, whitish mass surrounding the top of the pylorus, admitting the tip of the little finger. Primary cancer of the pylorus, secondary cancer of the liver."

ENTIRE DESTRUCTION OF SOFT PALATE AND VELUM BY SYPHILIS.¹

BY ALBERT N. BLODGETT, M.D., BOSTON.

THE patient is a boy fourteen years of age, of healthy parentage. The disease appeared three years ago, and the case was referred to me about four weeks ago, by a practitioner in another city. The following history is by a member of his family.

"He was a child of healthy parents; his father was a young man, temperate and of good habits; his mother was a young woman, had good health when the child was born, and never had humor of any kind. The child was healthy when born, and has always had the best of care and food. He never had any sickness or poor health until after being vaccinated.

"In the late fall or early winter of 1893 the city enforced the law regarding vaccination in the public schools, and all children, in order to be able to attend school, were obliged to be vaccinated if they had not been. The city sent a physician to the schools to vaccinate the children, and he was vaccinated at this time. The arm was very much swollen and very painful, and I should say he was out of school over a week. He did not seem strong after this, and in a few weeks his eyes commenced to trouble him, and grew gradually worse, until in the fall of 1894 they grew much worse, and I took him to a specialist here in the city. This doctor said it was a very bad case, and was caused by poison in the system, and gave me to understand the

poisoning was caused by the vaccination. He told me I must take the boy out of school, and that he would probably be unable to attend again for two or three years. After doctoring him for three or four weeks, the doctor said it would be a hard, long case, and advised me to take him to the Eye and Ear Infirmary in Boston. His eyes seemed to improve after taking him there. I did not take him to the Infirmary until the doctors gave up the case. He was only to go there after he had taken the medicine they gave him. His eyes seemed very much better, and his throat began to trouble him.

"A Mrs. Stasfield of this city has a little girl who was vaccinated at the same time by this doctor. This child broke out in large sores all over the body, and especially the head. These sores have been worse at times than others, and they seem to trouble her more about the time of year when she was vaccinated.

"There is another little girl in the same neighborhood by the name of Calwfrank. She had a very hard time with her arm when vaccinated, and since that time she has had a large sore on the back of her neck which has been very painful, but seems to be some better now."

No point of primary infection except the place of vaccination was at any time observed. There is a history of subsequent falling out of the hair and of an indolent long-continued inflammatory condition of the eyes, of which there is now no trace. There was at the time I saw him a place across the dorsum of the nose covered with white, glistening skin, which had attracted the attention of the mother, and was somewhat tender to the touch; a discolored patch on the upper lip was also visible. I wrote to the physician who had been attending the case, and received this note in reply.

In the case of W. F., after my examination I diagnosed it as syphilis. There was ulceration up to the posterior nares, the soft palate was almost ulcerated off so the part hung only by a few fibres. I think the cause is due to syphilitic virus [received] when he was vaccinated.

Respectfully, R. F. PFEFFERKORN, M.D.

Dr. DeBlois kindly saw the case yesterday, and diagnosed it as one of undoubted specific disease.

The case presents very much the appearance of the colored plate marked B and the one on the succeeding page marked D, in Dr. DeBlois's article (in the "Transactions of the Laryngological Association") as far as it can be said to conform to anything I can show you.

At the time of my first examination, the boy was in bad general condition. The skin was everywhere very pale, the face haggard, pulse weak, appetite poor; and he complained of weakness and increasing languor. He has not been in school for three years, but has recently commenced a course in manual training which does not overtax his strength and which he enjoys.

Examination of body reveals enlarged glands in the right neck; none elsewhere. One large, pigmented spot is observed on the face, a few doubtful ones elsewhere. On the left arm is a large, depressed cicatrix from vaccination—thin in texture, pale in color, but not otherwise remarkable. Examination of chest negative. No history of cough. Breathing is entirely by the mouth, and the breath is of a sickening, sweetish odor and quite offensive. He cannot breathe

¹ Read as a short communication at a meeting of the Clinical Section of the Suffolk District Medical Society, March 17, 1897.

through the nose, though air can be forced through each side with some difficulty. There is an abundant, glairy, semi-purulent discharge from the nose. Speech is very defective, though the patient formerly talked well. Mouth and teeth are normal. Hard palate perfect, though the mucous membrane is somewhat thickened and injected over the posterior portion of the roof of the mouth. In the place of the velum and uvula is a yawning defect of irregular contour, with indurated and undermined margins extending entirely across the vault of the pharynx, from one anterior pillar to the other. At the outer edge of the anterior pillar of the right side is another independent, ragged, excavated ulceration, extending deeply behind the anterior pillar toward the tonsil. Another broad, superficial ulceration extends across the left anterior pillar toward the last upper molar tooth. The epiglottis and larynx are not affected.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR meeting Wednesday, March 17, 1897, Dr. W. F. Whitney in the chair.

DR. FRANKLIN W. WHITE read a paper on

THE DIAGNOSTIC VALUE OF TUBERCULIN.¹

DR. F. C. SHATTUCK: In my wards at the hospital this method has been practised for three years in apparently suitable cases; and during Dr. White's service, wishing to satisfy myself more fully about it, the injections were used in a wider class of cases and not simply in those in whom tuberculosis was suspected. As far as the diagnosis goes, this winter I had in almost contiguous beds in the ward pretty good illustrative cases. A woman came in with symptoms of chronic meningitis, and it was a question whether it might be specific or tuberculous. She got a prompt reaction from tuberculin which seemed to settle the diagnosis. Near her was a mulatto girl with some obscure abdominal disease — a considerable tumor, the exact relations of which were not easy to make out. She had a good deal of fever, was thin; and in view of the fever, emaciation, this rather painful lump in the abdomen and her race, there was strong reason for suspecting that she might be tubercular. After the subsidence of the fever, she failed to give any reaction, and gradually the tumor disappeared, and she went out, apparently on the road to recovery.

We have more or less trouble from the patients — I think Dr. White said 20 per cent. — who react to the tuberculin injection, but in whom we can find no other evidence of tuberculosis; and that has made me ask myself again the question I have often put to myself, namely, How many people are there who are tubercular and never know it? If one-seventh of the human race in civilized countries at all ages die from pulmonary tuberculosis alone, how many have it and get over it, and how many have it and never know anything about it? During the course of the winter a man came to the hospital to apply for admission; he soon went into convulsions and died. At the autopsy it was shown that the convulsions were due to renal

disease, and he had at the top of one lung an old tubercular focus. Suppose that man had come into the ward and we had determined his nephritis, the old tubercular focus at the top of one lung might have been entirely overlooked or given rise to no signs. Suppose he had been given a tuberculin injection and had reacted, we might have had to confess there was no evidence of tuberculosis, unless the nephritis was of tubercular nature, which it was not. I mention that, as it seems to me a matter of some importance and as helping possibly to explain the reaction in cases in which we can demonstrate no sufficient cause. I can only repeat and reinforce what Dr. White has said as to the apparent innocence of the injections. I have seen no reason to regret having used the injections in any case. The worst that happened was a transitory malaise, but never the least evidence of any acceleration of a tubercular process as a result of the injections.

DR. LIEBMANN: I would like to ask Dr. Shattuck in case there is already fever how he makes out his test then? Will there result a higher fever?

DR. SHATTUCK: We may very seldom use it in the presence of fever. Fever makes the test very uncertain.

DR. MORSE: Dr. Mason asked me to speak of a case of his at the City Hospital as showing remarkably well the action of the tuberculin test. It was a non-febrile case of the ascitic form of tubercular peritonitis in a girl of fourteen. The temperature reaction was prompt and decisive. Laparotomy was performed on the strength of this reaction. The peritoneum was studded, especially in the pelvis, with miliary tubercles. The microscopic examination of a piece of tissue removed at the operation showed typical tubercular tissue containing tubercle bacilli. This case is interesting from the very prompt reaction and the proof that the case was one of tuberculosis by the operation and the microscopical examination.

DR. STONE: Has it been the experience of others that one in five react to the test?

DR. WHITE: I found it difficult to collect any satisfactory statistics on this point, from the fact that the number of any one man's cases was usually small, and different numbers and sizes of doses were used by the various men, and the evidence for the presence or absence of tuberculosis in the cases was often incomplete.

DR. E. O. OTIS: The large number of tuberculin tests which Dr. White has reported to-night renders his paper exceedingly interesting, suggestive and valuable; and he is to be congratulated upon it. An early diagnosis of pulmonary tuberculosis is always most desirable and important; for, as we all know, it is in the early stages of the disease that treatment is most successful, and anything that can aid us in its early detection is most welcome. Brehmer long ago insisted upon the value of the spirometer as an early diagnostic sign; and more recently Kausome has elaborately developed stethometry which, as he says, "assists in the detection of incipient pulmonary disease, its indications sometimes preceding all other signs"; and now we have the tuberculin test which has revolutionized the study and management of bovine tuberculosis, and which, if we can only determine the effective minimum dose, and be assured that no evil will result, seems likely to prove a most precious early diagnostic test. Experimenters, however, do

¹ See page 123 of the Journal.

not seem to be agreed as to the safe and effective dose of tuberculin. Grasset and Wedel² from their experiments concluded that from two- to three-tenths of a milligramme for the first injection, and five-tenths for the second, was a sufficient dose for the test. Cambemale and Raviat³ thought that two deci-milligrammes were enough; while Dr. White has used with impunity considerably larger doses.

Of course, the danger to be feared in this test is the aggravation of pre-existing symptoms; and therefore the crucial question, which seems still to be doubtful, is — what is the minimum dose which is sufficient for a test, and which, at the same time will not aggravate possible existing tuberculosis. Until this is answered definitely the tuberculin test will always involve a risk. In two cases reported by Cambemale and Raviat five deci-milligrammes produced excessive reaction.

In cases of more or less advanced tuberculosis different results have been obtained by the test. Some give little or no reaction, and in others it is excessive. With cattle, according to Nocard,⁴ in very tuberculous subjects, especially in those which are feverish, the reaction may be little or nothing.

Reaction has also been obtained in some other diseases; for example, Grasset and Wedel mention a case of tertiary syphilis in which a slight reaction was obtained.

Dr. Trudeau, in the Adirondack Sanitarium at Saranac, has used the tuberculin injection as a test of recovery; if no reaction is obtained the patient is considered cured. It seems to me that many more such investigations like these of Dr. White are desirable and necessary before we can determine just what can be done with the tuberculin test with safety to the patient. Knowing its wonderful accuracy and innocuousness with cattle, it would seem that it might also become a most delicate test in the human subject, and it is to be hoped that experience may finally lead us to the safe maximum dose.

DR. WHITE: As to the question whether other disease may not give a reaction to tuberculin, I have seen this claim made in regard to syphilis, but it seems to me that the present evidence is not sufficient to prove it. In talking with the Chairman of the Cattle Commission, he stated that he thought that actinomycosis might give a reaction where there was apparently no tuberculosis in the cattle; but he had seen too few cases to feel sure of it.

DR. WHITNEY: I think any one who has done a number of autopsies will bear out what Dr. Shattuck says as to the lesions which give evidence of tuberculosis having existed at some previous time. I should like to ask Dr. White if it makes very much difference with a single dose whether it is large or small. If a patient reacts to a small dose, is the reaction greater if a large dose is given?

DR. WHITE: In our work the dose has been ten milligrammes. In treatment, doses much larger than that have been given after the first toleration is established. As to whether one dose would not be as good as another, there is no question that a dose may be too small to produce reaction; for example, in some cases where two milligrammes produced no result, a typical reaction followed ten milligrammes. There

is such a difference of opinion about the size of the best diagnostic dose that it must be a matter for further observation.

DR. STONE: As to what may be considered "healed tuberculosis," I should like to speak of a case of which Dr. Alexander Burr told me. A young cow, apparently perfectly healthy, reacted to tuberculin. On killing the animal he found, after diligent search, one small caseous gland having a thickened capsule with calcareous material in the capsule. A few giant cells proved it to be tuberculous. This is as nearly a healed condition as it is possible to imagine, certainly a very quiescent condition, and yet the animal reacted in a perfectly typical way.⁵

It is well known that a number of people in perfect health, as far as they know, have reacted to the test, and further that a large number must carry about with them quiescent tuberculous lesions. Consequently it is possible that, in addition to the admitted one in five which falsely react, there may be others who will react from the presence of these quiescent lesions when the important lesion is non-tubercular.

The varying statements in regard to the dose necessary are probably caused by the fact that tuberculin is by no means a stable product, and different lots made under apparently similar conditions have different strength, and the products of different laboratories are subject to still greater variation.

DR. ALBERT N. BLODGETT read a paper on

ENTIRE DESTRUCTION OF SOFT PALATE AND VELUM BY SYPHILIS.⁶

DR. FARLOW: This certainly seems to be a case of specific disease of the throat; and from the swelling and dusky look of the anterior pillars I should say that the disease was not yet quiescent but that further treatment was necessary.

It is not very uncommon to see such cases as the result of congenital syphilis; and, unless there is stronger proof than was given in the history as read, I should be inclined to consider it as a case of inherited syphilis.

DR. BLODGETT: My purpose in showing this case to-night is not so much on account of the pathological condition as to emphasize the importance of using bovine virus and not humanized virus which the friends of this boy think was used in this case.

DR. J. L. MORSE: I fail to see that Dr. Blodgett has shown any proof that the syphilis in this case is due to the vaccination beyond the fact that the symptoms were first noticed after the vaccination. It seems to me that the fact that the eye symptoms came on a month after the vaccination is a strong point against any causal relation between the two as the eye symptoms of syphilis are a very late manifestation. It seems to me we should make a great mistake to conclude upon the evidence given that this case of syphilis is due to vaccination.

DR. VICKERY: Inasmuch as a good many persons are unreasonably opposed to vaccination and desirous of catching hold of any argument, whether well-grounded or not, against it, I think it should be brought out clearly that so far as we have not the proof that the initial lesion was occasioned by vaccination. We have a plain case of tertiary syphilitic disease,

² Bulletin Acad. de Med., 1896.

³ Bull. Méd. du Nord, September 11, 1896.

⁴ The Animal Tubercloses and their Relation to Human Tuberculosis, 1895.

⁵ Dr. Burr has since told me that such occurrences are frequent, and that out of 15 cattle killed on the day of writing me three were non-tubercular.

⁶ See page 133 of the Journal.

but it has not been demonstrated at all how this occurred.

DR. BLODGETT: I have not intended or endeavored to prove that syphilis in this boy was due to vaccination. I have offered the history as narrated by a member of the family. I have presented the symptoms as far as they can be traced at present. My researches are not yet complete, and I exhibit the patient at this time because he lives at a distance and has at my request remained in town for that purpose. The case is one which is not especially common; and the circumstances have produced a conviction in the minds of the family that it was due to the cause assigned and to this alone. Other cases of troubles of one or another kind after the same process of vaccination in the same school by the same city official, and presumably with the same vaccine, have occurred; and the case has unfortunately attracted considerable attention in that way. I observe that no one considers the disease to be anything else than syphilis. As far as the family history goes there is no other known mode of infection than that given above. The disease is not apparently hereditary, it has never been suspected or known in any member of the family. The child's parentage is unquestionable, and I consider it possible that infection may be due to virus obtained from human sources and not from bovine sources which we should recommend for universal adoption. No more forcible argument for such adoption can be presented than the possible infection of persons vaccinated with other virus becoming thereby inoculated with any disease capable of effecting such deplorable results as are illustrated in the present case.

DR. C. W. TOWNSEND: As an example of this *post-hoc-ergo-propter-hoc* argument so often used by patients, I may mention a case very much like this that presented itself at my clinic at the Massachusetts General Hospital three days ago. There was a great deal of ulceration back of the pharynx. The soft palate and uvula had disappeared. It was a clear case of tertiary syphilitic ulceration. The patient herself said it was due to the kick of a horse when she was eleven years old. It seems to me there was as much proof of the connection with the cause as given by the patient in that case as in this.

DR. H. F. VICKERY read a paper on a report of
THREE CASES OF CANCER OF THE STOMACH IN WHICH HYDROCHLORIC ACID WAS FOUND.⁷

DR. LIEBMANN: Of late I have seen reports of several cases of cancer of the stomach where hydrochloric acid was present, especially at the first stage apparently before the glands have been destroyed, and before the atrophy of the mucosa has progressed a great way. On the other hand, I have had a case where on the base of a previous ulcer cancer sprang up and where hydrochloric acid was always to be found. Whether the hyperacidity in this case was due to hydrochloric acid I would doubt, and should think that most of the acidity was due to organic acids.

BELLEVUE HOSPITAL MEDICAL COLLEGE.—Dr. E. G. Janeway has been elected president of the faculty of Bellevue College, to fill the vacancy occasioned by the death of Dr. William T. Lusk.

⁷ See page 132 of the Journal.

AMERICAN ORTHOPEDIC ASSOCIATION.

ELEVENTH ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4-6, 1897.

FIRST DAY.—TUESDAY.

DR. SAMUEL KETCH, of New York, President of the Association, delivered the Annual Address, taking for his theme

THE WORK AND INFLUENCE OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

He said that just ten years ago the Association had been founded. It had been claimed that orthopedic surgery was too narrow a specialty, but this would seem to be fairly refuted by a glance at the work of the Society. Thus, 323 papers had been presented, of which 35 were on hip disease, 19 on knee-joint disease, 49 on Pott's disease, 20 on lateral curvature, 43 on club-foot and 79 on spastic paraplegia. The position of orthopedic surgery, he said, was at last an assured one; it had been forever wrested from the hands of mere instrument-makers and quacks. The address closed with several memorial sketches, including one of the venerable Dr. H. G. Davis, "the Father of American Orthopedic Surgery."

ERASION OF THE KNEE-JOINT, WITH CONSERVATION OF THE EPIPHYSEAL CARTILAGE.

DR. HARRY M. SHERMAN, of San Francisco, presented a paper on this subject. He said that if all diseased tissue could be removed without interfering with the cartilage, a certain amount of developmental energy of that cartilage might be conserved. He reported three cases in which total arthrectomy and epiphyseotomy had been performed, the epiphyseal cartilage being preserved. Although all three patients left the hospital with straight and apparently solid limbs, flexion occurred in each one in spite of the use of a plaster splint. A radiograph, which was exhibited, seemed to show that this flexion was due to the development of more bone in the anterior than in the posterior cartilage. In one of the cases, although all but a circumferential band of the epiphyseal cartilage sloughed away, this band proved sufficient to prevent further shortening. In closing, the speaker alluded to the advantages to be derived from early exploratory punctures in an effort to reach tubercular foci.

DR. CHARLES L. SCUDDER, of Boston, expressed his approval of the suggestions contained in this paper. He said that if the flexion referred to did not exceed eight or ten degrees, it would not be found objectionable, but, on the contrary, would add to the patient's comfort.

DR. R. W. LOVETT, of Boston, said that his personal experience with the conservative treatment of knee-joint disease had been fairly satisfactory, and he was rather opposed to operative measures. His experience with arthrectomy had been very discouraging. He cited a recent and seemingly desperate case, in which although he had been unable to remove all the diseased tissue at the operation, the child had been greatly improved.

DR. W. R. TOWNSEND, of New York, said that he had not found excisions in adults as satisfactory as in children, and indications were for an earlier excision.

DR. BLANCHARD, of Chicago, remarked that his experience had been just the reverse of Dr. Townsend's, having been much more favorable in adults.

The PRESIDENT, alluding to the flexion following operation, said that he had seen several cases in which the flexion had almost equalled the original deformity. He had been satisfied with the results of the conservative treatment of knee-joint in children.

DR. SHERMAN, in closing the discussion, said that as we knew now the more common situations of the early foci of joint disease, it was possible for the surgeon to do much good by exploring with a small trephine. Where he had practiced this method on the knee, it had been productive of no bad results. It was not, however, well adapted to disease of the hip-joint, owing to the deep situation of this joint.

TRAUMATIC SPONDYLITIS.

DR. ARTHUR J. GILLETTE, of St. Paul, reported three cases of traumatic spondylitis. In the first case the traumatism was quite trivial, yet this had been followed by rigidity of the spine, with pain and a slight dorsal kyphosis. The autopsy showed that the vertebræ throughout were so spongy that they could be crushed with the fingers. The iliac crest, ribs and sternum were in the same condition. The second case occurred in a man of thirty-five years, as a result of a severe sprain of the back. A post-mortem examination of the spinal column showed the spinal cord intact and the membranes softened. Both the anterior and posterior segments of the vertebræ were carious, and in the upper dorsal region was a sinus communicating with the left pleural cavity. The third patient also was a young and vigorous man, who developed the evidences of vertebral caries after some injury to the back. The autopsy showed that the spongy portions of several of the vertebræ had been reduced to a dark, pulpy mass.

SPONDYLOLISTHESIS.

DR. R. W. LOVETT, of Boston, presented a case which he thought might be fairly classified under this heading. The patient was a youth of eighteen over whose pelvis a heavy wagon had passed. Although he received no medical or surgical treatment at the time, he was soon able to go about on crutches. When first seen by Dr. Lovett last September, the shape of the hips was like that of a case of congenital dislocation of the hip, but the trochanters were on Nelaton's line. The lumbar spine appeared to project forward abnormally. A plaster-of-Paris jacket was applied under suspension, and under this treatment the patient improved rapidly. All the symptoms have now disappeared, but the deformity of the lumbar spine still persists.

DR. NEWTON M. SHAFFER, of New York, said that he had seen one case closely resembling this one so far as the condition of the spine was concerned, and another case resembling it so far as the hip was concerned. In one case there had been extreme lordosis with apparent dropping away of the spine from the sacrum. In that case the patient recovered with a position similar to that shown by the photographs of Dr. Lovett's case.

The PRESIDENT referred to a case in which, although there had been marked spinal symptoms during life, but little was found at the autopsy.

DR. WILLIAM J. TAYLOR, of Philadelphia, recalled an operation on a case of a spinal tumor, in which, although the whole of the central portion of the cord was diseased, there was no thickening of the cord itself.

TREATMENT OF TORTICOLLIS.

DR. E. G. BRACKETT, of Boston, read a paper on this subject, and reported four illustrative cases. He said that surgeons were agreed on three important points in the treatment of torticollis, namely: (1) That the contracted structures lying superficial to the deep layer of fascia must be overcome; (2) that the deeper structures—the ligaments, muscles, etc.—must be further stretched; and (3) that the muscles holding the head must be so re-adapted to the new position that they will no longer tend to draw it to an abnormal position. This last part could only be accomplished by systematic massage and exercise. The patient should lie with a roll under the neck, and the head turned to the opposite side, and while in that position, deep massage should be practised on the contracted structures and on the trapezius of the opposite side. Forceful manipulations to depress the head to the point of tolerance are also requisite, and after this, with the head in as nearly the correct position as possible, the patient should be given heavy work to do with dumbbells. Dr. Brackett called attention to the fact that in one of the cases, while attempting to correct the head at the time of the operation, the patient had repeatedly developed peculiar breathing and other alarming symptoms. These symptoms had occurred in subsequent attempts at correcting the head beyond a certain point, and could be produced to a certain extent even at the present time. This rather novel complication was probably explicable on the ground that the vagus nerve had also become shortened.

DR. L. W. HUBBARD, of New York, said that he had recently treated a case of congenital torticollis occurring in a girl, twenty-eight years of age. He had operated by open incision on January 5, 1897, dividing the sterno-mastoid and trapezius and the other contracted tissues, and thoroughly stretching the parts under ether. The head was put up in plaster in an over-corrected position, and from time to time this was changed. She then wore a spinal apparatus with chin-piece for about two months, during which time she was subjected to manipulations similar to those described in the paper. This part of the treatment seemed to him of great importance.

DR. SHAFFER thought certain cases of torticollis should be relieved by systematic massage, or even by forcible intermittent traction.

DR. WILLIAM J. TAYLOR said that he had successfully made use of practically the same method of exercises as that described in the paper.

DR. BLANCHARD said that he had always found it necessary to begin with an operation.

DR. A. J. STEELE, of St. Louis, said that, after operating, he applied plaster of Paris around the head and trunk, leaving the neck free. This dressing was reinforced by two long strips of wire gauze, passing anteriorly and posteriorly, and incorporated in the plaster of Paris. Instead of the manipulations advocated in the paper, he suspended the patient by the occipito-mental strap, carrying one end of the bar far out, and the other near the centre so as to carry the head in the desired direction.

DR. LOVETT referred to two cases that he had seen in which there had been the reverse of torticollis, i.e., congenital elevation of the shoulder. When the head was put in the position of torticollis, the shoulder would come down.

DR. SHAFFER said that he had seen one case in which there had been contraction of both sternomastoid muscles, causing a forward position of the head resembling that seen in Pott's disease.

DR. BRACKETT explained that he only advocated these exercises as an adjuvant to operative measures.

SECOND DAY — WEDNESDAY.

CONGENITAL DISLOCATION OF THE SHOULDER-JOINT.

DR. CHARLES L. SCUDDER, of Boston, reported two cases of this rather rare condition. He said that in the first case, the traumatism incident to a difficult labor probably was an etiological factor; but this could not be said of the second case. The distinguishing feature between traumatic dislocation occurring at birth and true congenital dislocation of the shoulder appeared to be that in the latter there was always a lack of development of the bones of the upper extremity. The shoulder deformity was probably due to lack of development of the glenoid cavity and head of the humerus.

DR. L. W. HUBBARD said that Dr. A. M. Phelps had seen six cases, and had operated upon five of them. In four, the posterior portion of the glenoid cavity was broken off.

DR. V. P. GIBNEY, of New York, said that his experience had led him to believe that one should endeavor to secure partial ankylosis in these cases, or else perform complete resection.

DR. SCUDDER, in closing, said that the only relief to be afforded was through operative measures.

A CASE OF ASYMMETRICAL DEVELOPMENT.

DR. A. R. SHANDS, of Washington, D. C., presented a boy, now twelve years of age, in whom asymmetry had been noticed when he was but two years old. The right side was more developed than the left, and the right lower extremity was edematous and covered with numerous purplish blotches. The right thigh measured $18\frac{1}{2}$ inches in circumference, and the left 13 inches. His voice was husky, but intelligence fair.

DR. A. JACOBI, of New York, called attention to the asymmetry of the cranium and of the lower jaw. This was only the third case of the kind that he had ever seen. There could be no doubt, he said, that the blood-vessels on the large side were abnormal.

DR. I. ADLER, of New York, said that these cases were of interest, both from a pathological and diagnostic point of view. The condition undoubtedly arose from irregularities in development occurring early in utero-gestation. Acromegaly could be excluded from present consideration, because it never is unilateral. Elephantiasis might also be dismissed from one's mind, as in the present case there was enlargement of bone as well as hypertrophy of the soft tissues. The fact that the capillaries of the skin were abnormal was a point of much interest.

SOME EFFECTS UPON THE LEG OF PRONATION OF THE FOOT.

DR. JOHN DANE, of Boston, presented a paper on this subject, embodying the results of a special study of the mechanisms involved. He said that in pronation of the foot the greater part of the foot remains stationary, and the leg rotates upon it; also that, in addition to the generally recognized motion of the mallooli inward and slightly downward, the normal outward rotation of the tibia and fibula is replaced by an

exaggerated rotation inward. In the pronated foot the knee must be kept in constant extension by muscular force, thus causing fatigue and extreme tenderness over the inner tuberosity of the tibia. To compensate for this inverse rotation there is an exaggerated inward rotation of the fibula which, in its turn, over-stretches the internal rotators of the thigh, causing tenderness and pain in the calf and knee.

DR. LOVETT referred to the relation of the pronated foot to the back and also to beginning lateral curvature. His study of the first subject had led him to think that probably the "base position" in gymnastics was not correct, and that it should rather be a position in which the feet were kept slightly apart.

FIFTY RESECTIONS IN HIP-JOINT DISEASE.

DR. R. W. LOVETT read a paper with this title. He said that from 1878-1895, at the Children's Hospital, Boston, 1,100 cases of hip-joint disease had come under treatment, and had been treated by protection, partial fixation and traction. After the faithful use of conservative mechanical treatment, 50 came to excision. The indications for operation were: (1) Persistent deterioration of the general condition; (2) a progressive process in the joint, as shown by much induration and discharging sinuses; (3) persistent and severe pain and tenderness late in the disease, not relieved by efficient traction and fixation; and (4) the formation of extensive sequestra in the joint. In the majority of the cases, three or four years had elapsed since the time of the excision. Nineteen were known to be dead, and six others were probably dead, giving a mortality-rate of nearly 50 per cent. In about half of the cases there was ankylosis; in the others, the motion was surprisingly good.

(To be continued.)

Recent Literature.

Retinoscopy (or Shadow Test) in the Determination of Refraction at One Metre Distance, with the Plane Mirror. By JAMES THORINGTON, M.D., Adjunct Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Twenty-four illustrations. Philadelphia: P. Blakiston, Son & Co. 1897.

This little manual of 66 pages is certainly the clearest exposition of this method of estimating refraction of the eye that has yet been published. The methods described are not so complicated as those taught in some other hand-books.

The text is clear, and the illustrations serve the purposes for which they are designed admirably. Taken altogether, it is the most practicable hand-book on retinoscopy yet published.

Biographical Sketch of the Life and Writings of the late Professor Henry Bronson, M.D. By Dr. STEPHEN C. HUBBARD. Read before the New Haven Colony Historical Society, May 27, 1895.

This appreciative biography of a physician whose life and work filled an important place in the medical history of New Haven and Connecticut during the greater part of a life which almost rounded out the century, is a handsomely printed volume of 117 pages. It gives an interesting account of the life of a man of eminence as a physician and teacher.

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CONCERNING HYSTERIA.

THERE is perhaps no subject in medicine about which so many hazy notions have grouped themselves as about hysteria, a disease which seems likely to enjoy its curious misnomer for many years to come. From its supposed association with the uterus it was quite natural that a popular conception should have gained ground that it was a disease peculiarly of women, an idea which is still deeply rooted, unfortunately, in the professional mind. Increasing knowledge, and the careful studies of the French school have remodelled our ideas to a marked degree, until now we clearly recognize the existence of true hysteria, not only in men, but also in children, and, rarely, even in infants. Experience has amply justified such a widening of our views; but it should also have taught us a certain conservatism in our estimate of what constitutes hysteria, in its true sense.

Hysteria and its too convenient adjective "hysterical" have served, and do still serve, as a catch-all, into which almost any doubtful morbid manifestation on the part of the nervous system may be thrown, often with an air of wisdom which is sincerely to be deprecated. Each of us has experienced this tendency, often, no doubt, with a distinct shock to his scientific sensibility. How often have we had it lightly said to us, as we have patiently and conscientiously sought for the etiology of some obscure symptom, as, for example, a sudden blindness, "Oh, that is hysterical!" and this perhaps with no further examination as to the existence of other symptoms which might in any way point to hysteria. It is invariably unfortunate and illogical to argue that because a clinical phenomenon does not conform to the symptom groups of certain well-known diseases, it must therefore by exclusion be a manifestation of hysteria.

If recent investigation on the subject has done anything, it has shown that with the broadening of our knowledge has come also a narrowing; that

whereas, on the one hand, hysteria has been shown to have a wider distribution in age and sex than was formerly supposed, it has likewise come to have a much more definite symptom-complex, and one which should not permit of its confusion with any other condition. It has assumed the dignity of a disease, in spite of its doubtful pathology, and is no longer to be regarded as a vague morbid condition, which is capable of receiving to itself the innumerable outcast symptoms which may find no other resting-place.

It would be a source of congratulation if the word "hysterical" might be absolutely abandoned; and certainly we have no further use for such hybrid terms as "hystero-epilepsy." When matters are confusing enough already, why augment our difficulties by the unscientific method of using merely descriptive terms? Because a manifestation of hysteria may simulate a so-called epileptiform convulsion, there is no adequate reason for speaking of it as an hysterical epilepsy. We must impress upon ourselves the simple fact that epilepsy is epilepsy and hysteria is hysteria, and that epileptic hysteria or hysterical epilepsy have no more scientific sense than renal pleurisy or cardiac hepatitis. There can be no question that epilepsy and hysteria are absolutely distinct conditions, small as our knowledge is of their underlying pathological anatomy. This naturally does not exclude the possibility of the two diseases being associated, in rare cases; but, even so, they are distinct one from the other.

It should, therefore, be our aim to picture hysteria to ourselves as a definite disease entity, which has a legitimate scientific claim to be regarded as such, and to avoid the popular error of confusing it with other morbid conditions, or other morbid conditions with it. If we could bring ourselves clearly to this point of view we should be much better able to direct our attention to the disease hysteria, as it occurs under unusual circumstances.

An interesting paper by Eshner, of Philadelphia, read recently before the Philadelphia County Medical Society, deals with the important matter of "Hysteria in Early Life," with a clinical report of eight cases. With one exception all of these cases occurred in children at or under fourteen. Many of them are somewhat doubtful of diagnosis, as Eshner candidly admits; but they are valuable for this very reason.

A typical case and one of much practical value is that of a school-girl of nine, who after a severe fright, occasioned by being locked alone in a room by an intoxicated father, developed a marked tremor, beginning in the right hand and arm, and extending later to the head and left arm. Following this, convulsive attacks came on, which after a few weeks averaged fifteen a day; in no one of these attacks had there been injury to the tongue. A seizure, as observed at the clinic to which the child was finally brought is described as follows:

While sitting, the child suddenly began to droop her head, then to move it forward and backward. Next, the right hand began to tremble, and then the left. Finally, the arms and legs also were set in active movement, as in the process of walking

on all fours. Frothing at the mouth occurred. The eyes were closed and the child appeared unconscious. The attack terminated in clenching of the fists and tonic rigidity of the members. The mental state following was unobscured. In the intervals between attacks there was tremor of the right hand, which ceased with the onset of the attack, and also when the child's attention was diverted or engrossed, as in conversation.

Physical examination was, in other respects, essentially negative. The child improved under suggestive treatment, and the correction of an error of refraction.

Other cases repeated in the same paper are less typical, but all certainly suspicious of hysteria.

It is well that the attention of general practitioners, as well as that of specialists, should be directed to the problems associated with the various hysterical states, and that their discrimination should be exercised in a most painstaking way to arrive at a correct diagnosis. The report of such cases as those to which we have alluded is always timely, as a stimulus to renewed care in the proper determination of the character of these most subtle of all the affections to which the nervous system is liable.

The hysteria of men is now perfectly well recognized, and conforms in a general way to the type as observed in women, nevertheless we still hear it said in professional circles that hysteria is a disease peculiarly of women, and this in spite of the manifold hysteroid affections that are continually being brought to our notice as occurring in men; for example, as the result of accidents.

We need, therefore, radicalism as well as conservatism in our views of hysteria; radicalism, as shown in a readiness to admit the possibility of its occurrence in both sexes and at any period of life; and conservatism, in demanding that the suspected symptoms shall conform to a definite disease-type.

MEDICAL NOTES.

ANONYMOUS COMMUNICATIONS.—We beg to say to correspondents who desire to discuss serious and important questions in these columns, that their names should accompany their communications, if not for publication at least as a guarantee of good faith.

CHOLERA AND PLAGUE IN BOMBAY.—Cholera is reported to have become alarmingly prevalent in Bombay of late, and bubonic plague has also broken out again.

THE FLOATING HOSPITAL OF ST. JOHN'S GUILD, NEW YORK, was struck by lightning on Friday last, and a baby was killed in its mother's arms. The same shock also caused the premature birth of another child.

THE COLOR OF SCHOOLROOM WALLS.—The New York City Board of Education are to determine what color is best to be used for the walls of schoolrooms. A commission of oculists is to be selected for the purpose. This is unquestionably a matter of considerable importance, and should receive the attention of educators everywhere.

THE PRINCE OF WALES AND THE ROYAL COLLEGE OF PHYSICIANS.—The Prince of Wales has, in the language of the *Lancet*, graciously permitted himself to be enrolled as an Honorary Fellow of the Royal College of Physicians of London.

DR. DONALD McLEAN ASSAULTED.—Dr. Donald McLean, of San Francisco, dean of the California Medical College, was shot on Friday last by a discharged employee of the college, and was dangerously wounded. His assailant killed himself when about to be apprehended by the police.

A CHAIR OF PHYSIOLOGICAL CHEMISTRY.—Upon the recommendation of the Faculty of the College of Physicians and Surgeons, Columbia University, the title of the chair of chemistry and medical jurisprudence was changed to that of physiological chemistry. The chair has not yet been filled.

BUBONIC PLAGUE AT SAN FRANCISCO.—A ship recently arrived from Calcutta is held in quarantine at San Francisco on account of the presence on board of what is supposed to be bubonic plague. One of the crew died during the voyage from Calcutta, and two of the men are ill with the same disease.

A CHEERFUL FACT FOR NEW YORK CITY.—A statistician catering for the good-will of the Greater New York says that for the six deaths every fifteen minutes there are seven births. Unfortunately, however, the births are largely from that class in the community which is of least benefit to the city.

PROFESSOR TOLDT CHOSEN RECTOR OF THE UNIVERSITY OF VIENNA.—Prof. Karl Toldt, professor of anatomy, has just been elected rector magnificus of the University of Vienna for the scholastic year 1897–98. The tenure of office is but a year, and there is usually a rotation in the selection of candidates from the different faculties that constitute the university. Professor Toldt succeeds Professor Reinisch, a jurist.

VICTORIA JUBILEE FUND.—The Victoria Diamond Jubilee Association of Chicago has raised \$7,000 to be distributed among Chicago hospitals. St. Luke's Hospital will receive \$3,000; the Presbyterian Hospital \$3,000; the Mary Thompson Hospital \$500, and the Maternity Hospital \$500. The Association asks that the hospitals name the bed, room or ward thus established in honor of Queen Victoria.

APPARENT DEATH.—A Committee has been formed in Naples for the study of the question of apparent death. The President is Dr. Oscar Giacchi, and the members are Drs. G. Albertolli, F. Bonelli, E. Chiaiso, S. Lanza, F. Conti, L. Lombar, and P. Vandoni, and Miss Elizabeth Berkeley-Barter. The Secretaries of the Committee are Dr. F. Bonelli and Signor C. Gallo. It is hardly to be expected, however, that the committee will throw any new light on the question.

NEW WAY OF RIPENING FRUITS.—"The next time you buy any fruit from a street peddler," said Dr. Constantine of the Health Department, "it might be well to remember that it was probably ripened in some filthy tenement-house bed. It is a common prac-

tice for Italian fruit venders," he continued, "to hasten the ripening of bananas, oranges and lemons by placing them in their beds, where the fruit receives the animal heat from their bodies. Fruit subjected to this process will ripen in an incredibly short time."—*Buffalo News*.

SURGICAL AMENITIES SIXTY YEARS AGO.—In comparing the standards of professional courtesy at the dawn of the Victorian era with those of the present day, the *Practitioner* remarks, we hope with truth, that "it would be impossible at the present day for a hospital surgeon to exhibit the skull of an ape in the operating theatre with the object of suggesting a resemblance between the cranial conformation of the animal and that of a colleague, as Liston is said to have done behind the back of Syme when he was lecturing."

A PRIZE FOR THE DISCOVERY OF THE BACILLUS OF YELLOW FEVER.—A bill has been introduced into the Legislature of Brazil offering a prize of \$220,000 to be divided into two equal parts, which are to be awarded to the author of a work demonstrating the existence of a bacillus of yellow fever, and the method of recognizing it, and to the discoverer of an effective treatment of the disease. The Medical Institute of Rio Janeiro, the Hygienic Institute of Berlin, and the Pasteur Institute of Paris are to decide upon the award. The bill further provides for the reservation of a sum of \$110,000 to found an establishment for the preparation of a curative serum, the discoverer of which shall be appointed organizing director of the institute. The first of these prizes will probably be awarded to Dr. Sanarelli, an account of whose work was given in our issues of July 22d and 29th.

MEDICAL SCHOOLS IN DENVER.—As reported in the last issue of the *JOURNAL*, the Supreme Court of the State of Colorado has forbidden the University of Colorado from carrying on any part of its Medical Department in Denver because the Constitution locates the University itself at Boulder. In consequence of this, the members of the Faculty resident in Denver have resigned, and the larger portion of them have united with the Medical Department of the University of Denver. Among those who have thus strengthened the Denver Medical School are: Dr. H. T. Pershing, in Diseases of the Mind and Nervous System; Drs. S. G. Bonney and H. B. Whitney, in Medicine; Dr. Charles A. Powers, in Surgery; Dr. Walter A. Jayne, in Gynecology; Dr. George B. Packard, in Orthopedics; Drs. L. E. Lemen and J. W. O'Connor, in Clinical Surgery; Dr. T. E. Taylor, in Clinical Obstetrics; and Dr. John Chase, in Clinical Ophthalmology. The Faculty of the School has been further enlarged by the election of Dr. P. V. Carlin, in Obstetrics; Drs. W. H. Bergtold and W. B. Fenn, in Pathology; and Dr. Carroll E. Edson, in Therapeutics.

OUGHT PHYSICIANS TO WRITE POETRY?—A volume of Dr. Frederick Petersen's poems was recently produced in a court-room where he was giving

expert testimony in a murder trial, presumably in order to detract from the value of his testimony. *Leslie's Weekly* makes the following comment: "Whenever a medical man writes poetry it is viewed with some suspicion; the example of Dr. Oliver Wendell Holmes to the contrary, notwithstanding. But Dr. Petersen, like Dr. Weir Mitchell, has wooed the muse to some purpose, and his verses are distinctly good. The volume in question was the second he has produced, each of them containing a number of charming lyrics and some clever translations from the Swedish. The author is about thirty-six years old, and already a distinguished alienist. His volume of verses, 'In the Shade of Ygdresil,' was published by the Putnams."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, August 4, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 27, scarlet fever 12, measles 11, typhoid fever 8.

BOSTON MEDICAL LIBRARY.—One of the leading physicians of Boston, in making his will, has left a large sum of money for the benefit of the Boston Medical Library. We trust that there are others.

MEDICAL REGISTRATION IN NEW HAMPSHIRE.—It is reported that physicians are registering in New Hampshire under the new law at the rate of twenty-five to thirty a day. The first examinations are now being held in the senate chamber at Concord, under the direction of Regent Gowing.

NEW YORK.

THE NEEDS OF THE INFANT ASYLUM ON RANDALL'S ISLAND.—The application of the Charities Department recently, during the absence of Mayor Strong, for \$5,600 for a new cow stable for the Infant Asylum on Raudall's Island led Acting Mayor Jerolamo to make an investigation of the affairs of that institution, which revealed the fact that, notwithstanding the efforts of the present Commissioners of Charities, the mortality among the infants there still reaches the enormous rate of nearly 90 per cent. In April last, when the Commissioners were first able to successfully resist political control of the hospital, they received a communication from members of the Medical Board in which the following warning was given: "The Infants' Hospital on Randall's Island is almost certain death to every child who enters it under six months of age. This statement is absolutely true, and its truth is well known to every one who has been connected with the institution, as well as to yourselves; and, while not expecting you to perform the impossible, if some measures are not undertaken, we shall be forced to the conclusion that you are indifferent to this legalized infanticide." This communication naturally shocked the Commissioners, and since then they have done what was in their power to reform existing abuses; but much still remains to be accomplished

before the infants are properly cared for. The sanitary conditions of the hospital are bad, the supply of good milk inadequate, and the number of nurses insufficient for the duty required of them. On his return to the city the first of August, Mayor Strong expressed himself as deeply interested in the matter, and promised to confer immediately with the Commissioners of Charities in regard to improving the condition of affairs. It may be stated that as a result of the present investigation, the Board of Apportionment at once passed the appropriation for the new cow stable, and on learning of it the President of the Board of Charities made the following statement: "Before next November we expect to have under full operation what you might call a model sanitary dairy. More than thirty cows will be housed in one of the finest barns in New York State. Close by will be a building of cement and iron, where the vessels will be chemically cleansed, and where a strict record will be kept of the amount and kind of milk given every day to each baby."

DEATH OF DR. JOHN J. H. LOVE. — Dr. John J. H. Love, of Montclair, N. J., died suddenly of cardiac disease on July 20th. He had been called in consultation by Dr. Levi W. Case in a case in which an operation was necessary. The operation was performed, and Dr. Love was cleaning his instruments, when he fell to the floor, and was dead before Dr. Case could reach him. Dr. Love was born in Warren County in April, 1833, and was graduated from Lafayette College, at Easton, Pa. In 1885 he was graduated from the Medical Department of the University of the City of New York, and commenced the practice of his profession at West Bloomfield, now Montclair. In 1862 he entered the medical service of the United States Army, and in 1863 was a brigade surgeon-in-chief in the Army of the Potomac. He resigned his commission in 1864 and resumed his private practice. He leaves a widow, two daughters and a son.

Miscellany.

KOCH'S NEW TUBERCULIN IN LUPUS.

Reports are rapidly coming in of the effect in various tubercular affections of Koch's new tuberculin. As was to be expected, there is a certain amount of disagreement among observers; it is, however, a source of congratulation that the over-enthusiasm of a few years ago is in absolutely no danger of repetition.

The peripheral manifestations of tuberculosis are especially valuable as a means of study, on account of the ease with which any change for better or worse may be at once noted. Although too soon to state anything definite as to final results, certain interesting reports regarding lupus, as treated by tuberculin, have already been made public.

It is reported in the *British Medical Journal* for July 17th, that at the meeting of the Dermatological Society of London on July 14th, Mr. Malcolm

Morris showed a series of cases of lupus treated during the last few months by repeated injections of Professor Koch's "new tuberculin." "In two at least of the cases the effect of the treatment on the disease has been very remarkable, and in all it has been encouraging. Lupus of the face of the most virulent kind, which could not be controlled by any treatment, has been altogether altered in character, and has not only ceased to spread, but has begun to heal at various points, which are now occupied by white, soft scars. The effect is most marked in the cases with much 'apple-jelly' material, and little scarring due to previous applications. It remains to be seen how far this curative effect of the new tuberculin will go, and whether the disease process will be merely held in abeyance for a time, or permanently suppressed. The hope is that the course of injections when completed will produce a condition of immunity to the bacillus tuberculosis, and that the whole process in the skin will then cease. The new tuberculin produces in moderate doses a general reaction, which is sharp but short. This reaction is an objection to the treatment which patients suffering from this disfiguring disease do not make much of. A difficulty which is likely to stand more seriously in the way of a general use of the new preparation is its cost, which is very high and apparently out of proportion to the cost of production. Mr. Morris stated that with some of his cases he had already reached doses which cost eight shillings and sixpence for each injection, and before the case is finished and immunity produced, doses probably twice as large will be required. At the present time, also, there seems to be some difficulty in obtaining a sufficient supply."

Professor Lassar, of Berlin, has also made use of tuberculin in a number of lupus cases, and thinks well of it as a means of treatment, while clearly recognizing the fact that any definite statements as to its efficiency would be premature. He has seen, as yet, no cure, but enough improvement to encourage him in its further use. He also bewails the expense of the product. It is to be hoped that this objection, which now stands so much in the way of adequate experimentation, may soon be removed.

KOCH'S NEW TUBERCULIN.

An esteemed Chicago correspondent writes to the *New York Medical Journal* as follows:

"The results of the experience of L. von Nencki, Maczewski, and Logucki with this newest discovery of Koch's, published in the *Presse médicale*, No. 46, do not throw a very favorable light on the purity of the preparation, which, as such, in the opinion of Koch, cannot be improved upon. The method of preparation, as lately published by Koch, gave reason to suspect that during the process a contamination with other bacteria might occur. Nencki injected a tuberculous patient with the tuberculin and observed after every injection a decided general reaction with chills and fever. On examination, he found that the tuberculin contained numerous pneumococci, staphylococci, and streptococci, which grew well on nutrient media, thus showing evidence of undisturbed vitality. The same result was obtained from two other phials, which were opened aseptically. The authors believe that such contamination of the tuberculin is able to

produce consequences disagreeable for the patients treated, and think it necessary that the manufacturers should furnish the public with a sufficient guarantee of the absolute purity of the tuberculin by reliable tests of their products."

ANOTHER APPLICATION OF X-RAYS.

THERE is apparently no limit to the possibilities of the new photography in disclosing inner portions of the animal body. The following ingenious application of the rays to the study of the arteries, to which the *Medical Record* draws attention, may well be of considerable value in anatomical study.

At a recent meeting of the Pathological Society of Manchester, Dr. Raw explained to the society a method he had adopted for skiagraphing the arteries. He said that, when trying to examine a fracture which was enveloped in a thin layer of plaster of Paris, he found it quite opaque to x-rays. The idea then occurred to him that the vessels (arteries) might be reproduced in the skiagraph by injecting them with a somewhat similar substance. Accordingly, when the next opportunity occurred, he injected post mortem a solution of calcium sulphate and carmine into the femoral artery and then took skiagraphs of different parts of the body. He illustrated his remarks by exhibiting several pictures showing the arteries perfectly, even to the most minute anastomoses. In fact, so opaque was the substance that the arteries actually showed through the bones. Dr. Raw also exhibited a twenty-four by eighteen inch bromide print of a child, showing all the arteries of the body injected.

Correspondence.

SOLD ONLY BY SUBSCRIPTION.

PORTLAND, ME., July 28, 1897.

MR. EDITOR:—How long are the subscription-book people to abuse our patience? I don't know who the particular Catiline is, to whom my Ciceronian invective applies; I only know that he controls the sale of medical books which I have been unable to buy.

About three weeks ago I sent to a firm of booksellers in Portland an order for medical books, all of which were delivered to me within three days, except one—a book which is "sold only by subscription." Accordingly, I wrote to the publishers, asking how I could procure a copy. Here are the exact words of the reply, received to-day:

NEW YORK, July 27th.

DEAR SIR:—Your favor of the 10th inst. has been received. In reply to your inquiry we beg to say that a copy of _____ can be promptly obtained on application to us.

Those sixteen days of metropolitan promptitude are duly admired down here in the sleepy East, but pray advise me, Mr. Editor, how I am to get my book. Must I wait eighteen more days, unless in the mean time I am vouchsafed a visit from the voluble agent in whose baronial territory I am serf?

Last year I tried to get a new edition of another "subscription" book, published by the same enterprising firm, and succeeded only when I discovered who the local agent was. But this year there is a different agent, and the publishers do not even disclose his name and address. It is easier to buy a house than a subscription medical book—except at times selected by the agent, at the inconvenience of the purchaser.

How long, Mr. Editor, must we poor worms be ground beneath the heel of tyranny, before we turn?

Very respectfully yours,

ADDISON S. THAYER, M.D.

METEOROLOGICAL RECORD

For the week ending July 24th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...18	30.31	72	79	64	71	87	79	W.	E.	5	2	
M...19	30.33	65	68	62	67	97	92	E.	E.	5	5	
T...20	30.17	70	78	61	66	87	86	S.W.	S.W.	5	8	
W...21	30.08	74	79	70	81	80	80	S.W.	S.	12	12	
T...22	29.94	73	76	70	86	97	92	S.	S.W.	10	12	
F...23	29.79	78	86	70	81	62	72	S.	W.	12	10	
S...24	29.63	74	83	64	81	88	86	W.	W.	7	6	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 24, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	920	516	31.87	8.58	28.49	.99	2.64	
Chicago	1,619,226	518	268	34.20	7.79	30.59	.76	2.09	
Philadelphia	1,214,256	475	224	24.57	8.40	17.01	1.05	3.57	
Brooklyn	1,160,000	508	316	34.00	6.80	16.20	1.00	1.80	
St. Louis	570,000	180	74	8.40	7.84	5.04	2.24	.56	
Baltimore	550,000	209	120	34.24	5.76	32.16	.96	—	
Boston	517,732	206	95	26.95	7.35	18.21	—	5.39	
Cincinnati	405,000	108	—	19.32	14.72	17.48	.92	.92	
Cleveland	350,000	138	83	12.41	2.19	7.30	.73	.73	
Pittsburg	285,000	—	—	—	—	—	—	—	
Washington	277,000	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,030	36	25	41.32	—	27.70	2.77	2.77	
Fall River	96,919	91	69	50.60	8.80	50.60	—	—	
Nashville	87,754	16	5	37.50	18.75	31.25	6.25	—	
Lowell	87,113	33	19	45.45	3.03	45.45	—	—	
Cambridge	86,812	35	24	62.69	—	62.69	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
Lynn	65,220	12	5	50.00	8.33	8.33	—	25.00	
New Bedford	62,416	33	24	60.60	9.09	57.57	—	—	
Lawrence	55,510	27	21	3.70	—	3.70	—	—	
Springfield	54,790	29	14	34.48	6.88	34.48	—	—	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	13	5	—	15.38	—	—	—	
Brockton	35,863	—	—	—	—	—	—	—	
Malden	32,894	8	3	12.50	—	—	—	—	
Chelsea	32,716	17	9	5.88	17.64	5.88	—	—	
Haverhill	31,466	9	2	22.22	11.11	11.11	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg	28,392	9	3	33.33	11.11	22.22	—	11.11	
Taunton	27,812	16	10	50.00	12.50	50.00	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	6	2	20.00	—	—	—	20.00	
Everett	21,575	4	3	50.00	—	25.00	—	25.00	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	4	0	25.00	—	—	25.00	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,719: under five years of age 1,970; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fever) 1,140, diarrheal diseases 957, consumption 289, acute lung diseases 174, diphtheria and croup 74, typhoid fever 33, whooping-cough 24, scarlet fever 22, cerebro-spinal meningitis 16, measles 11, erysipelas 1, small-pox 1.

From whooping-cough New York 8, Philadelphia 5, Chicago 4, Baltimore and Boston 2 each, Brooklyn, St. Louis and Cleveland 1 each. From scarlet fever Philadelphia 7, New York 6, Brooklyn 4, Boston, Cincinnati, Cleveland, Lynn and New Bedford 1 each. From cerebro-spinal meningitis New York and Worcester 4 each, Philadelphia and Brooklyn 2 each, Baltimore, Boston,

Cleveland and Malden 1 each. From measles New York 5, Cleveland 2, Chicago, Philadelphia, Brooklyn and Haverhill 1 each. From erysipelas New York 1. From small-pox New York 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending July 17th, the death-rate was 16.6. Deaths reported 3,501; diarrhea 244, measles 147, whooping-cough 73, diphtheria 52, scarlet fever 32, fever 23.

The death-rates ranged from 11.2 in Croydon to 32.2 in Preston; Birmingham 18.2, Bradford 15.6, Gateshead 13.4, Hull 14.1, Leeds 13.0, Leicester 15.9, Liverpool 19.3, London 16.3, Manchester 20.8, Newcastle-on-Tyne 18.2, Nottingham 15.9, Sheffield 18.4, West Ham 14.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 24, 1897, TO JULY 30, 1897.

Leave of absence for four months, to take effect upon the arrival of CAPTAIN FRANK R. KEEFER, assistant surgeon, at Fort Walla Walla, Wash., is granted CAPTAIN JOHN L. PHILLIPS, assistant surgeon.

Leave of absence for one month, with permission to apply for an extension of one month, is granted COLONEL DALLAS BACHE, assistant surgeon-general, U. S. Army, Omaha, Neb.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JULY 24, 1897.

L. W. SPRATLING, passed assistant surgeon, detached from Naval Hospital, Norfolk, and ordered to Naval Hospital, Philadelphia, July 19th.

R. M. KENNEDY, passed assistant surgeon, detached from Naval Hospital, Philadelphia, July 19th, and ordered to Naval Hospital, Norfolk.

J. C. PRYOR, assistant surgeon, detached from Naval Laboratory, New York, and ordered to the Naval Hospital, Mare Island, Cal.

W. M. WHEELER, assistant surgeon, detached from Naval Hospital, Mare Island, and ordered to the "Oregon."

A. FAKENHOLT, assistant surgeon, detached from the "Oregon" with insane patient to Washington, then to the "Vermont."

C. E. RIGGS, assistant surgeon, detached from the "Vermont," and ordered to the New York Navy Yard.

A. F. PRICK, medical inspector, detached from the New York Navy Yard, July 14th, and ordered to the "Olympia" as fleet surgeon.

J. A. HAWKE, medical inspector, ordered to the New York Navy Yard, August 14th.

J. G. AYERS, medical inspector, detached from the "Olympia" as fleet surgeon, ordered home and granted two months' leave.

H. E. AMES, surgeon, detached from the "Cincinnati," July 25th, and ordered to the Naval Hospital, Yokohama, per steamer, August 14th.

J. C. BYRNES, surgeon, detached from the Norfolk Navy Yard and ordered to the "Cincinnati," July 25th.

P. FIRZSIMONS, surgeon, detached from Naval Hospital, Yokohama, on relief, ordered home and placed on waiting orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWO WEEKS ENDING JULY 24, 1897.

NORMAN, SEATON, assistant surgeon. To proceed to Memphis, Tenn., and assume temporary command of service for thirty days and then to rejoin station. July 20, 1897.

BOOKS AND PAMPHLETS RECEIVED.

Niagara University, Medical Department, Fifteenth Annual Announcement, 1897-98.

Sixteenth Report of the State Board of Health of Wisconsin, 1895-96. Madison. 1897.

The Value of the Chrome-water Treatment in a Case of Syphilis Maligra. By Dr. J. Edmund Güntz, Dresden. 1896.

Urinalysis, a Guide for the Busy Practitioner. By Heinrich Stern, Ph.D., M.D. New York: E. R. Pelton. 1897.

Tenth Annual Report of the Board of Health of the City of Newport, R. I., for the year 1896, with Mortuary Statistics. 1897.

Should we Treat Pulmonary Tuberculosis as a Contagious or as a Communicable Disease? By S. A. Knopf, M.D. Reprint. 1896.

The Woman's Medical College of the New York Infirmary for Women and Children, Annual Catalogue and Announcement, June, 1897.

Ventral Hernia Resulting after Abdominal Section and its Treatment. By Andrew F. Currier, M.D., of New York. Reprint. 1897.

Sixteenth Annual Announcement of the New York Post-Graduate Medical School and Hospital, University of the State of New York for 1897-98.

A Contribution to the History of Leprosy in Australia. By J. Ashburton Thompson, M.D., D.P.H. London: Macmillan & Co., Covent Garden. 18:7.

Gonorrheal Endocarditis. Arsenical Neuritis, with the Report of a Case occurring in a Lad of Five Years. By Alfred Stengel, M.D., Philadelphia. Reprints. 1897.

Syphilis in Nase, Rachen, Ohr und Auge, und die Behandlung derselben, insbesondere die Chromwassereur. Von Dr. F. Bloehmann in Köln. Leipzig, Berlin, 1897.

Second Annual Report of the Institutions Commissioner with Fifty-eighth Annual Report of the Insane Hospital of the City of Boston for the year ending January 31, 1897.

Transactions of the American Pediatric Society, Eighth Session, held in Montreal, Can., May 25, 26 and 27, 1896. Edited by Floyd M. Crandall, M.D. Volume VIII. 1896.

The Eye as an Aid in General Diagnosis. A Hand-Book for the Use of Students and General Practitioners. By E. H. Linnell, M.D. Philadelphia: The Edwards & Docker Co. 1897.

The Position or Posture of the Patient during Parturition, with Special Reference to the Merits of the Walcher Position. By Andrew F. Currier, M.D., of New York City. Reprint. 1896.

The Pocket Therapist, a Concise Manual of Modern Treatment for Students and Junior Practitioners. By Thos. Stretch Dowse, M.D., F.R.C.Edin., etc. Bristol: John Wright & Co. 1897.

A Course of Practical Histology. By Edward Albert Schäfer, LL.D., F.R.S., Jodrell Professor of Physiology in University College, London. Second edition. Philadelphia: Lea Brothers & Co. 1897.

Reference-Book of Practical Therapeutics by various authors. Edited by Frank P. Foster, M.D., Editor of the *New York Medical Journal*, and of Foster's *Encyclopedic Medical Dictionary*. In two volumes. Vol. I. New York: D. Appleton & Co. 18:6.

The American Text Book of Operative Dentistry. Edited by Edward S. Kirk, D.D.S., Professor of Clinical Dentistry in the University of Pennsylvania, Philadelphia, etc. Illustrated with 751 engravings. Philadelphia and New York: Lea Brothers & Co. 1897.

Twenty-ninth Annual Report relating to the Registry and Return of Births, Marriages and Deaths in Michigan for the year 1895. By the Secretary of State of the State of Michigan. Edited by Cressy L. Wilbur, M.D., Chief of the Division of Vital Statistics. Lansing, Mich.: By Authority. 1897.

System of Diseases of the Eye. By American, British, Dutch, French, German and Spanish authors. Edited by William F. Norris, A.M., M.D., and Charles A. Oliver, A.M., M.D., of Philadelphia, Pa., U. S. A. Vol II. Examination of the Eye, School Hygiene, Statistics of Blindness and Antisepsis. Philadelphia: J. B. Lippincott Co. 1897.

A Short Practice of Midwifery, embodying the Treatment adopted at the Rotunda Hospital, Dublin. By Henry Jellet, B.A., M.D., B.Ch., B.A.O. (Dublin University), L.R.C.P.T.L.M.; Assistant Master, Rotunda Hospital. With a preface by W. J. Smyly, M.D., F.R.C.P.T., Late Master of the Rotunda Hospital. With 15 illustrations and an appendix containing the statistics of the hospital for the last seven years. Philadelphia: P. Blakiston, Son & Co. 1897.

A System of Practical Medicine. By American authors. Edited by Alfred Lee Loomis, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the New York University. Vol. II. Diseases of the Digestive System, of the Liver, Spleen, Pancreas and other glands. Gout, Rheumatism, Diabetes and other Constitutional Diseases. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1897.

Eye-Strain in Health and Disease, with Special Reference to the Amelioration or Cure of Chronic Nervous Derangements without the Use of Drugs. By Ambrose L. Ranney, A.M., M.D., Author of "Lectures on Nervous Diseases," "The Applied Anatomy of the Nervous System," "A Treatise on Surgical Diagnosis," "Practical Medical Anatomy," etc., late Professor of the Anatomy of the Nervous System in the New York Post-Graduate Medical School and Hospital, etc. Illustrated with thirty-eight wood engravings. Philadelphia, New York and Chicago: The F. A. Davis Co. 1897.

Original Articles.

SOME OF THE GENERAL PRINCIPLES WHICH SHOULD GOVERN OPERATIONS FOR OTITIC BRAIN DISEASE.¹

BY J. ORNE GREEN, M. D., BOSTON.

The otitic brain diseases are four:

- Pachymeningitis externa with extra-dural abscess,
- Leptomeningitis or arachnitis,
- Encephalitis or brain-abscess,
- Phlebitis and thrombosis of the sinuses and jugular vein;

all caused by infections from the ear, the microbes being the same varieties as are found in the suppurating ear-cavities, chiefly streptococci, staphylococci and pneumococci.

The proportion of deaths from otitic brain disease to deaths from all other causes and to the total number of inhabitants is given in Table I, taken from Körner.²

TABLE I.
PRUSSIAN STATISTICS FOR 1885.
FREQUENCY OF DEATHS FROM OTITIC BRAIN DISEASE.

Age.	Total Inhabitants.	Total Deaths.	Total.	In 10,000 living.	Per cent. of all Deaths.
0-10	7,110,695	371,323	811	1.14	0.22
10-20	5,726,644	26,130	1,346	2.35	5.15
20-30	4,625,908	33,516	1,291	2.79	3.85
30-40	3,596,465	38,269	553	1.53	1.44
Above 40	7,456,231	247,621	536	0.72	0.21
Unknown	2,527	....	....	....	....
	23,518,470	716,859	4,537	....	0.63%

The relative proportion of the different otitic diseases is shown in Table II.

TABLE II. COMPARISON OF OTITIC BRAIN DISEASES.				
Sinus-phlebitis and pyemia	Körner 41	Pitt 22	63	
Brain abscess	" 43	" 18	61	
Meningitis	" 31	" 15	46	
	115	55	170	

The proportion of otitic to other meningitides is shown in Table III.

TABLE III. MENINGITIS.		
In 9,000 Autopsies:		
Otitic meningitis	15	0.16%
Tubercular meningitis	162	1.8%
Meningitis from other causes	133	1.48%
	310	3.44%

About five per cent. of all meningitides are otitic (Pitt).

The causes of brain abscess are given in Table IV.

TABLE IV. BRAIN-ABSCESS.		
In 9,000 autopsies, 56 cases, produced by		
Diseases of ear and temporal bone	18	0.2%
Diseases of other cranial bones	8	
Trauma	9	
Pyemia	9	
Lung disease	8	
Unknown	4	
	56	0.62%

About one-third of all brain abscesses are of otitic origin (Pitt).

The causes of sinus-phlebitis are given in Table V.

TABLE V. SINUS-PHLEBITIS AND THROMBOSIS.		
In 9,000 autopsies, 44 cases, produced by		
Disease of ear and temporal bone	22	0.24%
Other suppurations near sinus, tumors,		
pyemia	4*	
Carbuncle	3	
Trauma	7	
Debilitating diseases	8*	
	44	0.48%

* Ten of these simple thrombosis without phlebitis.

Two-thirds of all sinus-phlebitides due to disease of ear and temporal bone (Pitt).

After these tables I would call attention to Table VI.

TABLE VI. DEATHS FROM SUPPURATION OF THE EAR.				
In 9,000 Autopsies	57 = 0.6 %	= 1-158.	Pitt, Guy's Hospital.	
In 8,028 Autopsies	45 = 0.56%	= 1-178.	Three London hospitals.	
17,028	102	0.6 %	= 1-167.	
In 33,017 Ear Patients	104 = 0.3%		Lürekner.	
In 5,000 Ear Patients	15 = 0.3%		Randall.	
38,017	119	0.3%		
In 325 Tympanic Suppurations	4 = 1.2 %		Bezold.	
In 1,137 Tympanic Suppurations	10 = 0.88%		Chauvel.	
In 8,425 Tympanic Suppurations	35 = 0.4 %		Schwartz.	
In 820 Tympanic Suppurations	20 = 2.4 %		Barker.	
10,707	69 = 0.64%		Körner.	

With all of the otitic brain diseases, except arachnitis, aseptic surgery has dealt successfully.

Statistics of operations for sinus-phlebitis, Table VII.

TABLE VII. OPERATIONS ON LATERAL SINUS.			
	Cured.	Died.	Total.
With ligation of jugular	26 = 63.4%	15 = 36.6%	41
Without ligation of jugular	16 = 42 %	22 = 58 %	38
	42	37	79
Ligation before evacuation of sinus.	19 = 68%	9 = 32%	28
Ligation after evacuation of sinus	6 = 0%	4 = 40%	10
Ligation without evacuation of sinus	1 = 50%	1 = 50%	2
Ligation between beginning and end of sinus	0	1	1

Cause of death in the above thirty-seven cases:

Pyemia with lung abscesses	12
Pyemia without lung abscesses	5
Leptomeningitis	11
Leptomeningitis and pyemia	3
Brain abscess	2
Shock	1
Not determined	3
	37

Statistics of operations for brain-abscess, Table VIII.

TABLE VIII. OPERATIONS ON BRAIN ABSCESSES.			
	Cured.	Died.	Total.
Cerebrum	42 = 55.3 %	34 = 44.7 %	76
Cerebellum	9 = 56.25%	7 = 43.75%	16
	51	41	92

In these 92 cases, multiple abscesses in 8 = 8.7% (Körner).

Certainly this is a very favorable showing for diseases in which the prognosis is desperately bad without surgical interference, and in which medicine is absolutely powerless; but these statistics must not be regarded as showing the actual proportion of cures and deaths, for many cases of operation, especially the unsuccessful ones, are never reported. A careful study of the individual reports does, however, show recoveries in apparently the most desperate cases of all of the diseases, except arachnitis, which is universally regarded as beyond surgical relief. It also shows that the earlier the operation is done the more likely success will result.

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

² Die Otischen Erkrankungen des Hirns, der Hirnhäute und der Blutleiter.

This brings up directly the question of diagnosis, both pathological and localizing. In none of these brain diseases is there any one or any combination of characteristic symptoms which enables us to make a positive pathological diagnosis in every case. Almost all symptoms are occasionally seen in two or more of the diseases, and in a large proportion of cases the full complex of symptoms which makes up the clinical picture and enables us to give a reasonably positive diagnosis only appears a few hours before death, when the vital forces are too exhausted to justify surgical interference. Positive localizing symptoms are in a very large proportion of the cases absolutely wanting throughout the disease, for the portions of the brain in direct relation to the ear, those parts where the otitic brain disease occurs in almost all cases, contain no centres for mobility or sensibility, and only the centres for amnesic aphasia and perhaps the centre for hearing in the opposite side; while the only cerebral nerves likely to be involved early are the seventh (facial), and eighth (auditory), and an affection of these nerves occurs so often from the tympanic disease that they are of no value for cerebral localization.

I would not be understood as undervaluing the very accurate description of the clinical symptoms of these diseases which we possess in some of our recent works, nor the wonderful progress which has been made in cerebral localization; but I do believe clinical experience already teaches that if we wait for a complete pathological and localizing diagnosis, many cases will be lost which might have been saved if justification had been found for an early operation. Are we then justified in operating on a suspected diagnosis merely?

The otitic brain diseases are usually due to the suppurative of the ear cavities affecting the bone which lies against the dura.

TABLE IX.
DISEASE OF THE BONE. KÖRNER.

		Bone diseased to dura.	Diseased but not to dura.	Bone healthy.
Sinus diseases .	39	32 = 82%	3 = 7.7%	5 = 10.3%
Brain abscesses .	40	37 = 92%	1 = 2.5%	2 = 5.5%
Meningitides .	30	17 = 57%	4 = 13.3%	9 = 29.7%
	109	86 = 79%	8 = 7.3%	15 = 13.7%

The recognition of this fact, that the bone is diseased directly to the dura in 79 percent. of the cases of otitic brain disease, constitutes one of the most important advances of our knowledge within the last few years. It gives us justification for early exploration of the bone, and as disease of the bone originates from suppurative of the ear, the ear is the cavity from which the bone should be explored, if this is possible, that is, we should follow the disease inwards from its source.

The frequency with which the dura is exposed in mastoid operations and found healthy, although lying in direct contact with diseased bone, shows that it is a membrane not easily infected; on the other hand, mastoid operations, with removal of all carious bone, not infrequently lead one into the cranium and reveal extensive pachymeningitis which had given no symptoms, or show phlebitis and thrombosis of the lateral sinus which had also given no symptoms because the thrombus had not yet broken down and infected the general system. Clinically it often happens that with a suppurative ear we have symptoms which we are confident are to be referred to the brain, and yet with the most careful study are unable to say whether the disease is in the cerebrum or in the cerebellum, whether it is

pachymeningitis, phlebitis or brain abscess. By exploration of the bone these doubts can be solved, and we are in position to immediately and early treat the brain disease, and also remove the diseased bone which, if left, is liable to re-infect the brain tissues. Given a suppurative of the ear with symptoms, however slight, pointing to the brain, open the ear-cavities and explore the bone. This can be done in most cases by a tympano-mastoid exenteration which exposes the entire roof of the tympanum, aditus and antrum, and also the inner wall of the mastoid; but in exceptional cases this operation is impossible, owing to osteo-sclerosis of the mastoid, to the tympanic roof lying very low, or to unusual projection outwards of the sigmoid groove. In these exceptional cases the bone must be exposed directly; the tympanic roof by entering above the linea temporalis, the inner mastoid wall by removing the mastoid. In the twenty-one percent. of cases in which the bone is not diseased up to the dura the same rules for operating are applicable, for the chances are still that the brain disease is in close proximity to the temporal bone. The only exceptions are the very rare cases of abscesses in the first (upper) convolution of the temporal lobe, or the still rarer cases of abscesses in the frontal or parietal lobes which require operation directly over their situation; and for the recognition of this situation we must depend upon the whole complex of symptoms and the established rules of localization.

To summarize what I have endeavored to express briefly and without elaboration on account of the short time allowed:

(1) In otitic brain disease early operation is advisable, but an early exact diagnosis is often impossible.

(2) The chances are 79 in 100 that a fistula through the bone from the ear will lead directly to the brain disease.

(3) The infected ear requires operation in any case, and this operation can be combined with an exploration for the bony fistula and the recognition and treatment of the brain disease.

THE CHOICE BETWEEN THE ABDOMINAL AND VAGINAL INCISIONS IN THE OPERATIVE TREATMENT OF ACUTE PELVIC INFLAMMATIONS; WITH SOME REMARKS UPON THE TECHNIQUE OF THE VAGINAL OPERATION.¹

BY EDWARD REYNOLDS, M.D., BOSTON.

OUR modern conception of the clinical management of the several lesions which were formerly familiar to us under the collective title of pelvic abscesses is closely akin to the modern conception of the treatment of appendicitis. The question of whether or not to operate in a given case is decided upon substantially the same grounds, and the operative cases which especially concern us now may be divided in the same way: on the one hand, into the emergency operations to which we are forced during an attack by the serious condition of the patient and by our inability to check the disease by minor means; on the other, into operations done during the quiescence of the disease, or as we say in appendicitis, in the interval. With these latter cases the present paper has nothing whatever to do, and I hope that the discussion, like the

¹ Read before the Surgical Section of the Suffolk District Medical Society, March 17, 1897.

paper, will be restricted wholly to a consideration of the emergency cases operated upon during the attack.

One prominent difference is indeed to be found between the emergency operations of appendicitis and those which we are discussing here. In appendicitis the object of the operator is primarily the saving of the life of his patient by a safe evacuation of the pus; and, secondarily, the removal of the useless appendix in every case in which this is safely possible, in order to avert the danger of a recurrence. The primary object of the operations which we are discussing is exactly the same, that is, the safe evacuation of the pus; but the secondary object, the removal of the source of the disease, is modified by the fact that the organs which are in question here all fulfil important functions, and should therefore be saved whenever there is any reasonable chance of their return to health.

The situation of the pelvic organs of the female offer the operator upon these pelvic inflammations a choice between three distinct methods of attack: first, the total ablation of the genital organs of his patient by vaginal hysterectomy; second, the abdominal incision, evacuation of the pus, and if the patient's strength and the other conditions of the case permit, an inspection of the diseased organs and the removal of such portions of them as may be necessitated by their condition and permitted by the general condition of the patient; thirdly, a vaginal incision, the evacuation of the pus, in a few cases the removal of the diseased appendage through the incision, in a majority the chance of a cure by drainage of the diseased organ, and if this is not obtained, a radical operation at a subsequent time and by an abdominal incision. These three methods, and their relative advantages and indications, form the subject which I wish to discuss.

Vaginal hysterectomy can, in my opinion, be disposed of in a few words, if we remember the limitations of the question we are discussing; that is, that we are not opening up the question of the application of vaginal hysterectomy to tubes and uteri which have been destroyed by long-standing disease, but are considering simply its applicability to the acute inflammations when treated by operation during the attack. I think that no gynecologist of experience will disagree with me in saying that we have no method of external examination which, in the presence of acute inflammatory swelling, can definitely settle the question of whether or no a given set of appendages is beyond the possibility of a return to the normal; and it seems to me clear that without this certainty we cannot be justified in including among our methods an operation which begins by destroying the uterus without permitting the operator to investigate the condition of the appendages.

The choice between the abdominal and vaginal incisions for the purpose of evacuating the pus and, if it be possible and necessary, of removing the disease which is the source of the pus, is, then, the main subject of my paper.

The day has passed when any man may rationally declare himself an advocate of either method for all cases. In the last two years the vaginal operation has taken too firm a hold to permit of such a position. The choice between the two must be made partly by the pathological anatomy of the disease and partly by its topographical situation. The mass felt on bimanual examination may consist of effused lymph, pus, or other septic fluids; in the ovary as an ovarian abscess,

in a tube as a pyo-salpinx, in Douglas's fossa as an encysted peritonitis, or in the sub-peritoneal connective tissue of any portion of the pelvis as a true pelvic cellulitis, or, as I prefer to call it, phlegmon; and the first step in the decision is the establishment of an approximate diagnosis of the form of inflammation which is present.

In the furor over the importance of the tubes which followed the opening of the abdominal field for operative work, the very existence of pelvic cellulitis was denied by a majority of gynecologists; and the few who persisted throughout in their belief in its frequency now have the satisfaction of knowing that the denial of its existence by the mere abdominal surgeons was due to the fact that the existence of a pelvic cellulitis cannot readily be detected either by the eye or touch through the abdominal incision. It is undoubtedly seldom originated except as the result of a septic puerperium after abortion or labor; but there is strong reason to believe that a woman who has once been its victim may be liable to repeated attacks as the result of other causes, and that any one of these attacks may be of the severest grade; moreover, the work of the vaginal operators has demonstrated a degree of frequency of this affection which was not dreamed of by the warmest supporters of its existence ten years ago. Pelvic cellulitis, or, to use the better expression, pelvic phlegmon, can hardly be detected or treated through the abdominal incision, and it is here that we must draw the first line, that dependent upon pathology, between the abdominal and vaginal incisions. All cases of phlegmon must be attacked per vaginam.

The first step in the diagnosis is, then, the establishment or exclusion of the existence of a pelvic phlegmon. This will appear to the touch as a boggy mass behind the uterus, on one or both sides of the uterus, or, exceptionally, along the lateral wall of the pelvis. In either case, its outlines will be unlike those of any other mass in the pelvis, in that the thickening and boggy mass will be continued into the neighboring sub-peritoneal connective tissue; and if a careful search for such an extension is made under ether, it will be rare that the existence of any considerable phlegmon can be overlooked. If a phlegmon is found, its presence may be considered an absolute indication for the vaginal incision; but in the other forms of pelvic inflammation the choice between the two operations is often a puzzling one.

The abdominal incision labors under the disadvantages, first, that clean peritoneum must ordinarily be crossed in the search for the pus, and that, however carefully we may wall off, this is necessarily a source of danger; secondly, that in these acute cases the element of shock is usually prominent during abdominal operations, and contributes in no small share to their mortality. Its sole advantage is that the radical excision of the disease is much more easy for the operator than by the vaginal operation. The vaginal incision labors under the disadvantage just mentioned of increased technical difficulty, but has the very great advantage that the septic fluids can be evacuated without any considerable risk of contaminating the general peritoneum, that it is attended by practically no shock, and that by it we can sometimes save organs which would have been sacrificed by the abdominal incision.

Our guide to the choice between these two methods must be found in the varying relations between two factors which must be weighed severally and con-

jointly in their relations to each individual case; that is, the general condition of the patient in its relation to shock, and the topographical situation or accessibility of the mass in its relation to the drainage or removal of the diseased organs.

Patients may be divided for our purposes, by general condition, into three classes: (a) those in an acutely dangerous condition, but in whom there are no symptoms of general peritonitis; (b) those in an acutely dangerous condition, but of whom it cannot be said with certainty that general peritonitis is not present; and (c) those who are seen at a time when they are still in good condition. In the first two classes the primary question of the removal of the dangerous condition by the evacuation of the pus is of paramount importance, while the prolongation of the operation necessary to a removal of the disease would be contraindicated in the operation by either incision; and since in these two classes the arrest of the sepsis is all that we can expect, the choice should be made by the existence or non-existence of the symptoms of general peritonitis.

(a) In the absence of such symptoms, there can to my mind be no doubt but that the absence of shock and the direct and dependent drainage of the vaginal incision render it by far the preferable operation, and I am confident that there are but few cases in which the mass is too inaccessible for the adoption of this method, so long as mere drainage of the abscess is all that is advocated.

(b) In the presence of the symptoms of general peritonitis, some surgeons would recommend euthanasia and a death-certificate. I believe, myself, that this policy is frequently more defensible on the ground of timidity and a regard for the surgeon's statistics than with regard to the patient's interests. In the first place, there are certainly some cases in which the symptoms are deceptive, that is, in which they precede the establishment of the actual peritonitis; and in the second place, we cannot now doubt that general peritonitis has occasionally been arrested by operation. I believe, then, that we ought not to allow such patients to die without operation, if it is acceded to after the fullest possible statement of its gravity; but I believe that in all such cases the incision should be made through the abdominal wall, that the condition of the general peritoneum may be known, and its cavity, if necessary, be washed or sponged out.

(c) In the third class, that in which the patient's condition is sufficiently good to permit of a radical operation should that be necessary, the choice between the methods is far less readily defined, and, indeed, seems to me one which must be determined upon principles which are not yet thoroughly established, but are still to a considerable extent *sub judice*. The grounds upon which the decision should be made and a provisional plan of action can, however, be stated.

It must be remembered that the vaginal operation stops short of the removal of the appendages in the great majority of cases, but that it differs from the antiquated procedure of tapping an encysted peritonitis in the fact that it not only opens and drains the encysted abscess in the freest possible manner, but also opens, washes and drains the suppurating tube or ovary which was the original cause of the encysted abscess; and that, moreover, the advocates of the vaginal method claim that patients are restored to complete health by this drainage of the diseased append-

age no less surely than by its removal. Thus Henrotin, in his latest utterance, states that he prefers to use the vaginal method even in cases of unruptured tubal or ovarian abscess, on the ground of saving ovaries and tubes which would have been removed by the abdominal operation, and supports his position by the recital of a case in which such an ovary was restored to complete health, and by an implied statement that he does not consider this result exceptional. That this opinion of Henrotin's is not wholly without foundation I can myself testify, for I have twice at least known the vaginal drainage of an undoubted pyo-salpinx to be followed by a restoration to complete health, as judged both by the symptomatology and by a bimanual examination. That in others of my cases a second and radical operation has been necessary may have been the result of an imperfect technique (for it must be remembered that the operation has only recently been well worked out); but I am inclined to believe that these happy results are exceptional, and to think, therefore, that when an excision of the disease can be safely accomplished it is far better for the ultimate interests of the patient. To me, therefore, as to all who hold this view, the only argument for the vaginal incision in patients whose condition would permit a radical abdominal operation is that its admittedly greater safety in dealing with virulent and accessible pus may in such cases warrant the acceptance of its lesser chances of a final cure.

For the present and provisionally, I am then inclined to believe that when the mass perceived by the fingers is high in the pelvis, the chance of its being an unruptured ovarian or tubal abscess which can be removed completely and without grave danger per abdomen, and the chances of its being an appendicitis, of its containing intestinal adhesions of a nature which should not be blindly dealt with, or of encysted collections of septic material which are so high as to be wholly out of reach of the fingers when inserted into Douglas's fossa through the vagina, are, when taken together, enough to make the vaginal incision as dangerous as the abdominal, even in acute and virulent cases. I should therefore say for the present that when the patient is in good condition and the mass is high in the pelvis, we should choose the abdominal incision.

When the mass is low in the pelvis, I believe that the arrest of the acute attack can, in the vast majority of all cases, be most satisfactorily and safely effected by the vaginal incision, but that what seems to me the greater probability of effecting a radical cure in the removal of the offending appendages by the abdominal method should lead us to prefer that incision when the condition of the patient permits and when the history of the case makes it probable that the fluids are not of a very virulent character, that is, in acute attacks which supervene upon long-standing pelvic diseases with but slight exciting causes. When, with a low situation of the mass, the history of the case renders it fair to assume that the contained fluids will be actively virulent, I believe that we should adopt a vaginal incision, and if the patient's condition permits, make every reasonable attempt to render the operation a radical one by at least securing thorough drainage of the affected organ. Finally, in this class of cases, in which the patient is in good condition, a combination of the two operations may be considered. Thus we may open a dependent collection of fluids per vaginam,

disinfect the cavity, and then after cleansing the hands and taking up a new set of instruments, open the abdomen, perform the radical excision, and drain through the vaginal wound; or, on the other hand, if when the abdomen is first opened, the adhesions prove to be so firm, the intestines so friable-looking, and the general look of the mass so uninviting that we feel discouraged from disturbing it, we may with propriety turn to the vagina, and open and drain from below, with the advantage of being able to watch from above, and thus the more readily avoid entering the general cavity; but this argument is to me theoretical, as I have not yet had personal occasion to use either of these combined methods, and am therefore unable to offer any practical opinion upon their value. The establishment of drainage through the vagina from above after opening the abscess by the abdominal incision is a somewhat similar, but a much more trifling procedure, with the results of which I have been well pleased.

TECHNIQUE.

The technique of the vaginal operation varies in accordance with its direction toward the cure of a phlegmon or of some other form of pelvic inflammation. As used for the treatment of phlegmon and for a few cases of unruptured pyo-salpinx it is throughout an extra-peritoneal operation; in all other cases it is intra-peritoneal from the beginning.

Phlegmon.—This question of whether the incision into a pelvic phlegmon shall or shall not be preceded by a curettage of the uterus is one which must be decided by the peculiarities of the individual case. As a general rule, when the septic endometritis which was probably the original source of the trouble is of long standing, it is best not to interfere with the endometrium, since the breaking down of nature's wall of protective lymph may well do more harm than can be accomplished by the removal of the detritus. In recent cases in which it is probable that absorption from the interior of the uterus is still actively going on, the main operation should be preceded by a thorough curettage. The canal of the cervix should then be temporarily occluded by a tight packing with sterile gauze and the vagina again thoroughly disinfected before the vaginal incision is made, thus guarding ourselves as far as possible against the dangers of sepsis, in case a mistake in technique or performance leads to an opening into the peritoneal cavity. This question settled, the posterior vaginal hysterectomy incision should be made with the knife, and carried through the submucous tissues and a little way up the posterior wall of the uterus, as close as possible to it, with the knife or scissors; but so soon as this has been done and the infiltrated subperitoneal tissues have been reached, the cervix should be firmly seized by a volsellum, which is used throughout the remainder of the operation to control the position of the uterus. The cutting instruments should be laid aside and the fingers should be pushed into every part of the infiltrated mass under the guidance of the sense of touch, great care being taken to make the dissection thorough and to reach and widely open every portion of the mass. Retractors may be used or not at the pleasure of the surgeon, but no other instruments are ordinarily employed during the latter part of the operation. The tearing should be kept as close as possible to the posterior wall of the uterus when in the median line and

as far forward as possible when towards the side of the pelvis, that is, when within the cavity of the broad ligament, the object of this precaution being, of course, to avoid opening the peritoneal cavity. In the presence of well-marked infiltration this danger is, however, avoided with somewhat surprising ease, and it is certainly surprising to see to what height in the pelvis we can safely penetrate by this method. Thus, I have successfully passed my fingers extra-peritoneally through a retro-uterine phlegmon until they were on a level with the fundus and began to turn forward over it, opening a number of disseminated foci of pus in the process, and a few minutes afterwards passing them out almost to the pelvic wall on each side through the cavities of the broad ligaments, in which I found several additional foci of pus. In this particular case, the most extensive that I have ever done by this method, the operation was followed by a chill and a rise of temperature to 104° , no doubt symptomatic of the opening of fresh tissues, but these symptoms subsided spontaneously within twelve hours, and the patient made a rapid recovery from what had been regarded, both by myself and by the gentleman who called me to the case, as a very critically dangerous condition. I feel confident that this patient would not have survived an abdominal operation.

May I quote one other unfortunate case in which a general surgeon of extended experience opened the abdomen for the relief of a pelvic mass which he felt, and which he rightly judged to be acutely septic; but on finding the abdominal cavity and all its contents in a normal condition, he closed it and put the patient to bed, in the belief that he had made a mistake in diagnosis. The patient's condition growing rapidly worse, he kindly asked me to see her a few days later. I found a pelvic phlegmon of about the size of an ounce bottle in the lower portion of the right broad ligament, which, at his request, I opened per vaginam, tearing up the tissues extensively and setting free numerous small collections of pus which contained a pure culture of streptococci. The patient improved considerably, but the operation had been delayed long enough to permit the establishment of a marked general sepsis, and she finally failed and died. Is not this case one in which the prevailing disbelief in the existence of pelvic phlegmon directly caused the death of the patient?

Even when pelvic phlegmon is absent, we may occasionally employ a similarly extra-peritoneal technique; that is, when the mass is not a phlegmon, is limited to one side of the pelvis, and comes well down into Douglas's fossa, it is always probable that we are dealing with an unruptured tubal or ovarian abscess in a low position, which we may be able to reach and drain extra-peritoneally. In such cases we should begin by an incision made at the side of the cervix along the base of the broad ligament, and if necessary, extended across the posterior surface of the cervix to the median line, in order to afford room. When this incision has been made and the cleavage plane of the subperitoneal connective tissues is reached, the finger can with care be carried up along one side of the cervix into the cavity of the broad ligament, without entering the peritoneum, and then made to tear its way upwards until it is certainly anterior to the abscess. If one finger of the other hand of the operator, or preferably the finger of an assistant, is then placed in the rectum, it is easy to satisfy one's

self, first, that the abscess rests between the two fingers, and, secondly, that it lies between the finger in the wound and the peritoneal cavity. A sharp-pointed pair of scissors may then be thrust into the sac and made by extending their blades to tear a wide opening. In some cases this can be done under the guidance of the eye by a careful and guarded use of retractors; in others it must be done by the sense of touch.

When the mass is not a phlegmon and is not so situated as to be clearly a tube and easily accessible from the front in the manner just described, an intra-peritoneal method must be adopted, and for this purpose Henrotin's incision is, I think, the best. After, of course, evertting out the uterus and stopping up the cervix, he makes the posterior incision for vaginal hysterectomy through the mucous membrane and submucous connective tissues; then, from the middle of this incision, makes another cut running directly backwards along the median line to as near the position of the rectum as is deemed safe, and then carries the whole of this T-shaped incision directly through into Douglas's fossa. The wide space gained by this incision is then held open by drawing the cervix forward with a volsellum, while the rectum and posterior edge of the wound is held back into the hollow of the sacrum by the perineal retractor. The finger is then made to explore cautiously in all directions, under a combined use of the senses of sight and touch until the source of the trouble is found. If the case is one of encephalitis peritonitis, the finger should not only be passed through it in all directions until the operator is sure that every ramification of the abscess cavity has been thoroughly opened up, but should be especially directed towards finding the salpingitis which is the probable source of the trouble. If an enlarged tube or an ovarian abscess is found, this should be freed and drawn gently downward till it is in good view, and then opened, washed out, and drained with gauze; or if the conditions of the case permit, it may even be tied off and removed, though the opportunity to do this with safety must be extremely rare in acute cases.

GAUZE DRAINAGE.¹

BY FRANCIS B. HARRINGTON, M.D., BOSTON,
Visiting Surgeon at the Massachusetts General Hospital.

THE effort to find a substitute for the sea sponge led to the very general use of cotton gauze. As a sponge it was packed into wounds to control hemorrhage and allowed to remain. It was soon found that it made an excellent drainage material in certain cases.

The modern use of gauze is one of the most important elements in the progress of abdominal surgery. By its aid a peritoneal area can be made an extra-peritoneal one in a few hours. Its presence sets up an adhesive peritonitis which will, if the gauze be properly used, divide the healthy from the diseased portions or make a safe channel from a diseased portion, like the stump of an appendix or an incised gall bladder, through healthy tissue to the surface.

Drainage may be either active or passive. Passive drainage is that form in which the material to be removed finds its way by gravitation to the outlet provided for it. Such drainage we have in the ordinary

tubular drainage material made of rubber, of glass, etc. These tubes are often indispensable, but they are passive agents. When they do not act by force of gravity they act merely by overflow or by *vis a tergo*. Active drainage we have when any kind of suction apparatus is used. These, however, are intermittent in their action or complicated and liable to injury.

The ideal drainage material is one which not only furnishes a channel for the removal of liquids but one which draws these liquids from all directions and which acts continuously. In the best cotton gauzes we have such a material. Gauze drainage acts not only by the force of gravitation but against this force. It will drain a dependent stump or a deep cavity in the abdomen. The value of gauze as a drainage material depends upon capillary action and siphonage. The absorptive action of gauze draws fluids into its meshes from every direction. Its capillary action carries these fluids over the edges of the wound, and then begins its action as a siphon. The longer the overhang of a gauze drain the greater will be its siphonage power. The amount of fluid which can be drained out of a cavity in a few hours is very great. In the abdomen gauze, if properly used, is of the greatest value. It is important, however, that the whole of an infected area should be filled with gauze. The wicks should extend to the farthest point of an abscess cavity or of an infected area. The gauze should be so placed that it separates healthy from unhealthy tissues. What then takes place? If the gauze be inserted dry every fibre of it at once begins to suck the fluids from the abdominal cavity. The movement of these fluids is towards the gauze mass and away from the healthy tissues. It is sometimes advisable to combine gauze drainage with tubular drainage. The value of gauze drainage in other parts of the body is often very great. Take, for example, a beginning palmar abscess. A patient, after intense pain and some swelling of the hand for a few hours, is operated upon, and the sheaths of the flexor tendons of palm are found distended with fluid. These sheaths are incised and the fluid evacuated. It is of the greatest importance to keep this wound freely opened and drained, and to drain especially the tendon sheaths. Any pressure from a drainage-tube is likely to cause sloughing of these delicate parts, which will result in a useless hand or fingers. It is here again that gauze drainage, in the form of wicks, can be used to the greatest advantage. It is not necessary that this gauze should be frequently changed. If a fine stream of sterilized water or a weak antiseptic solution be played upon the gauze once or twice a day it will clean it, and keep it in good drainage condition. The same treatment can be used in cleaning gauze in abdominal wounds after adhesions have formed.

Large free openings are the rule in operations in septic conditions. Gauze packing of these wounds not only acts to drain the wound but to prevent the rapid closing of incisions. Nature in her haste often closes wounds too rapidly unless prevented by packing.

What are the requisites of a gauze for drainage purposes?

It should be first of all clean and free from all fatty material. It should be soft. It should be free from ravellings and threads. It should be sterile.

The capillarity and the capacity for siphonage vary with different gauzes. Coarse gauze makes better sponges and a better drainage material than fine gauze. A gauze which has 26 threads in the warp and 22 in

¹ Read before the Surgical Section of the Suffolk District Medical Society, March 17, 1897.

the woof or filling to the square inch is none too coarse. These coarse gauzes are sometimes injured in the process of cleansing, so that the regularity of the fibres is destroyed. Such a gauze is inferior to one which has not lost its regularity. H. G. Hall, in a recent paper, has shown that the capillarity of gauzes varies greatly in different gauzes and even in the same roll of gauze. He also finds that the impregnation of gauze with various substances, as iodoform, carbolic acid, etc., decreases the capillarity. Morris, of New York, long since called attention to the inferiority of iodoform gauze for drainage material. Thayer, from his experiments, was led to believe the drainage value of iodoform gauze was so slightly less than that of plain gauze that it made little difference which was used. From my own experiments I should say that the drainage value of the best plain gauze is much greater than that of iodoform gauze.

In making drainage-wicks of large size which are to be used for large cavities, long strips of folded gauze should be used. These wicks should be so made that cut edges shall not leave bits of the material in the wound, for these ravellings may act like a silk ligature to keep up suppuration if they remain in the wound. For small wicks it is well to have a gauze tape. I have had such a tape made in various widths from one-third of an inch to three inches. This tape has a selvage on both edges. It cannot ravel. It is an excellent drainage material. It may be used in combination with large masses of drainage-gauze or with drainage-tubes. It is better to insert gauze drainage in straight lines rather than to fold it up in masses for two reasons: first, because it is more easily removed from a wound; and second, because it drains more quickly.

Drainage-tubes are essential in certain conditions; as, for example, the drainage of an empyema, the urinary bladder, the gall-bladder or the kidney; but usually a combination with gauze is very desirable. Gauze should not be so used that it causes a damming up of the secretions. It is unwise to pack with gauze a narrow sinus leading to a discharging cavity. It is an important question to decide how long you will allow gauze to remain in a wound. In this regard one should be governed by the patient's condition. Frequent changing of gauze is undesirable and unnecessary. In the abdominal cavity I allow gauze drainage to remain from three to four days. In aseptic wounds, where gauze has been placed solely to remove blood or serum it should be removed earlier, that is, in from twenty-four to forty-eight hours. The early removal of large masses of gauze is a painful operation, and should be done under primary anesthesia. At a late period when suppuration has begun it is much easier to remove. It is usually desirable in septic cases to replace the gauze removed by fresh pieces but in diminished quantities. If suppuration is very abundant, drainage-tubes can be combined with the gauze. The process now becomes one of cleaning up a sloughing cavity, and the presence of the gauze assists greatly in doing this.

HYPORHOPTRY AND VITATION OF THE HEART.—

In an account of an autopsy recently published in a daily paper it is stated that the medical examiner signed a certificate giving the cause of death as "congestion (passive) of the lungs and kidneys and hyporhoptry and vitation of the heart."

CONVERGENT STRABISMUS.¹

BY CHARLES H. WILLIAMS, M.D., BOSTON.

THE nerve centres which govern the accommodation and convergence of the eyes are closely related both in position and action; an increase of accommodation carries with it an increase of convergence, and *vice versa*; and a disturbance of this equilibrium is one of the principal causes of convergent strabismus.

In Donder's experiment a person with normal eyes looks steadily at a near object; a screen is then placed between this object and one eye, but no deviation takes place in the convergence of either; if, however, a concave glass is placed before the other eye an increased amount of accommodation will be needed in order to see the object clearly; the eye behind the screen will then be seen to turn more strongly inward in proportion to the increased effort of accommodation, while the eye with the glass remains fixed on the object. This condition is similar to that of young hypermetropes who are beginning at an early age to make use of their eyes for near vision. They require an amount of accommodation in excess of the convergence needed for seeing near objects, and if one of the eyes for any reason has less acuteness of vision or muscular power, as compared with the other, we often get a resulting strabismus; on the other hand, there are hypermetropes of all degrees in whom strabismus never develops, and many cases of deviation must be accounted for by amblyopia, by impaired muscular balance, or primary anomaly of binocular vision. Out of 612 cases of operation for convergent strabismus, reported by Dr. C. S. Bull,² 521 had simple hypermetropia and 58 hypermetropic astigmatism; my own experience does not give quite so large a proportion as this, but all observers agree that the percentage of hypermetropia in cases of convergent strabismus is very large. In the early stages of the trouble the deviation is often periodic or alternating, becoming in time more permanent, and it is during these early stages, while binocular vision can still be called into play, that we should endeavor to effect a cure; that is, get parallel visual axes, and, if possible, permanent binocular vision. If the treatment is delayed we may obtain a good position of the eyes by operation, but we very seldom get good vision in the squinting eye. Schweigger states that he has never seen any improvement in vision in a squinting eye after an operation, or even after separate exercising; and the reported gain is often due to the correction of errors of refraction rather than to the operation.

Convergent strabismus is usually developed in childhood, in some cases even before the second year, but in these very early cases, and in a few others, we often get a spontaneous cure; it is more common to have it first noticed in children of from two to five years of age, occurring when the child is tired or excited, or when the system is weakened by an attack of whooping-cough or other disease; and, if neglected, these attacks will often become more frequent and the convergence more permanent. Before deciding on our plan of treatment we should note the amount of deviation, its permanency, the effect of atropine on the convergence through its effect on the accommodation, and the refractive condition of the eyes as shown by retinoscopy or the upright image. If the patient is

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

² Transactions American Ophthalmological Society, 1895, p. 261.

old enough to give reliable answers, we should also ascertain the acuteness of vision of each eye and the relative power of the internal and external recti muscles. In general it may be said that it is not best to operate on children under six years of age, and not before the effect of atropine and glasses has been carefully tried; but the best results will often be obtained in children of from six to eight years of age, where the deviation has not yet become permanent, or binocular vision lost. If under atropine the eyes are found to be hypermetropic a nearly full correction with glasses should be given as soon as the child is able to wear them, even as young as four years of age, and the effect of the atropine should be gradually diminished while the glasses are worn. It has been found that about ten per cent. of the cases can be cured by optical means; but the success is closely related to the age of the patient and the care with which this treatment is carried out. The best measure of the strabismus is to get the angular deviation of the eye with a perimetre; but a rough estimate can be made by holding a millimetre rule at the margin of the lower lid of the squinting eye and noting the difference in the position of the centre of its pupil when the other eye fixes a distant object in front of the patient or is covered so that the squinting eye fixes it; one millimetre will correspond to about 5° of angular deviation. If after a thorough trial of the optical treatment no improvement results, it will be necessary to resort to operative measures, which is the final outcome of a majority of the cases, especially in adults. In most cases of periodic squint a simple tenotomy removes the trouble, especially if the deviation does not exceed 20° , and it is a common rule that one tenotomy will give about 15° of change in the deviation of the eyes. It is best to leave a *slight* convergence as the first result of the operation, for there is a tendency toward increased effect after a time, and a slight convergence will often pass into a practically parallel position. Noyes states that for a deviation of from 5° to 15° only one eye is to be operated on; from 15° to 30° , both will require it, but there should be at least a two weeks' interval before the second operation; for more than 30° both eyes may be done at the same sitting. In cases of permanent convergence the squinting eye, or in alternating cases the one which usually squints, should be first operated on. If there be marked deviation, especially with considerable amblyopia, and weakness of the external rectus of the squinting eye, it will often be best to make a tenotomy of the internal rectus and also an advancement of the tendon of the external rectus of the deviating eye, and if the result is not sufficient a tenotomy of the internal rectus of the opposite eye can be done at a later date.

During the last ten years a number of operators, especially Landolt and de Wecker, have recommended advancement instead of tenotomy in many of these cases. The advantages are that by advancement of the weaker externus when the internus has normal power, we add to the power of the externus and give it a better hold, without taking away from the power of the normal internus, and the eyeball is also left in a better position for rotation. The advancement operation is not so simple as the tenotomy and requires a longer after-treatment to get the tendon of the externus to take hold firmly in its new position. The conjunctiva is incised near the cornea vertically and dissected up from the externus muscle which is then grasped with

the forceps near its insertion and a small cut made at its lower border through which a blunt strabismus hook can be passed under the muscle. The muscle is then raised from the sclera and two sutures are passed through it and its surrounding tissues far enough from its border not to tear out easily. The tendinous attachment of the muscle to the sclera is then divided between the sutures and the eyeball, and while the eye is rotated by an assistant toward the cut muscle, the sutures are carried through the superficial layers of the sclera near the cornea to get a firm hold, and tied. The conjunctival incision is then brought together by fine stitches and a binocular bandage applied. The patient should remain in bed for five or six days, when the sutures can be removed, but the bandage should be continued for two days more to allow the healing to take place with as little disturbance from muscular contraction as possible. In advancement operations there is a tendency to get increased effect by the contraction of the cicatrix, and my brother wrote me last winter from Berlin that they were beginning to have there cases in which this contraction had produced so much deviation as to require another operation to remedy it. This, however, seems to be rather an excess of advancement in the earlier cases similar to that which occurred after the first tenotomies, producing an over-effect, and does not contraindicate the operation. The treatment of strabismus does not end with the operation; it is necessary to continue the careful correction of refractive errors with glasses, and often to supplement the glasses with orthoptic exercises which may train and strengthen the muscular action and help the maintenance of binocular vision.

Many cases of convergent strabismus are perplexing; it is often difficult to decide what operation will give the best results, or how much must be done to produce a given amount of alteration in the convergence as a final result, and we must not be disappointed if cases are found which need more than one operation, or in which we have to rely on our best judgment rather than on fixed rules.

Clinical Department.

REMARKS ON SECONDARY PUERPERAL HEMORRHAGE, WITH REPORT OF TWO CASES.¹

BY RAY W. GREENE, M.D.,

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THIS puerperal hemorrhage is to be distinguished from the more familiar accident, post-partum hemorrhage. It is not of common occurrence, but is sometimes dangerous and even fatal. The literature of the subject is meagre.

The causes are twofold, constitutional and local. Under the first head we have

(1) Altered condition of the blood, as in purpura, septicemia and especially malaria.

(2) Psychic influences, for example, strong emotions, especially fear and grief.

Under the second general division we have

(1) The retention in the uterine cavity of some material (placental tissue, blood-clot or membrane)

¹ Read at the meeting of the Worcester District Medical Society, November 11, 1896.

which may prevent complete contraction, or set up congestion or favor sepsis.

(2) Accidental dislodgement of a thrombus from the placental site.

(3) Uterine inertia. This cause is classed by some authors under the first general division, namely, constitutional.

(4) Retro-displacements, producing congestion.

(5) Fibroids, especially when located in placental area.

(6) Malignant disease.

(7) Inversion of the uterus, a very rare secondary accident, unless associated with adherent placenta.

The disposition nature makes of any retained material is varied. In most cases, when the pieces are detached, uterine contractions force them out in a few hours. If small, gradual removal with the lochia accomplishes the same result.

Less often the retained portions, especially if adherent, become the starting-points for hyperplasia. "This hyperplasia is manifested as a greater or less thickening of the lining membrane or in the production of localized papillary, polypoid or fungus excrescences." This process is very frequently associated with some form of inflammation affecting the different normal tissues of the placental site, and in some cases the fibrinous element especially predominates.

Here we get the fibrous polypus and placental polypus. The fibrous polypus may originate with blood-clot, membrane or placental tissue. When the process is not complete enough to efface the placental character of its origin, the polypus is called placental. These growths are sometimes thrown off spontaneously without much hemorrhage. When hemorrhage does occur, it has been demonstrated that the amount does not depend on the size of the mass but on the degree of congestion or the accompanying inflammation set up by the irritation of a practically foreign body.

My two cases are similar and belong to the polypoid variety.

Mrs. C., in prime health, was delivered of her second child after a short normal labor. The child was born with a veil, so-called, but the membrane, though torn, was closely examined, so that none was left in the uterus. That the placenta itself was found intact, I am quite sure, since I remember examining it closely for the purpose of demonstration to a nurse who had never before been present at a confinement. Convalescence was normal. Patient was up and dressed after three weeks. About the thirty-first day a smart flowing began and increased. By the use of drugs and rest there was temporary relief. Thinking this flowing a possible catamenial period, aggravated by too active life about the house, I pursued conservative measures for five days, when the hemorrhage was followed by a watery, bad-smelling discharge, and the temperature registered 100° F.

On examination, I found protruding from the dilated cervix an irregular two-lobed mass, harder than normal placental tissue, and about the size of a hen's egg. There was not room to get my finger about the mass into the uterus. By a uterine sound I was neither able to get the depth of the uterus nor dislodge the offending mass. Owing to the alarmed condition of the patient and the tenderness of the abdomen, I was unable to feel the fundus. Under ether (the thirty-seventh day after the child was born)

the examination was comparatively simple and satisfactory. By bimanual examination, the fundus was found below the top of the symphysis, and the vaginal finger could easily enter the cervix beside the placental mass, and found it adherent to the uterine wall by a very tough fibrous pedicle about one-half inch in diameter.

This pedicle was broken off by the finger nail, and no attempt was made to curette off the rough stump of the pedicle, for the uterine wall was extremely soft, so that my finger, when attempting to sever the pedicle, slipped by it and penetrated the uterine wall to the peritoneal covering. This accident did not affect the convalescence, which was uneventful.

Within a few weeks of the case just mentioned, I confined Mrs. W., age thirty-six, of very nervous temperament, who had during this third pregnancy been much run down physically. Since the first pregnancy there had been extensive varicose veins of the legs and thighs, and during this pregnancy much pain and inconvenience were caused by this condition, worse than ever before. The labor was normal, with rapid second stage. The placenta and membranes came away intact, according to the notes taken at time of labor. Then followed a smart hemorrhage, which was quickly controlled by hot injections and friction over the fundus. The lochia was natural in quality and amount. The convalescence progressed normally, but slowly, owing to general debility, till the eighteenth day, when profuse flowing started up without any special exertion. On my arrival, two hours later, I found the patient in bed (which had been raised at the foot). The bedding under the exhausted patient was literally soaked in blood. It would be impossible to estimate the amount of blood lost. There was abundant evidence of a serious hemorrhage from the uterus. The nurse and neighbor present were alarmed, and the patient was blanched and unable to speak above a whisper. The pulse was thready at 120 beats per minute. On examination, I found but little flowing from the vagina, which was filled with large clots. In the softened and dilated os I felt a mass about one inch in diameter and two and one-half inches long, held fast to the wall of the uterus by a fibrous pedicle one-half inch in diameter. I dislodged the mass with a dull curette, washed out the uterus with hot antiseptic solution, gave ergotine under the skin and made the patient comfortable in a dry bed. As this affair happened after dark, I was handicapped with poor light and by lack of intelligent assistance. In my haste to get the patient comfortable I had mistaken a blood-clot in the washings for the polypoid mass. For, much to my chagrin, I did not find the mass sought till two days later, when it was expelled from the uterus, giving much pain to the patient. Fortunately there was no return of the hemorrhage. The convalescence was slow, owing to the general debility and great loss of blood.

Two questions have been asked me in regard to these cases:

(1) May not these polypoid growths be independent of the puerperal state?

I am confident that the mass in the first case contained placental tissue, and, I think, originated from a portion of adherent placenta, probably succenturiata, since a close examination of the uterine side of the placenta, at least, showed it to be intact.

Of the second case I am not so certain. It is more

likely, however, that the polypoid mass originated with some shred of membrane or clot of blood, rather than an ordinary fibrous growth independent of the puerperal state.

The second question relates to treatment. Is it advisable to explore the cavity of the uterus in every case when we know that *small* fragments of the placenta or membrane are left behind?

Usually I would follow the conservative plan of trusting nature to expel them; but, on the slightest provocation, either by reason of hemorrhage or suspicion of sepsis, the uterine cavity should be explored and made clean as possible, in accordance with modern antiseptic methods.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

EXPERIMENTAL RESULTS WITH ANTISTREPTOCOCCIC SERUM.

Petruschky¹ reports that his experiments with cultures of streptococci and an antistreptococcic serum sent to him by Marmorek have not obtained the same promising results which that investigator reported. In the first place, he found that a dose stated by Marmorek to be absolutely fatal killed his rabbits only exceptionally. In fact, two of his own cultures of streptococci, which he had grown for two years, proved to be more virulent, so that their actions were not checked by antistreptococcic serum, although the latter was injected within twenty-four hours of the time of infection. The author, under the circumstances, thinks he is justified in his conclusions (1) that the therapeutic action of the serum is not yet to be recommended in man; and (2) that up to the present time there is no certain proof of the possibility of serum-therapy in streptococcic infection.

EFFECTS OF ETHER ON THE BLOOD.

The author of this paper, Von Lerber,² bases his conclusions on examinations of the blood of 101 patients. One or two examinations were made before etherization, and from two to four examinations afterward.

The quantity of hemoglobin was compared in 98 cases. In 65 cases it was the same after operation as before; 19 times there was an increase, 14 times a diminution, but in only two instances did this amount to 10 per cent., and in these there was great loss of blood at the operation. Ether, therefore, does not affect the quantity of hemoglobin.

The red blood-cells were counted in 101 cases. In 55 cases they were increased, in 42 diminished, and in four there was no change. The gain and loss were in most cases only temporary. So that it may safely be said that ether has no deleterious influence on the red blood corpuscles. A spectroscopic examination of the urine in 83 cases failed to show any increase in urobilin. This is further evidence that the red blood-corpuscles were not destroyed.

¹ La Presse Médicale, November 11, 1896; Medical News, January 9, 1897, p. 51.

² Inaug. Diss., Basel, Schweiz. Verlagsdruck, 1896; Medical News, October 17, 1896, p. 432.

In 96 cases the white blood-corpuscles were increased; in five they were diminished. In three of these latter the opening of abscesses (which had caused pathological leucocytosis before the operation) sufficiently explained the decrease in white corpuscles. In one case the decrease seemed due to rapidly approaching death, and in the other case the decrease was insignificant. The author concludes that etherization often occasions a marked leucocytosis.

THE APPLICATION OF SCHLEICH'S METHOD OF COCAINIZATION.

Gottstein³ published results of cocaineization by the method of infiltration in 118 operations. Nearly one-half of these were for the extirpation of tumors. There were eight cases of resection of the vas deferens, two cases of strangulated hernia, ten gastrotomies, and several exploratory laparotomies. One advantage of this method is that the patient can usually get down from the table immediately after the operation, so that hypostatic pneumonia, which so often follows ether operations in feeble patients, is avoided. It was a great pleasure to observe how slight a reaction followed these "major" operations. As far as possible an Esuarch bandage was used after the injections were made. The anesthesia usually lasted thirty minutes, sometimes still longer. In only two cases was there any evidence of cocaine intoxication.

THE SURGICAL TREATMENT OF FOCAL EPILEPSY.

Sachs and Gerster⁴ contribute a paper which presents a critical analysis of 19 cases operated upon by the authors. Of these, three are reported as cured, five as improved and eleven as unimproved. Of this last group three died as the result of the operation. The authors concede that surgical procedures will avail but little in the majority of cases. In all of the cases in which no improvement resulted, the operation was not undertaken until many years had passed after the initial trauma, and after the beginning of the epilepsy. They conclude that if a long period of time has elapsed, all operative procedures will prove equally unavailing. As a result of their study of these cases, the paper closes with the following conclusions:

(1) Surgical interference is advisable in those cases of partial epilepsy in which not more than one or, at the utmost, two years have elapsed since the traumatic injury or the beginning of the disease which has given rise to the convulsive seizures.

(2) In cases of depression or other injuries of the skull surgical interference is warranted, even though a number of years has elapsed; but the prospect of recovery is brighter the shorter the period of time since the injury.

(3) Simple trephining may prove sufficient in a number of cases, and particularly in those in which there is an injury to the skull or in which a cystic condition is the main cause of the epilepsy.

(4) Excision of cortical tissue is advisable if the epilepsy has lasted but a short time, and if the symptoms point to a strictly circumscribed focus of disease.

(5) Since such cortical lesions are often of a microscopic character, excision should be practised even if the tissue appears to be perfectly normal at the time of operation; but the greatest caution should be exer-

³ Centralbl. f. Chir., No. 50, 1896; Medical News, March 20, 1897.

⁴ American Journal of Medical Sciences, October, 1896; Annals of Surgery, February, 1897, p. 209.

cised in order to make sure that the proper area is removed.

(6) Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy.

(7) In cases of epilepsy of long standing, in which there is in all probability a wide-spread degeneration of the association-fibres, every surgical procedure is useless.

A METHOD OF DEFINING THE FISSURE OF ROLANDO.

Morison describes the following method for locating the fissure of Rolando:⁵

"The measurements may be made with a piece of sterilized silk marked off by knots to form the triangle, or by defining the sides of the triangle by means of the surgeon's finger, whose length is already known. A point is taken half-way between the glabella and the external occipital protuberance, and the breadth of the little finger behind it (about half an inch) indicates the apex of the triangle. An isosceles triangle is then mapped out on the scalp; its sides are three and three-quarters inches long. One lies in the middle line forward from the point mentioned above. The base measures four and one-eighth inches, and is anterior. The posterior side of the triangle is over the fissure of Rolando. Trigonometrically the apical angle of this triangle is $67^{\circ} 27' 52''$, and this is practically identical with the angle formed by the fissure and the middle line of the skull worked out by other methods, and, from an examination of a large number of skulls of various sizes, is constant and correct."

THE MORTALITY OF HARELIP, WITH AND WITHOUT OPERATION.

Fahrenbach⁶ writes of 210 cases of harelip, which were operated upon in Gottingen from 1885-95. Rejecting the too minute classifications of cases which some authors have made (Stobwasser enumerates thirteen different types), he has arranged his material in four groups, according as the cleft in the lip was single or double, and with or without complications in gums or elsewhere. The different operations performed are accurately described and illustrated, but an especial interest attaches to the mortality. The immediate results were satisfactory. In 166 cases the operation was entirely successful, and of the 210 cases only nine died—about four per cent.; but when the cases were followed for a considerable time the author found the mortality to be discouraging. This is especially true of the cases with complications. Thus, the cases of single harelip with complications showed a mortality in two weeks of 5.7 per cent., which in three months was doubled, and at the end of one year had risen to 30 per cent. of all the cases of this class. The death-rate for bilateral cases with complications was 17 per cent. for two weeks, and the same for three months, but was over 50 per cent. at the end of the year. Including all the cases operated upon, the mortality at the end of two weeks was 7.5 per cent., at the end of three months 10.7 per cent., and 32.3 per cent. at the end of a year; and by deaths after one year these figures were raised to 41.8 per cent.

According to these figures one-third of all children

operated upon for harelip fail to live a year, and probably not one-half of them live to grow up. But these figures are to be compared not with those of healthy children, but with those of cases of harelip without operation. Just what the mortality among such deformed children is, is not known, but it must be high. For example, in one hospital⁷ 14 per cent. of the patients with harelip died before they could be operated upon. Generally speaking, the earlier the patients are operated upon the more of them succumb in the succeeding months; but this the author considers due to the fact that many of the children would not in any case be able to live. He is an advocate of an early operation (sixth to eighth week) for the lip, leaving until later the treatment of any deeper deformity which may be present.

SURGICAL TREATMENT OF BASEDOW'S DISEASE.

Professor Mikulicz, of Krakau, is favorably impressed by the operative treatment of this affection. His conclusions are based on the analysis of 11 cases. Nine had exophthalmos; all tachycardia, with pronounced nervous and mental symptoms. Most of the patients also showed typical trophic disturbances. There were seven cases of diffuse hyperplasia, three with circumscribed nodules; and in one case (a cyst with five) the trachea was compressed, causing dyspnea. Two were treated by ligature of the thyroid arteries, three by enucleation, five by resection (three bilateral, two unilateral). There were no deaths. Six were cured (after one to nine and one-half years). Four were much improved, one slightly improved (by ligation, unilateral). Improvement of symptoms continued for a long time after operation. For diffuse goitre ligation of the four thyroid arteries is recommended; for circumscribed nodules and cysts, "Socin's" enucleation; and resection for those cases not benefited by ligation (it is much more difficult and dangerous than in simple goitre).

The rate of improvement after operation is varied—the symptoms in some cases having ceased entirely in a few weeks, in others months and even years are required. The psychical and nervous symptoms usually disappear first; for example, restlessness, insomnia, vertigo, cardiac palpitation, etc. The disturbances of circulation cease next; the exophthalmos and trophic derangement last. Mikulicz thinks that the most of the symptoms are due to auto-intoxication by thyroid products, and that the first effect of the operation is to reduce the supply of toxic substances. He considers operative treatment indicated where medicinal treatment has failed and where dyspnea is present.

PRELIMINARY RESECTION OF THE FIFTH COSTAL CARTILAGE IN ORDER TO APPROACH THE PERICARDIUM.

Durand⁸ recommends this method of reaching the pericardium in operations on this structure. This operation was first suggested by Ollier. Some writers advise the resection of the sixth cartilage also, but Durand has found the space afforded by removal of the fifth entirely sufficient.

The author recommends the resection of the fifth cartilage preliminary to simple aspiration. He lays stress on the chance of serious injury from a puncture, even with a small needle, through an intercostal space,

⁵ British Medical Journal, 1896, No. 1868; American Journal of Medical Sciences, January, 1897, p. 116.

⁶ Deutsch. Zeit. f. Chir. vol. xl, p. 81; Medical News, November 14, 1896, p. 555.

⁷ Rose: On Harelip and Cleft Palate, London, 1891.

⁸ Revue de Chirurgie, 1896, No. 6; American Journal of Medical Sciences, December, 1896, p. 718.

as the operator does not know where his needle is going. The operation has its chief indication, however, in performing pericardotomy for purulent pericarditis.

The chief difficulty in the operation is the costo-mediastinal cul-de-sac in separating the sternal end of the cartilage. In the tuberculous the cartilage may be very adherent. In those who have had no inflammatory infection of the lungs the procedure is simple. In some cases the recognition of the pericardium will be difficult. The perichondrium is to be removed with the cartilage.

Technique.—(1) The incision is made on the fifth costal cartilage, parallel to it, and from six to eight centimetres long. It should commence in the median line. (2) Rapid denudation of the cartilage by a bistoury. (3) Resection of the cartilage by separating the sternal attachment and lifting from behind forward. Durand adds ligature of the mammary vessels. Secondary ulceration or accidental perforation are thus provided against. The fingers then loosen the triangularis sterni. The border of the sternum may be removed by the gouge if more space is required.

OPERATIVE TREATMENT OF PHLEGMONS OF THE POSTERIOR MEDIASTINUM.

Obalinski⁹ after reviewing the history of these operations, reports five cases of his own, making in all a total of 13 cases which had the similarity that in all a resection of the ribs was made near their spinal articulation, and the costal pleura dissected up from the heads of the ribs and the thoracic vertebræ, thus permitting an access to the vertebræ themselves or to the posterior mediastinal space. The shape of the incision the author does not believe is essential. The dissection of the costal pleura from the bone was successfully performed, with the exception of two instances in the living patient, in which the author tore the costal pleura and produced a traumatic pneumothorax; the wound, was, however, closed with sterile gauze; during the remainder of the operation no infection ensued, and the only result was a pneumothorax, which was not purulent, and passed off in one or two days after the operation.

As special indications for this operation the author gives these: (1) a cervical abscess which leads down into the posterior mediastinum or is the outgrowth of a mediastinal abscess; (2) an abscess originating near the spine; (3) a fistula in the lumbar or thoracic region; (4) a foreign body in the esophagus whose exact location we know, that is, into which wall it has penetrated.

TREATMENT OF CICATRICAL STRICTURE OF THE ESOPHAGUS.

F. Peterson¹⁰ reports the successful treatment of a badly constricted esophagus by the combined method of gastrostomy and gradual dilatation from below. The strictures were caused by caustic potash. One was at the level of the bifurcation of the trachea, and one near the cardiac orifice of the stomach. A gastrostomy was done two months after the accident with some relief. Four years later the Kraske dilatation was done. The upper stricture was then permeable

to a No. 28 sound. The patient was told to swallow a silk thread knotted at its ends. After this reached the stomach, which occurred in about five minutes, it was brought out through the gastric opening by flushing the stomach with water. As the water flowed from the stomach the end of the thread was washed out with it. To this end an ivory olive was attached, and to this another thread 50 centimetres long. To this latter thread a still larger olive was fastened. These were then drawn upward through the esophagus by pulling on the oral end of the thread. In this way the strictures were gradually dilated from below, beginning with No. 13 and using successively 15, 18, 20, 23, 25 and 28. When the dilatation reached 28, the passage of sounds from above was resumed, which were gradually increased in size to No. 54. The patient continues to pass No. 48 himself every three weeks, which is easily accomplished.

PATHOLOGY AND TREATMENT OF GUN-SHOT WOUNDS OF THE ABDOMEN.

Klemm¹¹ (Riga) has written an interesting monograph on this subject. He reviews the literature of the subject, the results of his own experiments on dogs, and presents his conclusions from both. They correspond to all general opinions held at present by American and German Surgeons. He does not believe in the expectant method of treatment advocated by the French, especially Reclus, who claims that this shows a lower mortality; that the prolapse of the mucous membrane through perforations in the hollow viscera plugs the wound till plastic exudation seals it. Klemm found that the plug so described occurred, but that it did not prevent leakage of intestinal contents when the slightest pressure was made. This was also the clinical experience of Sonnenberg and Von Bergmann. Klemm also found that the abdominal viscera were perforated in a majority of cases. In 152 clinical observations of Lück only three escaped without injury of viscera. Local symptoms of injury were noted only eight times. The general symptoms of shock or beginning peritonitis were far more frequent.

The size of the wound was determined by the angle of the direction of the striking bullet with the surface struck and by the diameter of the intestine at the point struck. When death is not immediate from hemorrhage or shock, it is caused by septic intoxication from the toxins formed by the germs in the blood-clot which is always present. Adhesions may occur, abscesses from which sooner or later rupture and cause death. Klemm condemns Senn's gas test, which he claims increases the danger of fecal extravasation. He advocates immediate operation in all cases in which the patient's condition permits it. His plan of operation corresponds with that commonly followed by American surgeons, namely, to explore the wound of entrance, and if it is found to have penetrated the abdominal cavity to open it at once. He considers the presence of peritonitis or weakness due to septic intoxication as contraindications.

(To be continued.)

MR. HEATH TO LECTURE IN SAN FRANCISCO.—Mr. Christopher Heath, late President of the Royal College of Surgeons, England, has accepted the invitation to deliver the second course of Laue Medical Lectures at Cooper Medical College, San Francisco.

⁹ Wiener klin. Woch., December 10, 1896; American Journal of Medical Sciences, March, 1897, p. 351.

¹⁰ Verhandlungen der deutschen Gesellschaft. f. Chir. XXIV Kongress, 1895.

¹¹ Volkmann's Samml. klu. Vorträge, 1896, No. 142.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, March 17, 1897, the President, DR. H. L. BURRELL, in the chair.

DR. F. B. HARRINGTON read a paper on

GAUZE DRAINAGE.¹

DR. HERBERT J. HALL, of Marblehead: I would like to add, in favor of Dr. Harrington's tape, some points which have come up in the course of my experiments, and I think they will be shown very clearly in the drawing. In the ordinary loose-meshed gauze we have as many threads running transversely as longitudinally. Now if a gauze sponge is tucked into an appendix abscess, and capillarity begins, we have acting, not only the longitudinal fibres out of the wound, but the transverse fibres all about the wound, and each of these transverse fibres carries in the wrong direction, not up and down as we wish. That is the disadvantage, as far as I have been able to make out, of ordinary open gauze in the drainage of cavities. In Dr. Harrington's tape the lateral distribution of the fluid is very slight, cannot go beyond his selvages, which are close together, so that capillarity when it occurs is in one direction—up and out of the wound, whereas that certainly (theoretically, at least) is a disadvantage of the ordinary open gauze in drainage.

In my experiments I have found, as Dr. Harrington has said, that iodoform gauze is not as good a drainer as the ordinary plain gauzes. We are very apt to err in making these experiments, and the only way I could prove that iodoform gauze was a poor drainer was to take a strip of plain gauze and weigh it, then subject it to capillarity by immersing one end under given conditions for a given time in water and then weigh it again. The difference in weight showed in a fair way the capillarity of that strip of gauze. If I took that same strip after drying it and impregnated it with iodoform, I found that its capillarity was decreased about one-third. That is a pretty conclusive experiment, and repeated in enough cases showed that iodoform decreases the capillarity of any gauze.

DR. HARRINGTON spoke about the difference between moist gauze and dry gauze in the drainage of cavities. It is a matter of common observation that if a perfectly dry sponge, one that has been baked and is brown, is thrown upon water in a basin, it will float. That we see frequently enough; and that a moist sponge, if thrown upon water will sink at once. This led Gerster, in his "Antiseptic and Aseptic Surgery," to state that moist gauze is a better absorber than dry gauze. That is a mistake very easy to fall into. I started out to prove that to be the case, but was obliged to arrive at another conclusion. If you take a strip of plain non-sterilized gauze and get its capillarity, that is, make note of the amount of water it will absorb, and take that same strip and sterilize it by steam in the ordinary Arnold sterilizer, and give it the same test, you will find its capillarity has not been changed, that it will absorb precisely as much water as before. If you now take the same strip of gauze and bake

it brown and subject it to the test under the same conditions you will find it will absorb the same amount of water. Also if you will weigh a strip of ordinary unsterilized gauze dry, and then get its capillarity dry, then moisten it, weigh it again and subject it while moist to the same conditions, you will find that the moist gauze absorbs not more and not less than the dry gauze; that is, the moisture in the gauze does not affect its capillarity; it will absorb just as much water whether moist or dry.

DR. A. T. CABOT said that he thought that the consistency of the fluid was an important element in the selection of the kind of drainage. A gelatinous fluid like thick pus or like blood was much more difficult to remove by the capillary action of gauze than the thinner serous fluids thrown out immediately after an operation. When an abscess is opened and the cavity is thoroughly packed with gauze, there is often afterwards very little pus excreted. The irritation and pressure of the packing sets up a healthier action, and the fluid thrown out is usually serous and readily carried away by the gauze. If, however, you have an abscess or effusion of blood deep in the pelvic cavity, you have a condition in which aspiration by gauze is less reliable, as the gauze gets quickly clogged with pus or blood, the gelatinous character of the fluid ruining the capillary action. It is also to be remembered that in the abdominal cavity drainage can almost never be said to be passive, in that this cavity is surrounded by muscles constantly in contraction, and is filled with intestines which are in motion or undergoing changes in volume, so that there is constant intra-abdominal pressure forcing out fluids even when the drainage-tube is not in a dependent position. If, for instance, after laparotomy you put a glass drainage-tube to the bottom of the pelvis, on sucking the tube out next morning you rarely find more fluid than the drainage-tube itself will hold, the rest having been forced out and then overflowed on the dressing.

He thoroughly agreed with Dr. Harrington in regard to the value of gauze drainage when used immediately after operation, and said that he regarded Dr. Harrington's experiments upon the action of different kinds of gauze as very valuable and interesting, in showing that iodoform gauze has a degree of usefulness in walling off and protecting uninfected parts from contact with septic fluids, even greater than he had before supposed.

DR. E. W. CUSHING: I think these tapes will fill a long-felt want. I do not quite agree with the opinion that gauze drainage will always drain the abdominal cavity satisfactorily; and yet it is also true, as Dr. Harrington has said, that in many cases it is extremely desirable to pack a cavity. The use of the Mikulicz drain, where there is a sac of gauze outside the gauze strips, allows us to have the advantages both of packing to check oozing and hemorrhage and of drainage. When the Mikulicz drain is used, it is not easy to get the sac out before several days; and when it is taken out, it is a matter of observation that there is apt to be a considerable collection of thick fluid below which has not drained away. I have often found it convenient to combine the two systems and put a tube just behind or in the middle of the Mikulicz sac. I think that is a great advantage, because you are able to have the fluid sucked out and avoid most of the soiling of the dressings; and when it is desirable to remove the tube and the packing, they may be removed

¹ See page 150 of the Journal.

and still the sac of the Mikulicz drain is left in. You can be sure you are draining the cavity. The glass tube or rubber tube may be used. I think that combination of the Mikulicz sac with the tube in the middle of it is the most satisfactory for draining the abdominal cavity, in cases in which anything more than a simple glass tube is required.

DR. HARRINGTON: I did not wish to be understood as saying that I should never use tubular drainage. I do use it in a certain number of cases, but I must admit that the number is not large.

TUBERCULAR KNEE-JOINTS.

DR. NICHOLS: I have to present two specimens, with drawings of tubercular knee-joints, that illustrate the origin and extension of the process. Virchow has stated that in all tubercular joints the process arises in the bones. All of the surgical and orthopedic textbooks at present state that a very large proportion of the tubercular lesions of the joints begin in the synovial membrane. In examining nearly a hundred tubercular joints during the last two and a half years, and having this point constantly in mind, I have seen only two joints that even simulated a primary synovitis. These two cases I have to exhibit. In the other cases there was no question but what the process began in the bone and then extended to the synovia.

One of these cases is a tubercular knee from a woman of sixty. The symptoms lasted for a year, and the knee was finally amputated. The entire joint was received, including the tibia, fibula, femur and patella. The synovia was thickened and studded with miliary tubercles, but, with very careful examination, it was impossible to discover any connection with a bone focus. Sawing open the femur, a caseous focus was found in the end of that bone, about an inch in diameter; and this focus was obviously older than the process in the synovia, and opened into the joint at the insertion of the crucial ligaments.

The second case was received less than a month afterwards. It is a knee-joint from a man about twenty years old, which was excised. The specimen included all the bones of the joint except the tibia. The synovia was thickened and everywhere studded with miliary tubercles, but no connection with any bone focus could be made out. Sawing open the tibia and femur, no bone focus was found; but on opening the patella there appeared a small caseous focus, just at the insertion of the quadriceps, nearer the superficial than the joint surface, and older than the process in the synovia. This focus connected with the joint at the top of the patella. No other case examined, out of nearly a hundred in all, failed to show a primary bone focus.

It is, of course, impossible to say that primary tuberculosis of the synovia does not occur, but it is fair to say that it occurs much less frequently than the textbooks represent. It is also certain that it is impossible at an operation to determine whether the process began in the bone or in the synovia unless every single bone involved in the articulation is carefully examined to a very considerable depth.

The tubercular process in the knee-joint appears to begin almost always in the epiphysis, near the epiphyseal line, with the formation of single tubercles which afterwards fuse; the trabeculae are dissolved and a "tubercular abscess" is formed, which extends peripherally, usually toward the joint. The cartilage is

eroded at some point, oftentimes at the insertion of the crucial ligaments, and the tubercle bacillus enters the joint, although it may be impossible to determine the point of entrance without opening the bones. The bacillus is diffused over the joint in the synovial fluid and miliary tuberculosis of the synovia is produced. Then the synovia may thicken into a dense tubercular granulation tissue, or may project into the joint as thick folds, the "villous" joint. The thickened synovia may extend over the surface of the cartilage as a dense membrane, thickest at the advancing edge. Wherever the membrane extends the cartilage beneath is destroyed and the ends of the bones are eroded. Ultimately only small islands of cartilage are left, the articular ends of the bones are destroyed, and subluxations occur.

DR. E. REYNOLDS read a paper on

THE CHOICE BETWEEN THE ABDOMINAL AND VAGINAL INCISIONS IN THE OPERATIVE TREATMENT OF ACUTE PELVIC INFLAMMATIONS, WITH SOME REMARKS UPON THE TECHNIQUE OF THE VAGINAL OPERATION.²

DR. BURRAGE: I am glad to have heard Dr. Reynolds's paper, as it is on a subject that has interested me a great deal for the past two years. Now that the vaginal route of operating has been so much exploited, it behooves us to lay down lines of procedure to be followed in any given case of pelvic disease; and especially is this true in acute pelvic inflammation.

The discussion is limited, I understand, to emergency operations in severe cases of acute pelvic inflammation. Dr. Reynolds has spoken of the routes of septic invasion in the pelvis, that is, by direct transmission of the poison through the tubes, through the lymphatics into the broad ligaments and pelvic lymph glands and through the veins. We must remember that it is possible to have an inflammation of the pelvic cellular tissue, a phlegmon, without involvement of the tubes to any appreciable extent, an important point to be kept in mind in contrasting a conservative with a radical operation. I think we ought to consider the relative virulence of the different forms of acute pelvic inflammation according to their origin; that is, that the septic inflammations with the recently pregnant uterus are the most serious form, that those from operations on or injuries of the non-pregnant uterus are less serious, and those dependent on gonorrhea the least serious. Acute exacerbations of chronic inflammations are, as a rule, less virulent than those arising from fresh infection, but may, however, progress to a fatal termination.

I assume that Dr. Reynolds refers in his paper to some such case as this in speaking of operation in the attack:

A woman acutely sick with a temperature of 102° to 104°, pulse of 120, and rapid respiration. A mass in the pelvis of indefinite outline and dimensions, and, because of the great tenderness of the parts and rigidity of the abdominal walls, difficult to diagnose exactly. We rule out appendicitis, should the signs of this affection be negative, by falling back on the symptoms. The attack of acute pelvic inflammation is apt to be less explosive and less severe locally and generally than the attack of appendicitis. Then there is usually a history of previous uterine symptoms in one case

² See page 146 of the Journal.

and of intestinal disturbance in the other. The proper operative procedure in such a case is, in my estimation, to curette the uterus, open the cul-de-sac and drain both the uterus and the cul-de-sac with gauze. I should reserve the abdominal operation for masses high up in the pelvis and inaccessible from the vagina, and for undoubted cases of general peritonitis.

As has been said, it is not necessary to remove a diseased tube to effect a cure. That may be effected later at the time of election. What is needed is drainage. No one would choose an acute inflammatory attack as a suitable time for a radical operation in any other domain of uterine surgery. Why should the uterus be removed for an acute peri-uterine inflammation? It has been urged that by removing the uterus the drainage is better, and troublesome hemorrhage can be more easily controlled. To my mind removing the uterus adds to the shock, besides sacrificing an important organ that may be restored to usefulness. There is every reason to believe, as the reader has stated, that early drainage will permit later of a restoration to health of a diseased uterus and tubes.

Contrasting the vaginal with the abdominal operation, it is my opinion that with the former the patient experiences less shock; there is less disturbance of the intestines; only a corner of the peritoneal cavity being opened, the least amount of peritoneum is affected. In many cases the peritoneal cavity is not opened. Even where the intestines are exposed the pus is in many instances sterile, and there is no infection. The drainage is down hill, and is nearer to the source of sepsis than in the abdominal operation. Greater familiarity with operating in this field will make the vaginal operation easier of performance. Abdominal section in puerperal sepsis is a very fatal procedure. If any other measure will give better results it ought to be tried.

As to technique, I do not operate just as Dr. Reynolds does. I make the incision in the vagina with scissors, first catching up a fold of the vagina with two tenacula and cutting between them. The vaginal wound is then enlarged laterally by cuts with the scissors, and the operation proceeded with by dissecting into the mass of exudate by means of the finger and the closed scissors. Operating by the vagina has taught me something as to the treatment of pelvic abscesses, that is, that it is safer to open abscesses in the way just described than to puncture from the vagina with aspirating needle or trocar. I am totally opposed to puncture of pelvic exudates with needle or trocar for diagnostic or other purposes, as being dangerous. There is little chance of wounding the ureters or rectum if one operates as I have said, keeping in the median line and close to the uterus. The opening should be large enough to afford free drainage. Should there be hemorrhage, the intestines may be walled off with a plug of gauze, the patient placed in the Trendelenburg posture, and by the aid of a long spatula to raise the anterior vaginal wall and uterus, the interior of the pelvis inspected and the bleeding-point seized with forceps.

It seems to me to be safer to curette the uterus in every case before making the vaginal incision, even if a previous curetting has been done by another medical attendant.

DR. ENGELMANN: I have been much interested in the calm and judicious presentation of the subject by Dr. Reynolds, and thoroughly endorse all he has said in favor of vaginal interference; but he has hardly said

enough: Operation by this route, be it by incision and drainage or by partial or total removal of diseased tissues, is indicated more often than abdominal section, and is more generally applicable in acute pelvic inflammation.

In emergency cases we have no choice; the patient is then debilitated, with high temperature and feeble pulse, not likely to survive a laparotomy, whilst vaginal incision gives relief and may cure. A comparison of methods would be superfluous, if limited to these extreme conditions; but this Dr. Reynolds has not wished to do. As I understand him, he has confined himself to acute pelvic inflammations in which the knife is positively indicated; and in these cases it is unjust to entirely exclude hysterectomy, as he would have us do, if we are fairly to present the advantages of vaginal methods, since it may be forced upon us in the course of the operation to facilitate or complete the removal of diseased structures, and we must not then pause to consider whether with certainty the organs are irreparably damaged or not. It is safe to assume that, if hysterectomy is so necessitated, all the pelvic structures are deeply involved, and the preservation of the uterus is no longer a question of any moment; the organ is useless, or worse—a possible nidus of infection, and always a source of danger.

But these are the exceptions. The vaginal operation most frequently indicated in acute inflammations is incision and drainage, which from a surgical point of view is in no way to be compared with celiotomy or colpotomy with removal. It is a very simple procedure, and for this reason too much ignored amid the prevalence of successful laparotomy, but now that the suprapubic incision, with its brilliant result, has been tested to its fullest extent and its limitations have been found, we are more ready to recognize the benefits of the less impressive vaginal operation in its proper sphere. It is often the more correct surgical procedure, and the operator need no longer fear being accused of surgical timidity if he gives preference to incision and drainage over laparotomy when the mass is accessible, low in the pelvis.

The method has much in its favor. Relief is readily given without danger, and cure usually follows proper drainage with irrigation and packing, as in abscesses and acute suppurations in other parts. Even in earlier days before the time of successful laparotomy, when this was our only means of treating pelvic accumulations, very good results were achieved and many will remember the perforation with scissors and enlarging of the opening by sticking the blades or puncture with the trocar followed by dilators or forceps. By a timely use of the knife we may save much suffering, prevent peritonitis, and avoid the necessity of more serious operation at a later period.

If the result is a temporary one only, the patient will be in better condition for the following infra- or supra-pubic section.

For critical cases we rely upon vaginal incision. In the first stages of the disease we can successfully interfere by this method at a period when celiotomy would be unwarranted before fluctuation appeared.

Such is the valuable lesson taught us by Hentrotin, who claims that 90 per cent. of pelvic inflammations may be cured by incision without extirpation if attempted in time. Dr. Harrington has emphasized this by the instructive pictures he has presented to us this evening of the phlegma of the hand and the advan-

tage of timely and free incision without awaiting the evidences of pus formation.

This may suffice to indicate how broad a field is open to the vaginal operation in acute pelvic inflammation. The advantage of the method is its general adaptability. It is conservative, simple and safe, thus justifying an early interference before indications for other procedures exist and enabling us to act when more serious or prolonged operations are inadmissible. These, too, give us the absolute indications for vaginal interference, as the high location of the tumor or the presence of peritonitis does for laparotomy; but beyond this distinct lines cannot be drawn, and the course to be followed must depend upon the safety of the method and the judgment of the practitioner, not upon his surgical inclination and preference.

The vaginal operation is not a surgically ideal one and cannot compare with the perfected abdominal section; but the question is as to the safest and most successful, not as to the nicest and most brilliant operation, and the broad-minded surgeon will adopt that which insures the best results with least danger to his patient. We must remember, too, in comparing the merits of the two methods, that these are not hospital cases which are given all the advantages of surgical skill and aseptic surroundings; they are acute cases which come to the practitioner or his consultant, and are treated in their homes, in city or country, where incision and drainage must always take precedence over laparotomy with removal of parts.

Dr. E. W. Cushing: The subject is divisible into two classes, both of which may be considered emergency cases: first, those described by Dr. Burrage, which are mostly post-puerperal or post-abortion, where there is great danger and something must be done right away. Now I think in those cases it is universally admitted that an abdominal operation is a grave one. In the first place, before the patient and friends have made up their minds, the happy time for interference is gone by; and if there is interference, there is such a mortality that it discredits surgery. If vaginal incision can be made early, you will strike one of two conditions. In the first class of cases, which is rare, you will find that, as a rule, the infection has spread through the tubes, and drainage can be obtained from the source of infection, which is the leaking of the tubes. You will see, if the abdominal operation is performed, that the fibrinated extremity is not closed. If a piece of gauze can be placed between the ends of the tubes so that all fluid is drained as fast as it comes out, the patient may be saved by simple drainage. In the second class of cases the inflammation is circumscribed and localized in the cul-de-sac or in the broad ligament.

I understood Dr. Reynolds's paper to refer more to cases with pelvic abscess, where an abscess has formed which ought to be opened; and the question is, How? Those cases where an abscess breaks into the vagina or rectum, often get well. The thought lies near to assist nature by opening, and especially to prevent rupture into the rectum by making an opening through the vagina; and ten years ago the best procedure seemed to be to puncture with an aspirating needle, and if you found pus to enlarge the opening with the thermo-cautery, and drain; and under this treatment the cases do very well indeed. Where the pus comes low down that can be done without ether. When we used to do that, it soon became evident that those cases were not all

in the cul-de-sac of Douglas, as was supposed; but we opened that space and found the collection of pus farther up. About that time came the great excitement about laparotomy; and, although we were successfully opening pus tubes from below with the trocar, there came then the apostles who persuaded us to do this work from above. Then it became evident that if anything more were done than to empty and drain the abscess cavity we would lose a patient operating from above who could have been saved operating from below. Given the fact that in grave cases it is not possible to do the full operation, and it becomes evident that if you can get to the source of pus from below and drain, you are getting all the advantages and few of the dangers; and this modern device of vaginal incision is applying with more correct surgery and modern principles what we used to do blindly. There are some cases where masses form high up, and perhaps the uterus is down, and the pus cannot be got at from the vagina without removing the uterus. Of those cases every one will have to judge for himself. In a severe case, where there is a considerable mass, where the patient is in pretty grave condition, and the pus high up, it may be desirable to sacrifice the uterus. You look then right into the pelvis, find the tubes, remove or open them and have free drainage. I think the method has a great application; and it is one of the most critical things for judgment and experience to know how to attack one of these abscesses where the symptoms are quite acute and the patient in a very grave condition.

Dr. REYNOLDS: Perhaps I ought to define what I meant by emergency operations. In the great majority of pelvic inflammations we wait until the attack is over, and then advise the patient to have a laparotomy done; in the minority we are obliged to operate during the attack. I meant to include all of these latter cases.

As regards the source of phlegmon, I think we ought to remember that there are a good many cases of phlegmon which result from exacerbations of an old, long-standing, pelvic cellulitis. In these cases the chronic lesion undoubtedly originated in the puerperium,—post-abortion or post-labor; but the acute attacks are excited by getting the feet wet, or by almost anything else. I am very sure it is not safe to leave that possibility out of view in dealing with cases which come to us without any question of recent labor or abortion. I have seen several cases during the last year even in which I felt very well satisfied that there was no question of recent labor or abortion, and which were yet cases of phlegmon. As regards puerperal sepsis, I have seen a great many puerperal cases. I have operated on some. I believe the prognosis of operation in a septic puerperal case is extremely bad anyway. When there is distinct encapsulation of pus I operate. I have saved a few perfectly hopeless-looking cases and lost a good many more. I think if we can save a few, we had better operate on them. It is very rare to save them after the symptoms of general peritonitis are present, and I have never saved one where the symptoms of general sepsis were present and due to streptococcus. Dr. Burrage spoke of using the ennette, even if it had been used by somebody else. I would always do it unless I knew that other man to be a skillful operator.

I would like to speak of one case before closing, because it is so exceptional, and shows that there is some

value sometimes in drainage in septic peritonitis. That was a case I saw in consultation, but did not operate on. Cesarean section had been advised, but she fell into the hands of a doctor who thought he could deliver through the pelvis at term. I saw her four or five days afterwards. She was propped up in bed, vomiting incessantly, gurgling green fluid from the mouth, with her abdomen as big as a barrel. They wanted me to do some operation, and I said I did not know of any operation. They insisted, and I said I would examine vaginally. I could not find any uterine or cervical, nothing but rags. Among the rags I found what I took to be a piece of the membranes; I pulled it out, and it was the omentum. The uterus had been torn away from the vaginal attachments. I thought the omentum had better go back; and I pushed it back as high as I could, behind the uterus. In the process there came away a pint of foul brown fluid, and it continued to drain. I told them there was no hope, and went away. Ten days later the husband came to thank me, and to say that his wife had not vomited since. Recently I saw her at my clinic at the City Hospital, in apparently perfect health.

CHONDRO-SARCOMA OF THE FEMUR.

DR. A. T. CABOT showed a specimen of chondrosarcoma of the lower end of the femur. The patient was a woman of between thirty-five and forty years, who a year ago began to have pains, believed to be rheumatic, in the left knee. Later, an enlargement of that joint was noticed and recognized as a new growth by her physician, Dr. Harris, of North Easton. A month before she entered the hospital she was etherized by Dr. F. G. Balch, and a small bit of the femur was removed for diagnosis. Examination of this confirmed the existence of a sarcomatous growth in the bone. Amputation of the hip-joint was advised and accepted, and she entered the Massachusetts General Hospital for this operation.

Dr. Cabot operated by a rapid circular amputation just below the joint, removing the upper end of the bone after the vessels had been tied. The patient made a good recovery, and left the hospital at the end of about three weeks.

Dr. Cabot commented upon the very slight amount of shock caused by this operation under modern methods, a result which he ascribed to the avoidance of inflammatory irritation of this large wound quite as much as to the avoidance of hemorrhage.

AMERICAN ORTHOPEDIC ASSOCIATION.

ELEVENTH ANNUAL MEETING, WASHINGTON, D. C., MAY 4-6, 1897.

(Concluded from No. 6, p. 153.)

EXCISION OF HIP.

DR. W. R. TOWNSEND, of New York, read a paper with this title. He said that out of 2,295 cases of hip disease coming to the hospital, the joint was excised in 119. In 113 of these cases, it should be noted, there were more or less septic abscesses. No typical operation could be employed in these cases. No effort was made to close the wound and get primary union. Exhaustion was responsible for over 50 percent. of the fatalities; meningitis caused 10 percent. of the deaths, and shock was the cause in only nine cases.

The mortality-rate of this series of bad cases was about 52 percent. Forty-seven patients were still living, and 26 had been cured of the disease. The patients' ages varied from three to fourteen years. Dr. Townsend favored amputation at the hip-joint in cases of extensive disease and severe sepsis, for this at once destroyed all the sepsis.

DR. DE FORREST WILLARD, of Philadelphia, said that we could not expect in this country to obtain the brilliant results of English surgeons, because it was our custom to operate comparatively late. Nevertheless, our plan of treatment was very useful, and he never despaired of saving a case by mechanical treatment until there was evidence of streptococcus or staphylococcus infection. When this occurred, he was in favor of excision. Dr. Willard then exhibited a skiagraph of a young man in whom he had performed excision with very satisfactory functional result.

DR. HERBERT L. BURRELL, of Boston, said that he had come to the conclusion that excision was indicated when the symptoms and physical signs showed that the patient was irremediably losing ground. He had recently seen a case in which, within ten days after the onset of the acute tubercular process in the head of the femur, he had felt called upon to make an incision into the joint and drain it. He felt sure that by this simple procedure he had saved the child from an ultimate excision, and possibly from something even more serious.

DR. JOHN RIDLON, of Chicago, said that he had seen two cases, in which, three or four years after excision, there had been a breaking down of the scar. He exhibited, in connection with this discussion, a skiagraph of a case in which, although there was undoubted and active disease of the hip-joint, the affected limb was larger than the healthy one on the other side.

DR. N. M. SHAFFER said that, in his opinion, excision of the hip-joint was rarely called for. If hospitals having the care of many of these children would provide a country branch, there would be still fewer excisions.

DR. SHERMAN said that the chief objections to early excision in children were the stunted growth of the limb, and, sometimes, the associated adduction. One of his recent excisions was a boy who was now able to ride a bicycle and enjoy himself as well as his companions.

DR. REGINALD H. SAYRE, of New York, said that while very few cases of hip-joint disease required excision, there were certainly some of these patients who had such feeble vitality that they could not rid themselves of the disease unless artificially aided in this way. He referred to one case in which by the removal of nine inches of the femur a far better result was obtained than could have been secured by amputation.

DR. LOVETT said that he fully appreciated the value of the climatic treatment, and many of the children who had been subjected to excision had had the benefits of a country hospital. Undoubtedly a few cases demanded early excision, as had been said; and it should be our effort to formulate the type requiring this exceptional treatment.

DR. TOWNSEND said that he had known the sinuses to re-open after excision, but this did not necessarily indicate a recurrence of the tuberculosis. It was probably due to a small piece of necrosed bone. He had known cases of even acetabular disease to be decidedly

improved by amputation, owing to the better drainage secured in this way.

THE PROGNOSIS OF HIP DISEASE UNDER EFFICIENT TREATMENT.

DR. LEROY W. HUBBARD, of New York, in a paper on this subject, stated that according to the best statistics from private practice—those of Dr. C. Fayette Taylor and Dr. L. A. Sayre—the mortality was approximately two per cent. A definite, positive prognosis in any given case was at present impossible; but there was a probability of recovery with little or no deformity, and with some motion in the joint, after careful mechanical treatment for at least two years.

GLUTEAL BURSITIS.

DR. E. G. BRACKETT, of Boston, read a paper on this subject. He said that in all these cases the limp was an early and persistent symptom, and differed from the ordinary limp of hip disease in not being subject to remissions. The pain was not very severe, was referred to the back of the leg and under the knee, and was not worse at night. There was some limitation of extreme flexion, particularly of flexion of the extended leg. Deep fluctuation could be detected in the upper part of the buttock. The bursa should be exposed by an incision a little to the inner side of the outer border of the gluteus maximus muscle. Usually a rather extensive dissection was necessary to completely remove the bursa. The wound should be packed, and the limb kept quiet for a few days.

DR. A. J. GILLETTE cited a case in which long after the cessation of a hip-joint disease, the patient developed much pain in the buttock, and along the sciatic nerve. On incising the abscess which was present, it was found to be in the bursa and to have no connection with the joint. The patient made a perfect recovery.

DR. E. H. BRADFORD, of Boston, presented

AN IMPROVED CLUB-FOOT SHOE.

He also made some remarks based on

A STUDY IN HUMAN GAIT.

He said that walkers could be divided into two classes, namely, (1) those who walk throwing the body forward; and (2) those who walk with the body straight. Fatigued troops, or persons carrying a load walk with the body leaning forward. Children strike the ground in walking, with the knee bent, using chiefly the front of the foot. In those toeing out and walking with a good deal of dignity, the tendency was to walk more with the heels. In a proper gait, the heel should strike first, and the leg should be straight when the weight falls upon it.

THIRD DAY, — THURSDAY.

TREATMENT OF DEFORMITIES OF THE KNEE RESULTING FROM TUMOR ALBUS, WITH ESPECIAL REFERENCE TO THE CASES IN WHICH THE PATELLA HAS BECOME ADHERENT.

DR. JOEL E. GOLDTHWAIT, of Boston, read a paper with this title. He said that when the patella was adherent to the end of the femur there was often as much as 30 or 40 degrees of motion, but, of course, without voluntary control in extension. The patella is situated almost always on the outer condyle of the femur, and obstructs extension as the tibia comes forward. In one of his early cases, having failed to re-

duce the deformity with the genuclast, he had opened the joint and removed the patella. Convalescence was very tedious, the joint remaining very sensitive for two years, and even after four years not being very firm. In the subsequent cases he had avoided the joint, doing the regular Macewen osteotomy well above the disease. After the reduction of the deformity the leg was put up in an extended position. In the cases so treated, convalescence was short and motion good.

DR. RIDLON said that in one case in which he had endeavored to reduce the deformity manually the soft parts in the popliteal region had been lacerated.

DR. A. J. GILLETTE said that, although he had operated seven times on these cases, it was only recently that he had observed paralysis subsequently. In that case there was loss of sensation below the knee.

DR. H. AUGUSTUS WILSON, Philadelphia, said that in his first use of the genuclast he had unintentionally fractured the femur a little above the condyles. Fortunately, this accident had enabled him to secure a position of hyper-extension.

DR. GIBNEY said that although he had not seen laceration of the soft parts follow forcible reduction of the deformity, he had found that in some cases, even under anesthesia, it was not possible to secure a good position. He had accordingly resorted to Macewen's subcutaneous osteotomy in a number of cases, and with the most gratifying results.

DR. GOLDTHWAIT, in closing the discussion, said that he always used the genuclast before resorting to osteotomy or other operation. He had not met with paralysis or fracture as a result of this practice. Where there was much cicatricial tissue in the popliteal region, the deformity should always be corrected gradually, in the course of several sittings. The machine used by him was a modification of Dr. Bradford's apparatus. The power is applied against the head of the tibia by a screw, the tibia being drawn forward before it is flexed.

GENERAL LAXITY OF THE LIGAMENTS, WITH CONGENITAL HIP LUXATION.

DR. HENRY LING TAYLOR, of New York, read a paper with this title, and reported two cases.

SKIAGRAPH OF CONGENITAL DISLOCATION OF HIP.

DR. JOHN RIDLON exhibited a skiagraph of such a case, from which it appeared that the neck of the femur on the dislocated side was straighter than the normal neck.

A FURTHER STUDY OF THE MECHANICAL TREATMENT OF UNUNITED FRACTURE OF THE NECK OF THE FEMUR.

DR. NEWTON M. SHAFFER, of New York, read a paper with this title. He reported three cases in addition to those that he had already placed on record, showing the results of his treatment of ununited fracture of the femur by means of a long hip-splint, surcingle and tourniquet over the fragments. This additional experience justified him, he thought, in urging the advantages of the method even more strongly than heretofore.

FOUR CASES OF RECENT FRACTURE OF THE NECK OF THE FEMUR.

DR. JOHN RIDLON read this paper. His treatment consisted in securing good approximation of the fragments, and then applying a Thomas splint, with adhesive plasters on both sides of the leg. These plasters are buckled to the ring, so that the limb was subjected

to constant traction, the amount being represented by the weight of the brace. In each of the cases the splint was removed in about eight weeks, and the union found to be good.

DR. R. H. SAYRE said he had found it rather difficult to use the tourniquet and to prevent the sureingle from slipping. In most cases it seemed to him necessary that the splint should pass above the pelvis in order to give a proper control over the fragments.

DR. A. J. STEELE said that sometimes the signs of fracture of the neck of the femur would not be present immediately after an injury, but would develop rather suddenly after some days. On several occasions he had found on the cadaver a thickening of the periosteum which accounted for the holding together of the fragments for a time.

DR. SHAFFER said that the sureingle in his apparatus should be cut so that it would nicely fit the pelvis; then it would not slip. Only very moderate pressure was to be made with the tourniquet, except when it was desired to move the patient in bed.

DR. RIDLON said that in these cases of recent fracture, he did not employ the shoulder-straps with the Thomas splint, and as the splint tended to slip down it made a certain amount of traction. The dressing was an exceedingly convenient one for use in private practice, for it allowed of the patient being moved about in bed with the greatest ease and safety, and it could be properly applied by the surgeon without skilled assistance. The bar of the Thomas splint should be at least one and a quarter inches broad. The Taylor splint allowed too much motion at the hip-joint.

COXA-VARA AS A MANIFESTATION OF LATE RICKETS.

DR. R. H. SAYRE reported a case of this kind, occurring in a girl of sixteen.

ADOLESCENT RICKETS.

DR. RIDLON reported a case occurring in a boy of twelve years. There was no history of tuberculosis or rickets in the family, and the boy was in good health up to the age of seven years, when he began to limp. A skiagraph of the hip showed the femoral neck destroyed, and the femur thickened about the trochanters. A skiagraph of the knee showed what appeared to be three epiphyseal lines.

GUNSHOT INJURIES OF THE TARSUS.

DR. J. D. GRIFFITHS, of Kansas City, presented a communication on gunshot injuries of the tarsus, and of other parts of the body. He had made an investigation of the effects in *actual field practice* of the modern 30-calibre gun with which our troops are now provided. He found that although the gun had been adopted in the belief that it was "a humane gun," it was far from being anything of the kind. At long range, with the regulation powder and ball, one shot striking a person just below the tibia was capable of shattering the greater part of the bone. The effect of such a shot on the foot was to grind the tarsal bones into small fragments. Specimens were presented in proof of these statements. He said that an effectual protection from these shots could be quickly extemporized out of loose earth.

DR. R. W. LOVETT, of Boston, was elected President of the Association, and Dr. John Ridlon, of Chicago, Secretary for the ensuing year.

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THE RADICAL CURE OF INGUINAL HERNIA BY INJECTIONS OF CHLORIDE OF ZINC.

LANNELONGUE has reported the results thus far obtained of his treatment of hernia by the modified Heaton method, using for the material of the injection a ten-per-cent. solution of chloride of zinc.¹ He injects by means of a hypodermic syringe with a large barrel and long needle, twelve drops of the solution, making two injections at the same time, throwing the fluid well into the hernial canal, the internal abdominal ring being closed by the fingers of an assistant. The spermatic cord is kept out of the way as well as possible during the operation by the index finger of the assistant. The needle, as in the Heaton operation, is introduced through the outer ring well into the inguinal or femoral canal, and the mixture is injected as the needle is withdrawn by such a movement as will carry the point in various directions and bring the fluid in contact with the sides of the canal. A firm compress is applied, and the patient is kept in bed for a week or ten days, and must afterward wear a pad or light truss for some time. The operation is a painful one, and should be performed under ether. Out of 44 cases in young subjects, he claims 41 cures. Of the three cases reported as failures, one has subsequently been cured by a second operation of the same kind, the quantity of fluid injected the first time being insufficient. The other two cases were hernias of too large size to be permanently benefited by this operation.

It will be remembered that this mode of treatment is but an application of Lannelongue's "sclerogenous method," for which he claims great success in the treatment of cirroid aneurisms and tuberculous joints. The principle is the injection of some irritant mineral or vegetable substance which will provoke inflammatory thickenings, adhesions and the organization of new connective tissue. Nature often does this unas-

¹ *Semaine Médicale*, July 7, 1897; also July 8, 1896.

sisted in the lungs, and elsewhere, walling off bacilli, etc. In the inguinal canal which has become the seat of a hernia, and where a certain obliquity of the hernial tract still remains, the thickening and contraction of the walls and the new sclerotic tissue growth may completely occlude the passages by which the hernia was wont to descend, and the cure will be permanent. Unfortunately, although the exudations are considerable, the operation is not adapted to large hernias, and to cases where the obliquity of the canal has been destroyed. Nevertheless, even in these hernias, according to Weir,² the employment of the injection (Dr. Weir alludes to the Heaton injection of fluid extract of white-oak bark, which acts precisely as the chloride-of-zinc solution) "will so reduce the size of the canal as to permit better protection by a truss, and thus aid the individual in following his vocations." Weir has given this method a considerable trial, but is able to record only 12 cases out of 35 inguinal hernias. Bull and Gray report 9 cases out of 36 cases.

Whether Lannelongue's injection-fluid will prove more "sclerogenous" than Heaton's extract of oak bark, and thus be followed by a greater percentage of cases remains to be seen. It is probable that the zinc-chloride injection will prove to be more irritating, producing a denser fibrosis and firmer closure of the canal. These injections (whether Heaton's or Lannelongue's fluid be used) may be regarded as safe, if care be taken as to asepsis, and to exclude the liquid from the abdominal cavity. Heaton (who kept his method a secret for many years) emphasizes the importance of care and tact in making the injections. The injection should be begun when the needle is near the internal ring and should be deposited drop by drop in the cellular tissue of the inguinal canal "into the rings and around the sac" as the needle is gradually withdrawn from the external ring where it was inserted, the obliquity of the canal being observed and about twenty drops in all being inserted.

In view of the perfection to which operative methods of treatment have been brought of recent years, and of the excellent results which are now so widely attained by the operations of Bassini, Halsted and MacEwen, it seems hardly worth while to experiment with any procedure so blind and inaccurate as the injection of irritating fluids, especially when it has shown a definitely smaller percentage of cures. The mortality from operations for the radical cure of hernia in expert hands is *nil*, and it is generally admitted that in severe cases of inguinal hernia, namely, those in which the obliquity of the canal has been destroyed, and which cannot be held by a truss, operative measures afford the only prospect of relief, as here the injection treatment can offer no hope of success.

The argument that the injection method may find a place in the practice of country practitioners who would hesitate on account of lack of operative experience to perform cutting operations is a dangerous one; for practitioners, whether in the country or city, who

have had no special anatomical or surgical experience ought not to undertake the radical cure of hernia by the method of injection or any other method.

BERI-BERI AT THE RICHMOND ASYLUM, DUBLIN.

A NEW outbreak of beri-beri is reported at the Richmond Asylum in Dublin, where, as is well known to our readers, successive epidemics of the disease have appeared for several years. The serious nature of the outbreak is shown by the fact that 124 cases have already occurred, and its reappearance for several successive years in an English national institution, demands, as the *Lancet* remarks, careful consideration, and "the adoption with stringency of all such measures as experience has shown to be most likely to lead to good results."

The same paper further remarks:

The cause of beri-beri is unknown, for though all things point to a specific germ the exact organism has not yet been satisfactorily determined. The white staphylococcus of Pekelharing and Winkler, it is true, fulfils several of Koch's well-known postulates, which have to be satisfied by any germ claiming the honors of specificity, but the whole story has not yet been told. This is well shown by Dr. W. K. Hunter in a contribution to our knowledge of the etiology of the subject, which will be found on page 240 of this issue, [July 31, 1897] and which contains, in addition to a clear account of some careful experiments, an interesting *résumé* of the work of previous investigators. But although the discovery of a specific germ has yet to be made, we know perfectly well that where beri-beri has once broken out it is apt to remain, and also that overcrowding and bad ventilation are conditions which greatly favor its spread. In those Eastern countries where it is common it is a dweller on the threshold of gaols, and abides with communities where individuals live closely crowded together in defiance of health and decency. In addition to bad ventilation and overcrowding, it is also recognized that insufficient diet encourages the development of the disease. But it should be borne in mind that these conditions foster, but do not generate, beri-beri. The morbid entity which causes it must be imported into the locality in which the vicious environment prevails, an environment which is eminently favorable to the development of many other epidemic diseases.

That beri-beri was brought to the Richmond by patients, or in food or clothing from some Eastern country, is a well-nigh inevitable conclusion, but that its continuance there is favored by the conditions of life at the institution is also evident. Overcrowding and ill-ventilation must result from the facts stated by Sir Thornley Stoker, in a communication to a new Dublin paper, the *Daily Nation*, that "not only is the whole institution overcrowded far beyond its normal accommodation, but that even the new wooden male building is not fit to receive more than half the number at present occupying it. Its two dormitories are at present occupied by 100 patients, although not suited to give sanitary accommodation to more than 50. The female permanent hospital contains as many as 63 patients, who have an average of 451.968 cubic feet of space each." This space ought properly to suffice for the accommodation of 25 patients.

As the *Lancet* remarks, the persistency with which

² Transactions New York State Medical Society, 1887.

it clings to the unfortunate centre of infection is a repetition of what constantly occurs in its oriental homes.

After the drainage and ventilation, etc., have been properly provided for, something might be gained by investigating the diet of the patients, for it is well known that beri-beri, which was so prevalent in the Japanese navy as to threaten its efficiency, was entirely banished by the provision of a different and more liberal diet on board the men-of-war.

Beri-beri is not contagious from person to person, but it is so evident that buildings may become infected with it as to make it plain that the patients in any institution would be vastly better situated if removed to separate huts, well aired and drained, than if crowded together in the infected building.

The researches of Hunter go so far to confirm the results of Pekelbaring and Winkler, as to greatly increase the probability that beri-beri is due to a specific micro-organism, with which articles of food or clothing or habitations may become infected. If this be true, as it probably is, then the same conditions which tend to weaken the human organism, and render it susceptible to other microbic diseases, namely, unsanitary modes of life, insufficient diet, etc., ought and do increase its susceptibility to beri-beri.

MEDICAL NOTES.

THE NEW DIRECTOR OF THE BRITISH INSTITUTE OF PREVENTIVE MEDICINE.—At a recent meeting of the Council of the British Institute of Preventive Medicine, Dr. Allan Macfadyen was appointed Director of the Institute.

BERI-BERI AT CORK.—This disease has obtained admission to the port of Cork, having been imported thereto by the Norwegian barque *Hussell*, which arrived from the West Coast of Africa. Six of the crew are suffering from the disease and one has died.

APPENDICITIS AND BERRIES.—In Wayne County, N. Y., several cases of appendicitis which have occurred there have been attributed to berry seeds. Consequently berries are a drug in the market. Housewives refrain from preserving raspberries and blackberries, and farmers are forced to evaporate their berries or convert them into wine.

A TONSORIAL AUTO-DA-FÉ.—A lady recently lost her life in England by burns caused by the ignition of a petroleum hair-wash which a hairdresser was applying. It is not known how the spark was supplied, but the heat of the bright sunlight, the friction of the barber's hand on her hair and other possible though not very satisfactory causes have been suggested.

THE FOURTH FRENCH CONGRESS ON TUBERCULOSIS.—The fourth congress for the study of tuberculosis will be held at Paris during the last week of July, 1898, under the presidency of M. Nocard. The following four subjects are proposed for discussion:

"Sanitaria for Consumptives," "Serums and Toxins," "The X Rays in Diagnosis and Treatment," and "Tuberculosis in the Lower Animals."

INFECTED RABBITS IN PARIS.—A number of rabbits which had been inoculated with cholera, diphtheria, plague and other diseases recently were stolen from their quarters at the temporary hospital at Aubervilliers in Paris. Considerable alarm at first prevailed on account of the fact that the animals had been stolen to be sold for food, but it is believed to have been calmed by the statements of bacteriologists that if the meat were well cooked, no ill results would ensue upon eating it.

VENEREAL DISEASE AMONGST THE INDIAN TROOPS.—In discussing the proposed proceedings in this regard of the Indian Government, Lord George Hamilton, as reported in the *British Medical Journal*, expressed the opinion that the inspection of soldiers, penal stoppages from admission to hospital, and the punishment of men concealing disease appear to be well calculated to check the spread of the mischief so seriously affecting the health of the British troops in India. He does not agree with the Government of India that the employment of female hospital assistants in the examination and treatment of women would be unnecessary and unsuitable. The system should be tried.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, August 11, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 39, scarlet fever 17, measles 11, typhoid fever 3.

DEATH OF A CENTENARIAN.—Mr. Michael Mallady, the oldest resident of Roxbury, died recently. He was one hundred years old, and came to this country seventy years ago. He was a stone-mason, and served in Company K, Twenty-fourth Massachusetts Regiment, in the Civil War for three years.

NEW YORK.

BAD EFFECT OF RÖNTGEN RAYS.—Much public attention has lately been attracted to the case of a young woman who received injuries of considerable severity as the results of subjection to the Röntgen rays, by advice of her dentist. In commenting on it, Dr. William J. Morton, the electrical expert, has expressed the following opinion: "I reiterate my previous statements that the use of cathode rays by inexperienced persons is dangerous in the extreme. The tube should never be placed nearer than eighteen inches to the exposed surface, and the time of exposure is governed by the distance used by photographing."

A LOW MORTALITY.—The death-rate in the city is unusually low for the season, and it is not likely now that a mortality of one thousand will be reached in any one week during the present summer, as the largest number of deaths is almost always found to occur in the latter part of July or early in August. This year

the highest mortality thus far was reached in the week ending July 17th, when it amounted to 977. In the following week it declined to 920, and on the week ending July 31st, to 804; while during the week ending August 7th the total number of deaths was 795. During the last-named week there was but one death from sunstroke, and this was the first since the week ending July 17th. The number of deaths from diarrheal diseases has also been very small, 134 in the week ending August 7th, and 165 in the preceding week. There were 6 deaths from measles in the week ending August 7th, against 10 in the week previous, and 5 deaths from scarlet fever, against 8 in the week previous. In the two weeks the deaths from diphtheria were 21 and 22 respectively, and from typhoid fever 8 and 11 respectively. There has been no death from small-pox since the week ending July 24th, when there was one.

Miscellany.

NELSON AS A PATIENT.

An interesting account of Nelson's loyalty as a patient is published in the *Lancet* for July 24th, by Mr. Edmund Owen, F.R.C.S., who gives a facsimile of a letter written by Lord Nelson with his left hand on October 2, 1797, within ten weeks of the amputation of his right arm at Teneriffe, which was performed on July 24, 1797, just one hundred years ago.

As is well known, Nelson lost his arm in an attack on Santa Cruz made "with superb courage" by Nelson with about 900 men in open boats. While stepping out of the boat Nelson received a wound in the right arm, and fell. The principles of first aid were not entirely unknown at that time; for, as Southey says, a profuse hemorrhage which would undoubtedly have proved fatal was arrested by one of Nelson's officers, who bound some silk handkerchiefs tightly above the wound, while a boatman tore up his shirt to make a sling for the injured limb.

As soon as Nelson was aboard his ship again, he told the surgeon to get his instruments ready, for he knew that he must lose his arm, and the sooner it was off the better. Unfortunately, after the amputation the nerve, probably the median, was included in the silk ligature which secured the brachial artery, a fact which afterwards caused the hero intense and prolonged suffering. In those days, as is well known, the ends of ligatures were left long and were brought out of an angle of the wound to act as drains for the usual septic discharge; secondary hemorrhage was a not infrequent result of the too early removal of ligatures.

"Captain Mahan, in his 'Life of Nelson,'" writes Owen, "says that the ligature had been awkwardly applied. Nelson, however, did not say that the artery was 'awkwardly' secured. He was too loyal a patient to use such a word, and I do not believe that he ever thought it. He alluded to the inclusion of the nerve as an 'unlucky circumstance,' and when writing to his wife he said 'I am fortunate in having a good surgeon on board.' Certainly no surgeon would use the word 'awkwardly' in connection with the accident; it would be ungenerous and would suggest lack of dexterity on the part of the operator. Indeed, as

we look back upon that sorrowful early morning after the glorious failure at Teneriffe the surgeon of the *Theseus* receives a fair share of our kindly sympathy. He had no friendly help from ether or chloroform, and his patient was weak from loss of blood—not another drop must be lost. To day he would be prepared to supply such deficiency by the injection of a pint or more of hot salt water into a large vein. The amputation had to be done at lightning speed; as we know, the sea was rough, and we can imagine the scanty illumination below decks. Indeed, not only the field of operation, but the entire ship, must have been shrouded in gloom and depression.

"Returning to England, Nelson joined Lady Nelson at Bath, where he continued to be the subject of 'much pain and some fever.' For the ligature still held to the nerve, and the granulation-tissue lining the two-inch sinus was continuously absorbing small doses of the septic discharge. This auto-intoxication could not fail to make him ill and unhappy, and it probably caused him to be the subject of headaches, thirst, perspirations, and shiverings. Probably, also, this association of symptoms constituted the evidence of the 'fever' to which he alludes. Or, as there was no clinical thermometer in those days, the presence of fever may have been recognized by the mere application of the surgeon's hand to the surface of the patient's body—an extremely fallacious method of examination.

"A consultation was held in England as to whether the nerve could not be freed of the lingering ligature; but we learn that the surgeons were afraid to cut blindly into the depths of the sinus lest they should at the same time wound the artery with the scissors. So no interference was undertaken, and our hero was left to suffer. In similar circumstances, at the present time, the wound would be promptly and deliberately opened up and the removal of the ligature safely effected. But a hundred years ago surgeons were in constant dread of secondary hemorrhage from operation wounds—a contingency which aseptic surgery has practically abolished from our midst. They would not have dared to separate the adhering flaps of the stump lest, so doing, they might be courting disaster."

This letter, which is dated, "No. 140 Bond Street, October 2, 1797" and is perfectly legible, is as follows:

MY DEAR SIR:—I am much obliged to you for your kind enquiries. My arm from the unlucky circumstance of a nerve being taken up with the artery, is not yet healed, nor do I see any prospect of the ligatures soon coming away.

HORATIO NELSON.

As Owen remarks: "Whether in hospital work or in private practice soldiers and sailors make the best of patients. They give a willing obedience to all instructions, and they take things as they come, without question or complaint. Here was Nelson on October 2, 1797, in constant distress because a large nerve was by misadventure tied along with the artery, and speaking of its inclusion as an 'unfortunate circumstance.' *O si sic omnes!*"

TRIPLE GLANS.

DR. F. R. MILLARD, of San Diego, Cal., reports a case of this anomaly in the *Indian Lancet*.

The possessor of this anomaly, a healthy-looking German, unmarried, thirty-eight years old, weighing 175 pounds, applied for treatment of gonorrhea. The penis was small and the prepuce redundant. Retracting the prepuce a curious state of affairs was seen. The meatus was round and completely on the under side. The frenum was broad and formed a bridge under which a probe could be passed with ease. On the right side was a supernumerary glans one-third of

¹ Mahan: The Life of Nelson. London: Sampson Low & Co. 1897.

an inch from side to side, and one-fourth of an inch from before backward. At the junction of the inner and middle third was a linear depression, marking where the meatus should have been.

Entering a probe under the right border of the frenum and passing it on until the point was in line with this depression and then directing it backward it passed one and one-eighth inches parallel to the urethra to where the canal ended in a blind cul-de-sac. On the left of the frenum was another glans a little more than one-half as large as that on the right side, but it lacked both the linear depression for the meatus and the accessory urethra. Looked at from above and behind, it was an exact miniature of the main glans. Gonorrheal discharges exuded from both urethra, but there was no opening between them. The patient declined to enter into negotiation for sale of the specimen, nor would he allow a drawing to be made of it. His statement that all the deviations were congenital was undoubtedly correct.

Obituary.

DR. EUGENE F. SANGER.

DR. EUGENE F. SANGER, of Bangor, Me., died at that city on July 24th, after a long and honorable career as a physician.

Born in Waterville, Me., in 1829, he was graduated at Dartmouth College in 1849, and at Jefferson Medical College in 1853. Shortly after graduating, he was appointed assistant surgeon of the United States Marine Hospital at Chelsea, Mass., and in the same fall was appointed assistant physician and surgeon at the Charity Hospital and the various charitable institutions on Blackwell's Island, N. Y. After serving in the medical department of these institutions he pursued his professional studies and inquiries in the hospitals of Edinburgh, London and Paris.

In May, 1855, he settled in general practice in Ellsworth, Me., but soon removed to Bangor, where he continued to reside to the time of his death. On December 9, 1857, he was married to Emily Fay Pond, of Ellsworth, by whom he had three children.

During the Civil War he served first as a surgeon of volunteers, but soon was commissioned a brigade surgeon in the regular army by President Lincoln, and in January, 1863, was made medical director of the defenses of New Orleans.

An interesting anecdote of his courage and devotion to his duty is related in *The Bangor News*: When the Nineteenth Army Corps was reorganized for the famous Red River Campaign in January, 1864, Dr. Sanger was made medical director of the corps on General Franklin's staff. He took part in all of the skirmishes and battles, spending the subsequent nights operating upon the wounded.

"After the battle of Pleasant Hill, Dr. Sanger discovered at dawn that our forces had retreated during the early part of the night. Appointing an assistant to remain with the large number of wounded, he mounted a cavalry horse in pursuit. He overtook the head of the column over forty miles away. Securing an ambulance of supplies and an escort of a corporal and six privates, the next evening he crossed the enemy's picket line under fire, and, eluding the pursuit of the enemy under cover of darkness, appeared back at his hospital, forty miles distant, next morning. It was like an apparition to the deserted wounded. Meeting General Kirby Smith's medical director, Dr. Yandell of Louisville, the two completed the unfinished surgical work.

"Surgeon Sanger having collected letters from the captured soldiers to their families at home, as dark approached announced his intention of returning. Yandell said, 'They

will surely shoot you.' Notwithstanding the danger, the doctor retraced his steps through the rebel army, and found himself near the Union picket line next morning."

On August 6th Surgeon Sanger was assigned to duty at Elmira, N. Y., in medical charge of the barracks for Confederate prisoners to the number of 9,000 to 10,000, where he remained until the latter part of December, when he, at his own request, was relieved by the surgeon-general of the United States Army, because he found it impossible to do justice to the sick prisoners, on account of the military interference with the proper management of so large a number of prisoners herded together in an ill-selected enclosure.

After Elmira, Surgeon Sanger reported to General Hooker, and was made medical director of the District of Michigan, and surgeon-in-charge of Harper's and St. Mary's Hospitals in Detroit. Subsequently he reported to General Thomas at Nashville, and was assigned for duty at Knoxville and Chatanooga as medical director of the District of East Tennessee, where he remained until mustered out of the service in September, 1865. He was brevetted lieutenant-colonel for meritorious service.

Returning to Bangor, he commenced the practice of his profession in October, 1865, and continued to the time of his death. He was made surgeon-general of Maine under Governor Chamberlain's administration, and served seven years as surgeon of the Second Regiment of the State Militia. He was a member of the common council in 1870-71, and was president of the Maine Medical Association in 1876. He was an honorary member of the Detroit Academy of Medicine, and of the Baltimore Medical and Surgical Society; a member of the county, State and national medical associations.

Dr. Sanger had a very large surgical practice and contributed numerous papers to medical journals and to the "Transactions of the Maine Medical Association."

Before the time of hospitals in Maine, and when the railroad service was limited, it was no uncommon thing for a doctor to ride all night to attend a single surgical case. He hesitated at nothing in surgery—from the removal of cataract, amputation, tracheotomy, laparotomy, aneurisms, stone in bladder, to the correction of all kinds of deformities.

On November 19, 1890, he married for his second wife Mary R. Treat, a granddaughter of Major Treat, a Revolutionary officer.

One of his sons, Sabin P., is a banker in Boston, while the other, Eugene B., who is a graduate of Yale, Class of 1891, and of the College of Physicians and Surgeons, New York, 1894, is a successful physician in Bangor, for some time past associated professionally with his father.

A FAITHFUL NURSE.

MISS ROSA MCCORMICK began her services as nurse at the Boston City Hospital in 1864, and remained on active duty until 1892, doing twenty-eight years of continuous nursing. During most of this time she was in full charge of a ward of thirty beds. Such a career is exceptional, and worthy of comment.

All those who have been connected with the hospital will recall her comely and cheerful presence. She was always prompt and conscientious and kind, although, also, a good disciplinarian.

In later years Miss Rosa was the type of a senior and retired nurse, beloved and respected by all, and doing a nominal duty at the Convalescent Home of the City Hospital.

The Hospital authorities dealt more kindly with her than did time, for she died on August 1st, at sixty-five years of age, worn out, and of much greater apparent age.

Those who give themselves for others who are sick, whether nurses or doctors, relinquish much peace of mind, and also usually shorten their lives. Their reward is elsewhere; and we fear not that it will be justly meted out to this faithful nurse.

METEOROLOGICAL RECORD

For the week ending July 31st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter.	Thermom- eter.	Relative humidity.		Direction of wind.	Velocity of wind.		Wet'th. * in inches.	
	Daily mean.	Daily mean. Maximum. Minimum.	8.00 A. M. 8.00 P. M.	Daily mean.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	Rainfall in inches.
S...25	29.85	67 72	72 73	92 86	N. N.	E. E.	6 12	O. O.	.01
M...26	30.08	62 65	65 73	80 76	N.E. N.E.	E.E. E.	14 10	O. O.	
T...27	30.12	59 63	63 84	78 81	N.E. N.E.	E.E. E.	14 15	O. O.	
W...28	30.02	61 63	63 81	93 87	N.E. N.E.	N.E. N.	17 17	O. O.	
T...29	29.83	60 64	64 100	92 96	N. N.	N. N.	16 9	R. O.	1.48
F...30	29.90	70 79	79 78	65 72	W. W.	W. W.	10 8	C. C.	.01
S...31	29.87	76 85	85 74	62 68	W. W.	S.W. S.W.	9 12	O. O.	

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threat-
ening; N, snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JULY 31, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	804	422	27.12	9.96	19.80	.96	2.76	
Chicago	1,619,236	507	288	41.04	6.46	35.53	1.90	2.09	
Philadelphia	1,214,256	396	175	26.50	4.25	17.25	.20	.50	
Brooklyn	1,160,000	474	273	32.34	8.61	25.41	1.47	3.36	
St. Louis	576,000	175	77	6.27	5.70	4.56	1.14	.57	
Baltimore	540,000	244	134	34.44	8.61	30.75	2.41	.82	
Boston	517,731	238	125	31.02	6.72	29.82	.42	1.68	
Cincinnati	405,000	97	—	14.42	4.12	7.21	4.12	1.03	
Cleveland	350,000	132	89	42.56	3.04	38.76	1.52	.76	
Pittsburg	295,000	—	—	—	—	—	—	—	
Washington	277,000	139	64	11.52	13.68	—	—	2.16	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	27	18	18.10	11.10	48.10	—	—	
Fall River	95,919	52	41	40.32	1.92	40.32	—	—	
Nashville	87,754	44	11	18.16	13.62	11.35	6.81	—	
Lowell	87,113	40	20	15.00	15.00	22.50	—	—	
Cambridge	86,812	54	39	55.50	9.25	51.80	—	1.85	
Charleston	65,165	—	—	—	—	—	—	—	
Lynn	65,220	12	6	25.00	8.33	16.66	—	—	
New Bedford	62,416	40	23	27.50	10.00	25.00	—	2.50	
Lawrence	55,510	23	16	82.65	8.70	82.65	—	—	
Springfield	54,796	20	8	40.00	—	30.00	—	5.00	
Holyoke	42,544	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	8	4	12.50	—	12.50	—	—	
Brockton	35,853	—	—	—	—	—	—	—	
Malden	32,894	12	6	—	—	—	—	—	
Chelsea	32,716	15	7	6.66	20.00	6.66	—	—	
Haverhill	31,406	10	4	20.00	10.00	20.00	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	13	8	38.45	—	38.45	—	—	
Fitchburg	28,392	12	6	8.33	16.66	8.33	—	—	
Taunton	27,812	19	9	26.30	—	26.30	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	1	—	—	—	—	—	
Everett	21,575	9	5	66.66	—	44.44	—	11.11	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	4	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,710; under five years of age 1,930; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, and fever) 1,141, diarrheal diseases 916, consumption 254, acute lung diseases 184, diphtheria and croup 86, typhoid fever 53, whooping-cough 31, scarlet fever 19, cerebro-spinal meningitis 18, measles 15, erysipelas 3.

From whooping-cough Washington 8, New York and Philadelphia 5 each, Brooklyn 4, Chicago 3, Cincinnati and Providence 2 each, Cleveland and Everett 1 each. From scarlet fever New York 8, Brooklyn 4, Philadelphia 3, Chicago, Baltimore, Boston and Springfield 1 each. From cerebro-spinal meningitis New York 7, Boston and Washington 4 each, Cleveland, Lynn and Malden 1 each. From measles New York 10, Brooklyn 2, Chicago, Philadelphia and Lowell 1 each. From erysipelas Chicago 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending July 24th, the death-rate was 19.3. Deaths reported 4,060; diarrhea 526, measles 153, whooping-cough 92, diphtheria 60, scarlet fever 48, fever 25.

The death-rates ranged from 10.1 in Derby to 26.4 in Liverpool; Birmingham 22.5, Bradford 13.1, Cardiff 13.8, Halifax 10.9, Leeds 18.1, Leicester 18.7, London 20.0, Manchester 19.8, Newcastle-on-Tyne 14.9, Nottingham 19.5, Portsmouth 20.8, Sheffield 25.3, West Ham 17.9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 31, 1897, TO AUGUST 6, 1897.

MAJOR PAUL R. BROWN, surgeon, having been found by an Army Retiring Board permanently incapacitated for active service, will proceed to his home and await retirement.

The order directing MAJOR PAUL R. BROWN, surgeon, to report for duty at Fort Keogh, Mon., upon being relieved from duty at Fort Hamilton, N. Y., is revoked.

CAPTAIN WILLIAM B. BANISTER, assistant surgeon, is relieved from duty at Fort Crook, Neb., and ordered to Fort Keogh, Mon., for duty.

Leave of absence for one month and ten days, to take effect on or about August 20, 1897, is granted LIEUT.-COL. ALFRED A. WOODHULL, deputy surgeon-general, chief surgeon, Hdqrs. Department of the Colorado.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING JULY 31, 1897.

KINYOUN, J. J., passed assistant surgeon. Designated as delegate to represent the United States at the International Conference relating to Hygiene and Sanitary Service on Ship-board and Railways, to be held at Brussels, Belgium. July 29, 1897. Also designated as delegate to represent the United States at the International Conference to discuss the Leprosy question, to be held at Berlin, Prussia. July 29, 1897.

RECENT DEATHS.

GEORGE WEBB WEST, M.D., M.M.S.S., died at Chestnut Hill, Newton, August 5, 1897, aged forty-seven years.

SIR JOHN BUCKNELL, F.R.S., the author of important contributions to neurology and insanity, formerly editor of the *Journal of Mental Science* and one of the editors of *Brain* and of the *British Medical Journal*, died at Bournemouth on July 20th, aged seventy-nine years.

PROF. OSCAR BOER, of Berlin, known for his work on infectious diseases, has recently died in that city.

PROF. JOHANN RITTER VON LEICH, formerly dean of the medical faculty of the University of Vienna, died recently at the age of eighty-four.

PROF. M. J. OERTEL, the distinguished laryngologist, died on July 13th in Munich, aged sixty-two.

BOOKS AND PAMPHLETS RECEIVED.

The Cure of Tuberculosis by Oxytuberculine, with Experiments on Patients, Animals and Cultures. By J. O. Hirschfelder, M.D., San Francisco, Cal. Reprint. 1897.

The Prognosis and Treatment of Acute General Peritonitis. The Appendix "in the Interval." A New Method of Studying its Pathology. By Robert Abbé, M.D., New York. Reprints. 1897.

Technique des Injections Mercurielles. Par les Drs. G. Richard D'Aulnay et Endlitz. Extraits de la *Revue Illustrée de Polytechnique Médicale et Chirurgicale* 30 Mai et 30 Juin, 1897. Clermont (Oise): Imprimerie Daix Frères. 1897.

International Clinics, a Quarterly of Clinical Lectures on Medicine, Neurology, Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Pharyngology, Rhinology, Otolaryngology and Dermatology, and specially prepared Articles on Treatment. By Professors and Lecturers in the leading Medical Colleges of the United States, Germany, Austria, France, Great Britain and Canada. Edited by Judson Daland, M.D. (Univ. of Penna.), Philadelphia, Instructor in Clinical Medicine and Lecturer on Physical Diagnosis in the University of Pennsylvania; J. Mitchell Bruce, M.D., F.R.C.P., London, Eng., Physician to and Lecturer on the Principles and Practice of Medicine in the Charing Cross Hospital, etc.; David W. Finlay, M.D., F.R.C.P., Aberdeen, Scotland, Professor of Practice of Medicine in the University of Aberdeen; Physician to and Lecturer on Clinical Medicine in the Aberdeen Royal Infirmary, etc. Vol. II. Seventh series, 1897. Philadelphia: J. B. Lippincott Co. 1897.

Original Articles.

CASE OF TEMPORO-SPHENOIDAL TUMOR, PRESENTING SYMPTOMS SUGGESTIVE OF ABSCESS.

BY W. L. RICHARDSON, M.D.,

Visiting Physician, Massachusetts General Hospital;

AND G. L. WALTON, M.D.,

Physician to Neurological Department, Massachusetts General Hospital.

THE patient, a prominent business man, sixty-nine years of age, of unusual intelligence and executive ability and of genial disposition, showed slight signs of mental change for six months or more preceding his death. It was noticed, for example, that it was difficult for him to keep his mind upon any continued line of thought. He would repeat anecdotes to the same listeners and find difficulty in telling them correctly. It was also noticed that the patient, though clear in many matters, for example, financial affairs—and, if anything, more interested in details than formerly—in some ways would show inattention. He would sometimes fail to notice when others were talking, and would interrupt them. He was at times inclined to be more talkative than usual, and more persistent in having his own way. It was noticed during the summer preceding his final illness, that during a trip he would form his own plans and would not vary from them, whereas his natural tendency was to ask others what they would like to do, and make plans with reference to their convenience. He would repeat himself in conversation. His disposition gradually changed during this time, and towards the end he would sometimes speak quite sharply. Sometimes he became quite loquacious and inconsequential; for instance, on being asked how he felt, would answer, "First rate, great a, little a, bouncing b," etc. Towards the end he suffered from very marked lapses of memory, forgetting from day to day what he had done. There was throughout no disturbance in articulation nor trouble in choosing words. With these changes he maintained almost to the end a bright and even jocose manner of answering questions, especially when under the excitement of the physician's visit.

The patient had suffered for several years from an inflammation of the middle ear, with pain and discharge, an accurate description of which trouble is furnished by Dr. Blake, whose report is appended.

REPORT OF AURAL CONDITION (DR. BLAKE).

I first saw the patient professionally in October, 1890, on account of an impairment of hearing in the left ear, due to the closure of the Eustachian tube consequent upon a head cold, which was easily relieved by the usual treatment. For many years, almost since he could remember, this left ear had been his main dependence for hearing purposes, the hearing of the right ear having been seriously impaired as the result of a suppurative inflammation of the middle ear in childhood.

Examination of the right ear at that time showed a large perforation, very nearly a destruction of the membrana tympani, the long process of the malleus being indrawn by contraction of the tensor tympani muscle until the tip of the bone touched the promontory to which it had become attached by cicatricial growth; a tense and firm cicatrix also extended from the upper border of the old perforation, both in front of and behind the malleus, down upon the promontory; and still other cicatricial bands below served to enclose that portion of the inner tympanic wall directly in view. Hearing tests showed a very marked impairment of hearing for sounds aërially conveyed.

During the interval between this examination and his last illness, he had several slight attacks with trouble in the left ear which brought him under observation, on which occasions inspection of the right ear showed it to remain unchanged, both as to appearance and as to hearing power, as was also the case during his last illness, with exception of a slight congestion of the blood-vessels in the upper remaining portion of the membrana tympani and at the extreme inner end of the upper wall of the external auditory canal; but while this reddening suggested a congestion in the epi-tympanic space, it was too slight in degree to be taken as an evidence of any serious trouble.

About seven weeks before his death he complained for the first time of headache on the right side over the ear, but was out and about; and on Thanksgiving Day (a month before his death) he went out of town to dinner, and appeared very well. On the following day he became quite weak, walked very slowly; and on the second day after Thanksgiving he became so feeble that he had to be supported. That day he took to his bed, which he did not leave, except to be assisted to an easy-chair. From this time on he could hardly roll over or rise in bed without assistance.

Physical examination two days after Thanksgiving showed extreme general weakness, with marked impairment of the movements of the left leg. On being asked to raise the foot so as to touch an object with the toe, he did this fairly well and promptly with the right toe, but with the left toe in a very weak and uncertain manner. He answered questions at this time correctly, but appeared on the whole somewhat sluggish and apathetic, though he was still inclined to answer simple questions in a jocose manner. The pulse was 80, full and soft, the arteries were markedly atheromatous. There was inability to distinguish objects to the left of the median line in each eye (left hemianopsia).

The patient writes, "God save the Commonwealth of Massachusetts" in a good hand without a mistake. Examination of the fundus unsatisfactory on account of patient persistently looking down, trying to close eyes and showing distress generally.

No material change appeared in the patient's condition during the next few weeks, except that the mental condition became decidedly worse and conversation at times rambling and incoherent. He could, however, at any time be brought to himself by a sharp question. Temperature and pulse were practically normal until within forty-eight hours of his death. An examination of the urine by Prof. E. S. Wood showed early in November only a concentrated condition with excessive acidity and a slight renal irritation. This condition disappeared under the use of mild alkaline diuretics. At times headache appeared severe enough to interfere with sleep, but this symptom was on the whole not prominent. No vomiting occurred throughout.

Second examination of the field of vision, on the 2d of December, showed that the patient distinguished blue, red and yellow at a normal distance in the proper order on the right with each eye, but did not distinguish them on the left until they reached the median line. At this time the grasp of the left hand was extremely feeble, that of the right good. Objects were taken up easily with the right hand, but with the left were taken up feebly and with fumbling. The left leg was much weaker than the right, and in attempting to walk the patient would put the right foot forward and bring the left up to it. No facial paralysis appeared.

The knee-jerks were normal and alike, the pupils alike and reacted to light. The movements of the eyes were unimpaired. Examination of fundus again unsatisfactory, on account of patient's inability to fix.

From this time the patient gradually lost ground, completely losing the use of the left leg, and practically that of the left arm. His memory became so greatly impaired that he would say that he had eaten nothing directly after taking his nourishment. On the day before Christmas the pulse and temperature rose steadily, the patient became comatose, and died quietly Christmas morning. The autopsy was made by Dr. W. F. Whitney, whose report is appended:

Autopsy, December 25, 1896, at 11.30 A. M., five hours after death. Body of an old man of large frame. Rigor mortis present.

Head.—The calvaria was dense, but with two smooth depressions close to the median line in the parietal region, due to senile atrophy. Inner surface normal, dura slightly adherent.

The right hemisphere more prominent than the left, and the convolutions slightly flattened. On attempting to remove the brain it was found to be adherent to the dura mater covering the anterior part of the right middle fossa, opposite the temporal lobe, from which projected a new growth. Section showed this to be a soft mass, ill defined from the rest of the brain substance, measuring about six centimetres by four centimetres. It occupied the first two temporal convolutions in this region and extended back into the white substance, where there was a recent hemorrhagic infiltration the size of a large cherry. The appearance of the growth was quite like that of the gray substance of the brain, but more translucent, less firm and marked by hemorrhages.

Microscopic examination showed its structure to be made up of numerous small cells, many of them with irregular fine prolongations, the whole forming a finely-felted mass. On this were numerous small, newly-formed blood-vessels and large polynuclear cells, some of a pear shape with a single large protoplasmic prolongation suggesting ganglion cells.

Elsewhere the brain was normal, and there was no evidence of any direct implication of the optic track on the right side.

Diagnosis.—Small-cell glioma of the brain, originating in the two first temporal convolutions of the right side, with a recent hemorrhage into its substance.

The chief interest in this case lies in the remarkable coincidence that a glioma, whose origin was, of course, entirely independent of the ear, should appear in the exact location usually occupied by cerebral abscess arising from aural infection. The coincidence becomes even more remarkable when we realize that the tumor was not only seated on the under surface of the temporo-sphenoidal lobe, but that it occupied this lobe on the side of an old, purulent, middle-ear trouble. It is true that the discharge had long since ceased, that no sign of active inflammation existed, and that exploration of the tegmentum tympani by Dr. Blake showed no direct extension of infection; this, however, by no means precluded the existence of an abscess, for this lesion not only follows direct extension from inflammation of the tympanic cavity or the mastoid, but also from infectious thrombosis. In fact, such abscesses are produced by this mechanism in various parts of the brain, even on the opposite side from that of the affected ear. Such a case has recently been described to us by Dr. Crockett. In this case the patient, who had suffered from a chronic middle-ear trouble of long

standing, but with no discharge for many years, was admitted to the Eye and Ear Infirmary for vague cerebral symptoms, such as apathy and change in disposition and moderate headache but with no localizing signs. The autopsy revealed an abscess in the frontal lobe with no line of communication to the ear. It is a well-known fact that similar abscesses deeply seated in the brain have been revealed by post-mortem examination, though no sign of their presence existed during life. It is true that this variety of abscess is far less common as result of aural infection than the form resulting from direct extension and appearing during a comparatively acute stage of middle-ear inflammation.

An abscess set up by this means may become chronic, gradually increase in size and give rise to alarming symptoms, only when so extensive as to encroach upon the important nerve tracts. It must be remembered in this connection that abscesses are less prone than tumors to produce symptoms by pressure beyond the limits of the diseased tissue. The altered mental condition noticed in this patient in the course of the year preceding his death is consistent with both tumor and abscess; but the lack of attention, the loss of that consideration for others and deference to their wishes previously characteristic of the patient, the lack of ability to carry out extended lines of thought, and the lapses of memory running into delirium without marked headache or vomiting, in the case of a person with either present or past purulent middle-ear trouble would certainly primarily suggest abscess. When such symptoms are followed by sudden accession of weakness, mental and physical, with loss of flesh and rapid onset of hemiplegia and hemianopsia, with no vomiting and with comparatively little headache, a presumption would naturally be established in favor of abscess, which had reached the optic tract and internal capsule by direct extension, rather than of tumor which had produced these symptoms indirectly by pressure, though the possibility of tumor in such circumstances could certainly not be denied. The irregularity and range of temperature again (from 97° to 99°) would strongly suggest abscess. The only arguments for tumor were too inconsiderable to turn the balance, namely, the absence of chills and the age of the patient. Tumor is certainly more frequent in advanced life than abscess, still the latter may occur at any period. The presence or absence of optic neuritis might have aided in the diagnosis, though its presence would not absolutely have established the diagnosis of tumor, as this symptom is sometimes present in abscess also; in fact, Gowers considers this symptom much more common than published reports would indicate.

Two attempts to examine the disc were made unsuccessfully, the patient being absolutely unable to fix the eye, and showing such signs of distress that the attempt was abandoned. If the decision of this point had been deemed in any way essential to the patient's relief, the assistance of one more skilled in ophthalmological examination would have been sought; the location of the lesion was, however, absolutely established, and operation decided against in either event.

The question of operation was very carefully considered in all its aspects, the conclusion being reached, in view of the patient's senility (as evidenced, for example, by the marked and extensive atheromatous arteries) and the depth of the lesion, that the patient's condition would be probably made worse rather than better by operative interference. The family were

very naturally opposed to operation on such a discouraging report as we were forced to give them, and to the patient the subject was never broached.

The autopsy certainly established the uselessness of operative interference, as the removal of the tumor would have involved practically the removal of a very

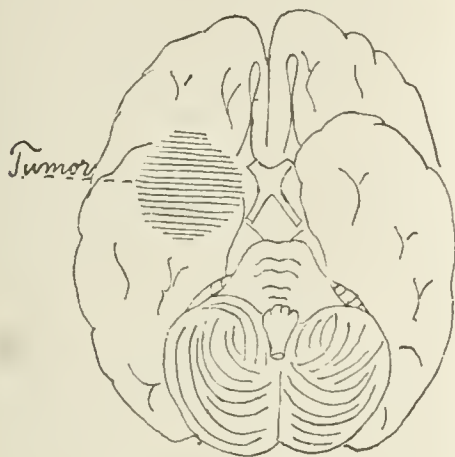


FIG. I. Showing seat of tumor.

considerable portion of the temporo-sphenoidal lobe, as will appear from the accompanying cut. If attempted, the operation would probably have resulted in an extensive brain hernia, with its attending inconveniences and discomforts, thereby increasing rather than diminishing the patient's distress.

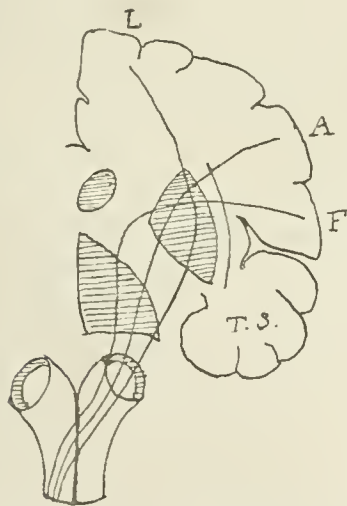


FIG. II. Diagram showing order of involvement of leg, arm, and face fibres by lesions of the temporo-sphenoidal lobe (Macewen).

The most interesting point in connection with cerebral localization is that of the order in which the limbs were affected, a point upon which Macewen lays much stress. In case the lesion extends along the surface of the brain from the temporal lobe, involving successively the Rolandic areas from below upwards, the paralysis begins with the face, and the arm and leg become successively involved. If, on the other hand, the process extends inward and encroaches upon the internal capsule, this order is reversed, because the

fibres from the leg and arm centres cross before reaching the internal capsule.

A glance at the diagram used by Macewen² (Fig. II) will make this point clear. A practical application of this knowledge bears on the question of operative interference. In case we have to do with an abscess, paralysis commencing with the leg tends to show that the lesion is very deeply seated, though it is true that abscesses sometimes cause symptoms by indirect pressure, as shown by the improvement after evacuation of their contents. In the case of tumors, the involvement of more or less remote regions by pressure is quite characteristic, as evidenced by the case here reported, in which the order of paralysis indicated pressure upon the internal capsule, although the post-mortem examination showed that the tumor had not itself invaded that region. Nor had the tumor directly invaded the optic tract, though the marked hemianopsia showed pressure upon that tract, posteriorly to the optic commissure.

This unique case, while offering an excellent illustration of the present status of cerebral localization, only emphasizes the difficulty of determining the exact nature of hidden lesions.

RUPTURES OF THE VISCERA AND THEIR CONNECTION WITH SURGICAL SHOCK.¹

BY EDWIN WELLES DWIGHT, M.D.,

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AFTER accidents of a certain degree of severity, the following group of symptoms is usually found; and when there is no external or known condition to account for them they are taken together and called "shock." These symptoms are lowered temperature, rapid pulse, sighing respiration, restlessness, and cold moist skin; and it is to this group of symptoms rather than to any lesion that the term "shock" is applied. The same symptoms are found with hemorrhage; and it is only when the question of hemorrhage has been eliminated that this term is used.

Shock is being constantly presented to the surgeon in all stages of severity up to the most profound collapse; but it is only in its more severe forms that it is apt to be seriously considered as an obstacle to the radical treatment of the more definite lesion for which treatment is requested. While there are cases in which even the autopsy fails, as yet, to demonstrate the actual lesion which caused death, they are very rare; and there can be little doubt that in the future, with increased accuracy in diagnosis, the word "shock" will, as has already been the case with those equally indefinite terms "idiopathic peritonitis," "scrofula" and "inflammation of the bowels," be superseded by diagnoses more in accord with scientific accuracy, and which will give some idea of the lesions underlying this group of symptoms. It is especially true after severe accidents that the autopsy almost invariably develops some condition which is sufficient in itself to account for the death, and that after an autopsy it is rarely, if ever, necessary to use vague terms to account for it.

¹ Read before the Boston Society for Medical Improvement, March 22, 1897.

² Macewen: Diseases of Brain and Spinal Cord, p. 152.

In a "Report of One Hundred and Sixty-nine Autopsies in which a Fracture of the Skull was Found," published in 1894, I found but two in which there was not found some lesion which would readily account for the death; and the statement was made that, "In railroad and electric-car accidents, where shock is most often given as the direct cause of death, all the autopsies showed lesions in themselves sufficient to account for it. In ten of these cases there were 'multiple injuries' found, which had not been suspected during life, but which were the direct cause of the condition which had been considered as shock, as well as the cause of the patient's death."

Not only is this true of railroad injuries, but of all other deaths from external violence; and if it be true of shock in its more severe forms, is it not reasonable to suppose that the milder grades are caused by similar conditions, but of less severity?

My presence, through the courtesy of Dr. F. W. Draper, at a rather large number of medico-legal autopsies, as well as at those made in the ordinary work of the hospital, has led me to believe that not only are ruptures of the viscera more common than is generally supposed, but that these ruptures vary within wide limits in their severity; and that it is at least possible that in many of the cases of so-called "shock," the symptoms are due, not to any indefinite jarring of the nervous system, but to hemorrhage from ruptured organs. That these ruptures do occur in all of the viscera, in all grades of severity, and after a variety of common accidents, I believe the cases reported with this paper show; as they also do that in autopsies where ruptures of the viscera are found, death occurs, not from "shock," but from some more definite cause, usually hemorrhage or peritonitis.

Injuries to the abdomen in which no exact diagnosis is made clinically are of very common occurrence in our hospital wards; they occur after a great variety of accidents, but most commonly from assaults or falls of various kinds. Bryant, in his "Practice of Surgery," speaks of 71 cases of "abdominal injuries" which were admitted to Guy's Hospital in eight consecutive years, and says: "In 44, beyond a passing collapse, no serious or definite symptoms resulted, tenderness over the injured part from the contusion being the most marked; but no evidence of internal mischief showed itself; rest in bed for a few days was the chief treatment, and convalescence rapidly was established. . . . In 10 cases peritonitis followed, with nausea and some vomiting; in seven of these it did not attain a dangerous degree of severity; in three it was severe; and one died. In 17 cases, or about one-fourth, rupture of the viscera took place."

From the records of the Boston City Hospital I find that during the past fifteen years there have been 79 cases of abdominal injuries, more or less localized, admitted, in which the diagnosis of rupture has not been made, and in which no definite lesion was found to account for the symptoms which were present. These cases are catalogued under two heads, "Contusions of the Abdomen" and "Traumatic Peritonitis"; of these, 16 died. In 68 the character of the accidents was such as commonly results in rupture, that is, they were falls from a considerable height, run over by wagons of various kinds, or assaults in which the victim received a number of blows or kicks. "Shock" was present to a noticeable degree in 49. Rupture

of the viscera was seriously considered in 14, but the diagnosis was not made. Tenderness on deep pressure, persisting for from four to sixteen days was noted in 39, and persistent vomiting existed in the same number. In none of these cases was an autopsy made; and it will be noticed that in quite a large percentage, not only was the accident such as frequently causes rupture of the viscera, but the symptoms which are usually found in such conditions were present. Still another class of cases in which the diagnosis is indefinite, and when applied to the seriously injured usually means that the apparent injuries do not adequately account for the symptoms which are present, are those which are grouped under the head of "Multiple Injuries." During the same fifteen years there have been 81 cases of serious "multiple injuries," exclusive of those in which the skull has been known to be fractured, 36 of which died within three days. No autopsy was made in these cases, and "shock" was pronounced in every one.

The amount of "shock" present after accidents depends upon two factors, the character of the violence, and the resistance of the individual; being most marked after those injuries which are most apt to result in ruptures of the viscera, and in those persons whose resistance, through age or disease, is lowered.

In order to show the conditions which cause death in ordinary accident cases I have chosen three very common results of ordinary accidents: fractures of the ribs, which usually result from crushing force, severe falls or assaults, and in which "shock" is frequently noticed; fracture of the femur, commonly occurring in elderly people from falls of moderate severity, and with which "shock" is not infrequently associated; and simple fractures of both bones of the leg, which are commonly the result of direct violence or falls on the street. The cases taken were admitted to the Boston City Hospital during the fifteen years from January, 1882, to January, 1897.

Of fracture of the ribs 511 cases were admitted, with 40 deaths; 29 dying within three days. There were nine autopsies; three died from pneumonia, three from hemorrhage from ruptures of the lungs, and three from ruptures of the liver and spleen.

There were 885 fractures of the femur, with 102 deaths; of the 23 who died within three days there were three autopsies: one from the general arteriosclerosis, with plugging of the coronary artery; one from the same disease with a weak heart and edema of the lungs; and one from rupture of the kidney. There were 79 who died after three days with 15 autopsies, which resulted as follows: pneumonia, four; delirium tremens, with passive congestion and edema of the lungs, three; arterio sclerosis with weak heart and edema of the lungs, six; organic disease of the heart, one; pulmonary embolus from thrombosis of the femoral vein, one.

Of fracture of both bones of the leg there were 975, with 18 deaths. Four died within three days, with one autopsy, in which death was due to rupture of the lung; the three in which no autopsy was made were clinically complicated by "burns," "fracture of the spine" and "injury to the abdomen" respectively. On those who died after three days there were six autopsies: delirium tremens, with edema of the lungs, three; pneumonia, two; and multiple fat emboli, one.

The autopsies on these cases show that in the fractures of the ribs where the violence is of the character

which might be expected to produce such conditions, death was due in two-thirds of the cases to ruptures of the viscera; and in the other third it is fair to assume that the exciting cause of the pneumonia was injury to the lung. In fractures of the femur, where the resistance is commonly lowered by age or habits, death was the result of those conditions in every case but two, in one of which it followed rupture of the kidney, and in the other pulmonary embolus; while in fractures of both bones of the leg where the conditions are more variable, there was one of rupture of the lung, five from intercurrent disease, and one from fat emboli.

Ruptures of single organs without involvement of others appear rather rarely at the autopsy; and when but one organ is involved and death ensues rapidly, the only cases that I have been able to discover in which there had not been hemorrhage enough to account for the death, or in which peritonitis or pneumonia was not the active agent, have been those of ruptures of the heart and aorta.

The time elapsing between the accident and death varies from a few minutes to several days; and in a few instances life may be prolonged for weeks, the duration of life being, almost without exception, in inverse proportion to the amount of blood which was lost.

The influence of nerve shock does not seem to enter into these cases, although it is possible that in very rare instances death may be due directly to the effect which blows upon the abdomen have upon the sympathetic nerves. The cases which have been reported in defence of this theory are very unsatisfactory, and usually, like the historical one of which most authors since Sir Astley Cooper speak, are from hearsay rather than direct evidence. The multiple character of fractures of the organs in these cases may be accounted for in various ways; it would seem, however, that in a number of them it was due to the character of the injuries received, which in the majority of cases were of such a nature that it is fair to assume that the blows were also multiple.

The amount of injury to the various organs varies greatly as does the amount of hemorrhage; and we find all degrees from a slight contusion to complete rupture or maceration, as we do from small ecchymoses to the extravasation of several pints of blood. As the injury and the amount of hemorrhage vary so widely, and as the duration of life in those cases which come to autopsy depends upon these factors, it is evident that the symptoms in cases of less severity, depending as they do upon the same conditions, must be at least as variable.

The diagnosis of these conditions during life is further hindered by the fact, which has long been recognized by medical jurists, that ruptures of the viscera are the common results of accidents which leave no external sign. Caspar, than whom there have been few better observers, makes this rather radical statement in his "Hand-book of Forensic Medicine": "That it is the rule in all such cases as are followed by instant or very sudden death, particularly in all cases of rupture of the internal organs rapidly fatal from internal hemorrhage, for the body to exhibit no external appearance of external violence. This experience has often enabled us to diagnose the rupture of some important organ, in the case of men falling from a height, or being driven over, etc., just because no sign of in-

jury was to be found externally; and our opinion has been proved correct in every case."

Not only are external bruises absent in many, if not in the majority of these cases, but other symptoms which might be expected to be present in injuries of the various organs are frequently absent, even where life is prolonged for days or weeks. If this be the case with severe forms, how much more likely they are to be absent in the lighter forms of injury.

Ruptures may take place in any part of any organ; and while death may occur almost instantly in some, in others life may be prolonged, and death result from entirely secondary causes, as peritonitis, pneumonia or secondary hemorrhage; and in still others the laceration may entirely heal and perfect recovery take place.

Opinion as to the relative frequency of rupture of the various viscera varies much with different observers. Caspar, after speaking of rupture of the liver, says, "With the exception of rupture of the uterus during labor and rupture of the spleen, which when they do occur are usually transverse, rupture of the other abdominal organs is almost never observed." Bryant says that the spleen is frequently injured, and "Such cases are by no means always fatal," and again, "Rupture of the kidney is an accident from which recovery is more common than from any other viscus." Pollock, in Holmes's "System of Surgery," says: "Perforation of the bowel, that is, rupture of the intestinal coats the result of external violence without any external wound, is by far the most frequently formidable injury with which the surgeon has to contend in practice," and that the spleen and kidneys are "frequently ruptured in injuries of the abdomen." Among the cases reported with this paper it will be seen that, while ruptures of the liver are the most numerous, ruptures of the other organs are not infrequently observed.

RUPTURE OF THE LIVER.

While in the majority of cases of deep lacerations of the liver death follows after a short interval, in some it is postponed for several days; and it is probable that in a few, even after rather deep and severe wounds, recovery takes place. Erichsen says that he has "seen several cases of recovery after injuries probably occasioning lacerations of the liver and followed by peritonitis and jaundice."

Death from ruptured liver is almost invariably due to hemorrhage, usually primary, but at times secondary. Bryant, Pollock and Draper report cases of death from secondary hemorrhage three, five and ten days after the injury, respectively. Erichsen reports a case of death from peritonitis following rupture of the liver.

There are a number of cases on record of death from intercurrent disease, at the autopsy of which it was found that the hemorrhage had ceased, and in some that the liver wound was in process of healing. Case 16 is one of this class.

Ruptures of the liver without involvement of the peritoneal covering are not uncommon (Cases 3 and 8); in these the amount of hemorrhage is comparatively small, and while the destruction of tissue may be great, the prognosis should not be very serious.

Ruptures may occur in the liver in any part of any lobe; they may be single or multiple; they may involve the deep tissues without rupture of the capsule; or they may be simple slits in the capsule.

They may, as in a case reported by Draper, completely divide the liver in two, leaving nothing but a

"finger's breadth of liver substance and peritoneum as a hinge posteriorly"; or, as by Caspar, one where it was "completely ruptured transversely, so that the anterior portion lay loose in the abdominal cavity"; and another, in which "the entire edge of the right lobe seemed as if it had been gnawed by animals."

In the most severe of these cases death occurs within two hours, and the autopsy shows an amount of blood in the abdominal cavity which readily accounts for the rapidly fatal course. Minor injuries to the liver are often found, combined with other conditions of a more serious character (Cases 1, 4, 5, 6, 8, 16 and 17). In Case 3 we have one in which the contused liver tissue has a "point of escape," with resulting hemorrhage into the abdominal cavity.

RUPTURE OF THE KIDNEYS.

While in the opinion of many pathologists rupture of the kidney is of rare occurrence, and Caspar classes it among those "other organs" in which "rupture is almost never observed," the diagnosis of rupture of the kidney is made more often clinically than that of any other organ. This is probably due to the fact that not only is increase in size in or about the organ more easily demonstrated than of the liver or spleen, but that by means of the urinary passages hemorrhage is more apt to show itself. That ruptures of the kidney occur not infrequently is the experience of every surgeon who has much to do with traumatic surgery; and that a rather large proportion of them recover under rest and ordinary care I think would be allowed. Reports of those cases which come to autopsy and operation would lead one to feel that they were even more common than we are apt to suppose. Erichsen says, "The absence of blood in the urine must not be taken as an indication that the kidney is uninjured"; in this connection Cases 20 and 21 are interesting.

There certainly are many cases which appear in the hospital wards after accidents which might well result in severe injuries to the kidneys, which present most of the symptoms of such a rupture, and which in their subsequent history during convalescence simulate very closely cases of rupture, but which are classed as injuries or contusions of the abdomen on account of the absence of hematuria. Ruptures may take place in any part of the kidney, may be one or many, and of all grades of severity; the symptoms which present themselves must vary greatly with their location and importance. Unless there is great laceration of the tissues the peritoneum is not involved; peritonitis rarely follows, but lumbar abscess is not infrequent. Erichsen reports a case in which the ureter was ruptured together with the kidney, and calls attention to this as one of the reasons why hematuria is absent in certain cases.

RUPTURE OF THE SPLEEN.

The spleen is said by most authors to be one of the most frequently injured of the abdominal organs, and from its position and consistency one would expect this to be the case. In the cases which I am able to report it is much rarer than some of the others.

When the spleen is enlarged from any cause it is much more liable to rupture than when of normal size. As in the other organs ruptures may occur in the spleen in any part; they are usually transverse, but not uncommonly are more in the nature of a crush (as in Case 6).

Death after rupture of the spleen occurs at about the same intervals and under the same conditions as after rupture of the liver. One of the most common secondary causes is said to be subdiaphragmatic abscess; and Pollock reports a case of death from subdiaphragmatic abscess and empyema following rupture of the spleen and diaphragm, the result of accident eleven weeks before death.

RUPTURE OF THE PANCREAS.

On account of its deeply seated position it would be natural to suppose that the pancreas would be little liable to injury from external violence. That its position does not entirely protect it is shown in Cases 10 and 11, and that such injuries are not necessarily fatal by Case 22, which was lately at the City Hospital under the care of Dr. H. W. Cushing.

In both Cases 10 and 11 the injury to the pancreas was associated with more severe ones to other organs, and while the amount of hemorrhage from the pancreas is unknown in both cases, it would not appear to be excessive, and it is fair to assume that death was not, in either case, due to the injury to that organ.

In Dr. Cushing's case the amount of hemorrhage must have been slight.

The character of injury to the organ varies in each case. In Case 10 there were "many superficial ruptures and lacerations"; in Case 11 it was "crushed off one inch from its tail"; while in Case 22 the injury, whatever it was, evidently obstructed the outflow of the gland.

Except as it would be modified by the relatively limited blood-supply of the gland, there is no reason why the first effects of pancreatic rupture should differ from similar injuries to other organs.

(To be continued.)

THE FATIGUE OF DEAFNESS.¹

BY CLARENCE J. BLAKE, M.D., BOSTON.

THAT impairment of the hearing power should be an inconvenience is readily understandable; that it may make so large a demand upon the nervous energy as to be a source of fatigue, needs personal experience or observation for its full appreciation.

The investigations of Ogston and others show that the middle ear is usually cleared of its protective cushion of tissue with the first cry, and that the infant is apparently sensitive to sonorous vibrations within a few hours after birth.

The education of the brain through the organ of hearing, therefore, begins at a very early period; and the habitual classification of sounds, in reference to their cause, their indicative importance to the individual, and the location of the sound source, is early assured.

The establishment of a perceptive habit implies provision for the expenditure of nervous energy along a given line, deviation from which necessitates a further expenditure of energy proportionate to the degree of deviation from what was formerly the line of least resistance.

Changes in the tension of the sound-transmitting apparatus of the middle ear and in its sound-transmission incident to disease may so alter or decrease the sounds

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

perceived as to make them unfamiliar and needing explanation by a mental process; and the total or even partial abolition of the hearing power of one ear, the other remaining intact, may so far interfere with the ability to appreciate the direction of a sound source, which is one of the habits of normal binaural audition, as to be not only a cause of embarrassment but to make a serious demand upon the nervous energy as well.

To the individual possessed of a reasonably perfect machine, the working limitations incident to possible imperfections in that machine are with difficulty appreciable by any merely mental process, and it is, therefore, only the sufferers themselves or those whose business it is to study imperfections, effect repairs and suggest compensations, that the full cost in expenditure of nervous energy required to overcome an obstacle, either to perception or expression, can be adequately understood.

With the abolition or limitation of one or another of the channels of communication through the human machine, a portion of that nervous energy which is constantly seeking peripheral expression must be expended in the adjustment to the new conditions and the utilization in a compensatory way of other channels of communication.

Given, therefore, a limitation of sight, of hearing, or of tactile sense, an expenditure of energy in what may be termed the conversion of force is required, which evidences itself in the individual as that complex of symptoms to which we give the name of fatigue; and the purpose of this short communication is to direct attention to one form of the mechanism of force conversion, which is evidenced by what may be called the fatigue of deafness.

In view of the fact that the normal ear has very nearly double the amount of hearing power necessary for the ordinary practical uses of every-day life, it is understandable that one-half of the binaural hearing power may be lost without serious inconvenience to the individual; beyond that point of deficiency, however, a distinctly appreciable effort must be made to hear, and, in default of this, a still further effort to gather through other sensory channels such information as may serve to supplement the defective hearing.

The channel which is especially available for this supplementary purpose is that of sight, because through it there may be brought to knowledge the character of the particular mechanical process originating the mode of motion to our appreciation of which we give the name of sound, and the most important illustration of this visual aid to defective hearing is found in the effort to appreciate the sounds of the voice at their true value.

Human speech is made up of a series of vocal sounds, all within a short compass, which are modified, obstructed or terminated by changes of position in the articulating apparatus, to the effects of which we give the name of consonant checks.

A superficial study of these checks shows that some of them are formed in the front, some in the middle and some in the back of the mouth; that they are, with few and slight exceptions, accompanied by a greater or less degree of resonance in the nasal and pharyngeal cavity, and that they vary considerably in the amount of muscular energy required for their production; and furthermore, that the principal distinction to the ear between such consonant sounds as are similar in character is due to the greater or less preponderance of a small number of qualitative overtones.

Further than this we are aware that the consonant sounds which nearly resemble each other, in both force and musical value, are produced by the coördinating operation of very nearly the same sets of muscles, and therefore are accompanied by very nearly the same facial expressions.

Given, therefore, an average case of marked impairment of hearing, the result of a slowly progressive middle-ear disease, the patient will hear most readily the consonant sounds which require most force in their production; these include four explosives—*t, d, p* and *b*—which very nearly resemble each other in force and tone value; they are, however, formed in the front of the mouth, *p* and *b* being distinctly labial, and *t* and *d* as distinctly formed by the contact of the tip of the tongue with the upper incisors. From the position and formation of these consonants and the necessity for distinguishing between them, it usually ensues that their differentiation makes the first step in that instinctive study of lip reading, which to the appreciably deaf person becomes eventually more or less habitual, and which offers another channel for the expenditure of nervous energy in the effort to see, as well as to hear, the spoken word.

The other consonant sounds having the greatest logographic or force value, *k* and *g*, for instance, are those formed in the back of the mouth, and are accompanied by a lesser degree of recognizable facial expression than the front consonants, while the consonants having the least force value—*f, l, n, m*, for instance—very nearly resemble in the mechanism of their construction the harder consonant sounds of nearly the same musical value.

It thus comes about that the deaf person will, when a soft consonant occurs in a sentence, substitute for it, mentally, the hard consonant sound most nearly resembling it, which would have been heard had it been used. In any given sentence, therefore, there are to the very deaf, though seeing persons, certain consonant sounds which are distinctly heard, others which are imperfectly heard, others which are detected by sight, and still others which are merely inferred.

In high grades of imperfection of hearing, therefore, both the effort to hear and the effort to see combined are inadequate to the presentation to the mind of the complete spoken sentence, since there remain gaps in the array of consonant sounds which must be filled in judiciously from the context, and the completion of the sentence thus presented means the solution of a puzzle and a third demand upon the nervous energy in addition to that required to hear and to see.

In other words, the exercise of the ordinary communication with his fellow men demands of the deaf person the operation of three distinct brain processes to achieve that which is normally accomplished without conscious effort, and the resultant fatigue may be justly estimated as a possibly important factor in many cases of nervous overstrain.

SURGEONS IN ORDINARY TO THE PRINCE OF WALES.—Sir William MacCormac, president of the Royal College of Surgeons, and Alfred Downing Fripp, assistant surgeon to Guy's Hospital, have been appointed surgeons in ordinary to His Royal Highness. Mr. Fripp obtained his licentiate in the Royal College of Surgeons only eight years ago and was but recently appointed assistant surgeon to Guy's Hospital.

SOME OF THE INDICATIONS FOR OPENING THE MEMBRANA TYMPANI.¹

BY FREDERICK L. JACK, M. D., BOSTON.

THE operation of opening the drum membrane for the evacuation of fluid is often neglected. The demand for this procedure becomes imperative, not only in most cases of acute middle-ear inflammation, but also for the relief of fluid collected in the middle ear without acutely inflammatory movement. It is to the practicability and technique of the operation in these conditions that I would call attention.

Indications for Operation.—There are probably very few practitioners at the present time who do not recognize the importance of an early paracentesis in cases of acute middle-ear inflammation accompanied with severe pain, marked injection and bulging of the drum membrane. By the operation several desirable ends are at once attained. In the first place, the loss of blood, together with evacuation of collected fluid, relieves the pressure and thereby lessens, if not stops, the pain. The rapid healing of cut surfaces, as compared to that of the ragged tear generally produced by spontaneous rupture, has a decided bearing upon the subsequent improvement in hearing. I believe also that an early incision prevents the chances of mastoid complication. The ear trouble in very young children is frequently overlooked, a chance observation of aural discharge first attracting the attention. Children usually offer little in the way of objective symptoms; they seldom place the hand over the affected ear, or in any way direct attention to the seat of trouble, whereas the general reflex nervous disorders, caused by the auditory disturbance, cover a wide range of symptoms, from slight twitching to a condition practically of opisthotonos, and to marked retraction of the legs, like that seen in acute abdominal affections.

The fact that more pronounced nervous symptoms result from middle-ear inflammation in young children than in adults is chiefly due to anatomical conditions. In the attic, or upper wall of the tympanic cavity, is found a suture (*sutura petrosa-squamosa*), the connective-tissue covering of which has an intimate relation with the dura mater. This suture in adults is closed by bone, often very thin bone, which retards or prevents the extension of the middle-ear trouble to the dura mater or brain. An examination of the ears in infants and young children will often make clear the diagnosis, and rapid disappearance of alarming nervous symptoms will follow an early free opening of the bulging and inflamed *membrana tympani*.

There is another condition in which an opening in the drum membrane is of great service, and one the importance of which is less frequently recognized than that we have just briefly considered. I refer to the collection of fluid, either serous or mucous, in the tympanic cavity, following an acute catarrhal inflammation of the nose and throat. The symptoms naturally arising include impairment of hearing, a feeling of pressure or fullness, autophonia, tinnitus aurium, and possibly vertigo. The onset is often very sudden, and frequently follows too vigorous attempt at clearing the nose by blowing. The drum membrane upon inspection is found depressed from closure of the Eustachian tube, but there is seldom any considerable injection of blood-vessels. The color of the drum varies with the

relative thickness of the membrane and the nature of the fluid, serous exudation producing a straw color, mucous a dark gray. Often the level of the fluid is indicated by a dark line. In many cases, however, due to pathological changes in the *membrana tympani* previous to the attack, it is impossible to see the fluid. We then rely somewhat on the history and upon hearing râles by means of the autoscope after inflation of the middle ear.

I am fully aware that many of these cases improve under other treatment, but I am equally certain that many cases of progressive catarrhal deafness are made permanently worse by neglecting to free the middle ear of its fluid contents. I make this statement advisedly, and with considerable experience in the treatment of these cases, both in the usual way, and by incision through the drum membrane. I have yet to meet a case in which complete evacuation of the fluid through an opening in the drum proved other than most satisfactory. On the contrary, it is not an uncommon experience for cases with undoubted history of fluid in the middle ear to present themselves for treatment after the usual means have been employed, with membranes collapsed and held more or less firmly in place by adhesive bands. The operation is not difficult, provided the field is properly illuminated; it is only slightly uncomfortable, and the opening usually heals in twenty-four hours.

Technique of Operation.—The auditory canal and drum are first rendered aseptic by instillations of a one-to-five-thousand corrosive-sublimate solution; after drying with absorbent cotton a few drops of a four-percent. cocaine solution are applied to the drum by means of the cotton holder. The point of election is in the posterior lower quadrant. A very small incision is quickly made by a quick thrust of a sharp triangular knife, the fluid being forced out by inflation. The ease and rapidity of evacuation depend upon the nature of the fluid, thick mucus often requiring the use of small forceps, after presenting at the opening; serous fluid, on the other hand, escapes into the auditory canal, and is removed by means of absorbent cotton. Several inflations of the middle ear, by means of the catheter or Politzer bag, are usually necessary to completely evacuate the middle ear. A small plug of cotton is placed in the meatus for twenty-four hours, then removed, and subsequent treatment is directed to the naso-pharynx and Eustachian tube. The relief afforded by paracentesis is immediate, and with appropriate treatment, the danger of refilling slight.

Early paracentesis, under the two conditions I have indicated, will often avert alarming symptoms, and prevent serious results, not only as regards the hearing but even the life of the patient.

The suggestions offered in this brief communication are based not simply upon theoretical considerations but upon practical experience, and I am convinced that the importance of the subject has not been and cannot be overestimated.

BICYCLE ACCIDENTS.—In last July, during about half of which it was raining and consequently few wheels were out, the New York newspapers reported forty-eight more or less serious accidents from bicycling. Most of the sufferers were those riding the wheel, but there were also many children run down while playing in the street. — *Medical Record*.

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

Clinical Department.

A CASE OF GASTRIC ULCER IN A CHILD FOUR MONTHS OLD.¹

BY CLEON M. HIBBARD, A.M., M.D.;

First Assistant Resident Physician, South Department, Boston City Hospital.

GASTRIC ulcer in children is such a rarity that only a few cases have been reported.

A. H. Hare² collected in literature 14 cases under fourteen years, with but five under three years of age.

Colgan³ has added another case in a girl two and a half years old, who was ill thirteen hours with convulsions and high temperature. Autopsy showed a round ulcer on the greater curvature near the cardiac end of the stomach, which had perforated, causing a peritonitis.

Rotch⁴ reports a case of Dr. Northrup's in a female one year old. "The infant was under treatment for one month. It had vomiting and diarrhea. In the second week it began to refuse its food and to emaciate. The diarrhea continued and the vomiting was persistent. The vomitus was somewhat brownish in color; the child died of exhaustion. The mucous membrane of the stomach was covered with small ulcers, varying in size from a dot to one centimetre in diameter." There was one large ulcer which had perforated the wall. There was some necrosis around the ulceration, but "no evidence of inflammatory condition."

There was no note of tuberculosis in either Colgan's or Northrup's case.

Holt in his recent book, "The Diseases of Infancy and Childhood" (p. 301), divides gastric ulcer in children into four classes: (1) ulcer in the new-born, (2) ulcer resulting from follicular gastritis, (3) tubercular ulcers, (4) round perforating ulcers. Of the latter class he says that he has found but three cases on record in non-tubercular patients. Two were in young children.

As to the pathology of these ulcers little is known. Holt (p. 101), in speaking of ulcers in the new-born, says: "The cause of these ulcers is somewhat obscure; some of them are undoubtedly dependent upon inflammatory changes, probably of infectious origin; others have been compared to peptic ulcers of later life, and are attributed to thrombi in the blood-vessels of the mucous membrane."

Annie D., age three months, was admitted to the Diphtheria Ward, South Department of the Boston City Hospital, March 20, 1897, having been ill for two days with fever and vomiting. There was no membrane, but the Klebs-Löffler bacilli were found in the throat. She was of good color and well developed and nourished.

On admission she received an immunizing dose of antitoxin, which was followed four days later by a morbilliform eruption which persisted three days. On the 26th the temperature rose to 102.5°, having been practically normal before that. She also began to vomit up the milk and lime-water. On the 30th the milk was not retained, and a small amount of Mellin's Food was given, which was retained in part. From the 22d there had been some diarrhea, which had increased by the 30th, the stools then being green in

color with some curds. On the 31st they were brownish in color. From this time to the end the diarrhea and vomiting persisted. She was irritable and restless, cried most of the time, and lost flesh rapidly. The temperature varied from 99° to 101°, pulse from 120 to 150, respiration from 20 to 35. April 3d there was slight retraction of the neck backwards, pupils pin-point in size but reacted to light. Pulse very weak and thready, no food was retained, diarrhea continued, marked stupor and pallor. Died next morning of what appeared to be exhaustion.

The following description of the autopsy and microscopic examination are from the records of the Pathological Department of the Boston City Hospital, April 4, 1897:

AUTOPSY.

Body of a child about six months of age; well developed, rather poorly nourished. Rigor mortis. Body very pale; no lividity. The abdomen greatly distended, tympanitic everywhere; muscles pale. Intestines distended with gas, contents discoloring intestinal wall brownish-black. Tonsils, naso-pharynx, larynx and trachea normal. Heart, weight 40 grammes. Muscle pale; valves and cavities normal. Lungs normal in color, generally soft, except in backs, where a few small solid nodules can be felt. Bronchi covered with slimy mucus, membrane injected. On section, lung normal, except at base where small consolidations finely granular, dark-red in color, are present. Liver, weight 570 grammes. Pale brownish-red, mottled slightly; markings normal. Spleen, weight 40 grammes. Attached by firm adhesions to lateral abdominal wall; of a light-red color; malpighian bodies showing as white pin-point areas. Pulp normal. Kidneys, 115 grammes. Pale, soft; markings normal; capsule peels smoothly.

Stomach contained white masses resembling curdled milk, covered with black granular debris, semi-fluid, in large amount, distending stomach somewhat. On the posterior surface, extending down to greater curvature, and nearer pyloric than cardiac orifice, a circular area, five centimetres in diameter, partially outlined on either side by deep losses of substance. On one side 2.5 by .6 cm., rather elliptical; on the other 3 by .5 cm., with its greatest breadth in the middle portion of ulceration. In these places the circular layer of muscle fibres is laid bare, the edges are prominent, firm and undermined. In the area included between these ulcerations the mucous membrane is soft, rather prominent, and presents many small punctate losses of substance, usually circular, about the size of a pin's head and superficial, being apparently confined to the mucous membrane. Tests of the black debris for hemin crystals were positive.

Intestines contained considerable quantities of blood-colored material in upper portion, with black granular material in large amount further down. The mesenteric glands enlarged from size of pea to that of a bean; white, hard. On section, rather firm.

Aorta normal. Bladder and genitalia normal.

Anatomical diagnosis: Bronchitis and broncho-pneumonia, gastric ulcer with hemorrhage.

Bacteriological examination: Liver, colon bacilli; spleen, colon bacilli and few streptococci; kidney, streptococci (pure).

MICROSCOPIC EXAMINATION.

Sections of the kidney show granular, coagulated material in tubes, with a few pale circles. Some swelling of epithelium of convoluted tubules. The epithelium over glomeruli well marked. In a few places in the cortex there is cellular infiltration in the interstitial tissue, more or less focal. The infiltration is chiefly made up of plasma cells. The tubules are compressed in these places and almost obliterated. Closer examination of the kidney shows not one but several foci of typical interstitial nephritis in the cortex.

Section of the liver shows some cellular proliferation

¹ Read before the Boston City Hospital Medical Society, May 13, 1897.

² Keating's Cyclopedia of the Diseases of Children, vol. iii, p. 51.

³ Medical News, Philadelphia, vol. lxi, p. 408.

⁴ Pediatrics, p. 553.

around the portal spaces, and numerous leucocytes in the capillaries. Swelling and fatty degeneration of liver cells.

The spleen is intensely hyperemic; the follicles enlarged. In one of the large follicles there is a pale centre, many of the large cells in which are necrotic, the whole resembling a tubercle. In the necrotic tissue there are polynuclear leucocytes.

Examination of the stomach shows a sharply circumscribed loss of substance, with deeply undermined necrotic edges on one side; and at the other the loss of substance gradually fades out to the surface of the mucous membrane. In the submucosa there is considerable cellular infiltration and accumulation of cells in the vessels. The base of the ulcer is necrotic, and in places it extends down through the sub-mucosa to the muscular coat; there is a small amount of fibrin in the tissue beneath. There is no granular tissue and no chronic inflammatory reaction. Where the ulcer is most undermined, fibrin is seen in the sub-mucous tissue, due to fibrinoid metamorphosis of the connective tissue. At various places beneath the mucous membrane and adjoining the ulcer there are distinct hyaline thrombi in the walls of the blood-vessels, and hyaline masses completely occluding them.

It is possible that the ulcer is not to be regarded as a typical chronic gastric ulcer, but as a more acute process due to a disturbance in the circulation in the stomach produced by the hyaline thrombi, and the necrotic mucous membrane has been afterwards completely digested away by the action of the gastric juice. It is also possible that the ulcer started as a distinct diphtheritic lesion of the mucous membrane. The fibrinoid metamorphosis of the connective tissue and the hyaline thrombi in the vessels are not opposed to this view, for similar changes are not uncommon at the base of the diphtheritic ulcers in the pharynx.

In the few cases of diphtheritic lesions of the stomach which have come to observation the process was more diffuse and would not have led to circumscribed ulceration.

GASTRIC ULCER IN THE NEW-BORN.

ETIOLOGY, MATERNAL IMPRESSIONS.

BY J. R. LINCOLN, M.D., MILLBURY, MASS.

On November 4, 1896, Mrs. —, of Lowell, while visiting Mrs. C., her sister, of this town, was taken suddenly ill, and vomited a large quantity of bright-red blood, which spattered over her clothing and made quite a pool on the floor. She was found in a faint by Mrs. C., who got her into the house, washed off the blood, changed her clothing, and took the whole care of her for two days, until a particular nurse who was desired could arrive. During these two days the patient vomited blood several times. Blood was also noted in the stools.

Mrs. C. understood perfectly the nature of the case; but beyond being anxious for her sister and shocked by the spectacle of blood, did not show any nervousness, asked about the case and wondered if it would make her have a miscarriage.

For four weeks the patient remained at her house, at the end of which time she was able to return to Lowell, where she was referred to her physician, Dr. W. T. Carolin, for convalescence.

At the time of this illness, November 4th, Mrs. C. was almost exactly five months pregnant, and, as we have seen, did not appear to be unduly alarmed or nervous over her sister's hemorrhage or following illness.

On March 3, 1897, at 6 o'clock P. M., a girl was born naturally, weighing eight and one-half pounds, and to all appearances absolutely perfect. On the next day the baby was very uneasy, cried all the time, and at 4

o'clock P. M. vomited one or two teaspoonfuls of bright-red blood. This was followed by several vomiting spells on the succeeding day; this time the blood was darker colored.

For three or four weeks the baby cried about all the time, seldom sleeping an hour continuously. The mother did not wish to nurse the child, and I was able only after much experiment to obtain a satisfactory food and method of feeding. Notwithstanding all this, it finally did well. At two weeks it weighed but six pounds; at four months thirteen pounds, with no digestive disturbance after the second month.

In face of such facts as the above, are we justified in excluding as "happenings" all cases of maternal impressions?

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Continued from No. 7, p. 156.)

RADICAL CURE OF HERNIA WITHOUT THE USE OF BURIED SUTURES.

Duplay and Cazin,¹² having seen late abscess-formation as the result of the use of buried sutures, believe that they form a *locus minoris resistentiæ*, and that however aseptic they may be, a systematic septic infection is liable to show itself at that point. They therefore advise the performance of an operation without the use of buried sutures, and accomplish this by tying the sac upon itself, after having drawn it well down; and to prevent this knot from slipping, they tie a series of knots in the sac, or divide it and tie the two portions together, one knot upon another.

The parietal sutures and those employed to occlude the external ring are of silver wire, and are removed after union has taken place.

A series of twenty operations performed in this manner have yielded results as perfect as could be desired, with no recurrences and no abscess-formation.

SURGERY OF THE NON-CARCINOMATOUS DISEASES OF THE STOMACH.

Doyen¹³ has come to the conclusion that the painful symptoms in dyspepsia, hyperacidity and *ulcus rotundum* are due to reflex spasm of the pylorus. He assumes that the cicatrization of gastric ulcers is hindered mostly because of the spastic contraction of the pylorus, which keeps the edges of the ulcer constantly irritated.

For this reason, Doyen performed the operation of gastro-enterostomy in a case of gastric ulcer, with the result that the pain and vomiting at once ceased; and at the end of three years the patient still remains well. Doyen has entirely abandoned pyloroplasty. He has performed gastro-enterostomy 48 times with a total mortality of 30 per cent.; 16 cases were for carcinoma, 11 for cicatricial stenosis of the pylorus and duodenum, and 21 for spasm of the pylorus due to gastric ulcer and hyperacidity. All of these latter cases recovered completely. In one case the function of the stomach was not well performed after the operation, though the pain was entirely cured and the patient gained in weight.

¹² La Semaine Médicale, November 11, 1896; American Journal of Medical Science, March, 1897, p. 354.

¹³ Annals of Surgery, February, 1897, p. 212.

For the removal of neoplasms, the author prefers the operation of Billroth. Out of eleven operations there were four deaths. Two of these were operated upon when *in extremis*. A third had empyema of the gall-bladder with consecutive stenosis of the duodenum, and perished from sepsis.

In closing, Doyen reported an operation for hour-glass contraction of the stomach with torsion of the two halves upon one another, consisting in gastro-enterostomy in the upper segment.¹⁴

THE OPERATIVE TREATMENT OF DILATATION OF THE STOMACH.

Ewart and Bennett¹⁵ report an operation for dilatation of the stomach, which they believe to be new.

The abdomen having been opened by a median incision about five inches long, commencing above at a point an inch below the ensiform appendix, the stomach was thoroughly examined by the hand introduced through the wound. No adhesions were detected, and the pylorus was normal. The viscus was then drawn out of the abdomen and laid upon the parietes, where it presented a large balloon-like bag distended with gas. A fold on the anterior aspect of the stomach was then turned in by the fingers of the assistant. The length of this fold, which followed the direction of the long axis of the stomach, was about twelve inches, its greatest depth being about three inches. While this fold was held involution by the assistant's fingers the peritoneal surfaces on the opposite sides of its base were brought together by numerous sutures made to transfix the peritoneal and muscular coats, the fingers of the assistant being gradually withdrawn from the fold before the tightening up of the final stitches. After the stitches had all been fastened off, the size of the stomach was greatly lessened. Mr. Bennett had intended to make a small secondary involution at the great end of the stomach to prevent the otherwise inevitable dependent tendency of that part; but as the patient was in a very unsatisfactory condition generally, it was thought wiser to be content with what had already been done. The altered viscus was then returned into the abdomen, the wound in the parietes being closed by fishgut sutures in the usual way.

The patient presented the ordinary symptoms of dilatation of the stomach in a marked degree. He had had the benefit of the various forms of palliative treatment without any relief. The patient, after leaving the hospital, was able to resume his work, which was that of a carpenter.

Under the title of "Gastropexy," Duret describes¹⁶ an operation for the condition of dilatation and downward displacement of the stomach, which is known as gastropexia of Glenard's disease. The operation is performed as follows: An incision four inches in length is made in the middle line of the abdomen, beginning at the ensiform cartilage. The peritoneum is divided only in the lower half of the wound, the upper portion being left undivided to receive the sutures which hold the stomach in place. The pylorus and lesser curvature are then fixed to the anterior abdominal wall as follows: The stomach having been raised and placed in its normal position, a silk suture is made to include the serous and muscular coats of the pyloric

extremity, and is then passed through the overlying portion of exposed peritoneum from within outward. The suture is carried backward and forward in this way until the stomach has been well anchored. The external wound is closed layer by layer.

A NEW OPERATION FOR GASTROSTOMY.

Fontan¹⁷ gave the following as the steps in a new operation which he has employed successfully, and which has for its object the avoidance of erosion, the infiltration of surrounding tissues, etc., due to the escape of the gastric juice. This method simplifies other methods for the formation of valvular openings, and the author terms it the valvular procedure. First, the ordinary epigastric incision; second, the seizure of the stomach with a pair of toothed forceps and the production of a hernia of considerable size; third, the suturing of this fold to the edge of the wound; fourth, the invagination of the fold, the forceps still remaining in the position, and the suturing together of the serous surfaces at the ends of the wound; fifth, the incision of the stomach wall by a bistoury passed along the forceps, and the insertion of the cannula.

The cannula is thus placed in a valvular opening formed like an inverted bishop's mitre, with the walls of the stomach forming its gastric surface, while the serous surfaces are opposed to each other. The results obtained are perfect, no contents or gastric juice escaping through the valve thus formed.

GASTRECTOMY.

Pean¹⁸ reported to the French Surgical Congress the results he has obtained in operations of this character. In 12 pylorotomies for cancer he had four deaths; in three gastro-enterostomies, one death. Outside of cancerous disease all his other operations were successful — four pyloroplasties and four excisions of ulcers.

Within the last twenty-five years the following operations have been employed against this disease: pylorotomy, gastro-duodenostomy (the radical operations), and gastro-enterostomy, a palliative operation.

Pylorotomy is indicated in young persons who are still resistant, where the tumor is small, mobile and has not produced lymphatic and visceral metastasis.

In every case where the first portion of the duodenum alone is involved, and it is possible to resect the diseased portion of the stomach and yet retain a small portion of the cardiac end, the surgeon may interfere; but instead of attempting to unite the duodenum to the large opening in the stomach, this should be sutured in different planes, and the duodenum united to the nearest portion of the stomach, preferably by a Murphy button.

In case of marked cachexia or lymphatic involvement, one should be contented with a gastro-enterorrhaphy with a Murphy button.

GASTRO-ENTERO-ANASTOMOSIS: ENTERO-ANASTOMOSIS: CHOLECYSTENTERO-ANASTOMOSIS WITHOUT PRELIMINARY OPENING OF THE ORGANS TO BE ANASTOMOSED.

Souligoux¹⁹ describes the following operations:

¹⁴ Verhandlungen der deutschen Gesellschaft f. Chir.; XXIV Kongress, 1895.

¹⁵ Lancet, London, 1896, vol. ii, No. 1; American Journal of Medical Sciences, September, 1896, p. 343.

¹⁶ Revue de Chirurgie, June 10, 1896.

¹⁷ Revue de Chirurgie, November 10, 1896; American Journal of Medical Sciences, March, 1897, p. 353.

¹⁸ Loc. cit.

¹⁹ La Presse Médicale, 1896, No. 59; American Journal of Medical Sciences, February, 1897, p. 221.

He produces on each of the two organs to be anastomosed an area of sphacelus. These two points are brought together, face to face, and retained by sutures; peritoneal adhesions form. At the end of forty-eight hours the sphacelated zones fall in, and the adhesions are more than sufficient to prevent separation of the two organs. The instruments needed are a pair of powerful forceps, a small Reverdin needle, No. 3 silk, and solid caustic potash.

Gastro-Entero-Anastomosis. — After celiotomy the first loop of jejunum is sought, and a silk thread is passed through the mesentery, in order to draw the intestine out of the abdominal cavity. The intestine at the proper point is caught between the blades of the forceps and compressed with all the force the operator can employ. The two intestinal walls are thus made so thin that they are transparent. The same manoeuvres are repeated upon the stomach. Here it is important that the assistant exposes well the fold formed on the stomach, and that he does not allow the mucosa to slip until it is secured in the grasp of the forceps.

Two fortified zones are thus determined on the two organs, the surfaces of which soon take on a black coloration. The peritoneum only has resisted the crushing effect of the forceps. The line of suture is commenced about two millimetres from the margin of the contused area, uniting the two inner surfaces throughout their entire extent. At this moment the crushed surfaces are cauterized with caustic potash, after which the assistant sponges the area thus cauterized. The sutures are then placed in the two external borders. If any discolored area appears outside the suture, this point is inverted by additional sutures. The operation may be completed in twenty minutes. It remains only to close the abdominal cavity.

Entero-Anastomosis is performed in the same manner as the gastro-enterostomy.

Cholecystentero-Anastomosis. — The author has endeavored to produce something analogous to the ampulla of Vater. In this procedure he opens neither the gall-bladder nor the intestine. Upon the intestine he traces an elliptical incision, two centimetres wide and three centimetres long, comprising only the serous and muscular coats. The flap thus made is removed. The mucosa exposed is compressed and cauterized to the extent of half a centimetre. Upon the anterior and posterior face of the gall-bladder a small needle, carrying a fine silk thread, is passed. The posterior thread is attached to the posterior border of the intestinal wound, the summit or base of the gall-bladder is crushed and cauterized with the potash, and the anterior thread is passed through the intestine in front of the intestinal wound, the posterior thread having already been so placed. On drawing on these threads the gall-bladder is invaginated in the intestinal canal, and while retained in this position by the assistant making traction on these threads, the suture around the margin of the anastomosis is made. The two original threads are then removed. At the end of four hours the sphacelus falls in and the communication is complete.

FORMATION OF GASTRIC FISTULÆ.

F. Fischer,²⁰ Strasburg, reports a method by which

he has successfully established a gastric fistula in a case where contraction and infiltration of the gastric wall made it so rigid that it could not be brought out through the abdominal wound. In such cases the method of Witzel or Frank for performing gastrostomy to relieve esophageal strictures is impracticable. Fischer operates as follows: The abdomen is opened and the stomach fixed to the wound edges till adhesive inflammation has shut off the peritoneal cavity. During this time the patient is fed by nutrient enemata. After usually three days liquid food is introduced into the stomach through a hypodermic needle which is passed diagonally through the stomach wall at the middle point of the area exposed in the abdominal wound. By carefully rotating the needle it penetrates the wall. It can be easily known when it has entered the stomach. Three ounces of fluid (50–60 grammes) are injected, and the needle withdrawn. After three to five hours the process is repeated at the same point. After five or six days a larger needle can be passed and thicker fluids injected. By always passing the needle in the same line a diagonal canal is finally formed. In one case a hard rubber catheter was introduced after eight weeks. The walls of the sinus collapsed when this was withdrawn so that no fluid escaped. Fischer has operated on four patients with esophageal stenosis — three being the result of cicatrices, one due to cancer.

A NEW METHOD OF ENTERO-ANASTOMOSIS.

Souligoux²¹ has devised a new method of intestinal anastomosis, which consists in suturing two loops of gut without opening them. With a strong clamp he pinches, in a longitudinal direction, the free border of the two intestinal loops, and then stitches them together along one margin of the compressed areas. These areas are then touched with caustic potash, and the suture completed around them. The cauterized portions of the gut necrose, and fall into the lumen of the intestine, and communication is established. In animals, this takes about forty-eight hours. This operation has been performed upon man several times with success.

Chaput has performed a similar operation, using a Paquelin cauterizer in place of caustic potash. If the stomach enters into the anastomosis, he first removes the muscular coat of the portion involved. Retention of feces is a contraindication. The chief advantage of the operation is the rapidity with which it may be performed.

THE TREATMENT OF INTESTINAL INTUSSUSCEPTION.

This subject has been revised and rewritten to date by Rydygier.²² A very satisfactory summary of this interesting article has been published by Dr. J. P. Warbass.²³ Rydygier claims that the poor results after operation are due to the fact that the operation has been done late. The mortality will be less when intra-abdominal intestinal strangulation is recognized and treated similarly to strangulated intestinal herniæ. The point which is of importance in deciding the time for operative treatment is the acute or chronic character of the intussusception. The kind of operation also depends on the same fact.

In acute cases operation should be done at once

²¹ Gazette heb. de Med. et Chir., July 23, 1896; Medical News, September 12, 1896, p. 294.

²² Verhandlungen der deutschen Gesellschaft f. Chir., XXIV Kongress, 1895.

²³ Annals of Surgery, 1896, vol. xxiv, p. 243.

²⁰ Verhandlungen der deutschen Gesellschaft f. Chir., XXIV Kongress, 1895.

after a reasonable trial of the usual non-operative procedures; for example, gastric lavage, rectal injections of gas or water in the knee-chest position, massage, or gentle manipulation with full narcosis. A cure by spontaneous disinvagination or sloughing of the invaginated segment is no more to be expected than in a strangulated hernia. Rydygier operates after two unsuccessful attempts at reduction by rectal injections of water, in acute cases, as soon as possible.

After laparotomy has been done, disinvagination is to be attempted if it can be done without especial difficulty. If the vitality of the intestinal wall is doubtful, especially at the point of constriction, the affected point is packed off by iodoform gauze from the general peritoneum and the abdomen left unclosed. Of 24 cases where reduction was possible and the intestine disinvaginated, eight recovered.

When disinvagination cannot be done, the intussusception should be resected; and the operation is described. The entire mass is to be resected, however, when the invaginating sheath shows changes indicating impaired vitality and perforation.

The formation of an artificial anus should only be done in cases of collapse when there is not time for any other method. Intestinal anastomosis is also undesirable, for it leaves the disease untouched. It restores fecal circulation, but statistics fail to show that it results in recovery.

In chronic cases there is more opportunity for a trial of non-operative procedures, and such means should always be tried; but temporizing without some especial reason is not desirable.

As in acute cases, disinvagination is the first operative procedure which should be tried. This has succeeded, with recovery, after invagination of six and nine months.

When impossible, resection of the intussusceptum is more strongly recommended than in acute cases. Intestinal anastomosis is indicated only in cases with extensive adhesions. The mortality is less than in acute cases. There is no reason for the formation of an artificial anus in chronic cases.

Operations should be done at a time when acute symptoms are absent.

THE TECHNIQUE AND INDICATIONS FOR RESECTION OF THE RECTUM IN CASE OF CANCER.

Depage²⁴ gives the following as the technique he employs in cases of cancer of the rectum:

(1) The patient is placed in the gynecological position, in such a manner as to give to the pelvis a vertical direction. An incision is made on the posterior aspect of the pelvis, and the coccyx and one or two sacral vertebrae are resected if it is necessary.

(2) The dissection of the rectum, care being taken to leave as much of the cellular tissue and peritoneum adherent to it as possible, finally preserving the superior hemorrhoidal artery in order to maintain the nutrition of the superior portion and to remove the cancerous tissues *en masse* with the lymphatics involved by the disease.

(3) Closure of the peritoneal cavity immediately after the resection of the intestine and the removal of the neoplasm.

(4) Drawing down of the superior segment of the anus after having invaginated it into the inferior seg-

ment, even for cancers situated high up. There is no danger of gangrene of the intestines if care is taken to preserve the superior hemorrhoidal artery.

In one case, however, gangrene occurred, but this case supported the view already expressed, for after the removal of the necrosed tissue he found the superior segment and united it to the anus, without in this instance leading to gangrene and necrosis.

The fifth step is tamponing or suture in layers.

The author does not use the palliative iliac artificial anus except under two conditions:

(1) Where operation is urgent and the general condition of the patient is bad.

(2) If the cancer is so extensive that the sacrifice of the entire rectum is necessary.

The author obtained in ten cases eight recoveries. One case was seen three years and a half after operation, one a year and a half after, while two died from a return of the disease one year after the operation. The others have been operated upon too lately to be of value statistically. Relapses are more rare and later in disease of the rectum than in cancer of any other portion of the body.

As indications, the author says that at the beginning of the disease the radical operation is imperative; later, when the lymphatics are involved, the radical operation or an artificial anus, according to the extent of the involvement and the condition of the patient; later, when extirpation is impossible, the artificial anus is the only and temporary relief.

(To be continued.)

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, March 22, 1897, Dr. A. L. MASON in the chair.

ORAL COMMUNICATION.

DR. A. H. NICHOLS: I have two patients to show to the Society, illustrating cases of accidents and interesting from their rarity. The first is a tumor, a hematomia, of the inferior mediastinum. A laboring man, while crossing the street, was knocked down by an electric car and probably pressed between the fender and the pavement. There appeared at once a globular swelling projecting from the mediastinum between the seventh rib and the ensiform appendix of the breastbone. This occurred three weeks ago to-day. The tumor reached its height about a week after the injury, and has since been subsiding. As seen to-night it does not extend over the space between the sixth and seventh ribs as it did a week ago, but still forms a very decided tumor and becomes more prominent when the patient coughs. The tumor occupies the position of the internal mammary artery at the point of its bifurcation between the sixth and seventh ribs; but it cannot be determined whether the hemorrhage arose from that artery or from the anterior intercostal.

The second patient presents a more complicated lesion of the chest-wall. This man was riding on a bicycle when he came into collision with a vehicle, the

²⁴ Rev. de Chir., November 10, 1896; American Journal of Medical Sciences, March, 1897, p. 352.

shaft of which appears to have broken in the chest-wall. At the point marked in ink there is an ununited fracture of the fourth rib. By pressing on the rib the free end of the inside fragment can be distinctly felt. Inside of the mammary line on the fifth rib is another ununited fracture. There is a deformity also of the second rib indicating probable fracture at the junction of the cartilage and the rib. The hospital record gives a history of pulmonary emphysema. He had a cough with bloody expectoration, very high rate of respiration for about three weeks and there remains a chronic vesicular emphysema. As he coughs it will be observed that the lung fills up the intercostal spaces and projects a little beyond. I have called this lesion vesicular emphysema, this being the term first proposed by Laënnec, which is in reality a misnomer. Strictly speaking, emphysema is limited to the infiltration of air into the interlobular areolar tissue or into the subpleural areolar tissue. The theory originally pronounced by Rokitsansky seems to fully explain the situation in this case: that there is produced a histological change in the lung resulting from perforation by the broken ribs; that the septa of the vesicles become subsequently atrophied and perforated until several cells coalesce. In looking up the literature of *emphysema vesiculare* I found one case reported by Guttman of Berlin in which the lung was nearly converted into one large vesicle.

This occurred September 19, 1896. The question is how much was he disabled by this injury and what will be the ultimate result of the emphysema. He does not make any complaint of breathing, but the pressure of the outer fragments into the lung gives difficulty on working, therefore he is incapacitated for heavy work. The emphysema, by reason of its tendency to impair the nutrition of the lung, must be regarded as a progressive disease. There is no cardiac complication.

DR. C. P. PUTNAM: This tumor makes its appearance outside of the ribs. It would seem that it must be a subcutaneous cavity connecting with the lung, rather than a cavity in the lung itself. An emphysematous cavity in the lung itself could, one would think, at best only cause a bulging between the ribs.

DR. NICHOLS: If that had been the original lesion, I think the air would have long since been absorbed. If there were infiltration of air from the lung into the subcutaneous cellular tissue there would be present the unequivocal physical signs of pneumothorax. In the few cases recorded of traumatic emphysema the inflation and projection of the lung correspond identically with what we find in this man. As here the pectoral muscles usually undergo atrophy.

DR. EDWIN W. DWIGHT read a paper on

RUPTURES OF THE VISCERA AND THEIR CONNECTION WITH SURGICAL SHOCK.¹

DR. WHITNEY: In experiments on animals injury of the suprarenal capsule is at times associated with rapid death of the animal without other changes in the body. The capsules are very small bodies and easily overlooked. Attention should be directed to the suprarenal capsules in cases where lesions of other organs are insignificant, as a rupture of them might be a death factor. The intimate connection of these with the large ganglionic centres of the abdomen has been noted.

¹ See page 171 of the Journal.

THE PRESIDENT: The reader spoke of pneumonia as following chest injuries; I should like to inquire whether after chest injuries true lobar pneumonia is a common sequence, and if so after what interval, early or remote.

DR. DWIGHT: In 511 cases of fractured rib there were 40 deaths; 29 died in three days, 11 after three days. There were nine autopsies, of which three died from pneumonia (which was described as being lobar pneumonia distinctly) three from hemorrhage from ruptured lungs, and three from ruptures of the spleen. As I considered no cases except those with autopsies, I cannot answer the question except to say that such symptoms as spitting of blood and a certain amount of respiratory disturbance were common in those cases I have studied. Those three who died from hemorrhage of the lungs were what might be called pneumonitis.

It was not my purpose to discuss the question of treatment of these ruptures of the viscera, but rather to call attention to the possibility of ruptures of the viscera complicating other injuries. We frequently see cases of compound fractures which need to be etherized and put up; and the question comes whether the operation shall be done then or in the future. In many of the cases there is distinct shock, and the idea I intended to convey was that in cases of doubt it is better to let them alone. I think we have good reason to suppose many of them get well; as Dr. Richardson said of ruptures of the kidney, that "he had not seen any of them die." I think that this is also true of other organs. In connection with what Dr. Whitney said, I remember distinctly one case in which there was a very small laceration of the kidney, and the wording of the autopsy was that the right kidney lay in a mass of blood and blood-infiltrated tissues, that some of this blood had penetrated beneath the capsule of the kidney and that free blood was found in the pelvis of the kidney. Possibly this was a case of rupture of the supra-renal capsule.

DR. WHITNEY: There was a case of injury of the pancreas at the Massachusetts General Hospital, and some necrosis of fat tissue existed. I should like to ask whether this was associated with any of these cases of rupture of the pancreas.

DR. DWIGHT: In Dr. Cushing's case there was no sign of it, and in the other case the death occurred rapidly from injury to other organs.

BOSTON MEDICO-PSYCHOLOGICAL SOCIETY.

H. C. BALDWIN, M.D., SECRETARY.

MEETING of February 17, 1897.

DR. HOCH read a paper on

A CASE OF ACUTE INSANITY ASSOCIATED WITH DEFINITE CHANGES IN THE INTERNAL STRUCTURE OF THE NERVE-CELLS.

The case was that of a young man who had had a previous attack of insanity characterized by the presence of the symptoms of acute maniacal excitement. In the present attack there were at first some maniacal symptoms, but during much the greater part of the attack the patient was dazed and frightened. The pulse was constantly rapid, the temperature was somewhat elevated, and he slept none. The attack

was one of unusual severity, and the patient died in 10 days. The diagnosis is in all probability a depressive phase of periodic insanity (Kraepelin).

The changes in the nerve-cells (all the cells in the cortex were affected) consisted in a complete disappearance of all the chromophilic substance; the cells at the same time often preserving well their outlines. Some cells had deteriorated further, and the cytoplasm had begun to break up. The nuclei also were altered, being more homogeneous than the normal, more deeply stained and more compact in appearance, often uneven in outline, and surrounded by a lighter ring. The same changes were found in the Purkinje cells and their nuclei. In the lower portion of the medulla oblongata the anterior horn cells were much less affected; the nuclei were normal, the cytoplasm in the cell-body showed only beginning changes, and in the protoplasmic processes the chromophilic substance was well stained and discrete. Nissl's method was used.

Dr. Hoch maintained that changes like those described must be due to something extraneous to the cells themselves, and spoke of a poison as being the most likely cause. The interest of the case lies in the fact that in a case of so-called functional psychosis there are found definite changes in the nerve-cells.

Stained sections from the cortex of this case and from a normal brain were exhibited through the microscope.

DR. W. L. WORCESTER, of Danvers, opened the discussion by saying that the toxic theory, as the cause of a large proportion of mental disturbances, is gaining ground. Kraepelin classes katatonia among the toxic insanities. Van Gieson describes lesions similar to the ones in this case as due to toxic causes. He thinks these lesions pathognomonic, and would not admit the toxic nature of cases in which they do not occur. There is, in his opinion, a tendency for the same sort of poisoning to occur again and again with intervals of health. This he believes to be the case in epilepsy, which he holds to be, in a large proportion of cases, due to intoxication from the alimentary canal.

DR. ADOLPH MEYER, of Worcester, said that, since in Cramer's case the nuclei of the brain axis had not been examined, one could be in doubt as to whether the changes in the cells were really limited to the cortex. But Dr. Hoch's case leaves no doubt in this respect. He concurred with the reader as regards his clinical view of the case, and in the idea that the lesion was unusually marked. It remains to be seen whether Nissl or Van Gieson is right; the latter claims that all poisons produce similar changes, whereas Nissl found differences both in the character and in the localization of the cell-changes.

DR. P. C. KNAPP agreed that the toxic theory was a very probable explanation of the case. He asked if this could be a case of amentia or acute exhaustion psychosis; and if Dr. Hoch found changes in different parts of the cortex, involving different centres.

DR. NOYES asked if this could be a case of galloping general paralysis. Dr. Hoch replied that the brain changes would have been different; and besides there was no specific history.

DR. TUTTLE thought that Dr. Hoch was conservative as to the value of the changes that he had found, and asked if researches had been made and changes found in ordinary cases of disease, especially in cases with high fever.

DR. HOCH replied that the normal cell that was shown came from a case of septicemia.

DR. TUTTLE then said that similar changes had been found by Van Gieson in cases of sunstroke.

DR. TAYLOR remarked that Van Gieson states that the affected cells have a tendency to recovery in these toxic processes.

DR. HOCH, in closing said that while he did not wish to lay too much stress upon the toxic theory, there was a good deal of reason for speaking of it in this case.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL CONGRESS, HELD AT
WASHINGTON, D. C., MAY 4-6, 1897.

FIRST DAY. — TUESDAY.

THE President, DR. CHARLES H. KNIGHT, of New York, delivered the Annual Address.

PRESIDENT'S ADDRESS.

Attention was called to several matters of current interest. A protest was made against carelessness in clinical work, especially with regard to the non-observance of antiseptic precautions. Lamentable consequences may ensue from a careless non-observance of those rules with which we are all supposed to be perfectly familiar.

Closely allied to this topic was that of antiseptics in general. In the wounds we are in the habit of inflicting, absolute asepsis may be impossible, and perhaps, in view of the perfect drainage usually secured, unnecessary. The story of the birth of antisepticism has very recently been modestly told by Lister himself. The application of the principles laid down by him banished hospital gangrene in a single day from surgical practice. Syme believed that amputation, rather than any attempt to save the limb, was the proper course to follow in all compound fractures of the leg. Putrefaction was universal, and yielded only to the introduction of carbolic acid, to which the Father of Antisepsis still adheres as the safest and most efficient antiseptic.

A spirit of wise conservatism has always characterized the work of this Association. It has not given its adherence to every passing fad. The premature announcement of new therapeutic measures which trial proves to be inert has taught us all a healthy scepticism.

The value of the laryngoscope in relation to the singing voice is another matter of timely discussion. It has at least corroborated knowledge acquired in other ways. Recent cases of laryngectomy have taught us that the voice can be developed after operation by means of the aid provided by the teeth, lips, palate, tongue, pharyngeal wall, nasal cavities and the skull bones. While there is no agreement as to all the elements concerned in the production of the singing voice, doubtless all the information given by the laryngoscope as to the position and movements of the vocal cords in tone formation has already been furnished by dissection of the larynx. The mirror does not show why, of two individuals with apparently identical vocal apparatus, one sings while the other cannot sing a note. Nor does it tell us why a singer of artistic temperament and acquainted with all the

technical knowledge of his art, fails to thrill us. Laryngologists are often embarrassed when asked to manage the case of some youthful aspirant for lyric honors to whom nature has denied those gifts essential to success, but an intense satisfaction is felt when a lost voice can be restored or such advice given as will assist in its recovery. In cases of vocal impairment, the mirror will enable us to determine with accuracy whether the condition be due to disturbed innervation, defect of muscular action, neoplasms, tissue hypertrophy or simple inflammation.

The discovery during the last year of the Röntgen rays bids fair to assist in our special line of work by locating foreign bodies, determining the size of tumors and in marking out the extent of malignant infiltration. Pride may be felt in the fact that one of the Corresponding Fellows of this Association, Dr. John MacIntyre of Glasgow, has successfully applied this new discovery to our special line of work.

Finally, it becomes us to approach with caution, and at the same time with candor, the matter of vivisection. As you all know, a bill is now pending in Congress, ostensibly merely to prevent cruelty to animals in the District of Columbia. No sane man can object to restrictions which look to the prevention of wanton cruelty; but we can have no patience with that sickly sentimentality which evokes spasms of maudlin sympathy over the death of a worthless dog and yet denies to suffering humanity hope of exemption from diseases, the study of which may most readily be conducted upon the lower animals.

The subject is one of importance to all scientific physicians. Who shall say that vivisection has accomplished nothing for humanity? Who can set aside the magnificent achievements of Harvey, Magendie, Claude Bernard and Pasteur? Even Morton, with all his courage, would hardly have dared to apply his beneficent discovery upon human beings without preliminary tests upon animals. Thus, without animal experimentation, the Jubilee of Anesthesia might not have been celebrated last year, and the human race might have long been deprived of that blessed immunity from pain which it has enjoyed for the last fifty years. We claim that vivisection is justifiable, and should be permitted as a means of impressing certain important facts upon the minds of students in our schools, not indiscriminately to a general medical class, but to the more advanced and special students in pathology and biology.

It is to be hoped that the good sense of our law-makers will enable them to act discreetly in the disposal of this matter, and to divest the question of the sophistries and calumnies associated with it by ignorance and prejudice.

DR. J. E. NEWCOMB, of New York, read a paper on

GUAIACOL AS A LOCAL ANESTHETIC IN MINOR OPERATIONS IN THE NOSE AND THROAT.

While cocaine answers in a general way the demands of an ideal local anesthetic, its use is not always free from unpleasant consequences. At times even alarming results follow. Various substitutes have been proposed. Of these latter those which have come into greatest favor have been tropococaine and eucaine. Latest reports of even these show that they are not entirely free from danger. Two years ago Lucas-Championnière suggested that guaiacol might

be used for this purpose. The first definite application of the remedy in laryngology was made by Laurens. He employed a five-per-cent. solution in olive oil freed from its albuminoids, resinous and coloring matters by means of dried sulphate of zinc, and from its free fatty acids by absolute alcohol. With the oil thus purified, guaiacol makes a clear, limpid solution. It may be employed as is cocaine in spray, by swabbing or on tampons.

Laurens's experience may be summarized as follows: In the ear, a few drops of the warmed solution can be instilled after previous cleansing, and in from fifteen to twenty minutes removed with hydrophile gauze. Sufficient anesthesia is thereby induced to enable paracentesis to be done in a painless manner. Similarly, furuncles of the meatus may be incised in the nose, after the usual tamponing or spraying, canterization of the turbinates can be done without discomfort, polyps and polypoid tissue removed with the cold snare, and even the hot wire can be similarly employed. The tissues do not retract as with cocaine, so that guaiacol will never be its equal where we wish to systematically examine the nose, or in case of suspected neurosis make out the possible existence of sensitive areas. In the pharynx guaiacol may cause decided reflex movements, and yet sufficient anesthesia may be induced to cauterize granulations and enlarged tonsils.

Geronzi repeated with success the work of Laurens. He dissolved the guaiacol in alcohol, thereby making the remedy easier to handle while not modifying its anesthetic power. In the ear, he was able to puncture the drum, remove granulations therefrom, remove aural polyps and also the malleus, the anesthesia being perfect.

Dr. Newcomb had given the remedy a trial in 36 cases. It was used in spray, on tampons, by application and by the hypodermic needle. The operations done included removal of polyps and polypoid tissue with the cold snare, curetting of the ethmoid cells, sawing off of septal spurs, cauterization of turbinates and of enlarged tonsils, curetting the pharyngeal vault, etc. As regards anesthesia, it was perfect in 14, partial in 16, slight in two and absent in four. No more bleeding in the cutting operations was noticed than with cocaine, though guaiacol is said not to contract the tissues.

In the cases thus far reported, numbering 98 in all, no constitutional effect has been noticed. In order to obtain satisfactory anesthesia at least fifteen minutes must be allowed for complete absorption.

DR. S. W. LANGMAID, of Boston, read a paper on
SUB-MUCOUS HEMORRHAGE OF THE VOCAL CORDS.

Five cases were reported, three in men and two in women. All were voice users, four being singers, and one was an actor. In all, the site of the hemorrhage was at the junction of the anterior and middle third of the cord. In one, the extravasation was diffused, but in the remaining four, there was noticeable a globule of blood under the mucosa, as definite and distinct as the bubble in a spirit-level. All were due to vocal strain and presented a sudden onset with sudden hoarseness, vocal impairment and a limitation of voice in the higher register. In all there was accompanying catarrh. The clot was once on the left side and four times on the right.

The cause of this condition is to be looked for in the lameness of the phonatory muscles which necessi-

tates overstrain of them in order to bring the vocal bands into proper position. Congestion ensues, followed by rupture of the delicate vessels. This accident may happen in the best artists as well as in those who are victims of a faulty vocal method. In all, a cure ensued, with full restoration of voice. In one case, the clot disappeared in seventy-two hours.

An unusual thing in this series of five cases was that none of them presented any hemoptysis. The globular look of the extravasated mass of blood had not been mentioned by any previous reporters on the subject. Dundas Grant had reported a case showing a fluid tumor (hematoma), which came on after violent sneezing. As a rule, both cords were affected.

Treatment should consist of absolute rest, followed by local astringents. Menthol sprays had been of service in Dr. Langmaid's experience. Strychnine should be given internally, followed up by intra-laryngeal galvanization.

DR. J. W. GLEITSMANN, of New York, recalled one case due to a severe blow on the larynx. Hemoptysis had ensued, but the clot had finally disappeared. The late Dr. Morgan had reported one case of hemorrhage into the vocal bands.

The next paper was read by DR. A. COOLIDGE, JR., of Boston, on

HYSTERICAL DYSPHAGIA.

This condition was to be differentiated from esophagismus or gullet-spasm. It had occurred about once in every five hundred cases recorded in the Nose and Throat Clinic at the Massachusetts General Hospital. Women were more frequently affected than men, but the affection might be seen in children. Emotional causes and reflex disturbances were also causative factors.

The condition generally came on suddenly, and was attended with pain, a sense of constriction, and the feeling as of a foreign body. Globus hystericus might occur from an upward movement of the spastic segment of the gullet. Patients would emaciate, while regurgitation was rare. The sound might or might not pass readily. Auscultation generally gave negative results. There was often temporary abatement of symptoms. The obstruction was experienced in the first part of deglutition.

Treatment should consist in the frequent passing of bougies and the removal of any neighboring lesions. Suggestion might cure some cases. The electric bougie should be carefully avoided, as disastrous results had followed its use, probably from stimulation of the cardiac fibres of the vagus, thereby affecting heart action.

DRS. W. H. PARK, of New York, and JONATHAN WRIGHT, of Brooklyn, prepared a paper on

BACTERIA OF THE NORMAL NOSE, AND BACTERICIDAL PROPERTIES OF NASAL MUCUS,

which was read by Dr. Wright. Mucus was examined from 36 healthy noses. The vibrissæ were cut away, and the vestibule washed clean with a bichloride solution; sterilized cotton swabs were then rubbed over the deeper intra-nasal structures and inoculated into various culture media. In only six instances did the latter fail to develop colonies of bacterial growth.

The mucosa of the nose was examined in two rabbits, and bacteria were found in each instance. Nasal mucus in the human species was not bactericidal to the

germs of diphtheria or to staphylococci or streptococci but checked the growth of anthrax bacilli. The latter result also followed the use of sterilized sheep's serum.

Bacteria of a pathogenic nature were scarce in the deeper parts of the nares, owing to several causes. The vibrissæ strained the tidal air, which also contained but few pathogenic germs. The action of the cilia, the gravity force of the clear serous fluid from above where the tidal air did not penetrate, and the fact that nasal mucus was a poor culture media for most varieties, all contributed to the same result.

A drop of a virulent bacterial culture had been allowed to drop into each of the noses of two rabbits and both animals had died of septic infection inside of two or three days.

DR. J. W. GLEITSMANN, of New York, read a paper entitled

TREATMENT OF CHRONIC AFFECTIONS OF THE TONSILS, WITH DEMONSTRATION OF INSTRUMENTS.

Next to tonsillar hypertrophy the most frequent chronic malady of the tonsil is the chronic inflammation of its follicles. The surface of the organ becomes rough and irregular in contour, the follicles are destroyed, and the crypts plugged up with white masses, the products of inflammation, the retention of which is a common source of trouble. The plugs are frequently overlooked until the upper part of the tonsil is exposed with a palate-hook, when they are easily seen. It is in the latter place that the plugs most frequently accumulate.

Where the leptothrix deposits are present in the lacunæ Moritz Schmidt's blunt hook is a satisfactory instrument for raking them out. Its value is increased if the sides are sharpened.

Frequently the presence of a flap or fold of the tonsil prevents an inspection of its posterior surface. If a careful examination is made, it will be seen that this fold is not (as it might at first appear) a part of the anterior pillar. If the latter is drawn aside with a suitable hook, a small lymphoid deposit is seen between the two. The larger part of the tonsil is always found behind the fold. This condition probably results from a previous acute inflammation.

Dr. Gleitsmann exhibited a tonsil-clipper which he had had made on the general model of the Ruault forceps. It is, however, much smaller, and cuts in a horizontal instead of a vertical plane. When these folds are removed, it is better to use cocaine. If the fold is very large, it is better to operate at several different sittings. Bleeding is slight and easily controlled by cracked ice. In some cases it may be advisable to use some light caustic or styptic solution.

SECOND DAY. — WEDNESDAY.

INTRA-NASAL TUMOR.

DR. J. H. BRYAN, of Washington, exhibited a patient with an intra-nasal tumor which had been causing symptoms of nasal stenosis for the last four years. The patient was a man of twenty-two. The growth appeared on the left anterior naris and in the right posterior, having apparently eroded the septum. A bit had been examined and a diagnosis of fibro-sarcoma made. During the last few weeks he had had giddiness and double vision. There was no spontaneous bleeding, but the mass bled very easily on manipulation. Dr. Bryan asked for the opinion of those pre-

sent as to the most advisable method of operation in this case. He deemed it unwise to attempt the use of the snare, as a more radical operation was necessary.

Dr. J. SOLIS-COHEN, of Philadelphia, thought that the Rogue operation would answer.

Dr. J. N. MACKENZIE, of Baltimore, would advise the modified Langenbeck operation, whereby the superior maxilla was rotated outward and free access to the growth obtained.

REPORT OF A CASE OF SUPPURATIVE INFLAMMATION OF THE FRONTAL, ETHMOIDAL AND MAXILLARY SINUSES.

Paper by Dr. J. H. BRYAN, of Washington.

The clinical history was given in detail. The writer thought that frontal sinus disease was more common than is usually thought to be the case. Many cases are referable to the recent grippé epidemics. The frontal sinus disease may be primary and cause maxillary disease, or in some instances there seems to be an abnormal communication between the two sinuses, and then the disease can travel upward from the antrum to the frontal cavity. In general the so-called frontal affection is, in reality, fronto-ethmoidal. Recent examinations have shown that the infundibulum is frequently continued down beyond its natural point of stoppage at the hiatus semilunaris as a half-tube, at the end of which is a valve of mucous membrane acting as a guide to direct the discharge from above into the antrum. Dr. Bryan gave a full description of the frontal sinuses, exhibiting a series of photographs. He advocated the Luc operation, and had done it in this case. The drainage-tube running from the sinus down into the nose slipped and led to the retention of discharge, causing a mild sepsis which was quickly relieved by the restoration of full drainage. He would in the future always use a self-retaining tube. As an antiseptic he used 1-2,000 formalin solution.

Dr. W. E. CASSELBERRY, of Chicago, had been much dissatisfied with the results of intra-nasal treatment in these cases. The Luc operation offered a greater assurance of permanent cure and left no scar.

Dr. MACKENZIE would advocate under all such conditions the use of the mildest possible antiseptics. It had been shown that bichloride in solutions as weak as 1-10,000 would cause superficial necrosis of the tissues. Care should be also taken to avoid as much as possible the use of drainage-tubes. They were pus-producers and carriers of infection.

Dr. J. E. NICHOLS, of New York, thought that the appearance of pus would enable one to determine whether the antral disease was primary or secondary. In the latter the pus would appear as long, screw-like threads, while in the former it would appear as flakes or solid masses.

(To be continued.)

THE CARE OF BABIES IN PARIS.—A resolution has been submitted to the municipal council of Paris requiring families to furnish every two months a medical certificate stating that infants under one year have been cared for in accordance with hygienic rules. The efforts of the French government to increase the fighting strength of its army are an interesting spectacle, especially to the Germans.

Recent Literature.

Minor Surgery and Bandaging. Including the Treatment of Fractures and Dislocations; the Ligation of Arteries, Amputations, Excisions and Resections; Operations upon Nerves and Tendons; Tracheotomy; Intubation of the Larynx; etc. By HENRY R. WHARTON, M.D., Demonstrator of Surgery in the University of Pennsylvania, Surgeon to the Presbyterian Hospital, the Methodist Episcopal Hospital, and the Children's Hospital; Consulting Surgeon to the Presbyterian Orphanage. Third Edition, thoroughly revised and enlarged, with 475 illustrations. Philadelphia and New York: Lea Brothers & Co. 1896.

Dr. Wharton's "Minor Surgery" has reached its third edition, and additions have been made to it to enable the student to do operative work on the cadaver. The work is divided into the following parts: Bandaging, Minor Surgery, Fracture, Dislocations, Operations, Amputations, Excisions and Resections. In this latter division are descriptions of various special operations.

The book is well written, covers the ground of a Minor Surgery, but is open to the criticism that it does not deal explicitly enough with the detail of technical work. As Minor Surgeries are compiled, it is a very good one.

Elementary Bandaging and Surgical Dressing. With Directions concerning the Immediate Treatment of Cases of Emergency. For the Use of Dressers and Nurses. By WALTER PYE, F.R.C.S., late surgeon to St. Mary's Hospital. Revised and in part rewritten by G. BELLINGHAM SMITH, F.R.C.S., Surgical Registrar, Guy's Hospital. Seventh edition. Philadelphia: W. B. Saunders. 1897.

This little work has reached its seventh edition, and has been revised by G. Bellingham Smith. It is essentially a re-issue of those portions of "Surgical Handicraft," by Pye, which deal with bandaging, the application of splints, and the treatment of emergencies. It is intended to be useful to surgical house-officers and nurses. It is divided into three sections; the first dealing with apparatus for restraint and support (bandages, splints, etc.); the second treating of the simpler ways of dressing wounds, burns and scalds; and the third on the treatment of accidents and emergencies.

It is essentially an English book, and in it are many of the conventional forms of splints which the modern surgeon has long since discarded for the more readily adaptable plaster of Paris. The section on the treatment of accidents and emergencies is excellent. As a piece of book-making, however, it is crude.

Practical Notes on Urinary Analysis. By WILLIAM B. CANFIELD, A.M., M.D., Lecturer on Clinical Medicine, University of Maryland, etc. Second and revised edition. Detroit: George S. Davis. 1896.

There are at least two or three excellent text-books of moderate size devoted to the analysis of urine; and this one seems to us to be an unnecessary addition to the literature of the subject. It contains nothing of importance that cannot be found elsewhere, and is too brief in its treatment of the subject to be of any great value for either student or practitioner.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, AUGUST 19, 1897.

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POISONS IN ETIOLOGY.

ONE of the most significant advances of the past few years has undoubtedly been the attention paid to the importance of various toxic causes in the production of disease. The work of Van Gieson of New York and of many foreign investigators has forced upon us the conviction that the etiological problems, which are the real problems of medicine, may be much more intelligently met by broadening our conception of the idea of the poisons, and studying with every possible means at the disposal of our laboratories the chemical questions which such a conception involves. Not only may many diseases of the nervous system, among them the all-important one of epilepsy, possibly be elucidated by such means, as our methods of investigation improve, but other conditions of the internal organs, as, for example, certain varieties of renal disease, may well find a possible if not an absolutely demonstrable cause, in the action, over long periods of time, of poisonous products elaborated within the body, as a result of some subtly faulty metabolism.

Unquestionably progress lies in this line of investigation; and each and every case, whatever organ or set of organs may be affected, whose etiology suggests a poisoning of any sort should be studied with greater care than ever before, in the hope that finally we may be enabled to make generalizations of value. It is self-evident, as civilization advances and new products are used more and more in the arts and in our homes, that new dangers must of necessity arise, and a constantly growing list of so-called extrinsic poisons be brought into our daily life. The history of wall-papers and the probable deleterious effect of even small quantities of water-gas may be cited as examples of the dangers which may be surrounding us, and which are dangers until their recognition permits us properly to defend ourselves.

There can be no doubt that there are many such malign influences of which we have as yet no adequate

knowledge. The curious and interesting effect of certain poisons on the optic nerve is an excellent example of the tendency of such agents to lead to more or less serious degenerative processes. Examples of this sort are familiar to every ophthalmologist and are not infrequently met with in the course of general practice; such, for instance, as the amblyopias following the excessive use of tobacco or alcohol.

A case of rather unusual character, in this general category, has been recently reported by Dr. Archibald G. Thomson, at a meeting of the Philadelphia County Medical Society. The patient was a sailor, thirty-two years old, with unimportant previous history, excepting that several times a year he was in the habit of indulging excessively in alcohol; his use of tobacco was moderate; his eyesight had always been good until the onset of the present illness. On this occasion being unable to obtain the customary whiskey, he partook of a large amount of ordinary commercial Jamaica ginger, amounting in all to about a quart and a half. On the following day the man's feelings were similar to those that follow an alcoholic debauch, but much intensified. A day or two later he noticed that his vision was failing, with some photophobia. Two days later blindness was complete. At the end of seven days vision gradually began to return and recovery was complete in about four weeks. Matters remained thus stationary for three weeks, when vision again began to fail, but more slowly. Examination showed the discs to be exceedingly pale with an almost entire absence of capillaries. The lower and outer quadrant was completely atrophied and greenish-white in color. There were also somewhat remarkable changes in the visual fields. One of the patient's friends, who had accompanied him on his debauch, had a similar disturbance of vision though in less degree. Further questioning brought out the interesting fact that in certain localities the custom of drinking Jamaica ginger in lieu of alcohol is not uncommon, and that the patient had heard of several other cases similar to his own.

The case presents, therefore, several very interesting features:

- (1) The uncommon nature of the agent producing the poisoning.
- (2) The suddenness of the attack of complete blindness.
- (3) The peculiar changes in the fields which correspond most probably with the pathologic condition that takes place in the nerve.

In reply to a question addressed to Professor Remington of the Philadelphia College of Pharmacy, he wrote as follows:

What is known as Jamaica ginger, or more properly, essence of Jamaica ginger, is made in a very simple manner, by percolating the ground ginger-root with alcohol or alcohol containing water. The cheap trash found in country stores is often made with a portion of capsicum, in this way saving expense. You can see that a very little capsicum would take the place in pungency of a large quantity of ginger. Of course sufficient ginger would have to be used to give a flavor to the decoction. Then, again, it is made hot with cayenne pepper; a weaker alcohol can be used, and this would cheapen the product very much.

Dr. Thomson gives an interesting and reasonable explanation of the curious series of phenomena above noted, regarding the disturbance as due to a profound poisoning resulting in an acute retro-bulbar neuritis. After the seven days of blindness, as the neuritis subsided and pressure was at least in part relieved, vision gradually returned. The second failure of vision was a secondary atrophy.

If this explanation be correct, it is evident that certain poisons, of which Jamaica ginger is an unusual example, may excite an acute inflammatory process. This is of the more interest, inasmuch as we have ample evidence to show that many toxic agents act by producing a primary parenchymatous degeneration.

We cannot too strongly urge upon the profession the desirability of making as exhaustive a study as lies in their power of all cases in which a toxic agent may be suspected, as causative of the symptoms observed. If this be conscientiously done we may look for a distinct advance in our knowledge of the manifold etiology of disease.

MEDICAL NOTES.

CHINESE WOMAN DOCTOR.—The Siang-Hu Hospital in Foo Chow, China, is in charge of a Chinese woman doctor—Dr. Hu King Eng, who received her medical education in the United States.

LORD WOLSELEY HAS CANCER.—The report comes from London that Lord Wolseley, Commander-in-Chief of the British Army, is suffering from cancer of the throat, due, it is said, to excessive smoking.

A PATENT-MEDICINE MAN FINED.—An English patent-medicine manufacturer was recently fined \$260 at the Liverpool Assizes for painting an advertisement of his pills on the Hull of Lord Nelson's old flag-ship, the *Foudroyant*.

A MONUMENT TO VELPEAU.—A monument has been erected at Brèches, in the Department of Indre et Loire, to the famous surgeon Velpeau, who was born there on May 18, 1795. He was the son of a village blacksmith.

THE FOULARD LIBRARY.—The library at the St. Louis Hospital, Paris, founded by Dr. Foulard, the distinguished dermatologist, who perished in the Charity Bazaar fire, is to be named after him, and a subscription has been opened to collect funds to erect a bust to his memory.

WOMEN AS APOTHECARIES.—At the forthcoming annual meeting of German Apothecaries, which is to be held in Strassburg towards the end of August, the question of throwing open the trade to women is to be debated. The proposal will be as follows: Women are to be allowed to become apothecaries provided they are properly qualified, and provided that in each case the applicant seems of sufficient bodily strength.

THE HARDSHIPS OF HOSPITAL INTERNES IN PARIS.—The internes of the Salpêtrière Hospital, Paris, discontented with their sleeping accommodation, have

forwarded to the Director of Public Assistance a glass bottle containing a collection of domestic insects more agreeable by their absence than their presence, which can never be overlooked. This historic bottle bears the following inscription—"A crop gathered in our dormitory, 6-7 July, 1897."

THE CHOLERA SEASON IN INDIA.—Although there is a certain amount of cholera and choleraic diarrhea in Bombay and Poona, and a somewhat increased prevalence of these diseases at Sholapoor, it appears that the summer in India generally has so far been a healthy one as regards epidemic disease. Cholera, which threatened to be severe in the central parts of the country in the spring, has died out, according to the *Pioneer Mail*, except in the Deccan, and the plague has practically now ceased as regards its epidemic form.

THE INTERNATIONAL MEDICAL CONGRESS.—Telegraphing on July 30th from Moscow, the correspondent of the *London Standard* states that according to the latest lists nearly 5,000 members are expected to assemble in Moscow in August for the Twelfth International Medical Congress. Half of that number are Russians; Germany is sending 800, Austria 600, France about 500, and other countries average about 100 members. The Grand Imperial Theatre has been placed at the disposal of the Congress for the general assemblies.

THE ORLEANS-TURIN DUEL.—In the first "assault," what would be called "round" in the Anglo-Saxon vernacular, Prince Henri was wounded in the breast, but the surgeons reported that this wound did not "penetrate beyond the subcutaneous cellular tissue"; in the third the Count of Turin received the same sort of injury on the wrist, in other words devoid of euphemism, a scratch; in the fifth round Prince Henri received a wound which did "penetrate the subcutaneous cellular tissue," and which, "if it had gone deeper," would have caused a solution of continuity in the intestine. Prince Henri was declared disabled. The count, having inflicted this wound, is said to have hurried forward greatly agitated, exclaiming: "I hope it is not serious."

Notwithstanding a careful disinfection of the swords before the duel, the wound of the prince is said not to be healing satisfactorily. The report in the French papers that the count wore a coat of mail which caused the prince's sword to be bent has been denied.

Mr. Steve Brodie, of the Bowery, New York, is reported to have sent, at a cost of seventeen dollars, the following telegram:

To His Royal Highness, Prince Henri of Orleans, care of Duc de Chartres, Rue Jean Goujon, Paris, France:

Will give you and Gen. Albertone \$50,000 apiece if you will fight your coming duel before the kinetoscope, giving me exclusive rights to use of films. Will give you \$10,000 apiece additional if you will make the duel last for at least ten rounds.

STEVE BRODIE.

The duellists are still exposed to the danger of excommunication by the Pope.

CARBOLIC ACID AS A POISON. — We have alluded in these columns to the dangers attending the popular use of carbolic acid as a surgical dressing, and the necessity of the general diffusion of a knowledge of its dangerous properties. In Great Britain at least this fact is being recognized, as shown in a communication addressed by Mr. Ernest Hart, Chairman of the Parliamentary Bills Committee to the Lord President of the Privy Council on July 1st, calling attention to the fact that the *Dublin Gazette* of June 18th contained an order from the Privy Council providing that, in accordance with a resolution passed by the Royal College of Physicians in Ireland, carbolic acid should be deemed poison in accordance with the provisions of the "Act to Regulate the Sale of Poisons in Ireland," and stating that the Parliamentary Bills Committee would be glad to learn whether they might anticipate a similar provision being shortly made in respect to England and Scotland. A reply has been received to this communication to the effect that a bill dealing with the subject is at present under the consideration of the government, and that pending its introduction in Parliament it is not proposed to include carbolic acid in the schedule to the Pharmacy Act, 1868.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, August 18, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 30, scarlet fever 23, measles 10, typhoid fever 41.

A RECOVERY FROM TETANUS UNDER ANTITOXIN TREATMENT. — A case of traumatic tetanus has recently recovered at the Boston City Hospital under treatment by antitoxin supplied by the Massachusetts State Board of Health.

A CENTENARIAN. — The one-hundredth anniversary of the birth of Mrs. Mary Curless Vickers was celebrated August 16th, in Oxford, Mass. Mrs. Vickers was born in Smithfield, R. I., and comes from Indian stock. Her father lived to the age of one hundred and one years. In Thompson, Conn., she married Samuel Vickers in 1814, and had eleven children.

NEW YORK.

DEATH OF DR. KROG. — Dr. Albert E. W. Krog, a well-known German practitioner, died suddenly of cardiac disease at his home in New York on August 10th, in the fifty-first year of his age. He was born in Germany, but studied medicine in this country, and was graduated from the Medical Department of the University of the City of New York in 1881.

THE DANGERS OF AMBULANCE SERVICE. — On August 13th there was a hurry call for an ambulance at the Harlem Hospital. A little girl had fallen from a second-story window and fractured her skull. Out started an ambulance in hot haste, carrying two physi-

cians; but it never got to the case. At the corner of Third Avenue and 125th Street it collided with a cable car, and was totally wrecked. One of the physicians, Dr. Rulson, of the visiting hospital staff, was hurled against an elevated railroad pillar, and received a bad contusion of the left side and arm, an abrasion of the right hand, and severe internal injuries. The other, Dr. Armstrong, the regular ambulance surgeon, got a dislocation at the hip-joint, and the driver was also badly stunned.

Miscellany.

BOSTON BOARD OF MUNICIPAL STATISTICS.

EDWARD M. HARTWELL, M.D.

DR. EDWARD M. HARTWELL has resigned the position of director of Physical Training in the Boston Public Schools in order to accept an appointment as Secretary of the Board of Municipal Statistics lately established.

Whilst in Europe last summer Dr. Hartwell, at the request of the Mayor, visited the principal municipal statistical offices and prepared a report which is now before us as Boston City Document 94, 1897. As the result of his investigations Dr. Hartwell concludes that:

Municipal statistics are more comprehensive, various and scientifically presented on the continent of Europe than is the case in Great Britain or the United States. The continental municipal statistical offices present certain characteristics, as a class, that are significant and noteworthy. (1) They are apparently independent and self-contained; (2) they are more closely connected with the executive and administrative departments of the city government than with any other; (3) they are organized as permanent scientific bureaus, under the responsible charge of highly trained specialists, who, by reason of their character, ability and standing, command the respect of their colleagues and of the public; (5) their jurisdiction is so well defined, and their work so systematized, that they accomplish a great amount of routine work and of independent research with a comparatively small staff of subordinate assistants and clerks; (5) their publications, being models in respect to comprehensiveness, conciseness and trustworthiness, are of more than local value, and are serviceable for the purposes of the comparative student of municipal life and development, be he sanitarian, politician, economist or sociologist.

The statistical offices of the leading German cities are so well organized that, through the co-operation of their directors, there is now published a "Statistical Year-Book of German Cities," which was established in 1891. This work contains a valuable series of comparative tables upon certain standard subjects of statistical inquiry, such as are contained in the statistical year-books whose rubrics I have enumerated; and from time to time special subjects of statistical interest are contained in this year-book.

It would be impossible, under present conditions, to publish a similar work for English cities or for American cities; yet both in the case of British and American cities, the public documents published by the various departments and bureaus of their respective governments contain a great deal of statistical matter. But statistical information concerning the various departments of city activity and housekeeping is now so scattered in the publications of our American municipalities that its value is materially diminished. It is manifestly in the interest of public policy that well-digested statistical tables, both of detailed

and summary nature, should be prepared by competent hands, and set forth in compact, convenient form for the information of city officials and the electorate.

The establishment by American cities of a statistical bureau, which would serve as a clearing-house for all their statistics, would conduce greatly to increasing intelligent interest on the part of the citizens at large in public affairs, and would also facilitate what is greatly needed,—the dissemination of accurate official statistical reports for the benefit of students of municipal and economic affairs. At present, persons who desire complete information concerning city finances, school affairs, vital statistics, etc., etc., for a period of years, are obliged to search in a great variety of documents for the data necessary to afford a comparative view of the development of municipal house-keeping.

It is especially noteworthy that the population statistics gathered and published by the municipal statistical offices on the continent are valuable and complete; much more so than is commonly the case with such statistics in this country. The fact that the census of cities like Berlin, Paris, Buda-pest, etc., are prepared by their respective municipal statistical offices under the direction of permanent and highly trained officials adds largely to their value. It is also noteworthy that statistics regarding movement of the population and the public health are much fuller, more detailed and valuable than those commonly published in this country. Not only are the vital statistics fuller, and more completely analyzed, but statistics regarding persons suffering from different forms of disease are more comprehensive than those usually found in the public documents which issue from American city offices. This is partly due to the more complete system of civil registration which obtains in all continental cities, but it appears to be also largely due to the fact that officials and the public are more interested in receiving complete and regular information concerning the ravages of death and the condition of the public health. The weekly, monthly and quarterly publications of most continental statistical offices present remarkably full and well-digested statements concerning morbidity as well as mortality statistics. The value of such statistics as a means to judging the condition of the environment of municipal population can hardly be overestimated. Reforms of far-reaching and permanent value have been instituted in several instances as a result of the mortality and morbidity statistics published by municipal statistical offices. The showing of the statistical bureau of Buda-pest, for instance, with regard to the amount of illness and death in low and ill-ventilated dwellings, has had a marked influence in causing reform and improvement in the building laws of that city. The studies of Director Böckh, of the Berlin Statistical Office, with regard to the comparative mortality of infants fed upon different articles of food are extremely interesting, and of great scientific value.

It is possible for a well-conducted municipal statistical office to render most valuable assistance to the heads of all departments of city affairs, as well as to enable the chief magistrates of cities to acquire ready and accurate information upon a great number of subjects of vital importance. A catalogue of the special independent studies, published separately from the regular publications of the statistical offices, which I have considered, would indicate the helpful character of such offices in acquiring and spreading information of a special character upon subjects which are usually left with us to private students.

In their aims, organization and achievements, the leading Municipal Statistical Offices on the continent of Europe betoken a more highly developed state of municipal life and organization than has yet been attained elsewhere. In the sphere of municipal administration such offices serve much the same purpose as does the "headquarters staff" in the administration of modern military affairs. That is to say, being organized as "intelligence departments," they furnish the executive department of the city government with such information as it requires for devising and conducting its plan of campaign against ignorance, disease, crime, pau-

perism and extravagance. Through their publications, such offices are also capable of rendering important aid to the electorate in arriving at intelligent conclusions as to the degree of fidelity and efficiency shown by its public servants in the discharge of their duties.

Experience has shown that city statistical offices, such as are described in the foregoing pages, constitute an important and effectual aid to the intelligent, practical and economical conduct of municipal business and housekeeping. The establishment by Boston and other great cities of the United States of similar offices could hardly fail to conduce to better government and a more enlightened public spirit, provided the teachings of the best European experience in this field were clearly apprehended and consistently applied in their organization and management.

PENETRATING WOUND OF THE HEART: RECOVERY.

RECOVERY from penetrating wounds of the heart is so rare, that the following case operated upon by Dr. Parrozzani at the Hospital of Santa Maria della Consolazione in Rome, and communicated to the *Lancet* of July 31st by Dr. G. Sauderson Brock, is of very unusual interest.

On the night of April 18th, a porter, age thirty-two years, of very robust constitution, received a stab from a dagger in the seventh left intercostal space in the mid-axillary line. Five hours afterwards he presented all the symptoms of excessive hemorrhage. There was evidently no time to be lost and he was operated on at once. An incision was made through skin and muscle commencing at about one and a quarter inches (three centimetres) from the margin of the sternum in the fourth intercostal space, along which it was carried for a distance of five and a half inches (fourteen centimetres). It was then continued at right angles to its former direction downwards along the mid-axillary line, including the dagger wound in its course, as far as the upper margin of the ninth rib. The pleura was next incised at the level of the fourth intercostal space and the fifth, sixth, seventh and eighth ribs, with the attached pleura, cut through in the vertical line. A triangular-shaped door or shutter, to which the costal cartilages acted as a hinge, was thus formed. The pleural cavity was found filled with blood, and the pericardium presented a wound one inch (two and a half centimetres) in length, from which at regular intervals issued a small jet of blood. The opening in the pericardium having been enlarged to nearly two and a half inches (six centimetres), the cavity was freed of the small quantity of blood it contained.

The blood had not accumulated in the pericardial sac in any very considerable quantity owing to the fact that the wound in the latter, being at its most dependent part near the apex of the heart, had allowed the blood to escape readily into the pleural cavity. This was a fortunate circumstance, since the usual cause of death in these cases — namely, the fatal pressure exercised upon the heart by the blood accumulating in the sac around it — was here absent. The apex of the heart presented a wound about three-quarters of an inch (two centimetres) in length, from which the blood spurted in small jets at every beat. The pulsations had become so extremely feeble that it seemed as if they were about to stop. Introducing the little finger into the wound, Dr. Parrozzani found

that it passed into the left ventricle obliquely, but quite freely from the apex towards the base. The inserted finger served the double purpose of checking the hemorrhage and of fixing the apex of the heart so that the wound could more easily be secured. A large curved needle armed with silk was now passed deeply through the whole thickness of the myocardium, but without touching the endocardium, the little finger being withdrawn from the wound and the thread rapidly knotted. The entrance of the needle into the myocardium caused the heart to throb vigorously, and the withdrawal of the finger was followed by a gush of blood completely flooding and obscuring the field of operation. The wound was, however, effectually closed by three more stitches, the blood-clots cleared out of both pericardial and pleural sacs, and the "shutter" in the chest-wall closed. The operation lasted an hour and a quarter. No chloroform was used, but twelve subcutaneous injections of ether, and five of camphorated oil, and a few of caffeine were administered. A saline solution (1,500 grammes) was introduced by hypodermoclysis, and thorough auto-infusion (by means of Esmarch's bandages) was practised. One hour after the operation the pulse became quite perceptible. The wound healed by first intention, and no complication in myocardium or pericardium arose during convalescence. The temperature rose to 102° F., but this was probably connected with a slough which formed in the right pectoral region where the saline solution was injected. On May 26th, thirty-eight days after the operation, the patient had nearly recovered from his profound anemia, and said he felt quite well.

According to Professor Tassi¹ (in whose clinic four of them occurred) eight cases of wound of the pericardium or of the heart and pericardium have been operated upon in Rome during the last six years; of these, four involved the pericardium alone and four the pericardium and one or other of the ventricles. Of the former three were successful; of the latter two survived for only a few hours, one died after eight days from anemia, while the fourth—that related above—has proved entirely successful. There appear to be only two other cases recorded of the kind, where operative interference was attempted.

Dr. Parrozzani has since operated in a similar case—that of a young woman who was stabbed through the heart by another woman. The mode of procedure adopted was the same, the injury being again in the left ventricle. The patient, however, died on the second day, and on post-mortem examination it was found that the inter-ventricular septum had also been penetrated.

"COCK-MATRONS."¹

SUBSEQUENT editions of dictionaries of the English language will have to find space for a new compound word, namely, "cock-matrons." Possibly some of our readers will be curious to know whence this term originated. We will enlighten them. The term heads an editorial article, which appeared last week in a contemporary published in the sole interests of nurses, called the *Nursing Record*. This journal, as

is generally known, is conducted by a lady, who may be assumed to know something about matrons, inasmuch as she was once matron herself to a large general hospital in London. The article in question altogether disapproves of men having anything to do with the appointment or selection of the nurses at hospitals. "It has," says the writer, "been proved over and over again that man is rarely a competent judge of the capacities of women for work. Smartness, good looks, a taking manner, or a pretty bonnet have often turned the scale in favor of a candidate for a post when the appointment is made by men." Upon these grounds, then, "cock-matrons" must be condemned as impracticable hermaphrodite officials, whose judgment would always be certain to be biased and at fault. But perhaps the best way of dealing with this subject is to discuss the objectionable species of "cock-matrons" from a morphological point of view. It is then that the matter becomes very interesting, as those having a taste for morphology will soon discover. Upon the whole, however, we prefer to leave to our readers the pastime of working out for themselves the various problems which it suggests.

RECOVERY FROM A GUNSHOT WOUND OF THE UTERUS.

NEUGEBAUER, of Warsaw, reports in the *Münchener Medizinische Wochenschrift* for May 11th, a case of recovery after a gunshot wound of the uterus, which is remarkable not only in itself but on account of the various complications which ensued. A Polish woman, age thirty-four, who was in the eighth month of her eighth pregnancy received in the abdomen a charge of small shot from a pistol carelessly fired by her husband.

She was taken, bleeding freely, over twenty miles in a cart to a hospital at Czenstochau, where Dr. Wrzesniowski found a round wound in the abdomen, three inches above the pubes and a little to the right of the middle line, with a piece of omentum hanging out of it. The temperature was 103° F., pulse 120, and labor pains had set in. The fetal heart could not be heard, and there was found evidence of incipient pneumonia.

On opening the abdomen, a lacerated wound of the uterus was found, two inches below the insertion of the right Fallopian tube. Blood mixed with lochia and gas issued from it. An elastic ligature was passed around the uterus, and the fetus delivered through a longitudinal incision. On removal of the placenta, four small shot escaped from the uterine cavity. A diamond-shaped piece of tissue, including the gunshot wound, was cut out of the uterus, which was sewed up as in the ordinary Cæsarean section. An iodoform-gauze drain being carried down to Douglas's fossa, the abdomen was closed.

The fetus had been shot dead. The progress of the case at first was far from encouraging, as pneumonia and icterus developed, while the abdominal and uterine wounds both suppurated and broke down, so that the uterine cavity, full of pus, could be seen.

On the eleventh day Dr. Wrzesniowski amputated the uterus, passing two pins through the cervix, and treating the stump extra-peritoneally. Two months after the accident the woman returned home, and eight months later was in excellent health.

¹ Medical Press and Circular.

¹ *Bullettino della Reale Accademia Medica di Roma*, anno 1896-7, fasc. I.

Correspondence.

AN INQUIRY.

GROVELAND, MASS., August 10, 1897.

MR. EDITOR:—I should be greatly indebted to any of your readers who would write to me concerning any experience they may have had in the use of goat's milk in the treatment of wasting disease.

I should also be very glad to receive at the same time professional opinion concerning goat-blood serum as to its antitoxic effect in the treatment of tuberculosis, diphtheria, etc.

In my opinion goat blood serum will be found a valuable agent in serum-therapy.

Very respectfully,
W. THORNTON PARKER, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 7, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,868,060	795	382	24.92	12.74	17.42	1.43	2.86	
Chicago . . .	1,619,226	492	283	26.40	8.40	40.20	1.40	3.20	
Philadelphia . .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . . .	1,160,000	482	124	26.25	9.87	20.16	.84	2.52	
St. Louis . . .	570,000	326	91	10.12	6.60	7.04	2.20	—	
Baltimore . . .	550,000	213	107	31.96	10.81	26.32	2.35	2.55	
Boston . . .	517,732	229	106	28.16	8.80	22.88	.88	.88	
Cincinnati . . .	405,000	110	—	13.65	8.19	8.19	3.64	1.82	
Cleveland . . .	350,000	139	77	30.96	1.44	29.52	.72	—	
Pittsburg . . .	285,000	96	56	23.92	5.20	21.84	—	1.04	
Washington . . .	277,000	94	46	23.32	11.66	11.66	1.06	1.06	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	105,000	38	7	18.41	7.89	5.26	13.15	—	
Worcester . . .	105,050	43	26	44.27	2.33	37.28	2.33	—	
Fall River . . .	95,919	54	36	35.15	5.55	31.45	3.70	—	
Lowell . . .	87,153	37	17	29.70	—	—	2.70	—	
Cambridge . . .	86,812	42	22	45.22	7.14	42.84	—	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
Lynn . . .	65,120	21	9	28.56	14.28	19.04	—	4.76	
New Bedford . .	62,416	40	27	47.50	7.50	45.00	—	2.50	
Lawrence . . .	55,510	24	15	58.24	8.32	54.08	—	—	
Springfield . . .	54,790	22	9	41.50	—	37.35	—	—	
Holyoke . . .	42,214	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	16	4	18.75	—	12.50	—	6.25	
Brockton . . .	35,853	6	4	50.00	16.66	50.00	—	—	
Malden . . .	32,894	7	4	42.84	—	42.84	—	—	
Chelsea . . .	32,716	12	6	33.33	—	33.33	—	—	
Haverhill . . .	31,466	14	7	28.56	28.56	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	12	6	41.65	8.33	33.32	—	8.33	
Fitchburg . . .	28,392	8	7	—	12.50	—	—	—	
Taunton . . .	27,812	14	7	35.70	14.28	35.70	—	—	
Quincy . . .	22,562	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	8	1	—	—	—	—	—	
Everett . . .	21,576	6	2	66.66	—	50.00	6.66	—	
Northampton . .	17,348	—	—	—	—	—	—	—	
Newburyport . . .	14,794	4	2	—	20.00	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,409; under five years of age 1,545; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, and fever) 976, consumption 309, acute lung diseases 144, diarrheal diseases 794, diphtheria and croup 66, typhoid fever 53, whooping-cough 25, cerebro-spinal meningitis 15, measles 10, scarlet fever 10, erysipelas 3.

From whooping-cough Washington 7, New York 6, Brooklyn 4, Chicago, St. Louis and Boston 2 each, Cleveland and Cambridge 1 each. From cerebro-spinal meningitis Boston 5, New York 4, Washington and Worcester 2 each, Providence and Lynn 1 each. From measles New York 6, Brooklyn 4. From scarlet fever New York 5, Brooklyn 2, Chicago, Baltimore and Pittsburg 1 each. From erysipelas New York 2, Baltimore 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,922,524, for the week ending July 31st, the death-rate was 22.9. Deaths reported 4,827;

diarrhea 994, measles 143, whooping-cough 87, diphtheria 54, scarlet fever 37, fever 21, small-pox (London) 1.

The death-rates ranged from 9.9 in Croydon to 32.6 in Liverpool; Birmingham 27.0, Bradford 15.8, Bristol 15.4, Gateshead 22.7, Hull 16.2, Leeds 19.6, Leicester 21.3, London 23.6, Manchester 25.7, Newcastle-on-Tyne 15.8, Nottingham 22.8, Portsmouth 28.0, Sheffield 32.0, Sunderland 19.8.

METEOROLOGICAL RECORD

For the week ending August 7th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...1	29.89	68	74	63	72	84	78	N.	E.	8	3	C. F.
M...2	30.02	68	73	63	84	89	86	N.W.	E.	8	4	C. C.
T...3	30.10	73	85	61	90	84	87	S.W.	S.W.	8	16	C. C.
W...4	30.08	76	84	67	77	91	84	S.W.	N.	12	4	C. C.
Th...5	30.11	65	70	60	96	52	74	N.E.	N.	12	1	C. C.
F...6	30.10	70	82	59	54	56	55	N.	N.W.	10	7	C. C.
S...7	30.15	73	83	63	54	67	60	N.W.	S.	7	7	C. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 7, 1897, TO AUGUST 13, 1897.

Leave of absence for one month to take effect about September 1, 1897, is hereby granted CAPTAIN WILLIAM H. ARTHUR, assistant surgeon, Fort Myer, Va.

BOOKS AND PAMPHLETS RECEIVED.

The Johns Hopkins Hospital Reports. Volume VI. Baltimore: The Johns Hopkins Press. 1897.

The Hemiplegic State and its Treatment. By Archibald Church, M.D., Professor of Neurology, Chicago Polytechnic, etc. Reprint. 1897.

The Antiseptic Treatment and the Limitation of Climatic Treatment of Pulmonary Tuberculosis. By E. Fletcher Ingals, M.D., Chicago. Reprint. 1897.

Transactions of the Association of American Physicians. Twelfth Session. Held at Washington, D.C., May 4, 5 and 6, 1897. Volume XII. Philadelphia: Printed for the Association. 1897.

Atrophic Rhinitis. By John Edwin Rhodes, A.M., M.D., Professor of Physical Diagnosis and Clinical Medicine, Northwestern University Woman's Medical School, etc. Reprint. 1897.

A Text-Book on Mental Diseases for the use of Students and Practitioners of Medicine. By Theodore H. Kellogg, A.M., M.D. With illustrations in the text. New York: William Wood & Co. 1897.

The American Text Book of Operative Dentistry. Edited by Edward S. Kirk, D.D.S., Professor of Clinical Dentistry in the University of Pennsylvania, Philadelphia, etc. Illustrated with 751 engravings. Philadelphia and New York: Lea Brothers & Co. 1897.

Twentieth Century Practice, An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume XI. Diseases of the Nervous System. New York: William Wood & Co. 1897.

The Relation of the Science of Medicine to Public School Education. By John Punton, M.D., Professor of Mental and Nervous Diseases, University Medical College, Neurologist to All Saints, Scarritt and German Hospitals, etc. Read before the Tri-State Medical Society, at St. Louis, Mo., April 8, 1896. Published by request of the Society.

Original Articles.

CHLOROFORM IN OBSTETRICS.¹

BY EDWARD P. DAVIS, A.M., M.D.,

Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, Clinical Professor of Obstetrics in the Jefferson Medical College, and Medical Director of the Jefferson Maternity, etc.

IN accepting your kind invitation to contribute a paper upon this topic, I do not do so as an advocate for the exclusive use of chloroform in obstetrics, but as one who employs chloroform and ether, believing that each anesthetic has advantages which fit it for different but equally important uses. The grounds upon which I base the belief that chloroform is a suitable drug for the obstetrician are found in the action of chloroform itself, in certain peculiarities of the pregnant patient, and in personal experience. The prolonged researches upon the action of chloroform have recently culminated in the work of the Hyderabad Commissions and in other investigations which this has called forth. Experimenters have been divided into two great groups, one holding that chloroform, when used to produce death, does so from cardiac failure; while others believe that this result follows paralysis of the respiratory centres. If, however, laboratory tracings by many independent observers be examined, one common feature is present, namely, a striking demonstration that fall of blood-pressure is produced by chloroform. This was shown by Bowditch and Minot, Coates, H. C. Wood, Gaskell and Shore, the Hyderabad Commissions, Wood and Hare, and Hare and Thornton. Leonard Hill's investigations, in his "Physiology and Pathology of the Cerebral Circulation," showed the abdominal vessels filled with blood under chloroform anesthesia, the heart acting, but the medulla anemic and respiration paralyzed. This condition is further proven by Hare's experiments in the laboratories of the Jefferson College, when he found that in an animal apparently dead, resuscitation was possible by compressing the abdominal viscera, performing artificial respiration, and forcing the blood from the dilated abdominal vessels to the heart and brain by inversion. So far as experiment goes, Hare's conclusion in a recent paper² seems proven, namely, that the cause of death from chloroform is usually vasomotor depression.

Clinically, those surgeons who have been accustomed to employ this agent have learned that in cases of apparent failure of respiration that inversion of the patient, with compression of the abdominal viscera, and artificial respiration have repeatedly saved life. It has been noticed that many fatalities from chloroform have arisen when the patient was in a sitting posture, or semi-recumbent, when the blood readily left the cranial centres. Hill shows that abdominal compression revives the patient by sending blood to the heart, while saline transfusion is useless because a large quantity of fluid can be injected before the vessels are sufficiently filled to restore the circulation. The action of belladonna as a vasomotor stimulant, and bandaging the limbs diminish the risk of chloroform by preventing overdistention of the blood-vessels. The value of the respiratory condition as a symptom lies in the fact that respiration depends upon a normal blood-supply to the medulla, and that so soon as the medulla begins to

be anemic through vasomotor paralysis, this condition is announced by irregular or failing breathing.

If we consider the condition of the pregnant patient who comes into labor, we find that during her pregnancy vascular tension is greater than normal. Many researches show that pregnancy does not predispose to anemia, but to an increase in the total mass of blood. Hypertrophy of the heart of an eccentric variety is held by the majority of investigators to be present. During active labor, the abdominal muscles, the diaphragm and the uterus are intermittently active, and this results in a strong and intermittent compression of the abdominal blood-vessels. Blood-pressure is much increased during the pains, while the activity of the respiratory centre is naturally enhanced. In his recent Presidential Address before the Edinburgh Obstetrical Society, Ballantyne³ finds in these phenomena a reason for the remarkable immunity which pregnant and parturient women display to the unfavorable effects of chloroform. We have exactly those conditions present best adapted to counteract vasomotor paralysis which laboratory research shows us may result from chloroform anesthesia. Ballantyne has been able to collect but eight deaths during labor in cases in which chloroform was administered. Of these but two furnished autopsies, in one of which general emphysema of the lungs was found, and in the other a fatty heart. As sudden death in labor may happen without anesthetic, he does not think that chloroform can be proven to have been the fatal agent in the remaining six cases.

The advantages which those who use chloroform find in this drug are its small bulk, its rapid and pleasant action, its easy administration, and the usual absence of nausea and headache after its employment. In view of its peculiar merits and dangers, I believe it to be the duty of the obstetrician to differentiate between chloroform and ether, employing each in appropriate cases. Chloroform finds successful employment in spontaneous labor in women whose sense of pain is exceedingly acute. With these patients the pressure of the advancing head causes reflex inhibition of the uterus and reflex spasm of the pelvic floor and vaginal outlet. In extreme cases, such a condition can be overcome by surgical anesthesia with ether, and the use of forceps, but in many cases this condition is well met by the administration of chloroform to partial anesthesia. Enough to wet an area upon a handkerchief or a napkin as large as a half-dollar, if inhaled at the height of the pain, will remove the inhibition and reflex suffering, leaving uterine contractions to assume their normal strength, and greatly sparing the energies of the patient.

In a series of observations upon the influence of chloroform on normal labor, Dönhoff⁴ has shown by the use of Schatz's tokodynamometer that while chloroform inhaled to complete anesthesia temporarily arrests labor-pains and thereby lengthens labor, that when but a small quantity is taken, uterine contractions are practically uninfluenced. Spiegelberg, in his Text-Book, regards the transient narcosis produced by the skilful use of chloroform in normal labor as without influence in lessening labor-pains, and useful in sparing suffering and promoting dilatation. Schroeder regarded the light narcosis produced by a small quantity of chloroform as of the greatest advantage in normal labors. In these cases, the patient often dozes between the pains in what very closely resembles normal sleep.

¹ Read by invitation before the Obstetrical Society of Boston, March 16, 1897.

² Therapeutic Gazette, February 15, 1897.

³ Scottish Medical and Surgical Journal, January, 1897.

⁴ Archiv für Gynäkologie, Band 42, Heft 2, 1892.

In normal labor when the head comes upon the pelvic floor and reflex stimulation of the uterus threatens precipitate expulsion of the head, the patient may be well controlled by anesthetizing her with chloroform, pushing the anesthetic to partial unconsciousness as the head emerges. The mother's mental condition is described by these patients as being one of partial consciousness when the voices of the nurse and doctor are heard, while sensation is for a moment abolished. The mother cannot recall the expulsion of the head, although she quickly rouses to the knowledge that her child is born. It is rare to witness greater relief to suffering than is afforded at just this stage of labor by such use of chloroform.

In transverse presentations, when the amniotic liquid has long since been drained away, and tetanus of the uterine muscle is present with threatened rupture, chloroform is most efficient. Its administration may be preceded by hypodermatic injection of atropine, and by brandy given by the mouth. It should then be carried to complete anesthesia, and the operator will find but little resistance from the uterine muscle in his efforts to turn the child. I recall a case in which the child had perished some hours before, and in which immediate version was imperative. A colleague attempted the operation while the patient was anesthetized by ether. Although the anesthesia was carried to a profound degree, the effort was entirely unsuccessful. I suggested the use of chloroform, and was asked to be responsible for its administration. Under its use, the version was readily done.

A similar condition of uterine tetanus is sometimes seen with retained placenta. In some cases, the placenta is fully or partly adherent; in others, hour-glass contraction of the uterus is present; while in others simple spasm of the uterine muscle is the complication at hand. With these patients, chloroform enables the operator to remove the placenta with the least possible resistance from the uterus. The anesthetic should be stopped as soon as the womb is empty, when uterine relaxation will not follow.

In eclampsia, chloroform plays a most useful part. It promptly controls convulsions, and furthers the dilatation of the os for rapid delivery. It is not claimed that cases of eclampsia may not be successfully treated under ether, but those who use chloroform in this condition greatly appreciate its rapid and efficient action. The majority of surgical opinion inclines to the view that chloroform is less irritating to the kidneys than is sulphuric ether.

A field in which chloroform plays an especially important part is that of examinations for diagnosis in deciding upon obstetric operations. Those who perform these operations readily appreciate the difficulty in selecting a given procedure in cases of contracted pelvis. Our inability to accurately measure the fetus *in utero* leaves an element of uncertainty, and obliges us to hesitate in relying upon pelvic measurements exclusively. To determine as clearly as possible whether labor can be induced successfully; whether the forceps will terminate the case to advantage; whether symphyseotomy is indicated, or whether abdominal incision is required, we must often fall back upon an effort to determine the proportionate size of fetus and pelvis. This is best accomplished by placing the patient in suitable posture, having her bladder and rectum emptied, and while she is partially anesthetized with chloroform, pressing the head of the fetus into

the pelvis while the examining hand within the vagina appreciates its descent, or failure to engage. Chloroform is here useful because it so readily overcomes the spasmodic contraction of the pelvic floor which a sudden examination often excites. It permits thorough palpation of the pelvis without discomfort to the patient. It is quite possible that bromide of ethyl or carbon dioxide will prove equally efficient, but in my experience chloroform for these cases leaves nothing to be desired.

The relaxing properties of chloroform have caused it to be feared by obstetricians, lest it provoke uterine relaxation and hemorrhage. That this danger is not fancy is unquestionably true, but to produce this untoward result chloroform must be pushed to profound anesthesia. It is questionable whether ether or any anesthetic carried to profound anesthesia does not favor post-partum hemorrhage. I can recall no case in which relaxation and hemorrhage could be distinctly traced to the continuous use of chloroform.

As an anesthetic for major obstetric operations, chloroform may be used to advantage in cases where bronchitis is a complication. I recall a successful Cæsarean section performed upon a patient recovering from grip and bronchitis, and under the influence of chloroform. There was no tendency to relaxation of the uterus or to bleeding. In patients, however, in whom bronchial complications are not present, ether is the anesthetic to be preferred for major operations. In labor complicated by pathological conditions of the heart, chloroform often relieves the patient's dyspnea in a remarkable manner. That it is superior to ether can scarcely be asserted in these cases, unless it be that in some it would provoke less bronchial irritation than would ether. As these patients frequently have subacute bronchitis with pulmonary engorgement, chloroform might be the better anesthetic in such cases.

Ether, however, is in my experience distinctly to be preferred in the use of forceps; here the obstetrician desires to further uterine contractions in every possible way. The delivery of the patient is often prolonged, and if chloroform is given to complete anesthesia, the uterus will often relax and the obstetrician will push the child's head away from the brim of the pelvis in his efforts to apply the forceps. This is especially true in cases where the high application of the forceps must be practised. For symphyseotomy, ether is preferred for the same reason, as these labors are generally terminated by the use of forceps. For embryotomy, ether is again preferable, except in cases where tetanus of the uterus threatens uterine rupture.

Another reason for preferring ether in the operations just mentioned is the fact that in most of these cases, namely, forceps extraction, symphyseotomy or embryotomy, lacerations of the cervix, pelvic floor, and perineum occur which demand immediate suture. This prolongs the anesthesia, and as the obstetrician's attention is demanded exclusively for his immediate work, he can much better employ ether with an assistant than attempt to maintain chloroform anesthesia. With the use of ether, these operations may be completed by suture of the genital tract with a minimum of risk to the patient.

The method of administering chloroform in labor requires care and watchful attention. The patient should be given an abundance of air with the anesthetic. In normal labor, the obstetrician may retain the chloroform-bottle in his possession, while the

nurse or helper holds the napkin or handkerchief above the patient's face. When it is desirable to give as little of any anesthetic as possible, chloroform may be diluted with cologne and the patient allowed to inhale this dilute mixture in small quantities with her pangs. The mental effect far outweighs the physical, but the result is often most satisfactory. My preference is for the Esmarch mask, a device which has been found to be most convenient and advantageous. From a half-drachm to a drachm of chloroform poured upon the mask is quite sufficient to control severe expulsive pains. Experiments teach us not to give chloroform unless the patient is lying down; to watch the breathing closely; and should this become in the least irregular, to instantly abandon the anesthetic; and should the patient not quickly recover consciousness, to practise compression of the abdomen and complete or partial inversion of the patient. I have never had occasion to do this, nor have I seen this necessity arise.

In the service of the Jefferson Maternity, chloroform is employed in the manner described by my chief clinical assistant and by the resident physicians, the anesthetic being commonly given by the chief nurse, the clinic nurse, or by the nurse on duty. The nurses are instructed in its use, and in the use of ether, by the chief clinical assistant. We have not yet had a bad result from its use, although it is my constant effort to impress upon the staff the fact that an anesthetic is a powerful and dangerous drug, to be invariably used with caution.

In the *Zeitschrift für Geburtshilfe*, Band 29, 1894, page 171, Strassmann contributes an interesting paper upon the use of chloroform in obstetrics and gynecology. He administered this anesthetic in over 20 patients who had valvular heart lesions, and operated upon them under this anesthetic. His observations agree with Bardeleben's⁶ in that neither observed the slightest disadvantage from the anesthetic. On the contrary, in obstetric cases Strassmann observed a most favorable influence from this drug. He prefers chloroform derived from chloral hydrate, as purest and best. He cautions against the exposure of chloroform to sunlight, as a partial decomposition results with the formation of irritating compounds. Binz⁶ has seen chloroform injured by frequent shaking, and believes that this may bring about an alteration in its composition. The atmosphere of the room where chloroform is given should be free from dampness, as the vapor tends to mix less readily with air, and is inhaled in a more concentrated condition. Strassmann, in common with Budin,⁷ B. et Coyne,⁸ Cullen,⁹ Dogiel,¹⁰ Storkowski,¹¹ Schiff,¹² Schlager,¹³ Vogel,¹⁴ Winslow,¹⁵ and White,¹⁶ lays great stress

upon the condition of the pupil as indicating safety or danger during the use of chloroform. These observations, however, have been supplemented by recent experiments already quoted, which lead us to watch the breathing of the patient rather than the condition of the pupil. The occurrence of vomiting was also formerly considered a symptom of considerable importance.

The return to consciousness of a patient who has inhaled chloroform is not furthered by disturbing the patient. Strassman very sensibly urges that such cases be left in absolute quiet so long as the respiration is deep and regular.

In the treatment of abortion, chloroform is especially useful in cases where spasmodic contraction of the uterus resists the effort of the obstetrician to thoroughly empty that organ. The paramount duty in these cases is to see that the uterus is clean and empty, and in securing this result chloroform is especially useful. Its relaxing effect upon the uterus enables the physician to explore the uterine cavity with comparative freedom. In my experience, it has proven especially serviceable in these cases.

When it is necessary to interfere with the pregnant uterus in the induction of labor, chloroform is useful in those patients who resist all manipulation so that the introduction of a bougie is a most difficult proceeding. It is undesirable with these patients to put them under complete anesthesia whenever a bougie or an elastic bag is placed within the cervix. In these chloroform again fulfills a useful purpose. In dilating the uterus in the pernicious nausea and vomiting of pregnancy, unusual difficulty is often experienced. In many of these women the cervix is in a pathological condition, being abnormally thick and resisting, and a state of extreme spasm being present and complicating any manipulation. Severe pain, accompanied by great depression, is often observed in these patients. When it is necessary to stretch the cervix or to empty the uterus, chloroform has been most useful in my experience.

The obstetrician is occasionally greatly embarrassed in the conduct of labor among the insane. Such women often manifest little sign of suffering, and give no information regarding the presence or progress of active uterine contractions. At the moment when the child is expelled, they are often exceedingly hard to manage, becoming maniacal, and frequently sustain injury from excessively strong uterine contractions. To control these patients, I have found chloroform of great advantage.

The effect of anesthetics administered to the mother upon the fetus is a subject of much interest. Usually the fetus does not seem to share the mother's anesthesia unless this has been prolonged and deep. So far as my observation goes, I have been able to detect no difference in the effect of ether and chloroform administered to the mother upon the fetus. It is difficult to estimate this, as in cases of prolonged delivery birth-pressure may produce asphyxia and partial coma which might be attributed to the anesthetic employed. Some of the most profound asphyxias which I have seen in the fetus have been in cases where the mother was delivered under the use of ether.

In conclusion, the following propositions may be advanced regarding this subject:

(1) The most recent experimental study indicates

⁶ Virchow-Hirsch's Jahresbericht, 1891.

⁷ Neiderlein und Gesellschaft für Natur und Heilkunde in Bonn, 1892.

⁸ De l'Etat de la Pupille pendant l'Anesthésie, etc., Progrès Méd., Paris, 1874.

⁹ Gaz. Méd. de Paris, 1875, 1874.

¹⁰ Loc. cit.

¹¹ Ueber die Wirkung des Chloroforms, u. s. w. auf die Bewegung der Iris, Arch. für Anat. u. Phys., 1866.

¹² Praktische Pupillenzeichen bei der Verwendung des Chloroforms zu chirurgischen Zwecken, Gaz. lek., Warszawa, 1876.

¹³ Nota sulla pupilla nella narcosi cloroformica, Imparc., Firenze, 1876.

¹⁴ Die Veränderungen der Pupille in der Chloroformnarkose, Centralbl. für Chirurg., 1877.

¹⁵ Beobachtungen über die Veränderungen der menschlichen Pupille während der Chloroformnarkose, Petersburger med. Wochenschrift, 1879.

¹⁶ Chloroform and the Pupil, Philadelphia Medical Times, 1876.

¹⁷ The Condition of the Pupil in Anesthesia, Sixtieth Annual Meeting, British Medical Journal, 1892, II, 936.

that the evil effects of chloroform result from vasomotor paralysis, causing the accumulation of blood in the abdominal viscera especially, and bringing about partial or complete cessation of function in the nervous centres from acute anemia.

(2) Pregnancy increases vasomotor tension, and thereby renders the pregnant woman less liable to the injurious effects of chloroform.

(3) In normal labor, the actual expulsion of the child may be safely rendered painless, dilatation of the birth-canal furthered, and laceration diminished, by light and transient narcosis from chloroform.

(4) In tetanus of the uterus, eclamptic convulsions, and maniacal labor, chloroform is to be preferred to ether, and is most useful.

(5) Profound narcosis from chloroform is seldom, if ever, necessary in obstetric practice, and like this condition under ether, is attended with risk.

THE SUPERIORITY OF CHLOROFORM AS AN ANESTHETIC IN MIDWIFERY PRACTICE.¹

BY A. WORCESTER, A.M., M.D., WALTHAM, MASS.

Not long ago, when returning the visit of a recent graduate from one of the best medical schools of this country who had the temerity to settle in this vicinity, I was asked if it is true that it will not do for a physician hereabouts to use chloroform in his midwifery practice. He had been warned by a previous caller that if he did use chloroform he would forfeit the support of the medical fraternity. Of course, it was understood that the forfeiture of professional support would be felt only in case of some awkward coincidence. But as accidents will sometimes happen, and as scapegoats are troublesome animals if not thoroughly understood, it is well worth while to examine this particular chloroform scapegoat.

Granted that in this part of the world there has been a peculiar susceptibility to the poisonous effects of chloroform such as to preclude its use hitherto in midwifery practice, what, then, are the geographical limitations of this unfortunate inheritance, and must it last forever?

Such questions, while of little or no interest to physicians whose opinions upon this subject have long since been crystallized, are nevertheless interesting to those still open to conviction. For instance, my young friend already quoted, who has been taught by a most distinguished obstetrician that he should use chloroform, and just how to use it, very naturally is anxious to know how far it is advisable to disregard this local idiosyncrasy. He is entitled to all the information that can be gleaned from the experience of his new-found brethren.

So far as my own small experience goes, I have already assured him that for the past ten years, at a distance of ten miles from ether's shrine, chloroform has proved itself infinitely preferable to ether in relieving women from the agony of child-bearing. Unfortunately for my present argument, I have not used pure chloroform so often as I have used a mixture² of it with ethyl bromide and alcohol. I have to thank Dr. Walter J. Otis, of Boston, for calling my attention to

this mixture, which I still think superior even to chloroform in the rapidity of its anesthetic action without sacrifice of consciousness. But this difference is not great, and there is some difficulty in obtaining and in keeping absolutely pure ethyl bromide. So it not seldom happens that I use plain chloroform in midwifery practice. But if by any mischance I have only ether at hand, I feel a sense of shame akin to guilt. For many a time, when my chloroform vial has been drained of its last drop, and I have tried to hypnotize the patient into being thankful that at last she can have lovely ether, have I witnessed her disappointment and disgust. Instead of the instantaneous relief that came from a few deep inhalations of the chloroform, the patient on changing to ether finds that she no longer has time or strength, after the earliest intimation of a coming pain, to inhale enough of the anesthetic to do her any good. As the stress of suffering is upon her she keeps gasping at the ether when she should be holding her breath and so giving to the abdominal muscles a fixed thorax to pull from. The usefulness of the labor pain is thus lessened. If she has been steadily inhaling ether during the pain, then by about the time it is over she will be more or less under its influence. Possibly she may sleep during the intervals, but she is more likely to thrash about begging for more ether. There is little use in assuring her she is not just then in pain; her answer is unanswerable, that she soon will be, and then it will be too late to get any good from the ether. If she is smart enough she will simulate a pain so as to scare the etherizer into putting it on before the real pain begins. "Give me more! give me more!! GIVE ME MORE!!!" prevails, and her pains are effectually relieved. Then the end is within plainer sight.

You all know the rest of the story, and can vouch for this synopsis of it: gradual cessation of labor pains; complete exhaustion; mother's pulse 120; fetal heart 160; paternal pulse fluttering; consultant sent for to hear the pitiful story; operative interference plainly demanded; because high forceps and version are equally dangerous, first one method is timidly tried and then the other; perineum torn to sphincter, but fortunately no further; complete relaxation of uterus and of everything else; alarming post-partum hemorrhage skilfully treated by manual extraction of the placenta and plugging the uterus with iodoform gauze; bruised fetus resuscitated after a half-hour of artificial respiration; tedious convalescence, but eventual recovery; all concerned more than ever convinced of the wonderful blessing of ether in midwifery; "What did our poor grandmothers and grandfathers do without it?"

If by good chance the laboring woman, in disgust that the ether does her no good, tosses the mockery from her and in her indignation pulls all the harder, then it must be admitted the ether has done no harm. Moreover, in midwifery cases where prolonged surgical anesthesia is required, ether of course has its proper place. But where only partial anesthesia is desirable, ether is a delusion and a snare. Once begun, either it is found to be useless, or if given in serviceable amount the labor is delayed if not absolutely stopped, and all the trouble of artificial labor thus inaugurated.

Small wonder is it that many physicians here in this ether district so dislike to employ the only anesthetic they know anything about, that they actually deliver

¹ Read at the meeting of the Obstetrical Society of Boston, March 16, 1897.

² Ethyl bromide, one part; chloroform, three parts; alcohol, four parts.

most of their patients without any anesthesia. Such physicians steel their hearts by making much of the increased safety so obtained. But were they themselves to suffer the pangs of child-bearing, it is doubtful if such beautiful fortitude would be displayed.

I must not, however, forget that my purpose in this paper is not to describe the use of ether in midwifery practice, but rather to call attention to the superior advantages of chloroform.

In the first place, then, it produces partial anesthesia much more quickly than ether, and with less loss of consciousness, and allows a correspondingly quick recovery from the anesthesia. Not only does chloroform itself act much more quickly, but it can be taken more quickly than ether, because of not irritating the respiratory apparatus, as ether is so liable to do. With chloroform there is none of the choking and coughing that so often retard ether anesthesia.

Let us for simplicity's sake consider the requirements of an ideal anesthetic during only the second stage of labor. In the first place we shall all agree that the anesthesia is desirable only during the height of the pain, that is, during the latter part of it, and is not wanted during the intervals. Moreover, after the pain begins, there is time only for a very few deep inhalations before it is necessary for the patient to apply all of her strength to her work. And, furthermore, the patient's intelligent co-operation is needed in securing the proper application of her voluntary muscular powers.

So closely do the properties of chloroform conform to these desiderata that it might seem as if the requirements of the case and the properties of this anesthetic were especially designed for each other. No such mutual fitness can be shown in favor of ether.

Now, with such a blessing at hand, is it fair to womankind to withhold it from them? Should the unsatisfactoriness of ether prevent the use of a really satisfactory anesthetic?

If there is any other excuse for not easing these pangs with a few whiffs of chloroform, that excuse is probably to be found in the local idiosyncrasy, to which reference has already been made. Whatever its cause, there undoubtedly is thought to be in this neighborhood a peculiar susceptibility to the supposed poison of this anesthetic. Had ether been discovered in Edinburgh and chloroform anesthesia given its first public demonstration in Boston, perhaps there would not be here such an acute form of chloroform-phobia. But, however that might be, is not this semi-centennial era of thanksgiving for anesthetics a very proper season for inquiring if it be possible, even in Boston, that chloroform now at this end of the century can be used in midwifery practice as safely and as advantageously as it is used everywhere else in the civilized world.

Let us admit that for prolonged surgical anesthesia ether is much less likely to cause the patient's death on the table; and let us waive the question, on the other hand, as to the after-effects of ether being more dangerous than those of chloroform; and let us leave out of consideration the great advantages of the use of chloroform at the beginning when ether is to be used later for maintaining the anesthesia; let us keep strictly to the question of partial anesthesia, repeatedly produced, for the relief of the second stage of labor sufferings. Will any one who has had experience with both dispute the immense superiority of chloro-

form? Or will any one maintain that there is any danger whatsoever in the proper use of it for this purpose?

In studying the origin, the extent and the probable duration of the local prejudice against chloroform, I must admit having wondered if dense ignorance as to its proper use deserves consideration as a potent factor. At any rate one need have no hesitancy in referring to this local ignorance, for, as is well known, it is not only generally admitted but is even considered a badge of distinction. Never to have given chloroform except to dogs whose deaths were desired is considered in this vicinity rather as a proof of virtuous conservatism than as a marked deficiency in professional attainment. It is pathetic to think of how many Boston blushes have been wasted at seeing chloroform used in every other part of the world by men who really seemed in other matters to know what they were about.

If it should seem that those poor medical graduates who are doomed to practise in New York or in other outside regions ought to be taught how to use chloroform, even if warned against using it hereabouts, the folly of so thinking is easily shown; for how can the proper methods of administering chloroform be taught where none is used?

The hope of persuading others to make a fair trial of chloroform in such cases, and the hope of drawing from our guests suggestions as to the best methods of administering it, overcome the hesitancy that I, who have had no instruction in the matter, very properly should have in describing my methods of giving chloroform to women in labor.

Before ever the labor begins it is often of no small advantage to be able to answer the prospective mother's anxious question if I surely will give her an anesthetic by assuring her that I always do. Again, when in the wearisome first stage of labor the certainty that when the hard bearing-down pains begin the anesthetic will be given cheers the patient on as no other possible assurance could. For often it is in the fear that the pains will grow much harder that the greatest torture lies. American women suffer fearfully in anticipation. When the second stage is fairly begun, and the pains are really strong, then I begin with the chloroform. The patient's nose and lips are well smeared with vaseline to protect the skin from possible chloroform blistering. Upon the centre of a handkerchief or some such piece of cloth five to ten drops of chloroform are dropped just before the pains begin. At first the patient herself is taught to hold the cloth over her nose and mouth while inhaling deeply; but as her labor progresses and she becomes well used to it, the cloth is better held by the assistant who measures out the chloroform.

In the relief from the intensity of suffering thus obtained the patient becomes more willing to exert all her strength as directed. She wastes no time in "holding back" her pains; she escapes nervous exhaustion. As the perineum dilates, and as the suffering becomes continuous the chloroform is kept on more of the time; but after every few inhalations the cloth is taken off for a like number of inhalations of fresh air. By pouring on a few drops of the chloroform at almost every such interval, the patient is kept sufficiently anesthetized to escape the agony and at the same time is not made unconscious. In this condition the perineum often can be kept on its natural

stretch long enough to allow the delivery without rupturing. Her uterine and other muscular contractions are not interfered with. The mother just knows when her baby is born, but she remembers no especial pain. She does not afterwards live in terror of ever again going through the same experience.

THE USE OF ETHER IN OBSTETRIC PRACTICE.¹

BY CHARLES M. GREEN, M.D., BOSTON.

IN opening this discussion of "The Comparative Value of Ether and Chloroform in Obstetric Practice," it is best that I should state at the outset that I have had no experience whatever in the use of chloroform. It seems evident, therefore, that I am ill fitted to discuss a subject with which I am only partially familiar. I have been asked, however, to present concisely the way in which I use ether in obstetric practice, leaving to those who believe chloroform to be the better anesthetic the task of proving their position. This I am willing to do; especially since the burden of proof, in this community certainly, rests on those who would use chloroform instead of ether to produce anesthesia.

In stating my method of using ether in routine obstetric practice, I cannot do better than to quote from a paper I had the honor to read before the Boston Society for Medical Improvement four years ago.²

THE QUESTION OF ANESTHETICS IN NORMAL LABOR.

"In approaching this subject it is well to bear in mind that parturition is a physiological process, and physiological processes ought not to require the assistance of anesthesia. While willing to admit that modern woman is not perhaps the physical equal of her prototype, I am not prepared to grant that she is so degenerate as some writers would have us believe. The changed conditions of modern civilization have certainly wrought some changes in womankind: her nervous organization is not perhaps in many instances so stable and unimpressionable. It is a question whether the modern, higher education of women does not make demands upon their nervous systems which render them less able to bear without anesthesia the shock and pain of maternity. Be this as it may, I am not yet prepared to range myself with those who regard the use of anesthetics a necessary accompaniment of labor. Not that I believe, by any means, that woman should bear the curse of Eve, and submit to the pain of labor as an hereditary punishment; but because I believe that, as a rule, a girl with a healthy mental and physical inheritance, who has been well brought up, who has been well managed during pregnancy, and who approaches her labor in good condition, does not *need* anesthesia. Having said this much I hasten to remark that I am always ready to administer anesthetics on any reasonable indication, and do, in fact, employ them in moderation in many normal cases, partly to gratify the imperious demand, in the face of no contraindication, and partly for other reasons which will be stated later.

"During the first stage of normal labor it is only exceptionally that I find anesthesia either necessary or demanded by the patient. If this stage is well man-

aged, if the patient is well fed, and her attention properly diverted, she generally passes through the stage with equanimity and composure. If the stage is protracted, if the soft parts are unduly rigid, if the patient is decidedly hyperesthetic, if, in short, the labor is no longer normal, the indications must be met with appropriate therapeutics. Chloral hydrate is the drug, *par excellence*, for needed anesthesia in this stage, administered in fifteen-grain doses, at half-hour intervals, until three doses have been given, if necessary; the effect is satisfactory, and not injurious, if the heart is not weak. I usually give the drug by rectum to avoid disturbing the stomach, which may be already affected with the physiological nausea often seen towards the end of the stage.

"When the cervix is approaching the full dilatation, if the pressure of the passing head on the cervical ganglia causes undue pain, I then resort to ether, administered during the contractions. The amount given is not enough to inhibit the action of the uterus, but still enough to obtund the sensibility of the nerves and greatly comfort the patient. I never allow a woman in labor to bear pain which can be called in any way pathological.

"When the head has passed the cervix and the os has receded, the pain is usually less severe. The patient becomes conscious of progress, she is encouraged and looks forward to the birth of her child. She is cheered to make full use of her pains and brings to bear the material assistance of her voluntary muscles. If within two hours she has not brought the presenting part to the outlet, I cease to regard the case as normal, and employ such interference and assistance as may seem advisable. Otherwise I encourage the patient to make full use of her pains without anesthesia, until the head bulges the perineum, when I begin the administration of ether. This I give moderately at first that I may not diminish the effectiveness of the uterine contractions; but as the head crowns I push the ether, and deliver the woman under full surgical anesthesia. I do this for two reasons: first, because this brief use of ether does no harm, does not paralyze the uterus nor interfere with its retraction; secondly, because with the patient under full anesthesia I am better able to control the expulsion of the head and avoid laceration of the perineum.

"To state once more and in other words my position in regard to the use of ether in labor, I would say that while I am ready to use the anesthetic in the way and manner above described, I believe that the prolonged use of ether, even when not pushed to surgical anesthesia, is liable to inhibit the uterus and retard the labor; further, to interfere with efficient retraction of the uterus and predispose to hemorrhage; again, to etherize the child, and perhaps, in conjunction with a prolonged labor, to result in a still-birth. In short, my way is to soothe the patient with ether, if need be, through the peculiarly painful period when the head is passing the os uteri; then to subject her to a short, sharp labor, not exceeding two hours, and giving surgical anesthesia when the head is born. If after two hours of good labor the child is not born, nor apparently soon to be born naturally, I interfere. I believe that under this management the patient avoids one of the possible causes of post-partum hemorrhage; that she makes a better convalescence; that there is less risk of fetal mortality."

As to the method of administering ether, — I have

¹ Read before the Obstetrical Society of Boston, March 16, 1897.

² Vide Boston Medical and Surgical Journal, May 11, 1893.

always employed a towel-cone, and I have used preferably Squibb's ether. When only partial anesthesia is desired, I generally allow the patient to hold the cone and I myself pour on the ether. For surgical or complete anesthesia, in normal cases and in those requiring short, minor operations, I etherize the patient and then give the cone to the charge of a trained nurse, being careful to watch the patient's color and respiration myself, while the nurse observes the pulse. In major operations, I always avail myself of a trained medical assistant, competent to take the responsibility of the anesthesia. Thus far I have never met with disaster from the use of ether, and have never been seriously concerned for my patient, in obstetric etherization.

Death ensues from chloroform anesthesia from five to ten times as often as from ether narcosis. In view of this fact, let us briefly examine the advantages claimed for chloroform as an anesthetic agent.

(1) Chloroform is non-inflammatory and non-explosive, is less bulky, and a smaller amount is necessary to produce anesthesia.

The inflammatory and explosive quality of ether warns us to be careful in its use: I have never seen an accident from the ignition of ether. The comparatively larger bulk of ether may be of consequence in military field surgery; but in civil practice this is of small moment.

(2) Chloroform produces anesthesia more quickly, more agreeably to the patient, and there is less struggling.

It is probably true that chloroform does produce anesthesia more quickly; but it is also true, I think, that a skilful etherizer will, although generally taking a longer time, anesthetize his patient without causing much discomfort or any struggling. In obstetric etherization, the patient is generally allowed to etherize herself, and she becomes unconscious peacefully and without a struggle.

(3) Recovery from chloroform anesthesia is more prompt, the after-effects are less marked and there is less vomiting.

These advantages are, as far as I know, indisputable; but if the patient has been properly prepared for ether, vomiting is not usually a matter of much consequence and often does not occur at all, if atropia has been given. In obstetric practice the post-partum anesthetic sleep affords the patient a grateful rest.

(4) Chloroform causes less salivation and less irritation of the respiratory tract.

This is probably true. More or less profuse bronchial and salivary secretions sometimes give to the etherizer considerable trouble; and it is undeniable that bronchitis has sometimes apparently been caused by prolonged etherization. In marked cases of pulmonary disease, I would, if possible, avoid using ether; indeed I have occasionally operated without anesthesia in such cases. But as far as my knowledge goes, the danger to the lung from ether is trifling compared with the danger to the heart from chloroform. Whatever risk there is to the lung in the use of ether warns us to be extremely careful in its use, and shorten its administration as much as possible.

(5) Chloroform has a less injurious effect on the kidney.

While I am unprepared to speak with knowledge of the effect on the kidney of ether, I understand that in supposedly healthy kidneys ether sometimes causes

albuminuria, and that blood and casts are occasionally found in the urine after etherization; but I also understand that these phenomena are transitory, and disappear in a few days. In cases of chronic renal disease, it is generally conceded, I believe, that ether may cause serious harm. If ether is used in such cases, it should certainly be used sparingly. Whether the risk to the kidneys from ether would warrant us in taking the risks of chloroform, I hope to hear demonstrated this evening.

NASAL OBSTRUCTION WITH REFERENCE TO AURAL DISEASE.¹

BY GEORGE A. LELAND, M.D., BOSTON.

To be attributed to obstructed or neglected nasal respiration are not only deformities of the lower part of the face and of the chest, diseases of the teeth, of the mouth and of the eye, but also many of those of the upper air-passages, including the naso-pharynx, and last but no means least of the ear. Of the affections of the latter organ of special sense in this category those most commonly met with are diseases of the middle ear of a catarrhal or inflammatory nature.

Since the discovery of adenoid vegetations in the naso-pharynx by the late Dr. Wilhelm Meyer, of Copenhagen, in 1868, these growths are probably most commonly considered the cause of nasal obstruction; but since the nose has been opened up to us by the discovery of the anesthetic and constricting properties of cocaine in 1886, it has been found that hypertrophies of the nasal mucous membranes, exostoses, enchondromata and deflections of the septum nasi, not to mention nasal polypi, are also large factors in nasal obstruction.

The principal function of the nose is respiratory, that is, the modification of the inspired air by warming, moistening and straining so that it shall not be irritating to the mucous membranes of the air-passages. That it may accomplish these purposes it is essential that the lumen of the nares shall be free and unobstructed. If this normal condition obtains, the air-currents are free and full and no undue air-pressure, positive or negative, exercises any evil influence. But if because of trauma or improper development (Roe²) one or both nares become more or less obstructed, a partial vacuum is produced behind the obstruction, which, acting like the dry cup, tends to produce a hyperemia which also, as it is more or less chronic, results in a thickening—a hypertrophy or hyperplasia according to its chronicity or the kind of tissue involved. For example, in the soft succulent tissues of early childhood, attempts at nasal respiration, during a cold which has occluded the nose, doubtless bring about a hyperplasia of the naso-pharyngeal tonsil; and this is a very probable factor in the etiology of adenoid vegetations. So also an anterior obstruction of one naris causes a negative pressure behind it and hence a deflection of the septum, as shown by Mayo Collier.

In later life the thickened mucous membrane of the naso-pharynx may be due to the persistence of this

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

² Transactions of the Eighteenth Annual Meeting of the American Laryngological Association, p. 207, *et seq.*

hyperemic condition through the habit of mouth-breathing then established, and seldom corrected; or may be brought about by the same *modus operandi* through partial or complete obstruction caused by hard or soft growths in the nose. This growth or thickening in the naso-pharynx interferes with the proper action of the ventilator of the middle ear, the Eustachian tube. The movements of swallowing, which are more or less constant throughout the twenty-four hours, by means of the actions of the levator and the tensor palati muscles, should so open and close the Eustachian tube that air may be allowed to enter the middle ear, and the secretions of the tube and the mucous cavities beyond may be pumped out, as it were. The tensor palati sends a small band of muscular tissue up into the soft anterior wall of the tube; its name, the dilator tubæ (Rüdinger), describes its function. The levator palati, attached to the posterior and inferior border of the Eustachian cartilage, when in contraction throws a fold of mucous membrane upward horizontally so as to partially close the mouth of the tube, at the same time stretching its floor; and then by its relaxation exercises a pumping action. That the sulcus behind the Eustachian cartilage (fossa of Rosenmüller) should be open and clear, and the mucous membrane around and especially below the Eustachian os should not be too thick, seem to be necessary to the proper results of the performance of these muscular movements.

The direction of the intra-nasal air-currents is also found to be important. It has been said that the floor of the nose is the continuation of the Eustachian tube outward, and that the air-currents should play directly backward upon the mouth of the tube. That this is not strictly true may be concluded from the observations of Braune and Classen, Goodale and others, which have shown that the air entering the nasal orifices which look downward and slightly outward passes upward, forming whirls and eddies having horizontal axes and so passing through all the meatuses and reaching all parts of the nose. But that this inferior meatus should be patent is nevertheless proved in practice, since it doubtless exercises much influence on the condition of the Eustachian tube, as well as on those catarrhal states of the nose itself characterized by the retention of viscid mucous secretions which are irritating to the surfaces with which they come in contact.

The subjective symptoms of these causes of nasal obstruction, more or less complete, are:

(1) A feeling of pressure in the ear, as if it were plugged. If the Eustachian tube can no longer admit air through it, because of its own collapse or because its mouth is occluded by growths or thickening, the air in the middle ear loses 21 per cent. of its volume by absorption of its oxygen. The atmospheric pressure here at the sea level being fifteen pounds to the square inch, there would be a pressure of more than four pounds upon the membrana tympani provided the vacuum behind it were complete. But it must be remembered that the membrana tympani is almost the only movable part of the walls of the tympanum and all the air spaces communicating with it, including the antrum and other pneumatic chambers of the mastoid process, which may contain a large amount of air. If the oxygen of all this air, therefore, cannot be replenished, it is evident that the pressure-feeling has sufficient reason for its existence. This sensation may also be due to abnormal contact of two surfaces in the

nose itself, where it is doubtless reflex, as is frequently shown by its cessation when this contact is abolished.

(2) Deafness due to fixation of the ossicles from simple pressure upon the membrana tympani. This is but an aggravation of the process just described, made more effective by continuance of the external pressure or increase of its force. In these cases in early stages, both the pressure-feeling and the deafness may be temporarily relieved by inflation, but it is evident that the relief must be only temporary unless the patency of the Eustachian tube is restored.

(3) Tinnitus aurium. This is a symptom of such varied kind and quality that it is difficult to speak of it with positiveness; but it is doubtless true that often the pulsating, throbbing, hammering tinnitus is due to one or more of the lesions under consideration, the most evident of which is a mass of adenoid vegetations or of hypertrophic membrane in the fossa of Rosenmüller. The cartilage of the tube seems to act as a telephone to communicate the sounds of the circulation in the dilated arterioles to the organ of hearing. When these lymphatic structures are hyperplastic, it is probably true that similar glands in the vicinity are also hyperplastic or at least hyperemic, so that those imbedded in the tissues of the side of the pharynx and in the anterior and inferior walls of the Eustachian tube also send the sound of their aggravated circulation upward through the dense cartilaginous walls to the ear. Moreover, when these glands are increased in size, especially by chronic thickening, the ascending pharyngeal artery which runs in the side wall of the Eustachian tube, and sometimes nearer than others, may be pressed upon so as to have the sound of its pulse wave also communicated to the ear. These three causes of pulsating tinnitus are without doubt frequently operative; and it sometimes seems equally sure that an engorged turbinate may produce reflexly the same symptom, but the writer is not yet quite ready to make this assertion.

The hissing tinnitus is more difficult to locate. It is usually considered to be a circulation sound, and is probably most frequently attributed to the capillary circulation in a collapsed Eustachian tube; of course we are not now speaking of the noise when due to disturbances of the internal ear, or to inflammatory conditions around the footplate of the stapes. That this tinnitus may be due to the presence of a spur in the nose or to its pressure on neighboring structures sometimes seems to be the case, though it is difficult to prove; but the removal of such a spur is justifiable for this reason and the immediate cessation of the tinnitus is not to be expected.

(4) Pain is rarely a symptom of the slow, insidious closure of the Eustachian tube from the causes now under consideration, but is frequently met with in cases where stoppage is brought about by congestions in the nose and naso-pharynx consequent on colds, irritation of dust or bacteria, or other noxious influences which induce increased functional activity of the intra-nasal structures. Thus in childhood when the naso-pharyngeal space is relatively small, as shown by Dwight, a very slight swelling of the adenoidal growth is sufficient to close more or less completely the inner end of the Eustachian tube and so abolish ventilation and drainage. This is especially true when these growths are situated at the side of the naso-pharynx, notably in the fossa of Rosenmüller itself. And it may be confidently asserted that earaches in childhood

almost always occur as a result of the presence of adenoid vegetations — the exceptions being those reflex earaches from dentition and from tonsillitis, and those caused by trauma, and the invasion of micro-organisms.

In the adult a hyperemia of the diffuse lymphatic thickening, sometimes called lateral pharyngitis, or of the hypertrophic mucous membrane itself, may cause pain in the same way; and the affection of the middle ear in this early stage is sometimes designated by the name otitis catarrhalis simplex. A persistence of these conditions brings us to the next symptom:

(5) Effusion, in which a pain of considerable severity, lasting but a few hours, is followed by marked deafness and feeling of fullness with sometimes peculiar subjective sounds as of crackling paper or the succussion of fluid on quickly moving the head in certain directions, which sounds may often be heard by the observer through the diagnostic tube. Patients suffering from these effusions, which may be mucous but are usually serous, so constantly have also obstructive lesions of the nose and marked thickening of the mucous membrane at the side of the naso-pharynx that these latter conditions must be looked upon as the mechanical causes of the middle-ear affection.

A further aggravation of this symptom, as the persistent increase of the effusion, together with the continuance of the stoppage of the Eustachian tube, must result in the sixth symptom, namely,

(6) Discharge from the external meatus because of rupture of the membrana tympani, the discharge being usually serous at the outset and not becoming purulent unless contaminated with pyogenic micro-organisms from without.

And it is here submitted that these three latter symptoms, namely, pain, effusion and discharge through rupture of the membrana tympani, may be due to purely mechanical causes at the outset, being simply the results of the dry cupping in the vacuum produced by abolition of ventilation; though as hyperemia gives place to effusion, this is succeeded by inflammation, soon aggravated by the invasion of pathogenic micro-organisms ever waiting to rush in hosts to a field favorable to their destructive work.

The limitations of this paper preclude an exhaustive elaboration of these subjective symptoms, and hence they are but briefly considered as dependent on nasal obstruction *per se*, and not upon those affections caused by invasion of bacteria through the Eustachian tube. And it will not be necessary to allude to objective symptoms, since they may be inferred from what has been said; but there is one at least which it may be of service to describe, and that is the appearance of the membrana tympani. In cases where the tube is collapsed or mechanically closed by naso-pharyngeal obstruction this membrane is sunken, of a dark dull bluish color, showing no translucency since there is no air behind it, the manubrium is foreshortened, the short process is prominent, and the light reflex is either abolished or present usually as a minute bright point. This appearance is so constant as to be pathognomonic of this naso-pharyngeal condition, and might be designated as the adenoid ear.

TREATMENT.

The only rational deduction from what has been stated above is that treatment must be directed to the restoration of the proper ventilation and drainage of

the middle ear, and that the functions of the Eustachian tube must be restored. To this end causes of the obstruction of its mouth must be removed. Adenoid vegetations should be taken away, not only from the vault and the middle of the naso-pharynx, but from the sides, and especially from the fossæ of Rosenmüller — a point often omitted in cases operated upon simply for correction of the evils of mouth-breathing; and many a case of persistent deafness aggravated by colds, and of persistent purulent discharge from the ear may be apparently cured, at least so far as these two symptoms are concerned, if proper attention is given to this region. So also in later life thickening of the mucous membrane of the naso-pharynx should be reduced by suitable applications.

But the causes of these naso-pharyngeal conditions should receive their proper attention. Proper nasal respiration should be established; the habit of mouth-breathing corrected; obstructions to nasal respiration removed, to wit, deflections of the septum straightened, spurs and tumors removed, and hypertrophies reduced. By this is not meant that every structural peculiarity demands surgical interference. It is not necessary that the nose should be made anatomically perfect. This is often impossible. But that it should be put into such a state that its physiological functions may be properly performed; and that its air-currents may maintain their proper directions, is evidently essential. And here it should be laid down as a law, that at the expense of the hard parts all this should be accomplished if possible, since the tissues of the soft parts are especially adapted to the preparation of the air for respiratory purposes; and it might even be called malpractice to destroy or remove a lower turbinate when the cartilage of the septum may be altered in any way to establish the proper calibre of the nostril.

If a decade ago the efficacy of this line of treatment had been extolled and so much claimed for it as has been implied, it would probably have been thought chimerical. But as nasal treatment has been so much advanced in the last ten years, it has come into the experience of every aurist that simple inflation of the ears by the Politzer air-douche or even by the catheter leaves much to be desired.

The almost universal statement in the books that chronic middle-ear catarrh of the so-called dry, adhesive variety can only be watched, or treated so as to retard the process and perhaps keep the hearing where it is, is erroneous because, as a matter of fact, it has been abundantly proved that with a normal Eustachian tube every use of the handkerchief is more or less efficacious for inflation of the middle ear, and that the opening of the tube by every swallow is sufficient to keep up the equilibrium between the intra-tympanic air and the external atmosphere. And this leads in conclusion to the thought that the intra-nasal obstruction and abnormal contacts resulting in uncomfortable sensations of the nose, prompt the patient to use the handkerchief to excess; and when this is done in futile forceful efforts to remove fixed obstructions, the increase of pressure upon the membrana tympani often causes so much stretching of that delicate membrane as to preclude good results from subsequent attempts at treatment to restore the hearing. Thus frequently a patient presents himself for deafness showing a drum-head stretched in its upper posterior segment and almost invariably, also, a nose which has more or less obstruction in one or both nostrils.

RUPTURES OF THE VISCERA AND THEIR CONNECTION WITH SURGICAL SHOCK.¹

BY EDWIN WELLES DWIGHT, M.D.,
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(Concluded from No. 8, p. 174.)

RUPTURE OF THE STOMACH AND INTESTINES.

POLLOCK, in Holmes's "System of Surgery," says: "Perforation of the intestine, that is, rupture of the intestinal coats, the result of external violence without external wound, is by far the most frequently formidable injury with which the surgeon has to contend in practice. From the commencement of the duodenum to the termination of the sigmoid flexure of the colon, in any part of the whole length of the intestine, rupture of the entire wall does constantly occur from sudden violence, or passive forces applied to the front or sides of the abdomen." That rupture of the intestine is more common than rupture of the stomach, which is rather rare and probably never occurs unless that organ is distended, is the opinion of all authors; but that it "constantly" occurs, is not borne out either by autopsy records or clinical experience. The intestine is most liable to rupture when it is distended, and the lesion usually takes place in the jejunum or ileum; the ruptures may be single or multiple; may be, as in Case 5, simply superficial ruptures of the peritoneum or, as in Case 19, multiple and of considerable size. Death may result within a few hours from hemorrhage or, as is more commonly the case, after a period of from two to seven days from peritonitis.

Rupture of the stomach is less common than that of the intestines, and is usually the result of severe external violence upon a distended viscus; it is apt to be followed by considerable hemorrhage, and death within a few hours, as in Case 6, in which the large amount of undigested food would show that the stomach was distended at the time of the accident.

In a few rare instances in which the opening in the stomach wall is small, life may be prolonged until death ensues from peritonitis. These cases must, however, be rare, as, while the possibility is spoken of by various authors, I have found none such reported.

RUPTURE OF THE BLADDER.

Rupture of the normal bladder, the result of external violence without injury to the overlying structures, is said by all writers to be rare; when it does occur it may rupture into the peritoneal cavity and death follow from peritonitis, or the urine may be discharged into the cellular tissue, when the same chain of symptoms follows as in the more common ruptures of the urethra.

These two varieties are well shown in Cases 13 and 14, in both of which the duration of life was the same, five days, but death resulted from very different causes.

RUPTURE OF THE LUNGS.

The position of the lungs in the chest does not appear to offer the protection which it might be expected to; on the contrary, the armor of the ribs is often the weapon that is turned against them. But aside from those cases in which the lungs are punctured by the broken ends of the ribs, there are many in which rupture of the lungs occurs without injury by the ribs; Cases 1 and 2 are of this sort, for while in both there

were broken ribs, in neither were they so placed as to have caused the injury to the lung which was found.

Ruptures may occur in the lungs without any external sign of violence. All parts of any lobe are liable to rupture, and the severity of the lesion varies as it does in other organs. Contusions of and hemorrhages into the lung substance are common, while simple lacerations of the pleura are found; in extreme cases one or more lobes may be completely macerated. The amount of hemorrhage varies from the slightest ecchymosis to several pints. In the cases which I have examined, serious ruptures of the lungs have in every case been associated with injury to other organs.

RUPTURE OF THE HEART.

While rupture of the normal heart from external violence without external wound is rather a rare condition, quite a large number of such cases have been reported.

In 50 cases taken from various sources, I find that the right ventricle was ruptured in 17, the right auricle in 9, the left ventricle in 8, and the left auricle in 16. In about one-half of these cases the pericardium was apparently not injured.

In Case 6 a superficial rupture of the pericardium was found, which might have been made by the end of a broken rib, as the fourth rib was broken on the left side at its costal margin.

In Case 1 there was a rupture of the pericardium, of the intra-ventricular septum, and a superficial one of the heart's muscle near the apex. In Case 2 the pericardium was intact, and contained seven ounces of blood; there were ruptures of the right auricle and the auricular septum. Both of these cases were associated with injuries of other organs.

CONCLUSIONS.

So that we find upon making some study of the literature of the subject and examining the cases which accompany this paper, that ruptures may occur in any or all of the viscera, that they may be of all grades of severity, and that they may result from external violence without external sign that would lead one to suspect the conditions which lay underneath.

All of these lesions of the various organs, in all their degrees of severity, have one result, which they present to a greater or less degree in common, that is, hemorrhage.

Death in all cases, except in those which, like the intestines, bladder and heart, may result fatally in a way peculiar to themselves, comes as a result of that hemorrhage.

We have every reason to believe that the amount of hemorrhage depends upon the organs involved, and the extent and location of the rupture.

The symptoms of hemorrhage are the symptoms of "shock," and a "shock" is a term which is applied to these symptoms when there is no known condition to account for them.

"Shock," to a greater or less extent, is present in nearly every case after those common accidents which, as has been shown, not infrequently result in ruptures of the viscera.

A very considerable number of cases die during the course of a year, in our large hospitals, in which no autopsies are made, with but those indefinite terms "shock" or "multiple injuries" to account for these deaths. In those cases in which an autopsy is done,

¹ Read before the Boston Society for Medical Improvement, March 22, 1897.

after such a clinical diagnosis, there is always some condition present to account for the death.

If it be true that in any considerable number of cases, this group of symptoms is due to hemorrhage from injury to one or more viscera, it is of the greatest importance that such patients should be treated for concealed hemorrhage and not for "shock." The administration of ether, with its stimulating effects and the amount of struggling and restlessness consequent upon it would be contraindicated.

It has been my habit to subordinate the treatment of the local condition (as in compound fractures and other injuries of that class) to that of the general condition, even if the degree of shock were very moderate; and I feel confident that by so doing little harm has been done, and lives have been saved.

The following series of cases is reported as illustrating the great variety in which ruptures may occur in the various organs, both as to their character and location; the accidents which result in such conditions; the cause of death; and the possibility of recovery.

Cases 1 to 15 inclusive have been put into my hands by Dr. F. W. Draper for this purpose, all of them having occurred in his practice as medical examiner; and Cases 20 and 21 have been recently under the charge of Dr. H. W. Cushing in his service at the Boston City Hospital. It is through the courtesy of these gentlemen that I am able to report so large a number. The others were chosen from a rather large number which are to be found in the records of the Boston City Hospital.

Rupture of the Liver,	Cases 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18.
Rupture of the Kidneys,	Cases 1, 9, 11, 12, 18, 20, 21.
Rupture of the Spleen,	Cases 6, 8, 12.
Rupture of the Pankreas,	Cases 10, 11, 21.
Rupture of the Bladder,	Cases 13, 14.
Rupture of the Stomach and Intestines,	Cases 5, 6, 15, 19.
Rupture of the Heart and Pericardium,	Cases 1, 2, 6.
Rupture of the Aorta,	Case 19.
Rupture of the Lungs,	Cases 1, 2, 4, 5, 6, 7, 8, 12, 17.
Rupture of the Pleura (ecchymoses),	Case 19.

CASE 1. Male, thirty-eight years. Fell from platform, twenty feet, striking on timbers, then in the mud. Lived twenty minutes.

Autopsy, Dr. Draper. Abrasions on left forehead, eyebrow, tip of nose, upper lip, chin, both sides of sternum between second and third ribs; and two teeth broken. Fractures: compound fracture of both bones of left leg, fracture of sternum, fracture of fifth and sixth ribs, not penetrating the pleura. Heart: rupture of pericardium from apex four inches upward; pericardium contained four ounces of fluid blood and considerable recent clot; old pericardial adhesions, with calcareous deposit; small superficial tear of heart's muscle at apex; rupture of inter-ventricular septum. Lungs: did not collapse; extravasation about pericardium; subpleural ecchymoses over both lungs, especially between the lobules. Peritoneal cavity contained about two ounces of red fluid. The right kidney lay in a subperitoneal effusion of blood; close upon the pelvis were four or five lacerations, one or two lines in depth and one-half inch long. Liver: at the inferior surface of the right lobe, near anterior edge, were a series of superficial abrasions; no effusion of blood into liver.

CASE 2. Male, forty years. Fell from wagon which was heavily loaded, and was run over. Lived about half an hour.

Autopsy, Dr. Draper. Large and muscular. Abrasions of both hands; on anterior aspect of left forearm, near the right margin of the sternum, just below nipple line, were three or four minute points of excoriations, size and shape of a grain of rye. No other sign of injury to the thorax. Heart contracted; pericardium contained seven

ounces of fluid and clotted blood; laceration of the right auricle on its anterior-superior wall, with irregular ragged edges that admitted the tips of three fingers; the auricular septum had a tear half an inch long in front of the fossa ovalis, and the thin septum closing the fossa was torn near its anterior edge. Lungs: small laceration in left lung, adjacent to that in the auricle; eight or ten small vesicles on each lung; containing air; universal injection and edema; bronchi contained pinkish froth like that in drowning but coarser; one subpleural ecchymosis at the inferior edge of right lung. Abdominal organs normal, except for injection of kidney and liver.

CASE 3. Male, adult. Assaulted. Lived thirty-three hours. Marked shock, pain in abdomen, persistent vomiting.

Autopsy, Dr. Draper. Ecchymoses of both eyelids. On opening abdomen a quantity of thick dark port-wine-colored fluid escaped, and at the same time a similar fluid escaped from the anus. Liver: gall-bladder distended with fluid "the color of molasses and the consistency of syrup"; inferior aspect of liver contused; in the substance of the liver were several clots each the size of a pullet's egg and of irregular shape; hepatic tissue pale, soft, and the vessels filled with dark fluid blood. There were 48 ounces of fluid blood in the abdominal cavity, the point of escape from the liver being "at the left border of the gall-bladder, near its insertion in the liver."

CASE 4. Male, sixty-six years. Accidental fall from third-story window. Lived nearly two hours.

Autopsy, Dr. Draper. Abrasions on left chest, between nipple and sternum; ecchymosis over right anterior-superior spine of ilium; blood oozing from right ear. Fractures: compound fractures of right clavicle, and dislocation of its outer end; all of the ribs on the right side broken, and muscles infiltrated with blood. Pleural cavities contained bloody serum, the left four ounces, and the right eight: posterior aspect of right lung torn, and tissue filled with a mass of clotted blood. Abdomen contained six ounces of bloody fluid. Kidneys showed beginning interstitial nephritis. Liver pale. At various points in the upper and under surfaces the liver substance is ruptured, the deepest being on the upper side of the right lobe where the depth reaches a quarter of an inch.

CASE 5. Female, thirty-two years. Lived two or three hours. Jumped out of third-story window.

Autopsy, Dr. Draper. Body small and spare, superficial bruises on left elbow and right shin; no other sign of injury. Fractures: left ulna, near elbow-joint; sternum; ribs (right 1, 2, 3, 4 and 12—left, 1, 2, 3, 4, and 7); spine; first lumbar and twelfth dorsal; spinal cord somewhat bruised and dura torn. Lungs showed a few small ecchymoses, most marked on posterior portions of right lung, which was firmly adherent to chest-wall. Ecchymoses on meso-colon and at the left of bladder. Peritoneum lacerated at four points in the large intestine, the largest being two inches by three-quarters of an inch in size. Liver lacerated superficially on upper anterior surface of left lobe; deeply and extensively on lower portions of the same lobe—of stellate form, the deepest being towards the transverse fissure where the tissue is much torn up. In the "pons," at its extreme lower part, were two minute points of hemorrhage, each the size of a millet-seed. The inferior petrosal sinus was plugged with a firm, dark-colored clot.

CASE 6. Male, twenty-four years. He was driving a hack which was struck by a train. Lived fifty minutes.

Autopsy, Dr. Draper. Small bruises over lower third of sternum; two scalp wounds. Fractures: left femur in lower third; left humerus just above elbow; fourth rib near costal margin; compound depressed fracture of skull, with fissure into the middle fossa, some fluid over-spreading right hemisphere, considerable laceration of brain tissue. Heart: superficial rupture of pericardium. Lungs: about four ounces of blood in right pleural cavity, and at the base of the lower lobe of left lung was a considerable ecchymosis. Abdominal cavity contained 80 ounces of mingled blood and undigested food, the latter

in large amount. Stomach nearly empty; in anterior wall, at juncture with esophagus, reaching upward two or three quarter-inches, was a rupture involving all of the coats; at two points near the pylorus were superficial rents in the peritoneum. Liver: several linear superficial ruptures in its upper surface, and in the lower a number of deep ones; one in portal fissure posterior, and another at anterior edge of left lobe were very deep and ragged. Spleen "crushed, appearing as a mangled mass of shapeless fragments." Other organs pale and anemic.

CASE 7. Male, thirty-six years. Was in a small boat, run down by a steamer and struck by the paddle-wheels when in the water. Great collapse.

Autopsy, Dr. Draper. Bruises on outer side of left arm, below left nipple, above ensiform cartilage, on outer side of right thigh, inner side of right knee, on left back below angle of scapula. Fractures of right ribs (4, 5, 6 and 7). Posterior mediastinum much ecchymosed. Lungs: much ecchymosis posteriorly. Abdominal cavity contained 32 ounces of fluid blood. Liver: fracture extending from a point near the broad ligament posteriorly 11 inches, to the right border near the right kidney, leaving only the capsule as a hinge inferiorly, numerous secondary rents at each side of the main fracture, very ragged.

CASE 8. Male, fifty years. Struck, knocked down and run over by a wagon. Lived one hour and a half.

Autopsy, Dr. Draper. Bruises: over the crest of the right ilium was a very faint ecchymosis, the size of a silver dollar; no other sign of bruising. Lungs normal except for slight bruising at the root of right lung; considerable bruising of tissues near aorta in the posterior mediastinum, also of upper surface of diaphragm. Fractures of ribs (right, 4, 5, 6 and 7; left, 3, 4, 5, 6 and 7). Abdominal cavity contained 58 ounces of liquid blood. Spleen extensively ruptured, the rents being entirely in the upper portion and well away from the hilus; anteriorly there were five irregular and unequal tears in the capsule, all connecting with the substance; posteriorly the organ was wholly disorganized, being torn and ragged in all directions, especially towards the right border; the upper end of the organ was completely torn away from the rest. Liver: superficial wound on central inferior face two inches long and one-quarter inch deep; at left border or base was a rupture of the liver tissue not opening the peritoneum; here the organ was much broken up, and a considerable amount of blood effused into the tissue.

CASE 9. Male, thirty years. Struck in side and knocked down by horse-car. Condition of great shock; pulse thready, skin pale. Lived twelve hours.

Autopsy, Dr. Draper. Very fat. Bruises: very faint one over right eye and nose; outside of right nipple, size of palm of hand; some indistinct bruising of left flank. Fractures: ribs 3, 4, 5 and 6 on right, and 9 and 10 cartilages on left. Abdominal cavity contained two quarts of liquid blood. Right kidney in mass of infiltrated and bruised connective tissue, some of which had penetrated beneath the capsule, and a little was found free in the pelvis of the organ. Liver: transverse fracture behind the anterior border extending through the entire thickness of the organ, measuring six inches on the upper surface, and four and a half on the lower; on the inferior surface were two superficial cracks parallel to the main rupture.

CASE 10. Male, twenty-one years. Struck by train; lived seven and one-half hours. State of collapse. "External lesions wholly inadequate to explain the cause of death."

Autopsy, Dr. Draper. Bruises: both fore-arms, hands and right shin; over middle of ninth rib on the left. Fractures of left ankle, and ninth rib on the left. Pleura punctured under fracture of ninth rib. Abdominal cavity contained 24 ounces of liquid port-wine-colored blood. Pancreas: many superficial ruptures and lacerations. Liver: two or three quite deep rents on upper surface of right lobe, and two shorter ones on upper surface of left; some quite deep rents in the substance, and several large ragged ones in the lower surface. The kidneys lay in a mass of blood, but were themselves normal excepting pale.

CASE 11. Male, thirty-seven years. Caught between two cars. Died at once.

Autopsy, Dr. Draper. Bruises: across abdomen just below ribs, faint, indistinct, and four inches broad; on back between scapulae; at outer end of left eyebrow. Fractures: two of sternum; ribs (right 2, 3, 4, 5 and 6; left 2, 3, 4, 5, 6, 7, 8, 9 and 10). Spleen sound, but lay in a mass of blood-infiltrated tissue. Pancreas crushed off at one inch from its tail. Liver: between right and left lobes lacerated to the depth of three inches, and less severely on its upper surface. Kidneys: the left lay in a mass of blood-infiltrated and bruised tissue, and presented two moderate ruptures near its pelvis.

CASE 12. Male, sixty-five years. Knocked down and dragged by a horse-car. Lived fifty minutes.

Autopsy, Dr. Draper. Bruises: one in left lumbar region, scarcely perceptible and V-shaped; scalp-wound behind left ear, four and one-half inches long; no other external lesions. Fractures of ribs (right 4, 5, 6, 7, 8, 9, 10 and 11, and left 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12). Pleural cavity contained about four ounces of blood. Lungs: in both lower lobes were a number of small punctures under the fractured ribs. Abdominal cavity contained about 80 ounces of blood. Spleen ruptured from outer surface inward nearly half-way through the organ; a smaller rent at extremity which was superficial. Kidneys: left had three ruptures, two of which were superficial, and one extending from outer surface through the organ into the pelvis.

CASE 13. Male, twenty-two years. Thrown down several times during a fight; "suddenly ceased resisting and seemed helpless." Lived nearly five days.

Autopsy, Dr. Draper. Unusually well developed and muscular man. Bruises: right eyelids, over outer end of right eyebrow, tip of chin, behind right ear, and over bridge of nose. In the right groin and left inguinal region the skin was bluish-green. Abdominal cavity contained seven ounces of thin sero-pus. Bladder lacerated as follows: externally two inches below and posterior to fundus, and to the left of the middle line, an elliptical opening two inches long and half an inch wide, leaving an opening three-sixteenths of an inch into the bladder; internally the mucous membrane was lacerated in crescentic form for a distance of two inches.

CASE 14. Female, twenty-eight years. Said to have fallen down stairs. Complained of retention and "great pain in her stomach"; was catheterized by a friend, who said that the urine was bloody. Retention and hematuria persisted; and she died five days later.

Autopsy, Dr. Draper. Bruises over both eyes, on back of right hand, outer side of right thigh, and crest of left ilium. Abdominal cavity; no peritonitis, cellular spaces between the bladder and navel were found dark grey, shreddy, and sloughing with a decidedly urinous odor. Urine had also dissected up the connective tissue behind the peritoneum as far as the posterior segment of the diaphragm, and downward into the deepest parts of the pelvis; this burrowing was entirely outside of the peritoneum. In the bladder wall posteriorly, to the right of the median line and extending in a vertical line from below upwards, was a rupture two inches long and involving the entire thickness of the vesical wall, crescentic and with its edges quite regular and symmetrical. The mucous membranes of the bladder presented disseminated patches, slightly elevated, red at the base and covered with a slaty gray membrane.

CASE 15. Female, forty years. History somewhat doubtful, but was probably assaulted and thrown down stairs by her husband. Lived about four days.

Autopsy, Dr. Draper. Bruises: there were 28 distinct bruises on face, arms, thighs, and in left iliac region—all on the anterior surface. Abdominal cavity contained 26 ounces of yellow, thin, fetid, purulent matter; general acute peritonitis; folds of intestine in hypogastric and pelvic regions were bruised in a circular direction around the gut. Intestines: two feet below the pylorus there was a rupture of the jejunum the size of a quarter-dollar, the edges reddened and everted, no induration at edges or

elsewhere. About the rupture on the inside of the gut the mucous membrane was reddened, and there was some ecchymoses in the mucous and muscular coats, in a transverse direction.

CASE 16. Male, forty years. Run over by heavy cart. Shock, followed by delirium tremens. Lived five days.

Autopsy, Dr. Gannett. Lacerated wound over elbow. Fractures of ribs (right, 2, 3, 4, 5, 6 and 7; left, 3, 4, 5 and 6). Lungs: recent fibrinous pleurisy, double pneumonia, effusion into both chests. Liver: three fractures, each about three centimetres long, and extending but a short distance (one millimetre) into liver substance. Abdominal cavity contained about 30 cubic centimetres of blood.

CASE 17. Male, fifty-three years. Delirious, and jumped from third-story window. Lived two days.

Autopsy, Dr. Gannett. Fractures: lower jaw, sternum and ribs (right, 3, 4, 5, 6, 7, 8 and 9; left, 4, 5, 6, 7 and 8); "old depressed fracture of skull," with small collection of blood between the dura and the pia over the occipital lobe. Pleura under the fractured ribs intact. Lungs: lower lobe of left atelectatic, and contained non-aërated fluid; lower lobe of right, dark-colored and quite firm from the presence of considerable effused blood. Abdominal cavity contained 50 cubic centimetres of fluid blood. Liver: transverse rent, about eight centimetres long, on right border of right lobe.

CASE 18. Male, forty years. Struck in the right side by a broken casting thrown from a centrifugal machine. Extreme shock. Lived about five hours.

Autopsy, Dr. Gannett. Ecchymosis along the lower border of ribs on the right side. Kidneys: rupture of right, with the extravasation of about 500 cubic centimetres of blood into the perinephritic connective tissue. Liver: multiple ruptures of right lobe, with the escape of 1,500 cubic centimetres of blood into the peritoneal cavity. Fractures of ribs (right, 5, 7, 8, 9 and 10).

CASE 19. Male, sixty-three years. Fell twenty feet, striking abdomen and chest on the rail of a vessel. Lived twenty hours.

Autopsy, Dr. Gannett. Visceral pleura showed numerous large ecchymoses. Peritoneal cavity contained 200 grammes of "pea-soup-like material." Intestine: rupture of jejunum large enough to admit the little finger; a foot lower down in ileum was a rent half-way across the bowel; still lower, another the size of a lead-pencil. Aorta: transverse rupture five centimetres long, with retro-peritoneal hemorrhage.

CASE 20. Male, sixty years. Caught under elevator. Extreme collapse. Lived eighteen hours. Catheterized three times, and no blood found either in gross or under the microscope.

Autopsy, Dr. Gannett. Fractures of ribs (right, 7, 8, 9, 10 and 11; left, 6, 7, 8, 9 and 10). Separation of eighth dorsal vertebra from its cartilage. Peritoneal cavity and retro-peritoneal tissue contained a large amount of blood. Kidneys: right at its anterior and upper extremity was extensively lacerated.

CASE 21. Male, twenty-three years. One week before entrance to the hospital fell from an empty wagon, the rear wheel passing over his loin and back.

On entrance the heart and lungs were normal except for a small area near the base of the left lung where there were a few "dry crackles." This was at the upper end of an area of dulness which extended from the pelvis up to about the seventh rib. Over this area of dulness there was some resistance and tenderness. General condition poor.

About one month after entrance an incision was made in the right lumbar region, and a large amount of fluid and clotted blood with a slight urinous odor was found in the tissues about the kidney, which was torn on its upper and inner surface. The urine before the operation contained a few blood-globules, which are still present at times but not constantly. This patient has gradually improved, but is still in the hospital, fifteen weeks after the injury, and ten after the operation.

CASE 22. Male, thirty-four years. One month before entrance to the hospital was struck in the epigastrium by a piece of wood thrown from a circular saw. During this month he was in bed most of the time on account of more or less persistent vomiting; the first vomitus was said to be bloody, after that it was not.

Upon entrance to the hospital a mass was felt midway between the ensiform cartilage and the umbilicus.

When operated upon, one week after entrance, this was found to be a cyst connected with the pancreas; "oozing from the walls of the cavity prevented any tear or lesion being actually seen."

Improvement was rather slow; and he left the hospital in good condition, but with a sinus still open and discharging a clear fluid.

Reports of Societies.

OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, Tuesday, March 16, 1897, the first Vice-President, DR. FRANCIS B. HARRINGTON, in the chair.

DR. CHARLES M. GREEN read a paper entitled

THE USE OF ETHER IN OBSTETRIC PRACTICE.¹

DR. A. WORCESTER read a paper entitled

THE SUPERIORITY OF CHLOROFORM AS AN ANESTHETIC IN MIDWIFERY PRACTICE.²

DR. E. P. DAVIS, of Philadelphia, read a paper entitled

CHLOROFORM IN OBSTETRICS.³

DR. NORTHRUP, of New York: I was deceived as to the subject for discussion. I had not thought it was the question of chloroform or ether in obstetrics, but chloroform for general narcosis or for operations in general; and with that in view I began to communicate with some of my hospital surgical friends to find out, but at a late moment I learned that the field was narrowed to obstetrics. From New York I should say there was no ground for discussion as to which you should use, chloroform or ether. I do not know that I ever heard of anybody using ether except in prolonged surgical operations where the patient was to be put under deep narcosis. When I was a student from '76 to '78 we were taught that the pregnant woman and parturient woman was an entirely safe subject for the administration of chloroform; we were taught it was perfectly safe to administer chloroform to children; and never until this moment has it occurred to me to doubt that, and I have seen a little of the administration of chloroform both to parturient women and to children. It was always emphasized that we should use the Esmarch shield, that we should always use precaution, watching both the respiration and the pulse, but that we should not use it has not entered my mind until to-night. At the Foundling Hospital, where I have spent a good deal of my life, we have a Maternity Hospital, and we have for our interne staff men who have served in the Sloane Maternity, the Seventeenth Street Maternity, etc., so that there have been brought to the house all the different methods represented in these maternity services, and I

¹ See page 198 of the Journal.

² See page 196 of the Journal.

³ See page 193 of the Journal.

have had an opportunity to observe the practice by intelligent men from those places; and in every one of these institutions they use chloroform regularly at all births. Speaking from observation and experience, I think the Sloane Maternity conducts the service in the most exemplary manner of any. The men who come to us trained from the Sloane I think have been our best men. At the Sloane Maternity they have had 6,000 births. At each of those births as a routine they have given chloroform when the head was on the perineum. They claim the best results in saving perineum, and I am convinced from what has been brought to me from men on the staff that they do not claim too much. In 6,000 cases they have probably given chloroform in every case with a few rare exceptions and those exceptions are, as I have stated, where they have been obliged to put the woman to the surgical relaxation, such as for version or prolonged high forceps. The other exceptions in which they give ether are in alcoholics who are brought in in parturition. In all valvular lesions of the heart, in alcoholics I think they make a distinction in favor of ether. The rule is chloroform; the exceptions are rare. They have about 600 births a year, and a man who had been there some time said he had not seen ether used at all; he was one of the assistants. At the Nursery and Child's Hospital a man who had been there thirteen months answered me over the telephone that they have about 170 to 180 births a year, and that practically no ether had been used in the thirteen months he had served there, that chloroform is given regularly in every case while the head is on the perineum. At the service of the New York Infant Asylum they have a birth a day. They have used with rare exceptions chloroform. Practically the same story is true of them all. I think I may say in taking all these institutions together, that they habitually use chloroform while the head is on the perineum, and in only rare exceptions is ether used, its use being limited to cases in which valvular lesions of the heart are present, to alcoholics and in case of prolonged operations.

I might go one step further as regards the use of chloroform in New York. In the Presbyterian Hospital I have the impression that in about one-third of the cases the question arises which shall be used, chloroform or ether. Chloroform is given in almost all abdominal operations, there being no positive contraindications. I remember Dr. Langer in a case of appendicitis saying he had no hesitancy in using chloroform. He uses chloroform, I think, equally with ether. Dr. Gerster said to me: "I think I use them about equally. In some very severe, prolonged operations, or where there is a cardiac complication, or in alcoholics, and for other reasons I give ether." I notice another feature in the surgeons at the Presbyterian Hospital. They frequently begin with chloroform, and if for any reason they think the patient would do better, they turn from chloroform to ether. They frequently begin the case expecting to do that, but in abdominal operations where there is no contraindication, they prefer chloroform. I do not think they have had anything to frighten them away from the practice. I think Dr. Lewis A. Sayre has boasted that he has not used anything but chloroform in his practice, at least with exceptions. It was a matter of interest and surprise to me that the matter stands as it does in Boston. Of course, locality prejudices do grow and grow strong; but I should say from my observa-

tions that in New York they use chloroform quite half as often as they do ether for short operations. I am interested in the discussion; it suggests a new experience in life.

Dr. WALLACE CLARK, of Utica, N. Y. This question has been very thoroughly put from the chloroform side. As to the question of chloroform and ether at the Lying-In Hospital, we have always used chloroform. I have never seen ether used there, and I think 90 per cent. of the operations in the Montreal General Hospital in my time were done under chloroform. I never during my life there administered ether. All operations, major or minor, were done under chloroform. Brought up in that way, I had no fear of chloroform. I see the feeling here is strongly against chloroform. That is a matter of local education. We were sure we had good chloroform to begin with, and that it was administered in small quantities, a small percentage of chloroform and a large percentage of air. Our mode of administering was to take a towel, make a cone with an opening at the top. Fifteen to thirty minims of chloroform were thrown on the inside and placed over the patient's face, at first a few inches from it, and gradually approximated. If you had a stronger percentage, the patient might object; but if it was held from the mouth a few moments, we had no difficulty with our patients. As I have seen ether administered, I have seen a good deal of struggling at first.

One of the prejudices towards chloroform in this country would be reasonably explained by an operation I once witnessed. I was asked to assist a surgeon at an operation. He determined to use chloroform, thinking there would be less vomiting. A friend of his who had been in the medical service during the war, — I don't think he had had any experience with chloroform, — prepared to administer the chloroform. He took the ether cone, put a sponge in it and threw in I should say two or three drachms of chloroform, clapped it over the patient's face and it was only a few seconds before he had spasm of the glottis, the man was choking, stopped breathing and here was a dangerous exhibition of chloroform. With an expression of contempt the man threw the cone from him. I offered to administer the chloroform if he would allow me, but they returned to ether.

In the obstetric use of chloroform, in doses of fifteen to thirty minims, it produces no disturbance. You ask the patient to breathe two or three breaths rapidly, and the relief comes quickly. The use of chloroform in the first stage is almost unnecessary. In the hyperesthetic patient it is desirable, and perhaps more desirable, to use chloral by rectal enema. If you commence with chloroform in the first stage, it has a cumulative action; and in one-half to three-fourths of an hour you have the patient beyond the point where she retains her senses and assists in her labor. If commenced in the second stage, the action of chloroform in my hands has always been very satisfactory. I have never seen any trouble from chloroform administered surgically or obstetrically except in this one case; therefore, I do not feel that I have much to fear in the use of chloroform. In the use of chloroform in the operation of turning or using forceps I have never found it necessary to put them under complete narcosis. They hardly know anything about their delivery, even in the primary stage of chloroform. I myself have taken chloroform very often. If I have

a tooth to be extracted I sit down, throw myself back, take a towel sprinkled with chloroform, inhale it myself and instruct the dentist when to pull. You retain your senses very much better under the influence of it. But this question has been thoroughly discussed to-night, and the gentlemen who read the papers defended chloroform very satisfactorily and said all that need be said.

DR. J. G. BLAKE: I should be sorry if any gentleman carried away with him the fanciful picture the second reader gave us of the effects of ether. That is not the experience of most of us. If it was we should undoubtedly have sought for a more satisfactory anesthetic. We have used it in obstetrics here very extensively, and as far as I know with entire satisfaction. Of course, we have had but little experience with chloroform; but we have used ether, and we have not had very many of the symptoms set forth as the result of it. I want to enter a very decided protest against that description being accepted as the true one. I have not the least objection to anybody believing in chloroform, but I should like to ask these gentlemen if their use of it followed from an unsatisfactory experience with ether. We have been brought up on ether; at the same time I don't think we are prejudiced unduly against chloroform. In general surgery we have rested content with this remedy, which is safe as far as we know. We have been free from deaths in this community from the administration of ether in the different hospitals and in private practice. Particularly in obstetrics we have not seen any reason why we should discard an agent which perhaps is not as convenient in other ways as chloroform, but which has, to our minds and in our experience, the added element of safety. That is one of the reasons why we adhere to ether and do not feel justified in discarding it. It gives our patients all the relief that is called for from the administration of any anesthetic and at the same time imperils neither mother nor child. This is my feeling. I have not had a very extensive experience except in hospitals. When in the Massachusetts General Hospital thirty-seven years ago, I etherized a great many people. For the last thirty-two years at the City Hospital I have watched its use closely. In my own ward I have not the slightest trouble in bringing about primary anesthesia in forty to sixty seconds with ether. It depends a good deal upon the manner of giving it. It is not by drowning the patient, pouring it into the eyes and trachea, but by creating ether vapor and allowing the patient to breathe it from a large cone. When this is done and the patient's fears allayed, I have yet to see the case I cannot etherize pleasantly and successfully in a very short time.

DR. EDWARD REYNOLDS: I am extremely sorry that in a Society which has been for a number of years quite as much devoted to surgical as to obstetrical work this discussion should have been limited to purely obstetrical anesthesia. I am very sorry also that a large part of the discussion has been what seemed to me *ex parte* upon one side or the other. I myself am thoroughly satisfied with the use of ether in obstetrical work, and I fail to see the particular advantages of chloroform for the great majority of obstetrical cases. The arguments used for it fail to appeal to me. We can concede, I think, its safety. Ether unquestionably is dangerous to some few cases. I remember well one hospital patient upon whom I did a difficult craniotomy,

in the days when we did craniotomies, who died (to the best of my judgment) of ether. She was a short thick-set Jewess with chronic bronchitis. She died in three days with her lungs full, I think as a result of ether. I should not etherize such a patient again. I made up my mind then to the point that a patient with chronic bronchitis ought not to be etherized. Chloroform is less irritating to the bronchi.

As regards the influence of ether and chloroform upon the kidneys it seems to me as I follow the literature that the trend of opinion is not very pronounced as yet.

But the objections which have been made to the use of ether in labor, as I understand them, are, first, that it is unpleasant to the patient. That is not my experience. I use ether at one stage or another of practically every case of labor, and I have almost uniformly found that if properly given it is hardly disagreeable to the patient. I could count on the fingers of my two hands the number of times I have seen a patient object to taking ether in labor. They almost always object to its use for surgical purposes, but when it is given in labor at the beginning of each pain and the patient is allowed to take it as she wants to, she does not object, at least in my experience. I think that where it is carefully given in labor it rarely is followed by nausea of an amount to make any trouble or to be of any importance.

It is urged against ether in labor that it is too slow to control individual pains, and that if it is given in the interval it frequently annuls the pains altogether, and thus reduces us to the use of forceps. These difficulties are to a slight degree real, I think. I believe that the use of ether does sometimes lead us to use forceps, when if the woman had been allowed to struggle along with her pain we should not have had to use them. I, for one, am glad to have an opportunity of asserting that I believe that the greatest part of the strain upon women in labor is the pain of labor, that more women are injured in health by enduring the pain of labor to an undue extent than by almost any other cause. It always amuses me to hear men talk with bated breath of the possibility of coming to forceps. I think there is a good deal about this that is ridiculous. I do not hesitate to say that I use forceps, and propose to use forceps, freely; I use them in a large proportion of cases of labor; and I do not believe that they do harm when in the hands of any man who has obtained skill in their use and who is experienced in the conduct of labor. I believe I tear no more patients with forceps than without. I am quite disposed to believe, on the other hand, that in the obstetric operations which demand complete relaxation of the uterine muscle, chloroform should be the better drug. We all know that ether does not completely annul the action of the uterus. Any man who has seen many cases will, I think, have observed his not infrequent failure to completely control the contractions of the uterus by ether, even in cases in which the patient has gone off into extremely deep anesthesia immediately after the delivery of the child, that is, with the removal of the antidote to ether, pain. For some of these cases chloroform may be preferable for those who believe its obstetric use to be safe; which I myself think we must concede to the general experience of the profession.

DR. NORTHROP: Regarding the effect of ether on the kidneys, I desire to speak of one case. A patient

had just recovered from an acute attack of nephritis, twenty-one days after the beginning of scarlet fever. Some days later I had occasion to cut down on the mastoid cells. I don't know where my wits were, but I gave the patient ether. The patient had had bloody urine before, and about the worst case I had ever seen. All symptoms had improved, and the color of the urine was right, but there followed such a beautiful illumination of the urine after the administration of the ether for a few days that I am not likely to forget it — suppression, convulsions, etc. I had occasion to go down to the same mastoid cells a few days later, and I gave chloroform, and there was no kidney reaction, although casts had been continuously numerous from the first. I thought it was a good control experiment.

DR. ENGELMANN: I must confess I had never given any serious thought to this subject. I have for many years used chloroform and seen it used, and have never heard any arguments to the contrary — we are speaking of chloroform in labor. In fact, I think the arguments this evening are rather favorable to the use of chloroform. I have always understood it has been conceded by the friends of ether that in obstetric cases there was no danger; and that is the one element, and I think the only one, which allows us to give the preference to ether. Barring that all the advantages are in favor of chloroform. It is more agreeable; can be used at the moment when it is wanted, and in small quantity and with rapid recovery; this, I think, has been admirably stated. The application of a few more drops brings the patient to the right state, with slight knowledge of what is going on; she does not feel the pains and comes to very quickly. As to ether, I think we may eliminate all danger in obstetric operations, unless it be in extreme cases of disease of the kidney or lungs, where chloroform is to be avoided; or in lesions of the vessels, where, I think, chloroform is somewhat risky, though I have given it in surgical operations with heart disease, with an assistant extremely careful — and that, by the way, is essential to the successful giving, and I have no doubt that those who thoroughly understand the use of ether will see more satisfactory results in the lying-in room than we who do not understand. The use of chloroform, naturally, must be understood. I have always used in labor, for the relief of the ordinary pains, a few drops on the handkerchief. You can gauge that, and it is all consumed, and the patient has only so much for that pain. That is the one advantage we claim for chloroform, that its action is rapid. As we see the approach of the pain a few drops are given to carry the patient over that pain; and where suggestion is desirable, a mixture of chloroform and cologne may be used. I should say, too, if any here have used chloroform, they may have had some unpleasant experience, because I have found it difficult to obtain a satisfactory article unless I purchased a pound. We don't know what the condition of that is until we test it. It is deteriorated by exposure to light, by shaking; I have always presumed it is by frequent opening of the bottle. I have always secured six-ounce bottles; and Squibbs makes them, so that you always have a fresh bottle as it comes from the still. I have always felt, seeing the excellent results from chloroform and no injurious results, that those who use chloroform in labor use it because they become accustomed to its administration in surgery, had seen it used in the hospitals, and so it was the one agent to which they were habituated; and then I pre-

sume the power of popular influence has much to do with it. But the small quantity of chloroform used in labor, and the rapidity of its action at the proper moment should speak in its favor, even to those who use ether on account of the much greater quantity and its permanent or lasting effects. It may be safe, but it is not as pleasant and as satisfactory a remedy if you will give the chloroform a fair trial.

DR. GEORGE HAVEN: I have used chloroform in the hospital in Vienna, in Winckel's clinic, the four months I was connected with it, and I never saw a bad result from chloroform. It was very much easier to give, and the patient got relief from pain much quicker than from ether. We used it not only in obstetric practice, but in gynecological patients. I never saw on the continent ether used but once, and then the patient nearly died from the effects of ether badly given. It was given in a very confined cone, and death almost resulted from it. They threw the ether cone down and began with chloroform. Since coming home I have never used chloroform but once or twice, and have devoted myself entirely to ether in obstetric practice. I think chloroform has advantages in so far that less chloroform is used and the patient is rendered comfortable in a very much shorter time than with ether. I don't know what the community of Boston would say if chloroform was given and death should occur. I think the man would be very seriously blamed and would get a very unenviable reputation. That it is used in New York and in the South and West with immunity I think is a very striking fact. I think ether is perfectly satisfactory; and chloroform I think a little easier to the patient and a little easier for the person giving the anesthetic.

DR. A. D. SINCLAIR: I was brought up to the use of chloroform under the man who introduced it in medicine; and for a period of two years I gave chloroform to one, two, three or four every day, not knowing or fearing any danger from it. It was given freely according to the directions given by Professor Simpson, which were a few drops on a towel held a few inches from the face and gradually approximating the face. I never saw but once anything that approached danger, and that was where the patient did not recover from the effects of the anesthetic for nearly twenty-four hours; nor did there a death occur to my knowledge in the city of Edinburgh, either in any of the hospitals or in private practice during a period of two years, with the exception of one which took place at the Royal Infirmary in a patient who had heart disease. We have other things parallel to it. We give medicines a while and there is wonderful success, and then everything goes the other way. By and by we began to hear of deaths from chloroform. Every few days you would hear of deaths in the various hospitals, particularly the English hospitals.

I cannot help thinking, as Dr. Clark says, that there has been some looseness in the administration of chloroform. Not everybody does everything as he ought. There is a coarse way of doing things. I have seen men taking charge of an obstetric case, and who had taken charge of many cases, work as though they had elbows instead of fingers. One who has given ether is not fitted, unless he has especial training, to give chloroform. I think that locality has much to do with one's practice. I had no fear from the use of chloroform, and had seen ether given and given it frequently when I was house-officer at the Massachu-

setts Hospital. With both of these drugs I was familiar, and would have continued the use of chloroform in Boston on my return, but I felt that there was greater safety in ether from the fact that just about that time we began to hear of these frequent deaths. I heard a gentleman say the other day, that when he was a student in Dublin he was told that a death from chloroform took place daily at some place or other in Great Britain. I do not think that is true. Chloroform is more dangerous than ether in general administration, but in obstetric cases I don't think it is.

DR. J. P. REYNOLDS: I want to put a question to the last speaker, because I think he has a very interesting fact to mention as to safety in the prolonged use of chloroform. Dr. Sinclair will bear testimony, I believe, to its continued employment for a very great number of hours.

DR. SINCLAIR: Professor Simpson believed that chloroform was of all others the anesthetic in children's cases. In one case of convulsions in a child chloroform was administered for fourteen days; I don't know how much. The child was kept constantly under its influence a fortnight.

DR. J. P. REYNOLDS: I heard the same thing from the late President of this Society, who said that he had known it to be given for six days. I was anxious to bring that fact out. I have listened with the greatest interest to what has been said to-night, and one of the speakers expressed precisely my own feeling when he said it was greatly to be regretted that this question should be approached in a partisan spirit. I have no such feeling. I think we recognize in Boston that both chloroform and ether have proved themselves to be, at least in obstetrics, entirely innocent remedies. I for one am very glad to hear all that has been said to-night in favor of the use of chloroform, but I contest most strongly, as other gentlemen have, the account of the evils of ether. During the greater part of my life in a practice largely obstetrical I have used ether in almost all cases of labor. There is no such thing as continuous nausea under its administration. Vomiting may occur when it is first given, but not afterward. How often, indeed, when in severe surgical operations vomiting has appeared to be coming on has an operator called out: "The patient is going to vomit. Crowd the ether."

I have heard with the greatest interest what was said about the use of ether in the hospitals. I have a strong feeling that a lying-in hospital will never do its full duty to women in labor until it can provide the means for giving an anesthetic, be that ether or chloroform. Last fall I had occasion to ask the opinion of gentlemen in different parts of the country in regard to the employment of anesthesia in private practice for normal labor. I did not preserve the replies, but I read them carefully, and the result was an almost universal testimony that it was not freely used, that it was but little given in normal labor for the relief of pain. I share most deeply the conviction which one gentleman has expressed to-night that the risks of childbirth bear a close relation to the endurance of pain. We may talk of parturition as merely a physiological process like respiration, defecation or micturition, but it is for the dangerous cases of labor that obstetrics exist, precisely as when an incoming ship is in peril that men need the pilot. Whatever the so-called stage of labor the moment pain begins to tell upon the courage and strength of the woman the time

has come to relieve her distress; and, moreover, if in the latter part of the process danger is to develop in any direction, the attendant has in this way done his best service by guarding the strength of the patient and her power of vital resistance.

Something has been said of the method of giving ether in labor. I have learned to think that ether in obstetrics is best given to the exclusion of air. My own plan takes no concern for the access of atmospheric air. I cover the mouth and nose, and do not care to leave any aperture at the end of the cone.

As to hemorrhage, I bear like testimony with that given so impressively in this city by the late Dr. Fordyce Barker. He did not believe that anesthesia predisposed to hemorrhage; he should rather say that the cases in which he had seen post-partum hemorrhage occur were those in which for some reason or other no anesthetic had been given. He was speaking of chloroform. My own experience with ether is precisely that.

DR. ENGELMANN: If I recollect aright, among the many interesting facts given us by Dr. Reynolds at the time of the ether celebration, he spoke of the neglect of the use of the anesthetic, that is, of ether in labor, because it might prolong the labor a half-hour or so. It struck me at the time, because I should say with chloroform we expect to shorten the time of labor; and then I think he mentioned there (he did here) that the use of anesthesia, that is, ether, in labor was diminishing. Throughout the West and South it has been my experience that the use of anesthesia is increasing, that is, chloroform. I want to know whether he means that in the region where ether is given that less is used in labor than formerly.

DR. J. P. REYNOLDS: The address to which the gentleman refers was prepared without means of consulting authorities or taking advice of professional friends. It was not until the night before I delivered it that I had the opportunity of reading once more the statements of Dr. Barker that I had quoted only from memory. As spoken, the address made it clear that Dr. Barker had in mind chloroform. My assertion that anesthesia was little used in normal labor even with private patients was based on replies from gentlemen in parts of the country where the anesthetic employed is almost exclusively chloroform. In several instances chloroform was mentioned as the agent.

DR. J. B. BLAKE: I have a few notes on the after-effects of ether in entirely surgical cases. The reason for giving ether at the City Hospital in surgical cases is because we are taught, and have known from large statistics in this country and in England and those quoted by Gurlt in Germany, that the deaths after anesthesia were six for chloroform to one for ether. Those were taken, as I say, throughout the Continent and correspond very closely to the results found in England and the results in America. That fact, however, does not do away with the equally well-known fact that following ether are certain undesirable effects which exist and have been to a certain extent underestimated. In the last three months I have observed the cases that came to operation on the Third Surgical Service at the Boston City Hospital, and questioned the patients as to the after-effects. The result is as follows: In 158 cases of various sorts of operations there was more or less vomiting in 53, or 33 per cent. The frequency of vomiting varied considerably with the experience of the person who gave ether. One

of the surgical dressers, who was in his sixth month of service, had a percentage of about 5 per cent. instead of 33 per cent., showing that with the greater experience of the anesthetizer there was a less amount of vomiting. Patients were all given ether breakfasts. The vomiting was, as a rule, moderate in amount. In three or four cases it was excessive, in one-fourth very slight.

Another symptom noted was nausea distinct from vomiting. In 94 cases questioned for this symptom nausea was present in 38. Nausea did not necessarily coincide with the vomiting, but came in certain cases without vomiting, in certain cases with the vomiting, and in certain cases was not mentioned, although vomiting was severe.

Frontal headache existed in 36 out of the 94 cases, and lasted, as a rule, two to four hours. In only two cases did it continue during the night of the operation.

The final point investigated was cough; and in 18 cases the patient spoke of having some slight cough the day of the operation. In three cases the cough lasted twenty-four to seventy-two hours, and in two was accompanied with a certain number of moist râles in the chest.

In 20 only of the 94 cases was there an absence of all symptoms. I do not know of any similar recent compilation of statistics in regard to chloroform, and I should be very glad to hear of any.

DR. J. P. REYNOLDS: I ought perhaps to say that lately, in looking over my own records, I was surprised to find here and there a note that I had withheld or abandoned ether in a given case because it seemed that the patient's pains did better without it.

DR. C. B. PORTER: I had no thought of saying anything when I came here, but I feel as though I ought to say something, having had experience so many years in the administration of ether. I was brought up by one of the strictest adherents of ether, Dr. Bigelow, who up to the very last years of his life tried to investigate every case of death said to have been caused by ether; and I have heard him make the statement that in all cases there was some other definite good cause than the ether. I myself have had now something like thirty years' experience in giving ether, and I have never had a death from that cause. I remember but one death that has occurred on the operating-table in my hands, and that was a case of long-standing strangulated hernia brought in almost *in extremis*. I think Dr. Sinclair said that those who are accustomed to give ether ought not to give chloroform unless they had especial training; and I should say those accustomed to give chloroform do not, unless they have had especial training, understand how to give ether. Ether, in the majority of cases, can be given very expeditiously, very safely, without vomiting, if the person who gives it understands its administration. It is the one thing I have felt that our young men do not understand unless they have had the personal hospital experience, and even then they do not comprehend all that is essential; and for that reason for the last two years special instruction has been given to the students in the matter of administering ether.

I have been very much interested in hearing what has been said by the gentlemen who have been accustomed to give chloroform, and have been also very much pleased to think that it has been given in their hands with so much safety. In this block within the last two weeks I promised to give chloroform because

my patient disliked ether; and I took the trouble to read up the subject of the rules of the administration the night before. I gave the chloroform myself, because I said if anything happened to the patient I wished to take the blame and not have it on my assistant's hands. I gave a whole ounce on the handkerchief, and spent an hour and a quarter trying to get him under the effect and then gave it up and pushed the ether. It was because I did not understand the administration of chloroform, because I etherized him in a very few minutes. I can but say, as I have followed the commissions on the other side of the water, it seems to me there has been a constantly increasing tendency to use ether and give up chloroform.

DR. H. L. BURRELL: There are four classes of cases in which for the last five years I have been in the habit of using chloroform. I think possibly a half-dozen times during the course of a winter I use chloroform. I do not mean in all of these cases that I use chloroform every time, but I always consider whether chloroform or ether is best for the individual patient. The classes of cases are: first, head operations; second, where there is any obstruction to respiration, and especially in tracheotomies; third, where I know there is a chronic bronchitis; and, fourth, where there is a strangulated hernia.

DR. RICHARDSON: I have been very much interested in the discussion of this subject. As everybody knows, we use ether almost exclusively, and have no fault to find with it. I believe we are coming to use chloroform a little more in general anesthesia, especially in cases in which anesthesia must be used, when there is a bronchitis or any lung trouble and when the kidneys are much affected, but even in such cases I think the dangers of ether are very slight. I do not recall a case in which there has been a death from ether. Cases have died during anesthesia, but they have been cases which would die probably just the same without anesthesia, as I recall them, particularly cases of strangulated hernias, which seem to be particularly liable to sudden death. With the use of ether we feel perfectly safe, as Dr. Blake has said; and we do not know how to give chloroform, as Dr. Porter has said. I remember seeing one of the strongest advocates of chloroform use it to wire a jaw; and he used chloroform until he got tired of it, and then used ether to produce anesthesia. That was the first time I saw chloroform used. I don't know anything about the use of chloroform or ether in obstetrics.

I think the strongest argument in favor of ether as a general anesthetic is the fact that we feel sure the patient will come out of his anesthetic, and we shall not have that terrible misfortune of sudden death in the course of anesthesia for a trivial operation. If we are doing an operation which carries a large mortality with it, that is one thing; but if we feel that every time we produce anesthesia for the opening of a feloo or an operation for fistula, that the patient may die on the table, I for one should not have any peace of mind whatever in approaching these trivial operations. I dare say we do not know how to give chloroform, but I have always understood that the dangers of chloroform were without premonition.

DR. J. B. BLAKE: I don't want our guests to leave Boston with the idea that preferring ether was a Boston fad at all. Our apprehension of chloroform is founded on the statistics of death from its use, and works on surgery furnish a sufficient justification for

our not going away from a safe though perhaps not as convenient an anesthetic as chloroform. Recent writers give the situation as one death for every 3,000 administrations. The percentage seems small, but we do not have even a sixth of that with ether; and so when we have this safe agent we feel disinclined to run the risk of one death in 3,000. I am not referring to childbirth.

DR. F. B. HARRINGTON: I had always used ether for primary anesthesia until two years ago, when I was induced to try chloroform. I found that patients liked it better, that it was more convenient, and that it was speedier. I don't think there is much nausea after primary anesthesia from either anesthetic when properly used.

About six months ago I gave chloroform in order to explore a sinus, and I nearly lost the patient, although she had taken only a few inhalations. I have not used chloroform since, and do not intend to use it, except for those cases in which it is universally recognized as superior to ether. The question is one of safety. I feel that the disadvantages of ether are more than offset by its greater safety. The deaths from anesthetics are not numerous; but one cannot forget that they are six from chloroform to one from ether.

DR. A. WORCESTER: I am quite sure our guests will go away with a clear understanding of the reason why chloroform is not used in Boston; for if chloroform fails to produce anesthesia in the hands of our very able surgeons, no wonder it is not popular. I am sorry the discussion has wandered from the lines laid down. Our real purpose was to discuss the relative merits of ether and chloroform in labor; and not the slightest intimation has been offered that it ever did any harm in its obstetrical use. I think nobody who has used both has failed to admit that its use is very much more agreeable to the patient, which ought to count for something. The facts that it is more pleasant, that the patient comes out more easily and can be relieved of pain and at the same time not made wholly unconscious, are advantages that with any obstetrician certainly are very weighty. I am sorry that my description of the use of ether in midwifery practice is taken too seriously. I did not mean that every time ether is used such would be the result; but I am just as sure that such untoward results and the necessity of using forceps are sometimes due to the use of ether. I believe in ether. I should rather favor it if I were to be put under an anesthetic for fourteen consecutive days. I believe that ether is better in prolonged operations. But I also firmly believe that chloroform is better in normal labor in relieving the woman in the second stage and in the stage of delivery. I believe it is not only perfectly safe but that it ought to be given. There are a few gentlemen who use ether in almost every case; but the practice in this community is not to give an anesthetic in normal labor. We are behind the times. Women ought to have an anesthetic, and the reason anesthesia is withheld is because their physicians insist that they can be more safely delivered without an anesthetic. The reason physicians so insist is because they know only the disadvantages of ether and are not acquainted with the advantages of chloroform; and it is a pity and a shame in a centre so advanced as we hope Boston is in other respects that generation after generation of physicians should be sent out of Boston who do not know how to use chloroform.

DR. CHARLES M. GREEN: I confess that I am surprised at the picture drawn by Dr. Worcester of a case of labor conducted with ether. I have always used ether in the manner described in my opening remarks; and I have never witnessed such a deplorable spectacle. On the contrary, my patients have expressed their gratitude for ether, and have seldom shown any disagreeable effects, such as bronchial irritation and vomiting. I acknowledge that Boston is a small, conservative and provincial town; but I think I may claim that we have learned how to use ether. Moreover, we like to arrive safely at our destination, even although we take a slower steamer, with smaller state-rooms and poorer table perhaps. The advocates of chloroform anesthesia have not yet explained away the facts shown by Gurlt's statistics, that the fatalities from chloroform are from four to ten times as many as from ether: until they do this, I shall myself prefer to "hold fast that which is good."

DR. PORTER: When in Vienna and watching Billroth operate, he gave ether, as he said, and the patient was supposed to be etherized. Billroth commenced to cut, whereupon the patient sat up on the bed and delivered one of Cicero's orations, and was pushed back on the table and more ether given. Even as great a man as Billroth did not understand the administration of ether.

DR. WALLACE CLARK: In reference to the point that chloroform does not nauseate: in deep narcosis we nearly always have nausea; in primary anesthesia we do not have it. I very seldom use chloroform without finding, as they are coming out or going in, that they do vomit.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

NINETEENTH ANNUAL CONGRESS, HELD AT
WASHINGTON, D. C., MAY 4-6, 1897.

(Continued from No. 8, p. 186.)

DISCUSSION ON ATROPHIC RHINITIS.

DR. CASSELBERRY spoke of its Nature and Symptoms. He said that there are in reality two forms of this disease. One occurs in children and the other in old people. Another division is into fetid and non-fetid. No one causative theory answers for all cases. The atrophy might be due to one cause and the fetor to another. Still another division of the cases was into the simple dry, and into the ozenatous varieties. All stages of atrophy could be seen leading up to the degeneration of the mucous glands and the formation of crusts. The non-fetid variety is more common in elderly people, while ozena occurs more frequently in early life. In some cases the two types seem to blend.

One cause of the disease may be some disturbance of the local peripheral sensory nerves. The nostrils become less sensitive and the pharyngeal reflexes more sluggish. The nasal bones and cartilages become affected, and the nose assumes a similarity to the saddle-back shape seen in syphilis. The nasal tip is tilted up so that the anterior nares look forward rather than downward. Another theory as to causation is that of a primary central trophic neurosis. Congenital malformations may lead to atrophic rhinitis from poor ventilation of the nasal chambers and stagnation of secretion. Syphilis, tuberculosis, alcohol

and gong all seem to come into play in some cases. In both types the atrophy varies in degree and distribution. Hypertrophy need not have exhausted itself before atrophy begins. The middle turbinate may be hypertrophied, while at the same time the inferior is atrophied. Other theories were those of Gruenwald, who ascribed the affection to sinus disease; and of Bosworth, who referred it to a preceding purulent rhinitis. The germ theory had also been invoked by several investigators.

The symptoms of the condition were familiar. They did not need repetition here. In addition to the strictly intra-nasal features, pain across the nose was sometimes present. Impaired hearing or alteration of the voice were frequently the first symptoms to call the attention of the patient to his catarrhal state.

DR. J. N. MACKENZIE spoke of Pathological Changes. Our task, he said, was to determine the nature and order of the lesions which occur in this disease. It must be remembered that we are dealing with an important physiological organ as well as with a mucous membrane. Our present haze of opinion is due first, to our loose use of the term "atrophy," and, second, to our failure to discriminate between the different forms of atrophy and the causes producing them. There may be a simple atrophy or the atrophy of degeneration. The best term to use is "sclerosis." This implies an atrophy of the specific nasal tissues, a hypertrophy of the connective-tissue elements, cell infiltration, granulation tissue, the obliteration of old and the formation of new blood-vessels. This sclerosis may result from blood infection, as in syphilis and tuberculosis, or from intoxication, especially that of alcohol. He did not believe that purulent catarrh was a cause of atrophic rhinitis. Such a pathological sequence had no known parallel in disease processes. The task of the future is to determine the causes of this sclerosis. The process can be atrophic from the beginning, but the speaker regarded this as improbable.

DR. C. C. RICE, of New York, spoke of Treatment. He would divide it into local and constitutional. The latter included hygiene in its broadest sense. He had seen much good result from a change of occupation; from the factory, for instance, to the farm, and from an indoor life to one out of doors. He would especially advise against the use of cigarettes, which he regarded as pernicious.

As to local measures, they could be included under the headings of stimulation, antiseptics as far as possible, and absolute cleanliness. As stimulating agents, a host of various drugs had been employed. Electricity had also been employed for this purpose, both the galvanic and the faradic currents having their respective advocates. More recently cataphoresis had been used, the copper salts serving as the medicinal agent. All the drugs could be used on tampons, in bougies or by inhalation. Massage would benefit some cases. All destructive agents should be avoided.

He would strongly advocate the use of the oily preparations, which were lubricants, and served as vehicles for other substances. They should be applied by friction, and the process might be described as that of polishing the nose. In young children with profuse watery discharge, powders might be used. The cleansing fluids should be used with the ordinary douche cup which was plenty large enough to carry the amount of liquid necessary.

DR. WRIGHT called attention to the fact that atrophic rhinitis was far more common in women than in men, and that it was confined practically to the child-bearing period. He thought that this fact must have some bearing on etiology.

DR. J. H. HARTMAN, of Baltimore, had for some years used electricity, and was still greatly impressed with its usefulness. The only trouble was that the method was tiresome for both the patient and the physician.

DR. JAMES E. LOGAN, of Kansas City, was inclined to regard sinus disease as, in some cases, at least, the cause of the atrophic rhinitis. He thought that the middle turbinate acted as a sort of drip-stone or drain for the sinus. In a group of seven cases he had curetted the sinus, with most satisfactory results upon the condition of the atrophic nasal mucosa.

THIRD DAY.—THURSDAY.

SIMULATED SARCOMA OF THE TONSIL.

Paper by DR. D. BRYSON DELAVAN, of New York.

The patient was a man of forty-three years. His family history was negative as to tumors, and there was no evidence of syphilitic disease. For two months he had had a swelling of the left tonsil, and with a breaking down in the centre, leaving a cavity with overhanging edges. The remainder of the organ was indurated, and the cervical glands below the tonsil were enlarged. There was pain on deglutition and palpation. A bit of the tonsil was removed and submitted to several pathologists for their opinion. All were disposed to regard it as a sarcoma; but one of them, Dr. Hoenopyl, was inclined to dissent from this view. The sections showed chronic hyperplasia of the tonsillar tissue and an arrangement of the endothelial cells suggesting sarcoma. Under the iodide the glandular enlargement cleared up; and as the tonsil did not increase in size, it was decided to remove it by the cold snare. This was successfully done, and the patient made a good recovery.

A NEW METHOD OF PERMANENT RELIEF FOR CERTAIN ENLARGEMENTS OF THE TURBinate BODIES.

Dr. Delavan also presented a brief communication with this title. The object was to permanently reduce the size of the congested bodies. He advocates the making, under cocaine anesthesia, of a submucous incision by means of a small, fine knife—almost a needle in fact. It should be swept around under the mucosa, and withdrawn through the channel of entrance, care being taken not to enlarge the latter. It was better to repeat the operation than to overdo it. There was but little pain and but slight bleeding. Cocaine should be kept in contact with the turbinate for several hours after incision. Hemorrhage should be allowed to stop of its own accord. The operation had four distinct advantages: it was easily done, had a freedom from bad effects, preserved the mucosa, and possessed a practical adaptation to the desired end. He would lay no claim to originality in the matter, though he had never seen the procedure described.

DR. WRIGHT thought that the operation acted by breaking up the coats of the blood-vessels, causing a clot formation in the cavernous tissues. The procedure was a logical one, as it was just what we tried to do in certain cases of aneurism.

DR. CASSELBERRY saw many cases of posterior engorgement in which this plan would not answer.

He was willing to admit, however, that the reduction of the anterior portion would often lead to a reduction of the posterior without further interference. He also alluded to the method of submucous linear cauterization recently advocated by Dr. Pierce of Chicago.

SUBGLOTTIC TUMOR REMOVED BY TRACHEOTOMY AND CURETTING.

Paper by DR. JOHN W. FARLOW, of Boston.

Patient was a woman of 37, who for four years suffered from difficulty in breathing. Three years ago she came under the care of a physician in St. Louis, who was able to discern the tumor. Tracheotomy was done, and it was found that there was a mass about one and one half inches long by three-eighths of an inch in width situated on the posterior wall of the trachea and bulging into the esophagus. It was sessile, of a brownish color, soft consistency, and of the thickness of a lead-pencil. Removal was deemed unadvisable at that time, owing to the danger of forming an intractable tracheo-esophageal fistula.

After the tracheotomy the patient felt considerable relief, but continued to have great trouble at times with her breathing. She came under Dr. Farlow's care in January of the present year. There was only a very narrow passage for the entrance of the tidal air. The voice was not hoarse and the vocal cords moved freely. The appearance was that of three masses, two on the right side and one on the left. The tumor was regarded as non-malignant and a diagnosis made of enchondroma.

A low tracheotomy was done by Dr. Richardson in February, and the trachea was cut down from above. About one and one-half inches below the cricoid was found a single mass with a lobed appearance which was removed with the curette. Bleeding was not at all troublesome. The skin was sutured, but the rings of the air-tube were not. The tracheotomy-tube was removed in five days. Patient made a good recovery. Microscopical examination revealed fibroma.

PAPILLARY EDEMATOUS NASAL POLYPI AND THEIR RELATIONS TO ADENOMATA.

Paper by DR. JONATHAN WRIGHT, of Brooklyn.

The writer described several cases reported in literature and several seen by himself. In some of them tumors shown to be true adenomata had occurred in connection with polyps; and the paper went to show that in the nasal cavities all gradations of structure could be met with, from an ordinary edematous polyp to a true adenoma.

A CASE OF ADENO-CARCINOMA OF THE NOSE.

Paper by DR. F. E. HOPKINS, of Springfield, Mass.

His patient was a hale and hearty man of eighty-three years, with a negative family history as regarded tumors, but with a tubercular taint. For twelve years he suffered from nasal obstruction and a watery discharge. There was no pain or bleeding. Six years ago an operation for removal was undertaken, but given up on account of severe hemorrhage. Later, forceps were applied and some pieces (which might have been polyps) removed from the nostrils. In April of the present year he came under the writer's care. No operative interference had been undertaken for three years. He had at this time occasional epistaxis, offensive odor from the nares, and a constant sanious mucous discharge. One eye was displaced outwards

and the septum nasi had been forced over to the right side, the mass presenting in the left naris. The growth was removed with the cold-wire snare without incident, except that the bleeding was profuse. Examination of the mass showed it to be made up very largely of cylindrical cells arranged in some places in tubules and in others in acini. In still other places there were irregular cell masses. In general there was a tendency to a concentric arrangement. The connective tissue was scanty in amount. Diagnosis, primary adenocarcinoma.

A FURTHER CONTRIBUTION TO THE STUDY OF LARYNGEAL PHTHISIS.

Paper by DR. T. MORRIS MURRAY, of Washington.

This was a review of the various methods of treatment proposed since a previous paper read in 1893. He would lay special stress on the value of creosote, which he regarded as a *sine qua non* in tubercular laryngitis. He also stated that he had had excellent results with one of the digestive preparations called "enzymol." He had used it to digest off necrotic tissue, and had been much pleased with its action.

PRIMARY LUPUS OF THE LARYNX.

Paper by DR. EMIL MAYER, of New York.

The clinical histories of two cases were given in detail, and the statement made that 14 other cases are recorded in literature. It is now established beyond any question that lupus may originate as a primary deposit in a mucous membrane without any external manifestation, and that it is dependent upon the tubercle bacillus.

A differential diagnosis must be made between tuberculosis, syphilis, cancer, leprosy and lupus. Primary lupus is without symptoms for a long time. There may be no fever at all. The voice eventually becomes husky, and dyspnea may supervene. The glands may or may not be affected. Clinically, the primary disease resembles the secondary. The pathological process comprises four stages: paleness of the mucosa, edema, ulceration and cicatrization. A given case may present all forms at the same time.

The malady runs a chronic course, without fever. Cure may be spontaneous, and the lesion after reappears in the scar. Death ensues from complications, but is rare from glottic edema. Conclusions are

- (1) Primary lupus of the larynx does exist.
- (2) It is painless, and may be unnoticed for years.
- (3) Tubercle bacilli are present in scanty numbers, but difficult to find.
- (4) The disease resembles in appearance syphilis rather than tuberculosis.
- (5) The absence of adhesion bands is characteristic of lupus, while they are always found in late syphilis.
- (6) The prognosis as to life is fairly good.

DR. SWAIN recalled one case, that of a girl who had old scar tissue in the larynx, of the existence of which she was totally unaware. Under tuberculin injections it took on a pinkish color, though there was no adverse reaction and the injections were without any therapeutic benefit.

DR. WRIGHT thought that it was almost impossible to draw a hard and fast line between lupus and tuberculosis. Cases which looked like lupus would frequently clear up under the iodide, thus proving themselves to be syphilitic. One case of his own, supposed to be lupus, was relieved by this remedy. A few ba-

cilli were found, but later general tuberculosis of the lungs and larynx set in. It was customary to speak of such cases as mixed infection, but personally he had but little faith in this theory.

FOUR CASES OF SARCOMA OF THE NOSE.

A paper on this subject was read by J. E. H. NICHOLS, M.D., of New York. The clinical histories of the cases were given in detail.

Dr. JOHN O. ROE, of Rochester, presented

AN INSTRUMENT FOR THE DILATATION OF STENOSIS OF THE TRACHEA.

During the Executive Sessions of the Congress, the following gentlemen were elected to Active Fellowship:

J. Payson Clark, M.D., Boston; Thesis, "Nasal Polypi."

J. Edwin Rhodes, M.D., Chicago; Thesis, "Atrophic Rhinitis."

Richard Frothingham, M.D., New York City; Thesis, "Benign Retro-pharyngeal Tumors, with Report of Cases."

James A. Logan, M.D., Kansas City, Missouri; Thesis, "Laryngitis Rheumatica, with a Report of Cases."

To corresponding fellowship: H. Luc, M.D., Paris, France.

The following papers were read by title:

J. C. MULHALL, M.D., St. Louis, "The General Health and the Upper Respiratory Organs."

H. L. WAGNER, M.D., San Francisco, "Surgical Treatment in Acute Inflammation of the Tonsillar and Peritonsillar Regions."

J. H. HARTMAN, M.D., Baltimore, "A Case of Angioma of the Tonsil, with Recurrence of the Same Three Years after Removal."

T. H. HARDIE, M.D., Chicago, "The Advantage of Bromide of Ethyl in Adenoid Operations."

The annual election of officers for the coming year resulted as follows: President, Thomas R. French, M.D., of Brooklyn; First Vice-President, Alex. W. McCoy, M.D., of Philadelphia; Second Vice-President, Herbert S. Birkett, M.D., of Montreal; Secretary and Treasurer, Henry L. Swain, M.D., of New Haven; Librarian, J. H. Bryan, M.D., of Washington.

It was voted to hold the next meeting in Brooklyn, the date to be selected by the Council.

Recent Literature.

A Short Practice of Midwifery. Embodying the Treatment Adopted in the Rotunda Hospital, Dublin. By HENRY JELLETT, B.A., M.D., B.Ch., B.A.O. (Dublin Univ.), F.R.C.P.I., L.M., Assistant Master, Rotunda Hospital. With a Preface by W. J. SMYLY, M.D., F.R.C.P.I., Late Master of the Rotunda Hospital. With 45 Illustrations, and an Appendix containing the statistics of the hospital for the last seven years. Philadelphia: P. Blakiston, Son & Co. 1897.

This little book of some 300 small pages has been written, the author states, with the object of giving a concise and practical description of the treatment, which has been, during seven years, so successfully

carried out in the Rotunda Hospital under the master-ship of Dr. W. J. Smyly, and which is still followed by his successor, Dr. R. D. Purefoy. The work, therefore, while giving at the same time a brief sketch of the whole subject of obstetrics, is of great value and interest to the practitioner.

In the first chapter, on Asepsis, the author disapproves heartily of routine ante- or post-partum douching. Both of these are, however, indicated in certain cases, and should then be given by the physician himself with great care. He prefers the creolin douche, corrosive sublimate being almost useless for the purpose of douching. In the management of the third stage he waits until the uterus has itself expelled the placenta, and he then expresses the placenta from the vagina.

The chapters on Instrumental Deliveries are excellent, brief rules for indications and method being given with great clearness.

The chapter on Accidental Hemorrhage and Placenta Previa is of great interest. Concealed accidental hemorrhage with intact ovum he believes can only take place with a diseased uterus which dilates before the blood pressure. The only treatment is *accouchement forcé* or Pond's operation. In placenta previa, *accouchement forcé* he believes to be bad, as the patient is in danger of dying of shock, although the chances for the child are improved. The best treatment he considers to be that of Braxton Hicks, consisting in bipolar version, rupturing the membranes, drawing down a foot, and leaving the rest of the delivery to nature.

He naturally turns with interest to the chapter on Eclampsia. To arrest the fits he prefers morphine, given at first in a half-grain dose subcutaneously, followed by one quarter grain every two hours. Chloroform and chloral depress the heart seriously and favor heart failure. He recommends not to induce labor; but if it occurs spontaneously, to shorten its duration as much as possible, without employing undue violence. Do not adopt *accouchement forcé*. Venesection may be useful in the case of a strong plethoric patient.

Lectures on Appendicitis and Notes on Other Subjects.

By ROBERT T. MORRIS, A.M., M.D. Fellow of the New York Academy of Medicine, American Association of Obstetricians and Gynecologists, American Medical Association, etc. Second Edition, Revised and Enlarged. With illustrations by HENRY MACDONALD, M.D. New York: G. P. Putnam's Sons. 1897.

This brochure is divided into five chapters, the first four of which deal with appendicitis. The last chapter contains notes upon the personal views and the results of experimentation of the author; for example, "The Prevention of Secondary Peritoneal Adhesions by Means of an Aristol Film," "Another Method for Palpation of the Kidney," "Is Evolution Trying to do Away with the Clitoris?" "Two Cases of Conservative Surgery of the Arm," and "Subsequent Notes on Appendicitis."

Dr. Morris's views as to appendicitis are well known. He has an attractive style in writing. He puts his subject clearly, forcibly and with sufficient detail to make it intelligible and of practical use. He is a close observer, and carefully records what he sees. This makes his lectures extremely interesting. The volume is excellent as a piece of book-making.

THE BOSTON

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283 WASHINGTON STREET, BOSTON, MASS.

ETHER AND CHLOROFORM.

UPON the comparative safety and advantages of ether and chloroform as anesthetics the accumulation of statistics has gone on for many years, with the result that on statistical evidence, ether, as is well known, has been shown to be actually the safer anesthetic, causing one death in about 15,000 administrations, while chloroform causes one death in about 3,000 administrations.

The reason for this is not difficult to find, owing to the well-known fact, established by physiological experiment and clinical evidence, that ether is a cardiac stimulant, and chloroform a cardiac depressant.

The dangers which are to be combated during the administration of ether are connected with hypersecretion of the respiratory mucous membranes, with obstruction of the air passages by falling back of the tongue, with tonic contraction of the masseters, etc., dangers which result in asphyxia, and which can be directly and successfully met by measures directed to their treatment, and capable of being carried out by any anesthetist of average skill.

The danger, *par excellence*, of chloroform anesthesia, is, however, sudden syncope from cardiac paralysis, due to chloroform intoxication, an accident which is as likely to occur in strong as in weak subjects, happens more frequently at the beginning than at the end of anesthetization, presents conditions of the greatest difficulty for treatment and frequently results in death. In the face of these conditions, although the superiority and greater convenience of chloroform in certain cases in cerebral surgery, operations on the respiratory passages, etc., may give it preference in these operations, its adoption as a routine anesthetic ought to be condemned.

Leonard Hill, M.B., Lecturer on Physiology at the London Hospital, in his address on "The Causation of Chloroform Syncope," delivered before the London Society of Anesthetists on February 18, 1897, and

published in the *British Medical Journal* for April 17, 1897, makes some remarks upon this subject, which coming from England, where, as is well known, chloroform for many years completely displaced ether, and even now is the anesthetic most frequently used, are of especial interest.

"Chloroform" says Hill "is a drug used by the young anesthetist with the utmost hardiness; and until he has the misfortune in his practice to meet with a death caused by it, he derides the danger of the drug, and asserts that its safety merely depends on the care and skill of the administrator. After losing his patient he falls to descanting upon the unavoidable dangers of the drug, dangers which he is now the first to maintain cannot be met by any degree of skill in administration. In a certain institution in Great Britain, in the course of a recent year, there were out of some three or four thousand administrations no fewer than twelve fatalities. This is no exceptional case. The deaths from chloroform are not recorded in the medical journals, for these reflect upon the reputation of the administrator and the institution in which they occur."

The chief interest of Hill's address, however, is its presentation of experimental evidence on the causation of chloroform syncope, the result of careful experimentation upon animals by himself, in conjunction with Harold Barnard, M.S., F.R.C.S., and C. Wall, B.A., of the London Hospital.

The paper is directed, as Hill states, "towards the establishment of the true pathological causes of chloroform syncope, and the controversion of one of the most pernicious and dangerous doctrines ever put before the medical profession. This doctrine, so long received by many with credence, is that chloroform kills by paralyzing the respiratory centre. Supported by the wealth of the Hyderabad Government, furthered by the prejudiced enthusiasm of Surgeon-Lieutenant-Colonel Lawrie, this statement, upheld by a series of experiments, many so careless in execution that they could not for one moment be accepted by a trained physiologist—this doctrine that the paralysis of the respiratory centre causes chloroform syncope, has been industriously spread abroad, and instilled into the minds of the whole medical world."

After the introduction follows a denial of the too common teaching of clinicians that the results of animal experimentation are inapplicable to man, a statement which is simply a confession that the clinician knows too little of experimental physiology to elucidate the problem before him. Out of the enormous mass of literature bearing upon the question of chloroform and ether, but few papers can be found based on experimental investigation.

By Snow before the use of the graphic method, and by the Glasgow Committee and others after its introduction, it was established that chloroform produces a fall of arterial pressure. While admitting this fact as incontrovertible, the Hyderabad Commission also found, as Hill claims, by careless and inadequately planned experiments that the respiratory centre became para-

lyzed before the heart. This statement Hill denies, and quotes the results attained by MacWilliam, who found, in several animals, sudden failure of the heart during primary anesthetization, while the respiration remained unaffected. This failure was found to be due to paralytic dilatation of the heart.

Gaskell and Shore, and Hare and Thornton, found that the injection of chloroform into the jugular veins produced cardiac, *followed*, and not preceded by respiratory failure, a fact which the Hyderabad Commission failed to find, owing to the fact, according to Hill, that pure instead of diluted chloroform was injected, that the vein was tied above the point of injection, and that a needle was used as an indicator of cardiac action. An insufficient acquaintance with physiological methods has characterized the entire work of the Hyderabad Commission. Gaskell and Shore found by careful and ingenious experimental methods that the heart is rapidly paralyzed by chloroform, and the respiratory centre is paralyzed, while the vasomotor centre is excited to increased action.

Into the experimental work of Hill and Barnard, which introduces most interesting applications of change of position upon the circulation, with or without anesthesia, and which deals with the effect of chloroform upon cardiac inhibition by electrical excitation of the vagus, with the phenomena of fatal syncope at an early stage, which Hill found to be as frequent in dogs as in men (in one year out of 41 recorded deaths from chloroform syncope, 39 occurred during the primary stage of anesthesia, and before the surgeon had touched his patient), with syncope during prolonged anesthesia, and with the treatment of syncope, we have not space to go. The original account will well repay a careful reading. The conclusions of the author, which follow, give an adequate idea of the results of his carefully conducted experiments, and serve to confirm the position of those surgeons who object to the use of chloroform as a routine anesthetic. Hill's conclusions are as follows:

1. Chloroform produces a primary failure of the circulatory mechanism and a secondary failure of the respiratory centre. The respiratory centre fails to act not only because it is damaged by the drug, but because of the anemia of the spinal bulb produced by the fall of arterial tension. This is proved by the fact that the action of the respiratory centre can be renewed by raising the arterial tension. The depth of anesthesia depends, as does the paralysis of the respiratory centre, on the primary fall of the arterial tension.

2. Chloroform, more than any other known agent, rapidly abolishes the vascular mechanisms which compensate for the hydrostatic effect of gravity.

3. Chloroform abolishes these mechanisms by paralyzing the splanchnic vasomotor tone, and by weakening the action of the respiratory pump. When these mechanisms are totally abolished, the circulation is impossible if the subject be in the feet-down position.

4. Chloroform also produces paralytic dilatation of the heart. It acts directly like amyl nitrite on the *musculature* of the whole vascular system.

5. There are two forms of chloroform syncope: (a) During primary anesthetization. The patient struggles, holds his breath, raises the intra-thoracic pressure, congests his venous system, lowers his arterial tension, and finally takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second

stage it is suddenly filled with blood. This is drawn from the lungs, and is full of chloroform. The chloroform passes into the coronary arteries, and the heart is thrown into paralytic dilatation. Respiration and the pulse either cease simultaneously, or the pulse before respiration. (b) During prolonged anesthetization this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and, secondarily, the respiration ceases because of the anemia of the spinal bulb. The heart is not in this case paralyzed by chloroform, because the drug is taken in gradually by the shallow respirations, and distributed slowly by the feeble circulation.

6. Artificial respiration and the assumption of the horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope.

7. Artificial respiration, established with the patient in the horizontal posture, is also the treatment indicated in the first form of syncope; the heart should be rhythmically compressed by squeezing the thorax. If this does not quickly renew the pulse, the patient should be put into the vertical feet-down posture. The dilated right heart is thereby completely and easily emptied of blood. Artificial respiration is maintained during this manoeuvre, and the patient is brought once more into the horizontal posture. By rhythmic compression of the chest an efficient circulation is maintained through the coronary arteries; by first emptying and then filling the heart a fresh supply of blood is brought into that organ. If this does not prove successful on the first trial it can be repeated.

8. Inversion, that is, placing the subject in the feet-up position or compression of the abdomen will increase the paralytic dilatation of the heart. In this kind of syncope both these forms of treatment are worse than useless.

9. In the condition of shock or emotional fear the compensatory mechanism for the effect of gravity is almost abolished, and chloroform may easily be the last straw to completely paralyze the circulation.

10. Vagus inhibition of the heart is of no importance as an agent in the production of chloroform syncope.

11. Ether is in every respect a far safer anesthetic than chloroform. According to Ringer's experiments on the heart, ether is fifty times less dangerous than chloroform.

12. With the practical conclusion of the Hyderabad Commission that the chloroform inhaler should be removed during the struggling of the patient or when the respiration is of irregular depth, I am in absolute agreement, but I consider their interpretation of their own experiments and tracings concerning the origin of chloroform syncope to be mistaken.

Not only the work of all physiologists, but also the tracings of the Commission, when rightly interpreted, prove that paralysis of the circulatory mechanism, and not of the respiratory centre, is to be dreaded by the anesthetist.

MEDICAL NOTES.

NO PLAGUE IN HONG KONG.—Though bubonic plague has been prevalent in several parts of South China, and within a very short distance from the Colony, Hong Kong has thus far escaped during the present year, only four cases, three of which were in one house, having been reported up to the end of June.

SURGEON-GENERAL STERNBERG IN MOSCOW.—Surgeon-General George M. Sternberg, U. S. A., is now in Europe to attend the meeting of the International Medical Congress in Moscow. He will present two papers to the Congress, one entitled "The Bacillus Icteroides of Sanarelli (Bacillus X, Sternberg)," the other, "The Radical cure of Inguinal Hernia in the United States Army."

"MEDICINE, PAST AND PRESENT, IN RUSSIA," A CORRECTION.—The medical press seems to be occasionally liable to a class of errors which are perhaps

more frequently seen in the daily papers. The *Lancet*, in a recent article, says: "We regret that, through an unfortunate inadvertency, in the article on the Moscow Congress in our issue of July 31st, the portrait of the late Dr. Botkin (Fig. 3, p. 274) was described as that of Prof. N. V. Sklifosowski. Similarly, in our supplement published last week, the portrait of Professor Sklifosowski (Fig. 13, p. 373) was labelled Prof. S. P. Botkin." And it expresses a hope that the error has not been the cause of any annoyance to the esteemed joint president of the organizing committee of the Congress.

A PROVING OF THE BACILLUS ICTEROIDES.—A physician in Uruguay, Dr. Antonio Quesada, has offered to subject himself to inoculation with the bacillus icteroides in order to prove the correctness of Sanarelli's assumption that it is the pathogenic agent of yellow fever. All attempts to turn Dr. Quesada from his purpose by pointing out its dangers have been unavailing, so that with every precaution the experiment will be conducted in the presence of a few selected physicians, who will carefully note the progress of the case. Dr. Quesada is a robust man, forty-two years of age, who was formerly a surgeon in the Spanish army, serving in the Philippines and in Cuba. He made a deep study of yellow fever while in Cuba, but asserts that he has never had the disease. He professes absolute confidence that the experiment will prove the value of Sanarelli's researches. — *Medical Record*.

THE DEATH-RATE OF HAVANA.—In striking contrast to the progressively decreasing mortality in New York since the middle of July is the excessively high and constantly increasing death-rate in the city of Havana. The reports of Dr. Brunner, the United States Sanitary Inspector of Havana, show the following almost incredible figures: Annual death-rate per thousand of the population for the week ending July 15th, 61.10; for the week ending July 22d, 68.64; for the week ending July 29th, 73.84; for the week ending August 5th, 79.56; and for the week ending August 12th, 82.42.

SANITARY CONDITIONS IN HAVANA.—The following is an extract from the report of Sanitary Inspector W. F. Brunner of the United States Marine Hospital Service, dated Havana, August 13, 1897. "The heat for the past ten days has been intense, the trade winds have been light, and there has been an absence of the daily rainfall for about one week. It has been almost impossible to remain any time exposed to the direct rays of the sun without serious results, hence the harbor work has been very trying. In spite of all the conditions existing, which are supposed to favor the spread of yellow fever, it would appear from the mortality table in this report that this disease is decreasing. This appearance is not real. As stated in a previous report, the deaths from yellow fever are being absorbed by those credited to other diseases. The military hospitals are filled with patients, and it

is a well-known fact that patients brought to the hospitals in and around this city suffering from some other cause will invariably develop yellow fever soon after admission if there is not a history of a previous attack."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, August 25, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 29, scarlet fever 18, measles 10, typhoid fever 28.

NEW YORK.

CONTINUED LOW MORTALITY.—During the week ending August 14th there were reported in the city 769 deaths, a mortality representing an annual death-rate which is announced by the Health Department to be the lowest for the week of the corresponding period of the year in a record of twenty-five years. This record is beaten in the report of the week ending August 21st, when there were only 750 deaths, representing an annual death-rate of 19.58 per thousand of the population, which is estimated at 1,998,686. One of the most gratifying points in the report is the fact that, while 335 of the total number of deaths were in children under five years of age, there were only 118 deaths from diarrheal diseases in persons of all ages, which would seem to be an almost unprecedented showing at this season. Another gratifying feature is that there was not a single death reported from sunstroke. The deaths from contagious diseases have also reached a very low mark; there having been only 5 from measles, 2 from scarlet fever, and 16 from diphtheria.

IMPROVEMENT IN THE MILK-SUPPLY.—The annual report of President Wilson of the Health Board, relating to the milk product and its consumption in the city, shows that there has been a marked improvement in the quality of the milk-supply, especially in that of milk sold by the glass in the vicinity of the public schools, and that the percentage of adulterations has been far less than formerly. While in the year 1895 there were 408 arrests for selling adulterated milk, in 1896 there were but 220 such arrests.

SURVIVAL OF STAB WOUND OF THE HEART FOR NINE DAYS.—An interesting fact was developed at an autopsy made by Drs. McFadden and Conrad at the Hackensack Hospital on August 21st, in the case of a patient who had died the previous night from the effects of a stab wound inflicted August 11th. The autopsy showed that the point of the knife had entered some distance into the cardiac tissue; yet the man had survived for more than nine days.

DEATH AT THE AGE OF ONE HUNDRED AND ONE.—Mrs. Catharine Penelena died on August 21st at Nyack, New York, at the age of one hundred and one years and five months. She was born in England, and removed to this country after the death of her husband, about forty years ago. She had always enjoyed re-

markedly good health, and was ill for but two days before her death, which was apparently due to her advanced age.

Miscellaneous.

THE HAHNEMANN HOSPITAL COLLEGE AND THE UNIVERSITY OF CALIFORNIA.

A PETITION has been presented to the Regents of the University of California by the Hahnemann Hospital College for admission to affiliation with the University of California, and a counter-petition by the regular Faculty of the Medical Department of the University.

At a meeting of the Regents of the University held August 10th, both petitions were heard, but the final vote will not be taken till the next meeting, to be held September 9th. We append the two petitions:

We, the undersigned, Directors and Stockholders of the Hahnemann Hospital College of San Francisco, having been appointed a special committee by the Board of Directors of the said institution to present to your honorable body a petition praying for the affiliation of the Hahnemann Hospital College of San Francisco with the University of California, thereby forming a Homeopathic Department of the University, do hereby ask that such prayer may be granted.

The Hahnemann Hospital College of San Francisco was incorporated in 1881, and threw open its doors to students in June, 1884, since which time it has given a regular course of lectures each year, in all branches of medicine and surgery. There have been graduated from said institution 125 students, and there are at present 27 students in the various classes.

The College has always demanded a high standard of education from its graduates. It required three full years of study in the College from its beginning, and was, with the Medical Department of the University of California, the first to demand a full four years' course of study in the College, as a compulsory requirement for graduation. The College, though not endowed, is wholly free from debt. There are in the State of California, in actual practice to-day, about 2,300 licensed physicians of all schools, of which number, by actual count, 465 are of the Homeopathic school, about one-fifth of the whole number.

As the patrons of Homeopathy are among the well-to-do class of citizens and not so much among the masses as the patrons of other schools, it is undoubtedly a fact that such patrons pay at least one-third of the taxes of the State.

Because we believe it to be for the best interests of the Hahnemann Hospital College of San Francisco, for Homeopathy on the Pacific Coast, for the large number of citizens and tax-payers of this State who do now and who may in the future employ Homeopathic physicians that the said College should be under the protection of the State University, and also because we believe it to be for the best interests of the University of California, as a great university, that there be a Homeopathic Department connected with it, we do therefore pray that the Hahnemann Hospital College of San Francisco may become affiliated with the University of California.

A petition has been placed before your honorable body by the Homeopathic School of Medicine of this city praying that they be made an affiliated College of the University of California, which would therefore constitute them a teaching body of the University of California. There is, however, already a Medical Department of the University of California, which has always discharged its duties faithfully and unselfishly, working zealously for the honor of the University and for the advancement of medical knowl-

edge. The present Medical Department feels that it would be an unjust criticism of their work if another faculty were appointed, and tantamount to an assertion by the Regents that the work of the present Faculty was incomplete from a University standpoint.

If such an opinion be held by the Regents, then it is only fair that they should first apprise the present Faculty of its deficiencies so that an attempt may be made, if found necessary, to rectify them.

But the present Faculty of Medicine does not believe that the Regents have any intention to make such a criticism of its present Faculty of Medicine. They believe that the Regents in lending an ear to the petition of the Homeopathic School of Medicine are simply wishful to find if it might be for the greater advancement of the University to take in a school which asserts itself to be possessed of a more enlightened and successful mode of treatment than any other so-called school or collection of individuals now practising medicine.

The following facts would seem, however, to indicate that their boast of having a superior mode of treatment or a more advanced knowledge of medicine than the regular school of medicine is not well founded.

Homeopathy began in 1810 with the publication by Hahnemann of his "Organon der rationellen Heilkunde." From then till now, a period of eighty-seven years, all scientific advance has found a ready ear and quick appreciation in all the civilized countries.

Let us now examine carefully what respect and appreciation the homeopaths have been able to win either from the scientific world or from the general public.

They are not recognized either in the army, navy or civil service of any government in the world, including our own.

They are recognized by no institution of learning in any foreign country, and by only two institutions of learning in our own country, namely, Ann Arbor and the University of Iowa. Johns Hopkins University, for example, that particularly prides itself on its work of investigation, has not a single homeopath on its medical faculty.

There are very few homeopaths in Germany, the birth-place of the founder, and no university there teaches homeopathy, and the verdict of the scientific world has been endorsed by the general public in so far that all steamships, all railroads, and all life insurance companies choose almost invariably the medical services of the regular profession.

During all the eighty-seven years that the homeopaths have been in existence we cannot recall a single instance of a scientific discovery in the field of medicine by one of their number, nor the fostering of scientific thought in one of their schools.

The discovery of the sleep-producing effect of ether and chloroform were made by regular medical men, working in regular medical schools.

Lister, the originator of antiseptics in surgery, from which the whole vast progress of modern surgery dates, is a regular physician and surgeon.

Koch, the discoverer of the cause of consumption and of cholera is a regular medical practitioner, working in a regular school.

Pasteur, a chemist, worked under the auspices of a regular medical school.

The discovery of the germ causing typhoid fever, and in fact the whole system of modern sanitary medicine and quarantine measures, have developed under the influence of the regular school of medicine.

The serum treatment for diphtheria by Behring was instituted by a regular working in the University of Berlin, a regular medical school.

The great medical events of our own city have been carried out by members of the regular profession. The curing of an aneurism of the abdominal aorta by John F. Morse, the perfecting of the crushing operation for stone of the bladder by Chismore, and the finding of a rare form of skin disease close to a parasite called a psorosperm by Rixford, have all been done by members of the regular profession.

Both Professor Le Conte and President Jordan, two of the most distinguished leaders of thought in the natural

sciences in this country, are graduates from regular medical colleges, and although not engaged in the practice of medicine, yet serve to show that an education in a regular medical college does not dull a man's intellect or render him illiberal.

This list of discoveries, investigators and educators proves, if it proves anything, that the regular medical profession is not inimical to progress.

It is therefore not likely, if homeopathy were in the line of progress, that it would meet with opposition from such an enlightened body of men as compose the regular medical school.

And furthermore it is to be said that not one of the propositions put forward by the Homeopathic Medical School has advanced out of the realm of theory into that of actually realized fact; and this after a trial of eighty-seven years, in an age of scientific progress.

[If Homeopaths, as such, are to have representation in a State University, then why not other medical and other sectarians, as such, because they pay taxes? Why not Eclectics, Christian Scientists and Osteopaths?—ED.]

PLEASURE WITHOUT OTHER SENSATIONS.

THE following, quoted in the *New York Medical Journal*, is of much interest, both to the physician and psychologist:

E. W. Scripture, Ph.D. (Leipsic), of Yale University, has sent us the following: "While exploring the sensations of various parts of the body about a year ago, I chanced to notice a phenomenon of which I find no mention in the various physiologies and psychologies. I submit the brief statement in the hope of learning if any one has previously made a similar observation, or if the fact which I have repeatedly observed can be confirmed by physicians who have the possibility of testing large numbers of patients. The observation may be summed up as follows: Whereas the surface of the glans penis is moderately sensitive to the pointed end of a toothpick and responds strongly to the point of a pin, the mucous membrane around the orifice of the urethra is absolutely lacking in sensations of touch in either case, although strong pressure with the point of a pin will cause pain. There is, however, another sensation aroused by the application of any object to this mucous membrane—namely, that of pleasure—which increases directly with the degree of erection. The confirmation of this observation would establish the hitherto unrecognized fact of the separate existence of pleasure as an independent sensation, a fact of considerable importance in the psychology of feeling."

"CARDING" THE SCIATIC NERVE.

THE operation of "carding" or "harrowing" the sciatic nerve for very obstinate sciatica was first performed about a year ago by Dr. Delagénière of Mans in a case in which he presumed that the cause of the pain was a varicose condition of the veins surrounding the nerve. The intention was to excise those veins after the method recommended by Quénu; but when the nerve was exposed, instead of the varix he expected, he found only a number of small serpiginous vessels running along it, causing the surface to present a furrowed appearance. It was obviously impossible to ligature and resect these, so he contented himself with easing or carding the fibres with a blunt forceps throughout the whole exposed portion of the nerve in the hope of destroying the vessels existing in its deeper

parts and of thus being able to put an end to the stasis in the venous twigs. The result was that the patient was cured.

This encouraged another French surgeon, Dr. Gérard-Marchand, to attempt a similar process which he denominates *hersage* or "harrowing" in sciatica where there was no reason to suppose that a varicose condition existed. The first case was that of a woman, age thirty-seven years, who was unable to sleep or to stand upright, characteristic scoliosis being present.

There were no signs of varicose veins or of hysteria. The second was that of a man, age forty-five years, with a very old-standing sciatica, no treatment having been of any avail. Here also there were no varicose veins. The operation, which was similar in the two cases, was performed under chloroform, and consisted in exposing the nerve and teasing apart its fibres for a distance of two centimetres by means of a grooved director. The appearances were normal, there being no discoloration and no dilatation of the vessels. After the *hersage* the nerve was flattened out to twice its ordinary breadth. A drainage-tube was inserted and the wound sutured and dressed with iodoform and absorbent cotton wool. For several days the patient complained of pain in the nerve and of numbness in the limb. The pain, however, gradually passed off and sensation returned, complete recovery resulting in both cases. From experiments on animals Dr. Gérard-Marchand has been led to conclude that *hersage* of the sciatic nerve produces temporary loss of sensation in the nerve, while the motor power is not interfered with. He suggests that probably this operation may be found of value in the case of other neuralgias which have resisted all ordinary treatment.

The above account, for which we are indebted to the *Lancet*, calls to mind the procedure of stretching the sciatic nerve, which several years ago was given a rather general trial in the treatment of obstinate cases of sciatic neuralgia. It is to be hoped that it may more satisfactorily stand the test of time, though the similarity of the two procedures points somewhat against its efficacy.

STATISTICS OF ANESTHESIA.

The Vienna Surgical Society has published in the *Journal für Zahnheilkunde* further statistical returns on the subject of anesthetics, which have been collected by Dr. Gurlt. The administrations reported are 58,769 in number, including 27,000 of chloroform, with 29 deaths; about 19,000 of ether, with 3 deaths; 5,000 of Billroth's mixture (morphia chloroform and alcohol), without a death; 996 of bromide of ethyl, without a death; and 5,890 of chloroform and ether, without a death. During the last two years 32 deaths have been reported, being 1 death in 1,836 administrations. Altogether, 327,953 administrations, with 134 deaths, have been reported since the year 1891, being a proportion of 1 in 2,444.

Arranged according to the resulting mortality, the various anesthetics appear as follows: Pental, 1 death in 213 administrations; chloroform, 1 in 2,039; Billroth's mixture, 1 in 3,897; ether, 1 in 5,019; bromide of ethyl, 1 in 5,228; chloroform and ether, 1 in 7,594. The mortality from chloroform has increased from the year 1891 to the year 1897, the figures being as follows: In 1891, 1 death in 2,700 ad-

ministrations; in 1892, 1 in 2,300; in 1893, 1 in 4,200; in 1894, 1 in 1,900; in 1895, 1 in 1,300; in 1896, 1 in 1,400; and in 1897, 1 in 1,126. The mortality due to ether was 1 in 5,600 administrations during the first three years, 1 in 3,100 during 1895, 1 in 2,600 during 1896, and 1 in 6,700 during 1897.

METEOROLOGICAL RECORD

For the week ending August 14th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter.	Thermom- eter.	Relative humidity.	Direction of wind.	Velocity of wind.	W'eth'r.	Rainfall in inches.
	Daily mean.	Daily mean. Maximum. Minimum.	8.00 A. M. 8.00 P. M.	Daily mean.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	
S...8	30.08	74 84 63	70 65 68	W.	S.W.	5 10	O. C.
M...9	29.94	72 80 64	72 63 68	W.	N.E.	8 3	O. F.
T...10	29.89	67 73 63	67 72 70	N.W.	S.E.	4 8	O. O.
W...11	29.68	67 70 64	95 95 95	E.	E.	9 7	R. O.
T...12	29.75	72 81 63	71 59 65	W.	W.	12 12	C. C.
F...13	30.00	68 77 59	62 57 60	W.	W.	10 9	C. C.
S...14	30.02	74 86 63	60 68 61	W.	S.W.	10 10	C. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 14, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from:					Diphtheria and croup.
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria	
New York	1,868,000	769	363	22.36	11.70	15.47	1.17	3.51	
Chicago	1,019,226	—	—	—	—	—	—	—	
Philadelphia	1,214,566	406	173	22.75	11.50	10.25	2.25	6.25	
Brooklyn	1,160,000	374	195	14.51	11.34	16.17	1.35	4.05	
St. Louis	570,000	163	56	6.71	11.59	4.27	.61	.61	
Baltimore	550,000	181	84	31.35	8.25	22.20	6.05	1.65	
Boston	517,732	242	116	50.75	5.74	23.37	2.36	2.46	
Cincinnati	465,000	90	—	11.11	11.11	8.88	—	—	
Cleveland	350,000	99	54	27.47	4.04	26.26	—	—	
Pittsburg	285,000	82	51	40.33	7.63	22.89	4.56	—	
Washington	277,000	103	54	21.56	7.84	8.82	1.96	1.96	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,000	27	8	7.40	1.85	—	3.70	3.70	
Worcester	105,000	92	26	30.94	7.14	30.94	—	—	
Fall River	95,919	62	41	50.00	6.44	48.30	1.61	—	
Lowell	87,183	40	25	37.74	2.22	34.33	2.22	—	
Cambridge	86,812	38	27	52.60	10.52	47.34	—	2.63	
Charleston	60,165	26	6	26.95	15.40	19.25	7.70	—	
Lynn	65,220	19	10	26.30	10.52	21.04	—	—	
New Bedford	62,116	14	11	57.12	7.14	57.12	—	—	
Lawrence	55,510	23	14	41.45	8.70	41.45	—	—	
Springfield	54,790	19	10	47.34	5.26	42.08	5.26	—	
Holyoke	42,564	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	24	13	45.76	4.16	37.44	—	—	
Brockton	35,853	—	—	—	—	—	—	—	
Malden	32,894	19	12	42.08	10.52	42.08	—	—	
Chelsea	32,716	7	2	28.56	—	28.56	—	—	
Haverhill	31,406	3	1	33.33	33.33	33.33	—	—	
Gloucester	29,770	—	—	—	—	—	—	—	
Newton	28,990	18	11	27.77	—	27.77	—	—	
Fitchburg	28,392	9	4	22.22	—	22.22	—	—	
Taunton	27,812	16	9	50.00	12.50	50.00	—	—	
Quincy	22,562	6	2	50.00	—	50.00	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	1	—	40.00	—	—	—	
Everett	21,575	—	—	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	4	1	25.00	25.00	25.00	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 3,051: under five years of age 1,419; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fever) 788, consumption 303, acute lung diseases

169, diarrheal diseases 567, diphtheria and croup 84, typhoid fever 55, whooping-cough 55, measles 12, cerebro-spinal meningitis 12, scarlet fever 10.

From whooping-cough Philadelphia 11, Pittsburg 10, Wash-
ington 8, New York 5, Brooklyn 4, St. Louis 2, Baltimore, Bos-
ton, Cincinnati, Cambridge and Lynn 1 each. From measles
New York 5, Brooklyn 4, Pittsburg 2, Philadelphia 1. From
scarlet fever Philadelphia 4, New York 3, Boston 2, Baltimore 1.
From cerebro-spinal meningitis New York, Boston, Worcester
and Somerville 2 each. Baltimore, Washington, Lowell and
Salem 1 each.

In the thirty-three greater towns of England and Wales with
an estimated population of 10,992,524, for the week ending
August 7th, the death-rate was 26.9. Deaths reported 5,666,
diarrhea 1,543, measles 174, diphtheria 62, whooping-cough 52,
scarlet fever 34, fever 28, small-pox (London) 1.

The death-rates ranged from 12.0 in Halifax to 46.2 in Pres-
ton; Birmingham 34.0, Bradford 22.3, Gateshead 13.9, Leeds
30.2, Leicester 26.6, Liverpool 41.3, London 25.7, Manchester
30.6, Newcastle-on-Tyne 19.2, Nottingham 34.2, Plymouth 18.7,
Sheffield 35.1, Sunderland 16.1, West Ham 27.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 14, 1897, TO AUGUST 20, 1897.

The leave of absence granted COLONEL DALLAS BACHE,
assistant surgeon-general, chief surgeon Headquarters Depart-
ment of the Platte, is extended one month.

Leave of absence for one month to take effect upon his relief
from duty at Fort Preble, Me., is granted CAPTAIN HENRY S. J.
HARRIS, assistant surgeon.

Leave of absence for one month with permission to apply for
an extension of one month, is granted CAPTAIN HENRY A.
SHAW, assistant surgeon, Fort Snelling, Minn.

The leave of absence granted FIRST-LIEUT. CHARLES
LYNCH, assistant surgeon, Fort Robinson, Neb., is extended
one month.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 21, 1897.

F. L. PLEADWELL, assistant surgeon, detached from the
"Texas," August 17th, and ordered to the "Nashville," August
19th. August 14th.

W. M. WHEELER, assistant surgeon, detached from the "Ore-
gon" August 23d, and ordered to the Mare Island Navy Yard
for duty, in connection with the "Marietta."

D. H. MORGAN, assistant surgeon, detached from the "Mo-
nongahela" and ordered to the "Cincinnati." August 20th.

A. G. CADELL, surgeon, detached from the "Monongahela,"
ordered home and be ready for sea.

RECENT DEATH.

PROF. VICTOR MEYER. — By the death of Prof. Victor Meyer,
at Heidelberg, on the 8th inst., chemical science has lost an il-
lustrious exponent. Victor Meyer was born in 1818, and, after
filling the professorial chairs at Stuttgart and Zürich respec-
tively, was appointed professor at Göttingen on Wöhler's death
in 1885, and finally went over to succeed Bunsen, at Heidelberg,
in 1889. His labors in chemical science have related chiefly to
nitro-compounds and to thiophen, while his name will go down
to posterity in connection with his method for determining the
vapor density of volatile compounds. He has added not only
considerably to our knowledge of organic chemistry, but has
afforded us methods of gaining an insight into the constitution
of compounds.

BOOKS AND PAMPHLETS RECEIVED.

Neurological Progress in America. By C. H. Hughes, M.D.,
St. Louis. Reprint. 1897.

The Treatment of Complicated Ulcers of the Cornea. By
Clarence A. Veasey, A.M., M.D., Philadelphia. Reprint. 1897.

The Civic Duties and Responsibilities of the Physician to his
Community, State and Nation. By John Pantun, M.D., Kan-
sas City, Mo. Reprint. 1897.

The Cardio-Vascular and Renal Relations and Manifestations
of Gout. Cheyne-Stokes Respiration Phenomena. By N. S.
Davis, Jr., M.D., Chicago, Ill. Reprints. 1897.

Exercises in Practical Physiology. By Augustus D. Waller,
M.D., F.R.S., Lecturer on Physiology to St. Mary's Hospital
Medical School. Part III, Physiology of the Nervous Sys-
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Addresses.

BRITISH MEDICINE IN GREATER BRITAIN.¹

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To trace successfully the evolution of any one of the learned professions would require the hand of a master—of one who, like Darwin combined the capacity for patient observation with philosophic vision. In the case of medicine the difficulties are enormously increased by the extraordinary development which belongs to the history of the present century. The rate of progress has been too rapid for us to appreciate, and we stand bewildered and, as it were, in a state of intellectual giddiness, when we attempt to obtain a broad, comprehensive view of the subject. In a safer "middle flight" I propose to dwell on certain of the factors which have moulded the profession in English-speaking lands beyond the narrow seas—of British medicine in Greater Britain. Even for this lesser task (though my affiliations are wide and my sympathies deep) I recognize the limitations of my fitness, and am not unaware that in my ignorance I shall overlook much which might have rendered less sketchy a sketch necessarily imperfect.

Evolution advances by such slow and imperceptible degrees that to those who are part of it the finger of time scarcely seems to move. Even the great epochs are seldom apparent to the participants. During the last century neither the colonists nor the mother country appreciated the thrilling interest of the long-fought duel for the possession of this continent. The acts and scenes of the drama, to them detached, isolated and independent, now glide like dissolving views into each other, and in the vitascope of history we can see the true sequence of events. That we can meet here to-day, Britons on British soil, in a French province, is one of the far-off results of that struggle. This was but a prelude to the other great event of the eighteenth century: the revolt of the colonies and the founding of a second great English-speaking nation—in the words of Bishop Berkeley's prophecy, "Time's noblest offspring."

Surely a unique spectacle that a century later descendants of the actors of these two great dramas should meet in an English city in New France! Here, the American may forget Yorktown in Louisburg, the Englishman Bunker Hill in Quebec, and the Frenchman both Louisburg and Quebec in Chateauguay; while we Canadians, English and French, in a forgiving spirit, overlooking your unseemly quarrels, are only too happy to welcome you to our country—this land on which and for which you have so often fought.

Once, and only once, before in the history of the world could such a gathering as this have taken place. Divided through the Greeks were, a Hellenic sentiment of extraordinary strength united them in certain assemblies and festivals. No great flight of imagination is required to picture a notable representation of our profession in the fifth century B. C. meeting in such a colonial town as Agrigentum, under the presidency of Empedocles. Delegates from the mother cities, brilliant predecessors of Hippocrates of the stamp of Damocedes and Herodicus, delegates from the sister colonies of Syracuse and other Sicilian towns,

from neighboring Italy, from far distant Massilia, and from still more distant Panticapæum and Istria. And in such an assemblage there would have been men capable of discussing problems of life and mind more brilliantly than in many subsequent periods, in proportion as the pre-Hippocratic philosophers in things medical had thought more deeply than many of those who came after them.

We English are the modern Greeks, and we alone have colonized as they did, as free peoples. There have been other great colonial empires, Phœnician, Roman, Spanish, Dutch and French, but in civil liberty and intellectual freedom Magna Græcia and Greater Britain stand alone. The parallel so often drawn between them is of particular interest with reference to the similarity between the Greek settlements in Sicily and the English plantations on the Atlantic coast. Indeed, Freeman says: "I can never think of America without something suggesting Sicily, or of Sicily without something suggesting America." I wish to use the parallel only to emphasize two points, one of difference and one of resemblance. The Greek colonist took Greece with him. Hellas had no geographical bounds, "Massilia and Olbia were cities of Hellas in as full sense as Athens or Sparta." While the emigrant Britons changed their sky, not their character, in crossing the great sea, yet the home-stayers had never the same feeling toward the plantations as the Greeks had toward the colonial cities of Magna Græcia. If, as has been shrewdly surmised, Professor Seely was Herodotus reincarnate, how grieved the spirit of the father of history must have been to say of Englishmen, "nor have we even now ceased to think of ourselves as simply a race inhabiting an island off the northern coast of the continent of Europe." The assumption of gracious superiority which, unless carefully cloaked, smacks just a little of our national arrogance, is apt to jar on sensitive colonial nerves. With the expansion of the Empire, and the supplanting of a national by an imperial spirit this will become impossible. That this sentiment never prevailed in Hellas, as it did later in the Roman Empire, was due largely to the fact that in literature, in science and in art, the colonial cities of Greece early overshadowed the mother cities. It may be because the settlements of Greater Britain were things of slower growth that it took several generations and several bitter trials to teach a lesson the Greeks never had to learn.

The Greek spirit was the leaven of the Old World, the workings of which no nationality could resist; thrice it saved western civilization, for it had the magic power of leading captivity captive and making even captive conquerors the missionaries of her culture. What modern medicine owes to it will appear later. "The love of science, the love of art, the love of freedom—vitally correlated to each other, and brought into organic union," were the essential attributes of the Greek genius (Butcher). While we cannot claim for the Anglo-Saxon race all of these distinctions it has in a higher degree that one which in practical life is the most valuable, and which has been the most precious gift of the race to the world—the love of freedom,

"Of freedom in her regal seat
Of England."

It would carry me too far afield to discuss the differences between the native Briton and his children scattered so widely up and down the earth. In Canada,

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South Africa, Australia and New Zealand types of the Anglo-Saxon race are developing which will differ as much from each other, and from the English, as the American does to-day from the original stock; but amid these differences can everywhere be seen those race-qualities which have made us what we are—"courage, national integrity, steady good sense, and energy in work." At a future meeting of the Association, perhaps in Australia, a professional Sir Charles Dilke with a firm grasp of the subject may deal with the medical problems of Greater Britain in a manner worthy of the address in medicine. My task, as I mentioned at the outset, is much less ambitious.

Could some one with full knowledge patiently analyse the characteristics of British medicine he would find certain national traits, sufficiently distinct for recognition. Three centuries cannot accomplish very much (and that period has only just passed since the revival of medicine in England), but the local conditions of isolation, which have been singularly favorable to the development of special peculiarities in the national character, have not been without effect in the medical profession. I cannot do more than touch upon a few features, which may be useful as indicating the sources of influence upon Great Britain in the past, and which may perhaps be suggestive as to lines of progress in the future.

Above the fireplace in Sir Henry Acland's study are three panelled portraits of Linacre, Sydenham and Harvey; the scroll upon them reads *Litteræ, Praxis, Scientiæ*. To this great triumvirate, as to the fountain heads, we may trace the streams of inspiration which have made British medicine what it is to-day.

Linacre, the type of the literary physician, must ever hold a unique place in the annals of our profession. To him was due in great measure the revival of Greek thought in the 16th century in England, and in the last Harveyian oration Dr. Payne has pointed out his importance as a forerunner of Harvey. He made Greek methods available; through him the art of Hippocrates and the science of Galen became once more the subject of careful, first-hand study. Linacre, as Dr. Payne remarks, "was possessed from his youth till his death by the enthusiasm of learning. He was an idealist devoted to objects which the world thought of little use." Painstaking, accurate, critical, hypercritical perhaps, he remains to-day the chief literary representative of British medicine. Neither in Britain nor in Greater Britain have we maintained the place in the world of letters created for us by Linacre's noble start. It is true that in no generation since has the profession lacked a man who might stand unabashed in the temple at Delos; but judged by the fruits of learning, scholars of his type have been more common in France and Germany. Nor is it to our credit that so little provision is made for the encouragement of these studies. For years the reputation of Great Britain in this matter was sustained almost alone by the great Dec-side scholar, the surgeon of Banbury, Francis Adams,—the interpreter of Hippocrates to English students. In this century he and Greenhill have well maintained the traditions of Linacre. Their work, and that of a few of our contemporaries, among whom Ogle must be specially mentioned, has kept us in touch with the ancients. But by the neglect of the study of the humanities, which has been far too general, the profession loses a very precious quality.

While in critical scholarship and in accurate historical studies, British medicine must take a second place, the influence of Linacre exerted through the Royal College of Physicians and the old Universities, has given to the humanities an important part in education, so that they have moulded a larger section of the profession than in any other country. A physician may possess the science of Harvey and the art of Sydenham, and yet there may be lacking in him these finer qualities of heart and head which count for so much in life. Pasture is not everything and that indefinable, though well understood, something which we know as breeding, is not always an accompaniment of great professional skill. Medicine is seen at its best in men whose faculties have had the highest and most harmonious culture. The Lathams, the Watsons, the Pagets, the Jenners, and the Gairdners have influenced the profession less by their special work than by exemplifying those graces of life and refinements of heart which make up character. And the men of this stamp in Greater Britain have left the most enduring mark,—Beaumont, Bovell and Hodder in Toronto; Holmes Campbell and Howard in this city; the Warrens, the Jacksons, the Bigelows, the Bowditches, and the Shattucks in Boston; Bard, Hossack, Francis, Clark and Flint of New York; Morgan, Shippen, Redman, Rush, Coxe, the elder Wood, the elder Pepper, and the elder Mitchell of Philadelphia,—Brahmins all, in the language of the greatest Brahmin among them, Oliver Wendell Holmes,—these and men like unto them have been the heaven which has raised our profession above the dead level of a business.

The *literæ humaniores*, represented by Linacre, revived Greek methods; but the Faculty during the sixteenth and at the beginning of the seventeenth centuries was in a slough of ignorance and self-conceit, and not to be aroused even by Moses and the prophets in the form of Hippocrates and the fathers of medicine. In the pictures referred to, Sydenham is placed between Linacre and Harvey; but science preceded practice, and Harvey's great Lumleian lectures were delivered before Sydenham was born. Linacre has been well called, by Payne, Harvey's intellectual grandfather. "The discovery of the circulation of the blood was the climax of that movement which began a century and a half before with the revival of Greek medical classics, and especially of Galen" (Payne). Harvey returned to Greek methods and became the founder of modern experimental physiology and the great glory of British scientific medicine. The demonstration of the circulation of the blood remains in every detail a model research. I shall not repeat the oft-told tale of Harvey's great and enduring influence, but I must refer to one feature which, until lately, has been also a special characteristic of his direct successors in Great Britain. Harvey was a practitioner and a hospital physician. There are gossiping statements by Aubrey to the effect that "he fell mightily in his practice" after the publication of the "*De motu cordis*," and that his "therapeutic way" was not admired; but to these his practical success is the best answer. It is remarkable that a large proportion of all the physiological work of Great Britain has been done by men who have become successful hospital physicians or surgeons. I was much impressed by a conversation with Professor Ludwig in 1884. Speaking of the state of English physiology, he

lamented the lapse of a favorite English pupil from science to practice; but, he added, "while sorry for him, I am glad for the profession in England." He held that the clinical physicians of that country had received a very positive impress from the work of their early years in physiology and the natural sciences. I was surprised at the list of names which he cited; among them I remember Bowman, Paget, Savory and Lister. Ludwig attributed this feature in part to the independent character of the schools in England, to the absence of the University element so important in medical life in Germany, but, above all, to the practical character of the English mind, the better men preferring an active life in practice to a secluded laboratory career.

Thucydides it was who said of the Greeks that they possessed "the power of thinking before they acted, and of acting, too." The same is true in a high degree of the English race. To know just what has to be done, then to do it, comprises the whole philosophy of practical life. Sydenham — *Angliæ lumen*, as he has been well called, is the model practical physician of modern times. Linacre led Harvey back to Galen. Sydenham to Hippocrates. The one took Greek science, the other not so much Greek medicine as Greek methods, particularly intellectual fearlessness, and a certain knack of looking at things. Sydenham broke with authority and went to nature. It is an extraordinary fact that he could have been so emancipated from dogmas and theories of all sorts. He laid down the fundamental proposition, and acted upon it, that "all diseases should be described as objects of natural history." To do him justice we must remember, as Dr. John Brown says, "in the midst of what a mass of errors and prejudices, of theories actively mischievous, he was placed, at a time when the mania of hypothesis was at its height, and when the practical part of his art was overrun and stultified by vile and silly nostrums." Sydenham led us back to Hippocrates, I would that we could be led oftener to Sydenham! How necessary to bear in mind what he says about the method of the study of medicine. In writing therefore, such a natural history of diseases, every merely philosophical hypothesis should be set aside, and the manifest and natural phenomena, however minute, should be noted with the utmost exactness. The usefulness of this procedure cannot be easily overrated, as compared with the subtle inquires and trifling notions of modern writers, for can there be a shorter, or indeed any other way of coming at the morbid causes, or discovering the curative indications than by a certain perception of the peculiar symptoms? By these steps and helps it was that the father of physic, the great Hippocrates, came to excel, his theory being no more than an exact description or view of nature. He found that nature alone often terminates diseases, and works a cure with a few simple medicines, and often enough with no medicines at all. Well indeed has a recent writer remarked, "Sydenham is unlike every previous teacher of the principles and practice of medicine in the modern world." He, not Linacre or Harvey, is the model British physician in whom were concentrated all those practical instincts upon which we lay such stress in the Anglo-Saxon character.

The Greek faculty which we possess of thinking and acting has enabled us, in spite of many disadvantages, to take the lion's share in the great practical

advances in medicine. Three among the greatest scientific movements of the century have come from Germany and France. Bichat, Laennec and Louis laid the foundation of modern clinical medicine; Virchow and his pupils of scientific pathology; while Pasteur and Koch have revolutionized the study of the causes of disease; and yet, the modern history of the art of medicine could almost be written in its fulness from the records of the Anglo-Saxon race. We can claim every practical advance of the very first rank — vaccination, anesthesia, preventive medicine and antiseptic surgery, the "captain jewels in the carcanel" of the profession, beside which can be placed no others of equal lustre.

One other lesson of Sydenham's life needs careful conning. The English Hippocrates, as I said, broke with authority. His motto was

"Thou Nature art my Goddess; to thy law
My services are bound."

Undue reverence for authority as such, a serene satisfaction with the *status quo* and a fatuous objection to change have often retarded the progress of medicine. In every generation, in every country, there have been, and ever will be, *laudatores temporis acti*, in the bad sense of that phrase, not a few of them men in high places, who have lent the weight of a complacent conservatism to bolster up an ineffectual attempt to stay the progress of new ideas. Every innovator from Harvey to Lister has been made to feel its force. The recently-issued life of Thomas Wakley is a running commentary on this spirit, against the pricks of which he kicked so hard and so effectually. But there are signs of a great change. The old universities and the colleges, once the chief offenders, have been emancipated, and remain no longer, as Gibbon found them, steeped in port and prejudice. The value of authority *per se* has lessened enormously, and we of Greater Britain have perhaps suffered as the pendulum has swung to the other extreme. Practice loves authority, as announced in "the general and perpetual voice of men." Science must ever hold with Epicharmus that a judicious distrust and wise scepticism are the sinews of the understanding. And yet the very foundations of belief in almost everything relating to our art rest upon authority. The practitioner cannot always be the judge; the responsibility must often rest with the teachers and investigators, who can only learn in the lessons of history the terrible significance of the word. The fetters of a thousand years in the treatment of fever were shattered by Sydenham, shattered only to be riveted anew. How hard was the battle in this century against the entrenched and stubborn foe! Listen to the eloquent pleadings of Stokes, pleading as did Sydenham, against authority, and against the bleedings, the purgings and sweatings of fifty years ago. "Though his hair be gray and his authority high, he is but a child in knowledge and his reputation an error. On a level with a child, so far as correct appreciation of the great truths of medicine is concerned, he is very different in other respects, his powers of doing mischief are greater; he is far more dangerous. Oh! that men would stoop to learn, or at least cease to destroy." The potency of human authority among the powers that be, was never better drawn than by the judicious Hooker in his section on this subject. "And this not only with 'the simpler sort,' but the learned and wiser we are, the more

such arguments in some cases prevail with us. The reason why the simpler sort are moved with authority is the conscience of their own ignorance; whereby it cometh to pass that having learned men in admiration, they rather feared to dislike them than know wherefore they should allow and follow their judgments. Contrariwise with them that are skilful authority is much more strong and forcible; because they only are able to discern how just cause there is why to some men's authority so much should be attributed. For which cause the name of Hippocrates (no doubt) were more effectual to persuade even such men as Galen himself than to move a silly empiric."²

Sydenham was called "a man of many doubts" and therein lay the secret of his great strength.

Passing now to the main question of the development of this British medicine in Greater Britain, I must at once acknowledge the impossibility of doing justice to it. I can only indicate a few points of importance, and I must confine my remarks chiefly to the American part of Greater Britain. We may recognize three distinct periods corresponding to three distinct waves of influence, the first from the early immigration to about 1820, the second from about 1820 to 1860, and the third from about 1860 to the present time.

The colonial settlements were contemporaneous with the revival of medicine in England. Fellow-students of Harvey at Cambridge might have sailed in the *Mayflower* and the *Arbella*. The more carefully planned expeditions usually enlisted the services of a well-trained physician, and the early records, particularly of the New England colonies, contain many interesting references to these college-bred men. Giles Firman, who settled in Boston in 1632, a Cambridge-man, seems to have been the first to give instruction in medicine in the New World. The parsons of that day had often a smattering of physic, and illustrated what Cotton Mather called an "angelical conjunction." He says: "Even since the days of Luke, the Evangelist, skill in *Physick* has been frequently professed and practised by Persons whose more declared Business was the study of Divinity." Firman himself, finding physic "but a meane helpe," took orders. These English physicians in the New England colonies were scholarly, able men. Roger Chillingworth, in Hawthorne's "Scarlet Letter," has depicted them in a sketch of his own life: "Made up of earnest, studious, thoughtful, quiet years, bestowed faithfully for the increase of knowledge, faithfully, too, for the advancement of human welfare—men, thoughtful for others, caring little for themselves, kind, just, true and of constant if not warm affections"—a singularly truthful picture of the old colonial physician.

Until the establishment of medical schools (University of Pennsylvania, 1763; King's College [afterwards Columbia] 1767; Harvard, 1782), the supply of physicians for the colonies came from Great Britain, supplemented by men trained under the old apprentice system, and of colonists who went to Edinburgh, Leyden and London for their medical education. This latter group had a most powerful effect in moulding professional life in the pre-revolutionary period. They were men who had enjoyed not alone the instruction but often the intimate friendship of the great English and European physicians. Morgan, Rush, Shippen, Bard, Wistar, Hossack and others had received an education comprising all that was best in the period,

and had acquired the added culture which can only come from travel and wide acquaintance with the world. Morgan, the founder of the medical school of the University of Pennsylvania, was away seven years, and before returning had taken his seat as a corresponding member of the French Academy of Surgery, besides having been elected a Fellow of the Royal Society. The War of Independence interrupted temporarily the stream of students, but not the friendship which existed between Cullen and Fothergill and their old pupils in America. The correspondence of these two warm friends of the colonies testifies to the strong professional intimacy which existed at the time between the leaders of the profession in the Old and New Worlds.

But neither Boerhaave, Cullen nor Fothergill stamped colonial medicine as did the great Scotchman, John Hunter. Long, weary centuries separated Harvey from Galen; not a century elapsed from the death of the great physiologist to the advent of the man in whose phenomenal personality may be seen all the distinctive traits of modern medicine, and the range of whose mighty intellect has had few, if any, equals since Aristotle. Hunter's influence on the profession of this continent, so deep and enduring, was exerted in three ways. In the first place, his career as an army surgeon, and his writings on subjects of special interest to military men, carried his work and ways into innumerable campaigns in the long French wars and in the War of Independence. Hunter's works were reprinted in America as early as 1791 and 1793. In the second place, Hunter had a number of most distinguished students from the colonies, among whom were two who became teachers of wide reputation. William Shippen, the first Professor of Anatomy in the University of Pennsylvania, lived with Hunter on terms of the greatest intimacy. He brought back his methods of teaching and some measure of his spirit. With the exception of Hewson and Home, Hunter had no more distinguished pupil than Philip Syng Physick, who was his house surgeon at St. George's Hospital, and his devoted friend. For more than a generation Physick had no surgical compeer in America, and enjoyed a reputation equalled by no one save Rush. He taught Hunterian methods in the largest medical school in the country, and the work of his nephew (Dorsey) on surgery is very largely Hunter modified by Physick. But in a third and much more potent way the great master influenced the profession of this continent. Hunter was a naturalist to whom pathological processes were only a small part of a stupendous whole, governed by law, but which could never be understood until the facts had been accumulated, tabulated and systematized. By his example, by his prodigious industry and by his suggestive experiments he led men again into the old paths of Aristotle, Galen and Harvey. He made all thinking physicians naturalists, and he lent a dignity to the study of organic life, and re-established a close union between medicine and the natural sciences. Both in Britain and Greater Britain he laid the foundation of the great collections and museums, particularly those connected with the medical schools. The Wistar-Horner and the Warren museums originated with men who had been greatly influenced by Hunter. He was, moreover, the intellectual father of that interesting group of men on this side of the Atlantic who, while practising as physicians, devoted much time and labor

² Ecclesiastical Polity, Book II, vii, 2.

to the study of natural history. In the latter part of the last century and during the first thirty years of this, the successful practitioner was very often a naturalist. I wish that time permitted me to do justice to the long list of men who have been devoted naturalists and who have made contributions of great value. Benjamin Smith Barton, David Hossack, Jacob Bigelow, Richard Harlan, John D. Godman, Samuel George Morton, John C. Warren, Samuel L. Mitchell, J. Aiken Meigs and many others have left the records of their industry in their valuable works and in the *Transactions* of the various societies and academies. In Canada, many of our best naturalists have been physicians, and collections in this city testify to the industry of Holmes and McCulloch.

I was regretting the *humanities* a few moments ago, and now I have to mourn the almost complete severance of medicine from the old natural history. To a man the most delightful recollections of whose student life are the Saturdays spent with a perceptor who had a Hunterian appetite for specimens—anything from a trilobite to an acarus—to such a one across the present brilliant outlook comes the shadow of the thought that the conditions of progress will make impossible again such careers as those of William Kitchen Parker and William Carmichael McIntosh.

Until about 1820 the English profession of this continent knew little else than British medicine. After this date in the United States the ties of professional union with the old country became relaxed, owing in great part to the increase in the number of home schools, and in part to the development of American literature. To 1820 one hundred and fourteen native medical books of all kinds had been issued from the press, and one hundred and thirty-one reprints and translations, the former English, the latter, few in number, and almost exclusively French (Billings).

Turning for a few minutes to the condition of the profession in Canada during this period, I regret that I cannot speak of the many interesting questions relating to the French colonies. With the earliest settlers physicians had come, and among the Jesuits, in their devoted missions, there are records of *donnés* (laymen attached to the service), who were members of the profession. One of these, René Goupil, suffered martyrdom at the hands of the Iroquois.³

Between the fall of Quebec in 1759 and 1820, the English population had increased by the settlement of Upper Canada, chiefly by United Empire Loyalists from the United States, and after the War of 1812 by settlers from the Old Country. The physicians in the sparsely settled districts were either young men who sought their fortunes in the new colony or were army surgeons, who had remained after the Revolutionary War or the War of 1812. The military element gave for some years a very distinctive stamp to the profession. These surgeons were men of energy and ability, who had seen much service, and were accustomed to order, discipline and regulations. Sabine, in his "History of the Loyalists," refers to the Tory proclivities of the doctors, but says that they were not so much disturbed as the lawyers and clergymen. Still a good many of them left their homes for conscience sake, and Canniff, in his "History of the Profession in Upper Canada," gives a list of those known to have been among the United Empire Loyalists.

The character of the men who controlled the pro-

fession of the new colony is well shown by the proceedings of the Medical Board which was organized in 1819. Drs. Macaulay and Widmer, both army surgeons, were the chief members. The latter, who has well been termed the father of the profession in Upper Canada, a man of the very highest character, did more than any one else to promote the progress of the profession; and throughout his long career his efforts were always directed in the proper channels. On looking through Canniff's most valuable work one is much impressed by the stirring worth and mettle of these old army surgeons who in the early days formed the larger part of the profession. The minutes of the Medical Board indicate with what military discipline the candidates were examined, and the percentage of rejections has probably never been higher in the history of the province than it was in the first twenty years of the existence of the Board.

One picture on the canvas of those early days lingers in the memory, illustrating all the most attractive features of a race which has done much to make this country what it is to-day. Widmer was the type of the dignified old army surgeon, scrupulously punctilious and in every detail regardful of the proprieties of life. "Tiger" Dunlop may be taken as the very incarnation of that restless, roving spirit which has driven the Scotch broadcast upon the world. After fighting with the Connaught Rangers in the War of 1812, campaigning in India, clearing the Sangur of tigers—hence his sobriquet "Tiger," lecturing on Medical Jurisprudence in Edinburgh, writing for *Blackwood*, editing the *British Press* and the *Telescope*, introducing Beck's Medical Jurisprudence to English readers, and figuring as director and promoter of various companies, this extraordinary character appears in the young colony as "Warden of the Black Forest" in the employ of the Canada Company. His life in the backwoods at Gairbraid, his "*Noctes Ambrosianæ Canadensis*" his famous "Twelve Apostles" as he called his mahogany liquor stand (each bottle a full quart), his active political life, his remarkable household, his many eccentricities—are they not all portrayed to the life in the recently issued "In the Days of the Canada Company"?

Turning now to the second period, we may remark in passing that the nineteenth century did not open very auspiciously for British medicine. Hunter had left no successor, and powerful as had been his influence it was too weak to stem the tide of abstract speculation, with which Cullen, Brown and others flooded the profession. No more sterile period exists than the early decades of this century. Willan (a great naturalist in skin diseases) with a few others saved it from utter oblivion. The methods of Hippocrates, of Sydenham, and of Hunter had not yet been made available in everyday work.

The awakening came in France, and such an awakening! It can be compared with nothing but the renaissance in the sixteenth and seventeenth centuries, which gave us Vesalius and Harvey. "Citizen" Bichât and Broussais led the way, but Lænnec really created clinical medicine as we know it to-day. The discovery of auscultation was only an incident, of vast moment it is true, in a systematic study of the correlation of symptoms with anatomical changes. Louis, Andral and Chomel, extended the reputation of the French school which was maintained to the full until the sixth decade, when the brilliant Trousseau ended for a time

³ Parkman: Jesuits in North America.

a long line of Paris teachers, whose audience had been world wide. The revival of medicine in Great Britain was directly due to the French. Bright and Addison, Graves and Stokes, Forbes and Marshall Hall, Latham and Bennett were profoundly affected by the new movement. In the United States Anglican influence did not wane until after 1820. Translations of the works of Bichât appeared as early as 1802, and there were reprints in subsequent years, but it was not until 1823 that the first translation (a reprint of Forbes's edition) of Lænnec was issued. Broussais' works became very popular in translations after 1830, and in the journals from this time on the change of allegiance became very evident. But men rather than books diverted the trend of professional thought. After 1825, American students no longer went to Edinburgh and London, but to Paris, and we can say that between 1830 and 1860, every teacher and writer of note passed under the Gallic yoke. The translations of Louis's works and the extraordinary success of his American pupils, a band of the ablest young men the country had ever seen, added force to the movement. And yet this was a period in which American medical literature was made up largely of pirated English books, and the systems, encyclopedias and libraries, chiefly reprints, testify to the zeal of the publishers. Stokes, Graves, Watson, Todd, Bennett and Williams, furnished Anglican pap to the sucklings, as well as strong meat to the full grown. In spite of the powerful French influence the text-books of the schools were almost exclusively English.

In Canada the period from 1820 to 1860 saw the establishment of the English universities and medical schools. In Montreal the agencies at work were wholly Scotch. The McGill Medical School was organized by Scotchmen, and from its inception has followed closely Edinburgh methods. The Paris influence, less personal, was exerted chiefly through English and Scotch channels. The Upper Canada schools were organized by men with English affiliations, and the traditions of Guy's, St. Bartholomew, St. Thomas, St. George's, and of the London Hospital, rather than those of Edinburgh, have prevailed in Toronto and Kingston.

The local French influence on British medicine in Canada has been very slight. In the early decades of the century, when the cities were smaller, and the intercourse between the French and English somewhat closer, the reciprocal action was more marked. At that period English methods became somewhat the vogue among the French; several very prominent French Canadians were Edinburgh graduates. Attempts were made in the medical journals to have communications in both languages, but the fusion of the two sections of the profession was no more feasible than the fusion of the two nationalities, and the development has progressed along separate lines.

The third period dates from about 1860 when the influence of German medicine began to be felt. The rise of the Vienna school was for a long time the only visible result in Germany of the French renaissance. Skoda, the German Lænnec, and Rokitsansky, the German Morgagni, influenced English and American thought between 1840 and 1860, but it was not until after the last date that Teutonic medicine began to be felt as a vitalizing power, chiefly through the energy of Virchow. After the translation of the "Cellular Pathology" by Chance (1860) the way lay clear and

open to every young student who desired inspiration. There had been great men in Berlin before Virchow, but he made the town on the Spree a Mecca for the faithful of all lands. From this period we can date the rise of German influence on the profession of this continent. It came partly through the study of pathological histology, under the stimulus given by Virchow, and partly through the development of the specialties, particularly diseases of the eye, of the skin and of the larynx. The singularly attractive courses of Hebra, the organization on a large scale in Vienna of a system of graduate teaching designed especially for foreigners, and the remarkable expansion of the German laboratories combined to divert the stream of students from France. The change of allegiance was a deserved tribute to the splendid organization of the German universities, to the untiring zeal and energy of their professors and to their single-minded devotion to science for its own sake.

In certain aspects the Australasian Settlements present the most interesting problems of Greater Britain. More homogeneous, thoroughly British, isolated, distant, they must work out their destiny with a less stringent environment than, for example, surrounds the English in Canada. The traditions are more uniform and of whatever character have filtered through British channels. The professional population of native-trained men is as yet small, and the proportion of graduates and licentiates from the English, Scotch and Irish colleges and boards guarantees a dominance of Old Country ideas. What the maturity will show cannot be predicted, but the vigorous infancy is full of crescent promise. On looking over the files of Australian and New Zealand journals, one is impressed with the monotonous similarity of the diseases in the antipodes to those of Great Britain and of this continent. Except in the matter of parasitic affections and snake-bites, the nosology presents few distinctive qualities. The proceedings of the four Intercolonial Congresses indicate a high level of professional thought. In two points Australia has not progressed as other parts of Greater Britain. The satisfactory regulation of practice, so early settled in Canada, has been beset with many difficulties. Both in the United States and in Australia the absence of the military element, which was so strong in Canada, may in part at least account for the great difference which has prevailed in this matter of the State license. The other relates to the question of ethics, to which one really does not care to refer, were it not absolutely forced upon the attention in reading the journals. Elsewhere professional squabbles, always so unseemly and distressing, are happily becoming very rare, and in Great Britain, and on this side of the water, we try at any rate "to wash our dirty linen at home." In the large Australian cities, differences and dissensions seem lamentably common. Surely they must be fomented by the atrocious system of elections to the hospitals, which plunges the entire profession every third or fourth year into the throes of a contest, in which the candidates have to solicit the suffrages of from 2,000 to 4,000 voters! Well, indeed, might Dr. Batchelor, in his address at the Fourth Intercolonial Congress, say: "It is a scandal that in any British community, much less in a community which takes pride in a progressive spirit, such a pernicious system should survive for an hour."

Of India, of "Visnu-land," what can one say in a

few minutes? Three thoughts at once claim recognition. Here in the dim dawn of history, with the great Aryan people, was the intellectual cradle of the world. To the Hindoos we owe a debt which we can at any rate acknowledge; and even in medicine, many of our traditions and practices may be traced to them as may be gathered from that most interesting "History of Aryan Medical Science," by the Thakore Sahab of Gondal.

Quickly there arises the memory of the men who have done so much for British medicine in that great empire. Far from their homes, far from congenial surroundings, and far from the stimulus of scientific influences, Annesley, Ballingall, Twining, Morehead, Waring, Parkes, Cunningham, Lewis, Vandyke Carter, and many others, have upheld the traditions of Harvey and of Sydenham. On the great epidemic diseases how impoverished would our literature be in the absence of their contributions! But then there comes the thought of "the petty done, the undone vast," when one considers the remarkable opportunities for study which India has presented. Where else in the world is there such a field for observation in cholera, leprosy, dysentery, the plague, typhoid fever, malaria and in a host of other less important maladies? And what has the British Government done towards the scientific investigation of the diseases of India? Until recently little or nothing, and the proposal to found an institute for the scientific study of disease has actually come from the native chiefs! The work of Dr. Hankin and of Professor Haffkine, and the not unmixed evil of the British epidemic of plague in Bombay, may arouse the officials to a consciousness of their shortcomings. While sanitary progress has been great as shown in a reduction of the mortality from 69 per mille before 1857 to 15 per mille at present, many problems are still urgent, as may be gathered from reading Dr. Harvey's Presidential Address and the Proceedings of the Indian Medical Congress. That typhoid fever can be called the "scurge of India" and that the incidence of the disease should remain so high among the troops point to serious sanitary defects as yet unremedied. As to the prevalence of venereal disease among the soldiers — an admission of nearly 500 per mille tells its own tale. On reading the journals and discussions, one gets the impression that matters are not as they should be in India. There seems to be an absence of proper standards of authority. Had there been in each presidency during the past twenty years thoroughly equipped government laboratories in charge of able men, well trained in modern methods, the contributions to our knowledge of epidemic diseases might have been epoch-making, and, at any rate, we should have been spared the crudeness which is evident in the work (particularly in that upon malaria), of some zealous but badly-trained men.

In estimating the progress of medicine in the countries comprising Greater Britain, the future rather than the present should be in our minds. The strides which have been taken during the past twenty years are a strong warrant that we have entered upon a period of exceptional development. When I see what has been accomplished in this city in the short space of time since I left, I can scarcely credit my eyes: the reality exceeds the utmost desire of my dreams. The awakening of the profession in the United States to a consciousness of its responsibilities and opportunities has caused unparalleled changes, which have given an

impetus to medical education and to higher lines of medical work which has already borne a rich harvest. Within two hundred years who can say where the intellectual centre of the Anglo-Saxon race will be? The Mother Country herself has only become an intellectual nation of the first rank within a period altogether too short to justify a prediction that she has reached the zenith. She will probably reverse the history of Hellas, in which the mental superiority was at first with the colonies. At the end of the next century, ardent Old-World students may come to this side "as o'er a brook," seeking inspiration from great masters, perhaps in this very city; or the current may turn towards the schools of the great nations of the south. Under new and previously unknown conditions, the Africander, the Australian or the New Zealander may reach a development before which even "the glory that was Greece" may pale. Visionary as this may appear, it is not one whit more improbable to-day than would have been a prophecy made in 1797 that such a gathering as the present would be possible within a century on the banks of the St. Lawrence.

Meanwhile, to the throbbing vitality of modern medicine the two great meetings held this month, in lands so widely distant, bear eloquent testimony. Free, cosmopolitan, no longer hampered by the dogmas of schools, we may feel a just pride in a profession almost totally emancipated from the bondage of error and prejudice. Distinctions of race, nationality, color and creed are unknown within the portals of the temple of Æsculapius. Dare we dream that this harmony and cohesion so rapidly developing in medicine, obliterating the strongest lines of division, knowing no tie of loyalty but loyalty to truth — dare we hope, I say, that in the wider range of human affairs a similar solidarity might ultimately be reached? Who can say that the forges of Time will weld no links between man and man stronger than those of religion or of country? Some Son of Beor, touched with prophetic vision, piercing the clouds which now veil the eternal sunshine of the mountain top — some spectator of all time and all existence (to use Plato's expression) — might see in this gathering of men of one blood and one tongue a gleam of hope for the future, of hope at least that the great race so dominant on the earth to-day may progress in the bonds of peace — a faint glimmer perhaps of the larger hope of humanity, of that day when "the common-sense of most shall hold a fretful world in awe." There remains for us, Greater Britains of whatsoever land, the bounden duty to cherish the best traditions of our fathers, and particularly of the men who gave to British medicine its most distinctive features, of the men, too, who found for us the light and liberty of Greek thought — Linacre, Harvey and Sydenham, those ancient founts of inspiration and models for all time in Literature, Science and Practice.

It is said that Dr. H. R. Silvester, whose discovery of a method of restoring persons after apparent cessation of respiration has saved many hundreds of lives, has received no adequate personal reward or distinction for the great benefit he rendered humanity. The only recognition which Dr. Silvester has received is the presentation of the Fothergill medallion awarded him by the Royal Humane Society, which, although a high honor, is not distinction enough for the important services rendered. — *Medical News*.

THE SCHOLAR IN MEDICINE.¹

BY J. M. DA COSTA, M.D., LL.D. (HARV.).

MR. PRESIDENT OF THE UNIVERSITY, MR. PRESIDENT OF THE HARVARD MEDICAL ALUMNI ASSOCIATION. ALUMNI OF HARVARD:—When you, Mr. President of the Association, asked me to address this distinguished gathering, I begged that it be not on the subject of medical education, which, with all its great interests, had been for the present exhausted by the many who have treated of it before you so well and so often. I then thought that, in place of considering those whose minds are still to be moulded, it might be not inappropriate to give our attention to those fully formed; and so, with your permission, I will say a few words in regard to one of the very best types of these we meet,—the scholar in medicine. It is particularly fitting that I should do so here, while speaking in a city that is justly proud of its general culture, and under the shadow of the great university to which you all belong, to a profession that has been always distinguished for its love and appreciation of scholarship. It is fitting, surely, to speak of scholars to the pre-eminent scholarly profession of Boston.

In mentioning the scholars in medicine, I shall refer more particularly to those who have been men of cultivation and mental training other than merely in their own line, who, while actively pursuing their profession and learned in it, were not learned in it alone. I mean the men who, whether distinguished in the older restricted sense of scholarship chiefly in the classics, or in the much more comprehensive modern sense of general knowledge and culture in many and diversified branches, carry with them into professional life zest for these studies and the attitude of mind they give. I mean in its fullest sense the general scholar in medicine. Nor is it the scholar who has been a physician, but has largely or entirely abandoned his profession to devote himself to scholarship, and has been chiefly known through this and his general knowledge, that I am speaking of, though here there would be a noted list to enumerate.

Here is, in comparatively recent years, Adams, whose translations of Hippocrates and of Paulus Ægineta are admirable; here is Greenhill, of Oxford, deeply versed in Arabic lore; here are Bussemaker and Daremberg, the profound scholars, whose Oribasius and other editions of Greek and Latin classics critics everywhere laud. Here is Littré, the celebrated Greek student, who has also produced the best dictionary in any living tongue, and, unaided, has done for the French language in one lifetime what the French Academy has not accomplished since its creation.

And in older generations we find Linacre, court physician to Henry VIII, envoy, founder of the College of Physicians, the matchless teacher of Greek, having Erasmus among his pupils, the translator of Galen and of Aristotle into Latin so pure and grace-

ful that it was the admiration of his age; Caius, the benefactor of Caius College, Cambridge, the nine-times elected President of the College of Physicians, the physician to Queen Elizabeth, spoken of by Gesner in an epistle to her as the most learned physician of his age, and regarded as being the superior of any man of his time in Europe in profound knowledge of Greek, which he, while pursuing his anatomical studies at Padua, taught as public professor, and always insisted should be pronounced after the manner of modern Greeks. There is the great thinker, Locke, who to the last liked to dabble in medicine and practise on his friends, not always to their pleasure or advantage; also Sir Thomas Browne, though court physician, yet chiefly known by his extraordinary erudition that shows so conspicuously in the "Religio Medici" and "Urn Burial," and in the quaint conceits of his other writings, who could not, however, have been a very good companion, for it is recorded of him in Dr. Johnson's Life that, though always cheerful, he was rarely merry, "seldom heard to break a jest, and, when he did, he would be apt to blush at the levity of it," unmindful that Bacon himself dictated from memory in a single day a jest book which Macaulay has pronounced the best in the world. Further, there is Rabelais, the inimitable humorist of France, who, after taking his doctor's degree at Montpellier, lectured publicly on Galen and Hippocrates. But I will not dwell on him, since it is in literature rather than in learning that lies his fame. To dwell on him, too, would bring up forcibly the image of one who resembled him, and revive keenly the sense of the loss of the scholar, critic, man of letters, whose good-natured laughter resounded through the world,—our own Oliver Wendell Holmes.

Nor will I say anything of the host of physicians that have been distinguished in pursuits different from those we ordinarily class with scholarship, such as wide knowledge and research in the natural sciences; though I cannot forbear to mention Galvani, the doctor of Bologna; and Linnaeus, the physician at Stockholm, the professor at Upsala, whose classes his fame trebled; and another renowned Swede, the illustrious chemist, Berzelius; and Young, the Professor of Natural Philosophy at the Royal Institute, who, besides his extensive knowledge in mathematics, natural philosophy and botany, was master of many modern languages, and of Latin, Greek, Chaldee, Arabic, Syriac, Hebrew, Persian and Samaritan; and of Black, the popular physician at Glasgow, the discoverer of latent heat; and your celebrated botanist, Gray; and the great naturalist of varied acquirements, the father of popular scientific education in America, one of the glories of Harvard—Agassiz; and another of our great countrymen, Leidy, that man of deep knowledge of everything appertaining to the natural sciences.

But to turn to the men who have been famed in their profession as well as admirable scholars, and whose traits of mind were essentially those of the scholar. It is interesting how some of the illustrious names in medicine appear in evidence. Harvey is conspicuous—Harvey, whose style is so limpid and clear that whatever he states becomes at once a demonstration, and grace and propriety mark every utterance. He is the Cambridge scholar all his life, as well as the great physiologist and physician. Boerhaave, the high-minded professor and physician, the man of many

¹ Remarks made at the Annual Meeting of the Harvard Medical Alumni Association, June 29, 1897, by Dr. Da Costa, who was introduced by the President of the Association, Dr. Geo. B. Shattuck, in these words:

"Four years ago Dr. Da Costa was good enough to come from Philadelphia to help us at our meeting in a discussion of some of the problems of medical education. This year Harvard College requested his presence at Cambridge on Commencement Day, which means, it is permitted to suppose, still another bond of union. Under these circumstances he kindly consented to become our guest again. You have known Dr. Da Costa, of Philadelphia; and you want to know Dr. Da Costa, of Cambridge, a wise physician, whose name is inseparably associated with medical diagnosis, a sound scholar."

accomplishments, of extraordinary simplicity and kindness, thinking nothing of lecturing five hours daily, making the University of Leyden more famous than it had ever been, attracting patients from all parts of the world, among them, though as pupil rather than as patient, Peter the Great, — he, too, was all his life the diligent, accomplished scholar. So was Mead, the renowned and most popular physician of the time of George II, a Mæceus in literature and art, a beneficent and kindly social power, finished writer, ardent mathematician. The renowned professor of Padua, Morgagni, was also widely known as a practising physician, of whose art he must have possessed some of the best qualifications. "*Adeo erat in observando attentus, in prædicendo cautus, in curando felix,*" is recorded of him; and I see you smile at the *prædicendo cautus*, the caution in prognosis, — a trait it is thought his successors have not lost. He was very popular with his colleagues, and taught until he was ninety-one years of age, whether to the edification of those who looked to succeeding him in his chair is not recorded. Throughout his long life he was a great scholar as well as original thinker, was noted for the elegance of his Latin style, which shows to the last in his splendid work, "*De Sedibus et Causis Morborum,*" published in his eightieth year. A further marked illustration of the scholar among famed physicians is furnished by Lænnec, the founder of modern diagnosis. He was an excellent writer and a most accomplished Greek scholar. Of this, indeed, and of his horsemanship, he was more proud than of his amazing additions to science. The noted American physician, Rush, too, was much more than a medical author and practitioner. Deeply interested in public affairs, he was also known as hospital physician and professor, as philanthropist, essayist, and philosopher, and was of activities so widely recognized that the National Institute of France enrolled him among its members.

In the illustrations given of renowned physicians who were also noted for their scholarship, I have selected, among many, those of the greatest pre-eminence belonging to times remote from our own. But, without mentioning the living, — and Virchow and Paget, those masters of clear thought and purest language, are still among us, — it would not be difficult to point to examples nearer our own time that worthily uphold the best medical traditions as regards scholarly attainments. It is only necessary to speak of Simpson, archæologist and discoverer, of Brodie, philosopher as well as admirable writer, of Latham, incisive writer of pure English, of Watson, whose style makes him rank among the classics of the Victorian era, of Trousdale, the eloquent master of French prose, of Malgaigne, the erudite surgeon, of Sée, the medical orator, of Dunglison, the great lexicographer, of Billroth, the many-sided teacher, of Hyrtl, one of the most accomplished of modern scholars, and wonderful linguist as well as illustrious professor, to make clear how scholarship and broad attainments have steadily remained in the medical profession.

The scholarship I have been commenting on is the common scholarship of cultivated men, — general culture and knowledge, and not professional scholarship or learning. But, where in a professional man the former exists, he is sure also to possess the latter. Scholarship in broad lines brings with it learning in special lines. The habits and tastes of the scholar, and his mental attitude, remain the same, whether in

or out of his avocation. And, when we speak of the scholar in medicine, it is to be inferred almost with certainty that he is learned in his profession as well as out of it.

The love of intellectual cultivation is wide-spread in the profession. Let us not suppose that it is only found in medical centres or among those whom the profession recognize as their leaders. You may come across the scholar where you do not look for him. Twice this has happened to me recently. On one of these occasions I found him, in a small village, in a country practitioner, as an admirable Greek scholar, as well as of marked learning in his profession; another time, in a small country town, I met him in one who displayed a knowledge of old English and the changes that time had produced in our language that was amazing, and gave an hour of delightful talk after our medical conference was over.

In this utilitarian age the question may arise: What is the use of the scholar in medicine? We have obvious need for the investigator; but what is there for the scholar to do? Now there is no doubt that the investigator and originator in a science like medicine, with its tremendous problems and tremendous issues, is always of the first importance. And, if there is to be a choice between the scholar and the investigator, if a man can be only one, let the choice be always for the latter. — for the Paré, the John Hunters, the Jenners, the Marion Simses. But there need be no choice: the qualities may coexist, as proved by Harvey, Sydenham, Morgagni, Lænnec, and Lister, and lend accuracy and strength to the results obtained by the searcher in Nature's realm. The scholar has, indeed, great uses in medicine. Besides the power of expression, which comes, as a rule, with scholarship, he carries into every research, and into the estimate of every research, the facilities and critical judgment of a trained mind. He was never more needed than now, when every atom of discovery is heralded as of prodigious importance, and as sure to influence immediately the laws of the universe. It is the scholar who keeps the sense of proportion and fitness of everything, and who is not carried away into the maelstrom of pretence and assumption. It is the scholar who links the most valuable of the past to the most valuable of the present, understands and guards best against the errors of centuries, reads best the encouraging signs of the times and the bright hopes of the future. It is the scholar whose knowledge teaches him to appreciate correctly the different fads and isms which are constantly cropping up, and which he recognizes as old errors with new faces, susceptible, perhaps, of rational explanation; who traces in faith cures and kindred matters the history of expectant attention; who is able even to appreciate the value of cures by the seventh son of the seventh son. Do not think that this luminary is extinct. I know you can still find him in a place not forty miles from one of our largest cities, as a popular practitioner with a very long beard. He holds his chief medical séances on the first Friday of the new moon, cures by laying on hands, except in very bad cases, to which he administers some broth claimed to be of supernatural brewing, and which is particularly valuable in fits.

It is the love of true knowledge and progress on the part of the scholar, and his reverence for the lessons of the past, that counteracts all that is baneful in the tendencies to hasty generalization and unproved state-

ment. He is not carried away by mere assertion: he looks to experience and to the logic of facts. He appreciates at their true value the claims made for the host of new remedies daily introduced, the majority of which, if we wish to cure with, we must use while they are new. The scholarship that makes broadness also counteracts the worst feature in specialism, — to divide the profession into sections, marring its unity and strength. It is the scholar who maintains the ideal of his calling, who is the agreeable companion, by whom men in other professions estimate and appreciate the worth of ours. It is the scholar who founds libraries, does everything to promote collections and workshops of thought, and keeps his life free from the taint of barrenness. It is the scholar who cements the profession into the best of brotherhoods. It is the scholar who in a community creates an atmosphere of learning and appreciation of learning, which is apt to remain as an heirloom in families, forming scholarly clans, to the great advantage of the Commonwealth; and where could I find a better illustration of this than here in the home of the Warrens, the Jacksons, the Bowditches, the Bigelows, the Putnams and the Shattucks?

Moreover, it is the scholar through whom we are linked with sympathetic interest to other pursuits. To recall the noble words of Cicero, "Omnes artes quae ad humanitatem pertinent, habent quoddam commune vinculum, et quasi cognatione quadam inter se continentur." It is the scholar with his widespread sympathies who is the near of kin in this blood-relationship of all the arts, and who represents us in the universal domain of knowledge.

The scholar in medicine is, indeed, an attractive figure. We see him pursuing what noble ends, ambitious for what lofty recompenses, passing from life's beginning to its end through what scenes of sustained pleasure, — not grasping and scrambling for petty prizes or fleeting reputation and wealth, but aiming only at lofty objects. Such is the history, such the life of the scholar in medicine, as in every other branch of knowledge. If, unmindful of the friendly and social character of this meeting, I have treated of a grave and serious subject, and thus temporarily interrupted your pleasure, you must excuse me. But the memory of the famed men of your great university, its traditions, its spirit, its atmosphere of learning and of scholarship, proved irresistible, and caused me to speak, and to speak longer than may have been fitting, on a subject that the circumstances suggested, and with which I know you are in thorough accord.

Original Articles.

PALLIATIVE AND OPERATIVE TREATMENT OF FISTULA IN ANO.¹

BY JOHN B. BLAKE, M.D., BOSTON.

FISTULA in Ano is, next to hemorrhoids, the commonest of the diseases of the rectum, and is one of the minor surgical conditions with which the surgeon is most frequently confronted. It varies extremely in etiology, extent and symptomatology. It affects all ages and all classes, and for obvious reasons is often of months, or even years, duration before being brought

to the attention of the surgeon. It is more frequent in males than in females. An examination of the records of the Boston City Hospital shows that cases have been operated upon in that institution from one year to seventy-five years of age; these extreme limits are rare, and children are seldom afflicted with fistula. Of 100 cases recently operated at the Boston City Hospital, three were in patients less than twenty years old; 42 were between twenty and thirty years; 26 between thirty and forty years; 17 between forty and fifty years; and 12 were more than fifty. Sixty-eight per cent., therefore, were between the ages of twenty and forty; and the disease is most common, or at all events it seeks treatment most commonly, between these ages.

DEFINITION.

Gant defines fistula in ano as a "non-granulating sinus of the ischio-rectal fossa, usually with two openings." It need not necessarily open into the rectum, though it usually does so, and it is almost always in relation to the rectal walls.

ETIOLOGY.

By far the commonest cause of fistula is an inflammatory process, originating in the rectum or its neighborhood; that is, a proctitis, peri-proctitis, or an ischio-rectal abscess. Certain English writers assert that these are the only causes. This, however, is not true. Among other causes are fissures and ulcerated hemorrhoids, tubercular processes of rectum or ischio-rectal fossa, trauma, foreign bodies, such as fish bones, necrosis of sacrum or coccyx, and worms, especially in children. Finally, there are causes which should perhaps, be classified as predisposing rather than exciting, such as constipation, or alternate constipation and diarrhea, lack of cleanliness, and the heat and congestion and atony which the softness of cushions and modern chairs and the frequency of the sitting posture tend to develop in this region. Many surgeons believe this latter to be a fruitful source of fistula and hemorrhoids.

VARIETY AND TYPES.

It is not necessary to do more than mention the commoner types of fistula, such as the *complete*, the *blind internal* and the *blind external*. The rarer forms may be briefly described.

A horse-shoe fistula is one which extends to a greater or less degree on both sides of the anus, and usually opens into it in one or more places. It most commonly passes behind the anus. Its shape is due simply to the peculiar burrowing course of the pus. *Complete internal* and *complete external* are names given to fistulae with two openings, both of which are situated inside the rectum in the first case, and outside it in the second. Certain writers describe complete fistulae anatomically as *anal* and *rectal*, the former opening into the bowel low down, the latter at the level of, or above, the internal sphincter.

EXTENT.

Fistulae differ enormously in extent. Length, depth, direction, branching, inter-communications, and relations to anatomical landmarks, all vary within extreme limits. All degrees are found, from a single external opening to a series of sinuses which riddle the ischio-rectal fossa, or break into the rectum, bladder or vagina. The difference between extreme types

¹ Read before the Massachusetts Medical Society, June 9, 1897, and recommended for publication by the Society.

is enormous. The superficial fistula which involves only the margin of the external sphincter differs as much from one which has perforated the levator ani muscle, and invaded the pelvis, as does a mild catarrhal appendicitis from a fulminating case; and the severity of the operation and the length of convalescence vary accordingly.

SYMPTOMS.

The symptoms are usually unmistakable and the diagnosis obvious; but the precise determination of the extent of a fistula can never be made with certainty until the operation. Neither the duration of the symptoms, nor their intensity, nor the position or number of the orifices, can be depended upon as unerring guides in this regard. It is for this reason often impossible to give a definite prognosis before the operation.

Blind internal fistulæ are often as hard to diagnose as to demonstrate. Symptoms are often vague, and are usually soreness and a dragging sensation in the rectum at a varying distance from the anus, and a dull burning pain, usually increased after defecation. There may or may not be a discharge from the rectum. On digital or visual examination it is often impossible to demonstrate an opening. Such a fistula may accompany hemorrhoids, prolapse, or even fissure, unsuspected by the patient.

ANATOMY.

Anatomical considerations modify the treatment, and may at times dictate it. The important landmarks will, therefore, be briefly described.

The perineum is a rhomboidal area, of which the inferior edge of the symphysis pubis, and the coccyx, form the anterior and posterior extremities, and the tuberosities of the ischium, the lateral angles. The great sacro-sciatic ligaments extend from the tuberosities to the coccyx, making the posterior sides of the rhomboid, and the rami of the ischium and pubes form the anterior sides. The anterior half of this region is usually described as the perineum proper, and the posterior half as the ischio-rectal fossa. The roof is formed by the levator ani muscle, which is also the floor of the pelvic cavity.

The rectum is usually described in three parts, of which only the second and third are concerned in fistula. The second part begins at the top of the fourth sacral vertebra and extends to the upper margin of the internal sphincter. It rests upon the anterior surface of the sacrum, and is concave forward nearly to its lower extremity, where it turns abruptly backward over the lower end of the coccyx. Within it is sacculated and presents most of the anatomical characteristics of the large intestine. It is partially covered with peritoneum which extends further down on its anterior than on its posterior aspect, and finally leaves the rectum in the male about one inch above the edge of the prostate. In front of the rectum is the bladder in the male, and the vagina in the female. The depth of the pouch of the peritoneum in front of the rectum varies in different individuals, and at different times in the same individual, being higher when the bladder and rectum are full. In rare cases it may come close down to the prostate. This must be born in mind when following up a deep anterior fistula.

The third part of the rectum, or anal canal, is straight and directed backward and a little downward.

In life it is a slit, the walls held snugly in contact by the sphincters. The anus itself is elliptical, more so in males than in females, its long diameter being antero-posterior. In the female it is usually smooth and funnel-shaped, and free from hair; in the male it is wrinkled and covered with hair. Just beneath the skin at its margin are the thin radiating fibres of the corrugator cutis ani.

The external sphincter is elliptical, and is attached behind to the coccyx and in front to the tendinous centre of the perineum. In the female the fibres decussate anteriorly, and are continuous forward with the sphincter vaginae. It is a thin, flat muscle, and not a true sphincter. It closes the anus rather by approximating its lateral walls than by a circular contraction. It also pulls the coccyx forward, or helps to anchor the tendinous centre of the perineum.

The internal sphincter is a firm, thick rim of muscular fibres, produced by the increased development of the circular fibres of the rectum. It is a muscle of great strength, and upon its integrity depends the effective closing of the bowel. It is from one half to one inch in depth, and is not connected with any bony landmark.

The levator ani is an important muscle forming the roof of the ischio-rectal fossa and the floor of the abdominal cavity, and has been not inaptly called the diaphragm of the pelvis. The rectum passes through it at its lowest point in somewhat the same manner that the esophagus passes through the diaphragm. The levator ani arises anteriorly from the back of the pubes, posteriorly from the spine of the ischium, and laterally from the so-called white line of the obturator fascia which connects these two. From this broad origin the fibres pass downward, backward and inward, to the tip of the coccyx, the sides of the rectum and the sides of the prostate or vagina. On the superior surface, only the pelvic fascia is interposed between it and the peritoneum. As it forms the roof of the ischio-rectal fossa, and slopes downward, it is obvious that the fossa is deepest away from the rectum, and becomes progressively shallower as the anus is approached. The action of the muscle is to lift the anus and second part of the rectum after it has been lowered or everted in defecation. It is also a muscle of forced respiration, and a landmark of extreme importance in the operation for fistula.

BLOOD-SUPPLY.

The blood-supply is from several sources, but mainly from the inferior hemorrhoidal branches of the internal pudic, and the middle hemorrhoidal of the internal iliac as well as the superficial and transverse perineal arteries.

The veins form the hemorrhoidal plexus, and are numerous and large. They are without valves, and are prone to become varicose.

The congestion of the region is increased by its anatomical position and by the character of these veins.

It is necessary to mention the deep and superficial perineal fascia, and the triangular ligament before leaving this subject, as it sometimes happens that a deep fistula burrowing anteriorly through the levator ani muscle comes to lie above this ligament, and has been known to dissect its way anteriorly and actually point into the thigh.

TREATMENT.

The treatment of fistula, like the treatment of any other condition, must be directed towards the removal of the cause. It may be divided into palliative and operative, and by far the greater part is operative. Some writers go so far as to doubt the value of palliative treatment in any case of fistula whatsoever, and others restrict it to occasional cases of the most trivial character. On the other hand, the cure of fistula "without the knife" is extolled in numerous advertisements, and in every city there are so-called medical men who have apparently made large fortunes by following the palliative treatment exclusively.

It seems to be the opinion of the majority of writers and operators that there is a certain small and definite class of cases in which the non-operative treatment may be advised and followed with a good prospect of success. But it must be admitted that even in cases which seem to fulfil all the indications for non-operative treatment, a certain percentage will remain uncured, or will relapse.

The non-operative methods are numerous, but all may be classed under one of the following heads:

NON-OPERATIVE.

- (1) Simple cleanliness.
- (2) Dilatation of external opening and packing with gauze.

(3) Application of caustics.

(4) Introduction of ligature, preferably elastic.

The cases to which any of these methods are applicable are those not attended with acute inflammation, or the presence of much pus; those which are not extensive; those which pursue a direct tract, without diverticula or branches; those which do not extend through the levator ani, and through what scenes of agony, and which are not accompanied by the symptoms of being tubercular, though to the exclusion of this latter class some writers would disagree.

It is obvious that this classification limits to a marked degree the non-operative treatment; but beyond these limits the writer is convinced that palliative treatment at present should not be advised or undertaken. Exception, of course, is made of those rather rare cases in which on account of age or the general condition of the patient there is a definite contraindication to operation, or in which the patient refuses operation, and desires treatment, which is given with the distinct understanding that it will probably be insufficient.

CLEANLINESS.

It is a fact that certain superficial or marginal fistulae following fissures, or slight trauma, or very small abscesses, may heal, and heal permanently, if left to themselves and kept perfectly clean. Such cleanliness, however, must be persistent and scrupulous. Not only must the parts be washed at least once daily, and more often in warm weather, but they must be cleansed carefully after each movement of the bowels, and should be irrigated with some mild antiseptic or astringent, such as myrrh wash, or dilute liquor plumbi subacetatis. After the washing they must be made, and what is of great importance, maintained, perfectly dry. After wiping out the sinus, filling it with some inert powder, or with powdered boric acid, is at times of undoubted benefit. Such treatment is monotonous and necessarily of long duration. The cases are rare in which

it could be advised, and the patients who would carry it out are still rarer.

PACKING WITH GAUZE.

If packing with gauze is added to the cleansing described above, we have a method which will undoubtedly be sometimes followed by success. The method is common enough in the sinuses which follow operations in other parts of the body, and owes whatever efficiency it possesses to the cleansing which precedes it, and to the slight irritation to the sides of the sinus to which the packing gives rise. If carefully and conscientiously carried out, it compels whatever healing takes place to progress from the bottom of the sinus upward, and it prevents pocketing of the discharge; it also helps to prevent the introduction of dirt either from the rectum or externally. Gentle dilatation of the external orifice, with dressing forceps, or director, will facilitate the introduction of the gauze and the escape of the discharge. The frequency of the dressing varies with the amount of discharge, but will average approximately once in two days. Care must be taken not to pack too frequently or too solidly, as the former may mechanically interfere with healing, and the latter destroy the drainage. Iodoform gauze is unquestionably the best material, though baked gauze dusted with nosophen or aristol is also good.

CAUSTICS.

The application of caustics is a direct step towards removal of the cause of the fistula, and exciting union by adhesion or counter-irritation. All sorts of caustics have been recommended. Until late years nitric acid has been much used. It has been supplanted by ninety-five per cent. carbolic acid, which presents decided advantages over it—among others, that of being far less painful, and of being able to act efficiently without the formation of so deep a slough. The fistula should first be cleansed by the injection of peroxyde of hydrogen in 15-30 volume strength, or of permanganate of potash, and dried. A wisp of absorbent cotton is tightly wrapped about the end of a fine probe or wire, previously moistened a little to help the cotton to adhere. The cotton is saturated with ninety-five per cent. carbolic, and introduced into the sinus to the bottom, or to the internal orifice, and is then rotated and rubbed against the sides. Care is taken to prevent the healthy skin in the neighborhood from being moistened with the acid. The writer has usually applied the acid once in three days, but it is probably better to apply it oftener. In two or three cases the progress at first was rapid and satisfactory, but later on the more superficial part of the sinus was more obstinate in healing. In one case it failed entirely, though it is only fair to say that this case had been operated on before, and has since been operated upon again, and is still not entirely healed. It was a good example of a case in which the palliative treatment should not be advised. It was undertaken as an experiment. Sinuses without greatly thickened walls are particularly favorable for this method of treatment.

The objections to this method are the possibility of using too great a quantity and producing too deep a slough. In obstinate cases it may be advantageously combined with a packing of gauze.

LIGATURE.

The use of some sort of ligature for the cure of

fistula has been recommended for centuries. Various materials have been used—linen setons, silk thread (sometimes moistened with caustic) and elastic ligatures. Whatever advantage this method of treatment may offer, it is certain that the elastic ligature possesses more of the qualities necessary for success than any of the others. Celsus has given an accurate description of the elastic ligature, and in recent years Dittel, of Vienna, and Allingham have brought it prominently before the medical world.

The elastic ligature is the means most commonly employed by those who advertise to cure without the knife. It seems to offer to the timid or busy patient a relief from his uncomfortable condition, without operation, pain or confinement to bed. It is needless to add, that if it had made good such promises, it would have revolutionized the treatment of fistula shortly after its introduction. The elastic ligature in the past, however, has not been without its dangers. One case in which it was used died with the symptoms of septicemia, and two others developed secondary abscesses, though they were purposely confined to bed in the hope of avoiding such complications. These cases occurred some years ago, however, and since then the elastic ligature has been employed at the Boston Dispensary and at both the hospitals in Boston with perfectly satisfactory results.

Dr. J. C. Stedman reports no less than a dozen cases satisfactorily treated and cured without unpleasant symptoms by elastic ligature.

Elastic ligatures are strands of pure india rubber from one-twenty-sixth to one-eighth of an inch in diameter. Round ligatures have been recommended, but the square rubber thread, used to make webbing, answers the purpose perfectly. English writers advocate the larger sizes, such as one-tenth of an inch in diameter, but most Americans prefer the small ligatures.

The cases adapted for its use are complete fistulæ, of not too great a depth, without diverticula and past the stage of acute inflammation. Here, again, English writers differ from Americans, in recommending its use in deep fistulæ, as an adjunct to the knife, making the final cut through the internal sphincter by the elastic ligature, after the superficial tissues have been divided by the knife. In this way, Allingham thinks he causes less injury to the sphincter, and is certain that he has less bleeding.

The operation consists of passing the ligature through the fistula, and fastening the ends tightly together. The only difficult part of the operation is the introduction of the ligature. For this purpose several needles and probes have been devised, and Allingham has invented a formal suture carrier on a handle, in which the end of the ligature is carried through a guarded eyelet. These instruments are unnecessary as a rule. The writer in one case passed the ligature easily, by simply bending down the tip of the ordinary silver probe over the end, then passing the probe and ligature through the fistula. The ligature is then put on the stretch, and either tied or, what is more easily done, caught between the edges of a split shot, which is then compressed by means of a strong pincers. It is at times advisable to dilate the sphincter gently, and it is often surprising to find how much the sphincter can be dilated without pain, if much care and a little time be devoted to the task; this is, of course, in the unetherized patient.

The ligature should be drawn as tight before fastening as its strength will allow, and it is best to test this before inserting it. If the fistula be a deep one, it is sometimes advisable to insert a small piece of gauze between the shot and the skin, to spread the pressure over a little greater area.

The ligature cuts out in from five to ten days, the fistula healing behind it, sometimes with remarkable rapidity; the tract at times is more than half healed before the ligature comes away. The pain varies a good deal; it may be very slight after the ligature is once introduced; at times the patient is compelled to use a quarter-grain morphine suppository and go to bed. The pain rarely lasts more than forty-eight hours. As a rule the patient may be on his feet the entire time.

If appropriate cases are chosen, a very large percentage will be followed by a perfectly satisfactory result. Allingham says he has not found the ligature as effective as he at first thought it would be; but he uses it in cases in which it could hardly be expected to be successful. Sometimes the ligature does not cut completely through and must be tightened, or the operation completed by the knife; and rarely the sinus refuses to heal after the ligature has cut through. The ligature should, of course, be soaked in strong corrosive before introduction.

The most serious objection to it is in choosing appropriate cases, for the simplest fistulæ are often found upon close investigation to possess unexpected diverticula.

OPERATIVE.

The choice in operative treatment is practically limited to two methods:

- (1) Free incision, with granulation from the depth of the wound to the surface.
- (2) Removal of the fistulous tract by dissection and uniting the wound by sutures to secure healing by first intention.

The second method may be modified in some cases by curetting instead of dissection.

These methods may be briefly described as Incision and Excision.

INCISION.

Treeves says of this operation: "To Percival Pott is due the credit of the present method of operating. It was a common practice in his time to excise the entire sinus, and it is still common to hear the uneducated classes speak of having a fistula 'cut out.'"

In preparation for any operation on fistulæ the patient's bowels should be moved by cathartics, preferably saline, on the day preceding the operation, and by enema on the morning of the operation, and, if possible, not more than two hours before ether is administered. The diet for a day or two preceding should be exclusively meat broths. The position of the patient on the table may be either that of dorsal lithotomy, or on the side on which the main opening of the fistula is situated, with the knees flexed sharply on the abdomen. Mechanical cleanliness must be encouraged by shaving, and antisepsis rather than asepsis sought for. So far as possible fistulæ should not be operated upon while acutely inflamed.

The sphincter must always be dilated fully, both to facilitate the discovery of the internal opening and to hasten healing. The fistula, or if there be more than one, the largest of the external openings, is then in-

vestigated with a fine probe, particular attention being directed towards the discovery of branches or blind pockets. The opening into the bowel is often difficult to find, and it is the rule rather than the exception to find that the tip of the probe can be made to travel up and down the rectal wall for some little distance without perforating it. The finger of the unemployed hand is now introduced into the anus and the orifice sought for. It is better not to force the tip of the probe through the mucous membrane if this can be avoided. It is advisable first to slit up the sinus from the outside a little at a time, with knife or scissors, in the hope of finding the inner opening as the operation progresses. The more carefully and thoroughly the incision is carried out, the better will be the chance of rapid and complete healing. Granulations or thickened sinus walls must be thoroughly removed by knife or curette, and small pus pockets or diverticula cleaned and scraped. The external sphincter may be freely incised without hesitation, but some care must be exercised in cutting the internal sphincter. It is desirable to leave part of its fibres intact, if this be possible; if not, it is absolutely necessary to cut through it at right angles, not obliquely, and it must never be incised in more than one place on pain of certain incontinence. Particular care must also be taken to avoid cutting the sphincters anteriorly in women, at the point where the fibres decussate, and are continued forward on the sides of the vagina.

The simplicity of the operation, in the average case, tends to make the operator less careful in its execution. As the result depends essentially upon its thoroughness, too much emphasis cannot be placed upon the necessity of discovering and laying open all branches and diverticula, however short they may be. This can only be done by examining carefully the floor and walls of the sinus progressively.

When the internal opening is well above the upper sphincter, three methods may be considered. The sphincter may be cleanly incised at right angles and left to granulate, or it may be incised and held together by a deep suture, or the elastic ligature may be introduced, as suggested by Allingham, at the bottom of an incision which reaches to the lower margin of the sphincter.

All bleeding should be stopped as far as possible by temporary packing. In superficial fistulæ it is rarely necessary to tie vessels if the snap forcep be allowed to remain on them for a few minutes. After determining that the floor and walls of the wound are thoroughly cleansed, it should be packed, not too snugly, with a thin layer of iodoform gauze, a pad and T-bandage applied. Some writers doubt the desirability of a suppository, but in an operation of any considerable extent it is better to insert it as a matter of precaution. A quarter-grain morphine suppository is sufficient.

Horse-shoe fistulæ should be thoroughly opened, but should be incised into the rectum in only one place, that opposite the larger opening if two exist. If there are multiple openings externally, paths of communication between them must be sought for, and can usually be found; they should then be opened from one to another and finally, in one place, into the rectum. In some cases the openings are so numerous, and the tracts so deep, that it is very advisable to do the operations at two sittings, attacking the deeper portions first and simply dilating the other orifices. Much ingenuity has

been exercised in determining the most advantageous methods of making the incisions between the various orifices, but cases vary so much that no general rule more than the above can be laid down.

The fistulæ which are at once the most dangerous and most difficult, are those which perforate the levator ani muscle and penetrate the subperitoneal space in the pelvis. To open these thoroughly demands a very deep and often bloody incision, but unless opened thoroughly the operation is ineffectual, for the levator ani closes down and retains the discharge above, tending to the formation of the so-called hour-glass fistula. If the fistula is in the usual position, posterior to the anus, there is much less danger of wounding the peritoneum. If it is anterior, however, this possibility must be carefully borne in mind. The opening in the levator ani may be stretched with Bigelow's dilator advantageously, and the packing must be inserted to the bottom. Old, deep fistulæ have been found to lead in all directions above the levator ani muscle and triangular ligament, and at times perforate bladder, the rectum or vagina.

As a rule, the dressing should be changed on the second day after the operation, and each day after that. Thorough cleansing is essential, and it is best to use peroxide of hydrogen, permanganate of potash or corrosive sublimate. The packing should be carefully introduced to the bottom of the wound, and in small quantity. Care should be taken not to allow pocketing of the discharge, nor to interfere with the granulation by too vigorous dressings. The bowels should not be moved before the fourth or fifth day, and an enema of warm sweet oil (four ounces) should be given and retained for one or two hours to soften the feces, before the soap-suds enema which is intended to clean out the rectum. The diet after, as before, should be exclusively animal broths, for at least four or five days, since these produce least fecal mass. The patient should lie preferably on the side opposite the fistula.

The after-treatment is, in a majority of cases, at least, as important as the operation. If good results are desired, the after-treatment must be carried out by a competent assistant who understands its indications. The patient should be kept either in bed or lying down while there is a granulating area of any considerable extent, as the motions of walking are not conducive to healing. In packing the wound, iodoform gauze has given the greatest satisfaction.

The duration of the granulating process varies extremely. It is rarely less than three weeks, except in the most superficial cases, and often reaches three months and more. It is especially long in the cases perforating the levator ani, and in cases originating from necrosis of the coccyx, or from the disintegration of pelvic glands. The character of the operation is so slight that the patient is often unprepared for the length of the monotonous convalescence. Of the 100 hospital cases recently operated in the Boston City Hospital the duration of the stay in the hospital averaged a little more than four weeks, the extremes being one and fifteen weeks. These cases were all discharged to the out-patient department, where they were under treatment at least two weeks on an average.

Whenever the internal sphincter is involved the patient must be expressly warned beforehand of the possibility of incontinence. Rarely is it true, of solid feces, but often of gas or liquids; and not unfrequently

this is a permanent condition. An insufficient sphincter, for which the owner is unprepared, is a memento of the operation which is not relished by either patient or surgeon, and is a poor exchange for a fistula which may have been but a slight annoyance.

EXCISION.

In order to avoid the slow granulation of a deep wound, American surgeons began to sew up certain cases of fistula, with the hope of shortening convalescence. In 1886 Dr. Smith published one of the earliest papers upon the subject. As surgery advances it is interesting to note that we are returning in a limited measure to the class of operation which is said to have been in vogue before the time of Percival Pott. The difference is, that at present fistulæ are not sewed up indiscriminately after operation, but the cases for excision are carefully chosen, and the value of cleanliness and antisepsis during and after the operation is fully recognized and appreciated.

Sinuses in various parts of the body have been excised and sutured for years, and there is no good reason why favorable cases in the ischio-rectal fossa should not be similarly treated. The essentials of the operation are that it shall be possible to remove the cause of the sinus, to convert it into a clean wound, and to keep it clean. If these conditions are obtained and maintained, the result will be the healing by first intention. The type of fistula therefore to which this method is applicable, is non-inflammatory fistulæ, of moderate extent, with few branches; and also blind internal fistulæ of all varieties. In one case the writer has sutured a horse-shoe fistula with excellent result. The fibrous walls must be removed, preferably by dissection, sometimes with the curette. Granulations or pockets must be cleaned out with curette or Paquelin cautery, hemorrhage stopped, and the walls approximated by deep sutures. Silk is the material usually used. It is advisable to introduce each suture so that it encircles the wound and does not pass through its sides. For this purpose the so-called fish-hook needle has been invented. A strong needle with a sharp curve is essential, a Hagadorn preferably. The sutures vary in number according to the length of the fistula, and should be inserted at least as often as half-inch intervals. Sutures are removed in from three to six days; the dressing should be a wet corrosive pad, 1-3,000. The pain following the operation is apt to be greater than in simple incision. If the case is not progressing favorably, heat and redness increase, with the signs of retained pus; the stitches are removed alternately, and even in these cases a considerable amount of union is often gained. It is sometimes advisable, especially in old fistulæ, to insert an iodoform bougie into the bottom of the wound, and sew the sides together around it.

In superficial fistulæ it is almost invariably successful. In deeper cases it sometimes succeeds unexpectedly. It has never found much favor among English operators—most of them dismissing it lightly—and one (Cribbs) denouncing it as “opposed to every tradition of sound surgery.” Such an opinion is interesting as an indication of pathological conservatism, but is worthless otherwise. It would seem that the operation of excision for fistula will find a larger field in the future. Its obvious advantage is in the time gained in convalescence.

No matter what the method of treatment may be, a

certain percentage of cases which seem simple enough, will be found to be either obstinate in healing, or upon investigation to have recurred after a short period of apparent cure. In tracing cases operated during the past four months the writer has discovered such an instance. The man was discharged cured, after a dissection and suturing of a rather extensive sinus, which healed remarkably well. Two months afterwards, he presented a slight occasional discharge from an opening too small to be easily discovered, but which was so insignificant when compared to the condition before operation, that it would have been ignored by the patient.

In obstinate cases, second and third operations are sometimes necessary. By continued operation and care, however, almost any fistula may be cured, unless it be a symptom of an advanced general tuberculosis, or in a patient very much debilitated, or very old.

The question of advisability of operating upon fistulæ in patients suffering from pulmonary tuberculosis has been discussed at great length by almost every writer upon the subject. And yet the necessity for such extended discussion is not easily apparent. Of the 100 cases alluded to in the City Hospital, only three had symptoms which were considered of sufficient importance to be called phthisis complicating fistula. These three were operated and healed readily, and were discharged nearly well in one, two and four weeks respectively. More recently another case was admitted for operation in which the general condition was so bad that no operation was deemed advisable. The patient died of phthisis within three weeks. These cases show the indications for operating on fistula in phthisis, and they do not differ essentially from indications for any other operation in the same condition. Each case must be a law unto itself. If in the judgment of the surgeon the condition of the patient is good enough to withstand the operation, and if the benefit expected is greater than the discomfort attendant upon the operation, then the fistula should be operated. It is not a fact that such fistulæ refuse to heal. And when they are obstinate, the general condition, rather than the local etiology, is to blame. As a rule, a typical tubercular fistula is easily diagnosed by its large ragged openings—thin walls, sanious discharge and unhealthy appearance. In such operations it is well to substitute chloroform for ether; to get the patient into the sun and fresh air as soon as possible afterwards, to push the nourishment and to try and improve the general condition in every way. Gant, in speaking of this subject, says that five per cent. of all phthisical cases have fistula, and twelve per cent. of all fistulæ have phthisis. So far as the writer has been able to discover from a rather rapid examination of records, Gant's percentages are higher than the average for this part of the country.

While it is certainly true that occasional cases may be cured by cleanliness, caustic or simple packing, there are still only three methods which may be seriously considered in the treatment of fistula; and their importance and value rank in the order given: (1) incision and packing, (2) excision and suture, (3) elastic ligature. And in all of these methods, the after-treatment is at least as important as the operation itself.

THE Medico-Chirurgical College of Philadelphia has extended its course of study to four years.

CONSUMPTION NOT CONTAGIOUS.¹

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for Consumption, etc.

IN the past eight or ten years the newspapers of most of our cities have contained numerous statements intended to prevent the spread of consumption by convincing the people that the disease is contagious. These statements have usually been made by too enthusiastic individuals in the profession, and sometimes by boards of health acting in their official capacity; but I do not know that any thoroughly conservative and dignified medical body has ever recommended the compulsory notification of consumption, although the matter has been repeatedly discussed by such bodies. The motives of those who wish to impress upon the community the idea of the contagiousness of consumption must not be questioned, but it is not improper to suggest that their theory may be somewhat strained in its application. I have for years been interested in this subject, partly from my connection with the Rush Hospital for Consumption, in Philadelphia, and partly from the interest every one feels in the matter; and I have collected some notes in regard to it that confirm the conviction founded on my own observation that it is improper to speak of consumption as a contagious disease, and my doubt of the propriety of considering it as to any marked extent infectious. I know that a number of interesting coincidences have been observed, showing the frequent occurrence of consumption in certain buildings; but I think a just estimate of the significance of these observations cannot be made at present, and that they deserve critical attention before they are regarded as conclusive; for it does not appear from what is recorded that the reporters and collectors of these cases have taken into consideration all the conditions that might tend to promote the development of consumption.

Almost all believers in the infectiousness of consumption have founded their arguments upon experiments that do not seem so conclusive when we reflect that the results of inoculation experiments conducted upon animals of a weak and unresisting constitution, and under circumstances most favorable to the destruction of their health and life, ought not to be compared without reserve to the dissimilar conditions of human beings who usually have the supposed *materies morbi* brought into contact with their unbroken cutaneous or mucous surfaces and, in the case of the lungs, only after sifting through the nasal passages.

A curious line of argument in support of the contagion theory, just now, is the claim that since the general promulgation of this theory there has been a decrease in the number of deaths from this disease. This diminution is, I think, real, although in some places it has been unquestionably exaggerated owing to a misapprehension of those who report it. For example, a certain elation has been felt by the New York Board of Health over a reduction of the mortality from consumption in that city. This elation was not at all remarkable, but it was corrected when attention was called to the fact that the figures used in recent years included rural sections of New York that did not come into the statistics of previous years, and to the fact that restrictive laws adopted by boards of health often put too great a strain upon the candor of

medical men, and lead them to report cases that they have reason to believe are cases of consumption under the head of some other disease, so that, for example, pneumonia, bronchitis, congestion of the lungs, and such titles are employed to cover up what is regarded as an uncomfortable fact.² I am informed also that in Philadelphia certain insurance societies refuse to pay their policies in case of death from consumption, and that as a consequence many cases of consumption are now reported under other titles. It is impossible, therefore, to speak very positively as to the exact rate of diminution of consumption; but the statistics of all civilized countries show that for the last twenty-five or more years there has been a pretty constant and fairly even diminution in the number of deaths from consumption, quite irrespective of any attempt at isolation of the cases or systematic disinfection of the sputa. Very recently Dr. Samuel W. Abbott has published an interesting letter³ accompanied by a diagram showing the comparatively even reduction of the mortality from consumption in Massachusetts in forty years, from 1853 to 1893, from forty-two to twenty-three per ten thousand of the population.

The zeal with which some medical men have pressed the idea that consumption is a contagious disease would naturally lead to a very exaggerated fear of the disorder, and in spite of the feeble and scattered and utterly inadequate attempts to limit its dispersion, it is comforting to observe that although countless millions of tubercle bacilli are spread abroad in public places and public conveyances, they do not produce the terrible results that one might naturally expect. It is furthermore comforting to know that it is hard to find in the world a single careful observer connected with an institution in which large numbers of consumptives are gathered who accepts the theory that consumption is in any proper sense of the term a contagious disease. I am not unaware of the instances, cited by a few writers, that point to a certain degree of communicability of consumption, or unfamiliar with papers like that of Dr. Kolb, of Kaiserlauten;⁴ but these may be offset by the observation of those who have been most in contact with large numbers of the disease. Dr. C. Theodore Williams, of the Brompton Hospital for Consumptives, in London, published an article in 1882, in which he gave a summary of the experience of this great hospital in the matter of the contagiousness of consumption. The figures indicate that only four persons in a number that I think may be fairly estimated at about five hundred, including resident medical officers, clinical assistants, matrons, superintendents, nurses, servants, gallery maids, porters, secretaries, clerks, dispensers, chaplains, physicians and assistant physicians, had contracted the disease in the hospital.⁵ In 1883 Dr. Williams said, at a meeting of the Medical Society of London: "the evidence of the Brompton Hospital distinctly negatives any idea of its contagion in the ordinary sense of the word."⁶ At the same time, Dr. Drysdale said that he had for several years searched diligently for a case of transmission of the disease among his phthisical patients, but had failed to find one.⁷ Dr. Arthur Ransome, Professor of Public Health in Owens College, Manchester, published an in-

² Medical Record, February 13, 1897, p. 241.

³ Journal of the American Medical Association, April 10, 1897.

⁴ Beobachtungen über Tuberculose in Gefängnis-e. Zeltsch. für Hygiene und Infectious-krankheiten, 1895, xix, 484-506.

⁵ British Medical Journal, September 30, 1882.

⁶ Lancet, February 24, 1883, p. 312.

⁷ Ibid, p. 321.

¹ Read before the College of Physicians of Philadelphia, June 2, 1897.

teresting article entitled "Consumptive Scare,"⁸ in which he refers to the alarming leaflets scattered broadcast in England (as they have been scattered in this country), and maintains that hospitals for consumption are not hot-beds of infection—as according to the contagion theory they should be—but that the universal testimony of physicians of these institutions is that "no such conveyance of the disease can be traced in any such institution." He furthermore says (and in this my own observations agree), "it would almost appear from the statistics brought forward, that their wards were the safest places in which susceptible persons could take up their abode." "I might say," he adds, "that my own personal experience after fifteen years at the Manchester Hospital for Consumption would be entirely favorable to this view."

At a meeting of the Cambridge Medical Society of England, some time ago,⁹ the communicability of phthisis was discussed, all the members having been asked by post for their experience. Out of thirty-eight replies, thirty-four were negative. At that time a statement was made by Mr. Lawrence Humphrey of the number of cases in which contagiousness could be suspected in the Brompton Hospital, as follows: Of four resident medical men (one for twenty-five years) none had any lung disease; of six matrons, none had consumption; of 150 resident clinical assistants, eight became consumptive, five died, but in only one was the disease developed during residence. Since 1867, of 101 nurses, only one died of phthisis, and that after leaving the hospital. Before 1867, six died, three of phthisis, but only one became ill and consumptive while resident, and she had a consumptive sister. Of 32 gallery-maids, since 1867, none developed phthisis while in the hospital. Of 20 house-porters, five died, but none of consumption.

At the Chest Hospital, Victoria Park, London, during the last fifteen years, of five resident medical officers, all were alive and well; of two matrons, none had consumption, and no clinical assistant was known to have developed lung disease at the hospital. One nurse out of 50 or 60 in the last few years became consumptive while at the hospital, and died after a year's illness.

Very recently Dr. Stubbart, speaking of the only hospital in New York for this class of patients, stated that there had not been a case of infection among the attendants.¹⁰ The experience at the Rush Hospital for Consumption, in Philadelphia, has been precisely the same.

In this connection I would refer to a paper by Kirchner,¹¹ who sought many times for tubercle bacilli in the dust of rooms occupied by a large number of consumptive patients, and found them only in one instance. The comparative innocuousness of dust which might fairly be considered the most dangerous conceivable is further indicated in an article on the "Dissemination of Tuberculosis by Infected Dust,"¹² in which Mr. Clifford Beale, Physician to the Victoria Park Hospital, for consumption, of London, says: "The theory has been so readily established that the tuberculous disease may be, and probably often is, conveyed into the receptive lungs, by means of inhaled

dust, and precautions against the possibility of such conveyance have been so widely advocated, that it would seem to be superfluous at the present time to offer any observations or criticisms which might tend to throw doubt upon so simple and satisfactory a demonstration; but, however satisfactory the facts may appear to be when looked at from the purely experimental point of view, it must be confessed that from the clinical standpoint they admit of considerable discussion. In order to satisfy the clinical mind it is necessary that evidence should be forthcoming to prove that those who are especially liable to the inhalation of infected dust should also be more prone to tuberculous disease than others who have not been so exposed. It is to the records of the hospitals for the treatment of phthisis that we should naturally turn for such evidence, and more especially to the records of the years anterior to the publication of Dr. Cornet's observations. It has, however, been abundantly proved that no such evidence is obtainable in this country. To take the experience of the chest hospitals at Victoria Park and at Brompton respectively, the figures collated and published by Dr. Andrew and Dr. Theodore Williams made it clear that no special liability to tuberculous disease could be demonstrated among the medical and nursing staffs of these hospitals during a period of twenty years. Quite recently Drs. Heron and Chaplin, in an article entitled "The Relation of Dust in Hospitals to Tuberculous Infection,"¹³ published the results of a series of experiments made upon susceptible animals by actual injection of dust taken from wards occupied almost exclusively by tuberculous persons, and have shown that such dust possessed but little infective power. From these observations it must be concluded that the dust of a consumption hospital is not especially dangerous to those who must of necessity inhale it, nor does it always set up tuberculous disease in susceptible animals when introduced by way of direct inoculation."

Mr. Beale then describes a study of the effect of breathing dust that might be assumed to be as thoroughly filled with the bacilli of tuberculosis and their spores as any dust could be. He inquired of some of the largest paper-mills in England and Scotland through the board of managers and medical officers in regard to the occurrence of tuberculous disease among persons employed in their mills, and especially in the sorting-rooms, at a time when hospitals for consumption did not practise disinfection. In the latter, as is well known, there is an enormous amount of dust suspended in the air, which is constantly breathed by persons at the age in which tuberculosis is most easily acquired. Although he found that no attempt was made to disinfect the rags, he could not find that there was any frequent occurrence of tuberculosis in the persons exposed to this presumptive danger. He found also that it was the opinion of persons connected with paper-mills that work in this particular atmosphere was not a cause of tuberculous disease. He found no case whatever of tuberculosis of the skin. Some replies which he quotes indicate that these were carefully prepared, with due appreciation of the importance of the subject. He admits that there is no positive evidence that in any of the places investigated there were rags infected with tuberculous matter. But the conclusion to which he has come is, that the facts he has gathered "go to support the view derived from the vital statistics of the consumptive hospitals that

⁸ Medical Chronicle, January, 1895.

⁹ Lancet, February 24, 1885, p. 323.

¹⁰ Medical Record, February 13, 1897.

¹¹ Untersuchungen von Staub auf Tuberkelbacillen. Zeitsch. f. Hygiene und Infektionskr., 1895, xix, pp. 153-160.

¹² Lancet, February 24, 1894, pp. 470, 471.

¹³ Lancet, January 6, 1894.

presumably tuberculized dust is not a striking factor in the dissemination of tuberculous disease," and that "clinical observation abundantly shows that, in those very places where dust is most likely to be tuberculized, tuberculous disease does not appear to be disseminated." This interesting article confirms, as the author states, the deductions of Drs. Heron and Chaplin in their paper on the relation of dust in hospitals to tuberculous infection, in which they published the results of a series of experiments made upon susceptible animals by injection of dust taken from wards occupied almost exclusively by tuberculous persons, and have shown that such dust possesses but little infective power. From these observations it must be concluded that the dust of a consumption hospital is not especially dangerous to those who must of necessity inhale it, nor does it always set up tuberculous disease in susceptible animals when introduced by way of direct inoculation.

In the article alluded to, Drs. Heron and Chaplin¹⁴ described one hundred inoculation experiments made with dust from long uncleaned passages, shutters, pieces of furniture, and so forth, in the Brompton Hospital. In the entire series they produced tuberculosis by inoculation in guinea-pigs only twice. In reporting their own investigations they say it is very easy to attach too much importance to the results of research of this kind when it deals with only one hundred experiments, adding: "We, however, think we are justified in stating that the outcome of our work shows that in the wards and out-patient department of a hospital where a very moderate amount of care is taken to prevent the spread of infection from the expectoration of tuberculous persons, there is, within the limits of our observations, surprisingly little evidence of the escape of tuberculous bacilli to become a source of infection. Now, although it is true that the tuberculous bacillus probably retains its virulence at least as well as any other organism does when it is living a non-parasitic life, still it must be remembered that there exists no experimental proof to guide us where human beings are concerned, and, therefore, it is not known that it follows that because tuberculous bacilli will kill a guinea-pig or a rabbit, after the micro organism has been lying in sputa which have been drying on a floor for, say, six weeks; we say it does not follow that, because the bacilli can do this, they could, therefore, in like circumstances, kill a man. It is known that the anthrax, which will surely kill a guinea-pig, is not by any means certain to kill an ox. In like manner there exists no proof that the tubercle bacillus which is taken from drying sputum, and which is surely fatal to the guinea-pig, will also kill a human being. It may be highly probable that it will do so in favorable circumstances, but that is the utmost that can be safely said within the limits of our present knowledge."

The observations of large hospitals for consumption is borne out by that of resorts for consumptives. It nowhere appears that the gathering of consumptives in certain places is an occasion of consumption among the original inhabitants of these places. Within a year it has been reported that there was a slight increase in the number of deaths from consumption in the Adirondacks in New York, but this is attributed by Dr. Trudeau, not to communication of the disease, but to deaths of persons who have come to the Adirondacks already consumptive and too late to be saved from death.

In German health-resorts, like that of Göbersdorf, it has been found that the death-rate diminished after the establishment of institutions for the treatment of consumption. There is a simple and natural explanation for this which does not compel us to go so far as to assert that the proximity of consumptives is *per se* an advantage. It is enough now to show that it is not *per se* a disadvantage. Very recently an interesting letter was published by Dr. Clinton Wagner, of New York,¹⁵ quoting one from Dr. S. E. Solly, of Colorado Springs, who sums up his experience and observation as a specialist by saying that "the dangers of contagion from a consumptive are so easily controlled that it is by no means necessary to separate consumptives from healthy persons. . . . At Colorado Springs the consumptives mingle with the other residents of the city on all occasions — at church service, theatre, concerts, and in the overheated and crowded rooms of private residences during social functions; they reside in the same hotels, boarding-houses, and private dwellings with those not afflicted with the disease, and no attempt at isolation has been made. Notwithstanding this apparent indifference on the part of the local authorities to the contagiousness of the disease, only twenty cases have originated in Colorado Springs in twenty years."

Dr. Solly also says, to disarm a possible objection to the obvious deduction from these facts: "In the poorer lodging-houses of the town there are many ill-ventilated rooms, inside or on the north side of the building, inhabited by consumptives and their families, where recklessness of expectoration and carelessness of ordinary cleanliness are marked features of their domestic *ménage*; yet cases of contagion do not average more than one a year."

Dr. Wagner says, from his own observation: "At Davos-Platz, in Switzerland, where I spent a winter a few years ago, a very large number of consumptives were staying. The hotels were crowded, and of the 1,500 strangers in the village, about 1,000 were consumptives. At the hotel at which I stayed there were about 120 guests, about 80 of whom were consumptives. At Davos, during the winter, the invalid's day for outing is limited to four and one-half hours; the remainder of the twenty-four hours is spent within doors. No one stood in dread of contracting the disease, and no cases occurred in which it was conveyed from person to person. No special precautions were taken by the physicians and local authorities to prevent contagion, other than good ventilation of the living- and bed-rooms. As in Colorado Springs, no cases of the disease originated at Davos."

At the last meeting of the American Climatological Association, Dr. Vincent Y. Bowditch, of Boston, earnestly deprecated the reckless and extravagant utterances regarding the contagiousness of pulmonary consumption made by medical men as well as laymen in a recent discussion in the daily press, and "showed that in well-regulated hospitals or sanatoria for consumptives contagion is almost unknown, or, at least, that with ordinary cleanliness and care as to the destruction of the sputa, the danger is reduced to a minimum."¹⁶

Notwithstanding these facts and others that would be mere repetitions of them from equally competent authorities, a few men still manage to disturb the pro-

¹⁴ Lancet, January 6, 1894, pp. 14-16.

¹⁵ Medical Record, February 7, 1896.

¹⁶ Journal of the American Medical Association, November, 1896, p. 1026.

fession and alarm the community from time to time with exaggerated statements on this subject, overlooking the fact that present observations and historical occurrences demonstrate that consumption is not contagious (in the ordinary sense of this term) and that extreme measures of isolation and disinfection are unnecessary and useless. Two hundred years ago, in places as remote as Ireland and Italy, consumption was regarded as contagious, and frantic attempts were made to limit its ravages. Naples set a custom that would hardly be emulated by our zealous American Boards of Health. In Naples and Rome it was customary to sacrifice the clothes and furniture used about the sick, and even to scrape the walls and tear down the woodwork of the chambers in which they had been sick.

The subject of the contagiousness of consumption and compulsory notification was thoroughly discussed by the College in January, 1894, and notwithstanding the labored and ingenious arguments of those devoted to the contagion theory, the conclusion of the College was that the evidence did not justify such measures as the contagionists thought to be essential to limit what they call the spread of the disease.

It is questionable, in view of what has been already stated, for one to say, without qualification, that consumption is an infectious disease; and, as I have stated in a paper read before the Medical Society of the State of Pennsylvania, May 18, 1897,¹⁷ those who have alarmed the world by expressing extreme views in regard to its infectiousness have committed a serious blunder, for, while observation justifies the belief that there is distinct danger that persons deprived of their liberty, with little opportunity for exercise, whose habits of life are changed, whose food may be insufficient, and who are herded with others suffering with consumption, may contract the disease from them (as shown by the statistics of convents and prisons), the malady can hardly be called infectious in a broad and general way. As Dr. Russell, of Glasgow, has said, "In the academic sense it is infectious; in the popular sense it is not," and those who wish to secure the observation of prudent rules of health would do well to avoid those extreme pronouncements which have been made in this country and in some others, and to rather copy the careful and discreet utterances of the French Society for the Prevention of Pulmonary Phthisis and other Forms of Tuberculosis, which, in a circular intended for general distribution, makes a statement that can be thoroughly endorsed by those who wish to do what they can to prevent the spread of this disease, namely:

"We know further that the consumptive is not in the least dangerous by contact or proximity; that it is never his body nor his breath which is hurtful; and that we can chat with him for hours, live with him for years, and even sleep in his room and give him the most constant care without running any serious risk, *provided we take certain precautions*, the chief of which is to collect his expectoration, and not delay the destruction of his sputum until it becomes dry and is disseminated as dust in the air."

Finally, although I have just used the word "spread" in connection with this disease, I think it is well to add that consumption is not a disease that is now spreading; on the contrary, in the time covered by most

accurate vital statistics of this country and Europe, it has diminished considerably in frequency. Some earnest advocates of restrictive measures have already claimed that the reductions observed within the past few years have been due to the attempts that have been made to restrict it by boards of health; but, fortunately, the community has a better reliance than this weak and inefficient one, and is encouraged by the knowledge that for many years there has been a comparatively steady decline in the proportion of cases of consumption. The disease is not spreading, as alarmists make the community to fear, but is actually contracting; and the hope may be entertained that, with the inculcation of reasonable and proper precautions, without spasmodic and violent measures, the ravages of consumption will become less and less, and it will soon cease to be the scourge and terror that it now is.

Clinical Department.

A CASE OF INTUBATION, AT THE AGE OF FOUR MONTHS AND TEN DAYS.¹

BY F. W. TAYLOR, M.D., CAMBRIDGE, MASS.

J. S., male; born August 11, 1896, always well till present sickness.

December 21, 1896. The child is large for his age, well developed and well nourished. The mother says that he has been fretful for several days; that yesterday about noon he began to be hoarse and to choke; and that he has been worse this morning. When seen at one P.M., the respiration was noisy, there was moderate laryngeal obstruction, both tonsils were enlarged, and covered with dense membrane. At 3.30 P.M., the rectal temperature was 102° F., pulse strong and very rapid, respiration labored, prostration slight, heart's action good; between 200 and 250 units of antitoxin (Massachusetts State Board's) injected. During the afternoon and evening dyspnea increased so as to threaten life, and at 11 P.M. intubation was done with partial relief. The child passed a sleepless and restless night, was unable to swallow, and much annoyed by mucus in the pharynx.

December 22d. The temperature rose during the day; and at 3 P.M. was 104.6°, pulse thready, respiration very rapid and obstructed by mucus. The tube was removed, and the respiration improved, as the patient could then swallow the mucus. Antitoxin (200 units) was injected. During the afternoon the child nursed several times, and had short naps.

December 23d. At 9 A.M. temperature was 101.2°, respirations 36. Slept four hours and a half last night. Dyspnea returned in the afternoon, became extreme in the evening, and at 9 P.M. intubation was again done.

December 24th. Patient breathes somewhat more easily, coughs frequently, nurses but little.

December 25th. Restless last night, coughed frequently, and was much disturbed by mucus in pharynx. At noon he coughed up the tube, slept comfortably from 12.20 to 12.50 P.M., and nursed well at 1 P.M.

December 26th. No membrane to be seen in throat. Patient slept two hours continuously in the

¹⁷ Comforting Facts about Consumption. Medical Age, June 10, 1897.

¹ Reported at the meeting of the Cambridge Medical Improvement Society, February 22, 1897.

morning and three hours in the afternoon, coughed when awake, nursed well.

December 28th. Hoarseness and cough continue.

January 8, 1897. Improvement has continued until within a few days. To-day, temperature 104°; much cough; fine, moist râles generally distributed over chest.

January 17th. Convalescence established.

The tube which was used had been made to order several years ago. It is of the same diameter as the one usually used for a child one year old, but is one-fourth of an inch shorter. It was introduced with considerable difficulty. Dr. E. H. Stevens succeeding after several unsuccessful attempts, both by him and myself. As it was feared that extraction of the tube would be difficult, the string was left attached to it, the end being fastened to the cheek by adhesive plaster. The presence of the string in the pharynx probably accounts for the large amount of mucus, which was very troublesome as long as the tube was retained.

The only culture from the throat was taken January 5th, and was negative. The diagnosis of diphtheria is made practically certain, however, by the clinical appearances, and by the facts that during the week previous to this illness a sister had been kept at home because of sore throat, and that on the 2d of January another sister was taken sick, who on the 3d had abundant membrane in the throat, and on the 5th of January gave a culture containing Klebs-Löffler bacilli.

Enemata of peptonized milk and whiskey were given freely. The only medicines used were chloride of ammonium and syrup of ipecac, and these were administered irregularly.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR meeting, Wednesday, March 24, 1897,
Dr. M. Storer, chairman. *pro tem.*

GONORRHEA IN WOMEN.

DR. E. W. CRUSHING presented the sociologic side:

I presume this is meant to involve questions not strictly medical; and I feel a little as Cicero may have felt when, in defending the poet Archias, he asked his legal tribunal to bear with him if he handled the matter in a way not quite customary in the court. So in this reverend body I hope I shall be pardoned if in considering the sociologic aspects I sometimes drift away from the strictly medical side of the question. It is a very broad and important subject, one which within the last five or ten years has begun to be properly appreciated, but which I am afraid is not properly appreciated by the public, or even by the profession at large, at the present time—the immense importance of gonorrhea in women.

Gonorrhea is pre-eminently a disease of civilization, of crowding together. It is probably as old as the aggregation of humanity, and will last as long as humanity does. There are evident references to it in the

Mosaic Law—the segregation of men with a running from the flesh, the pains taken that all women should pass through the period of purification after menstrual discharges, which could have had its origin only in the fact which was observed then, as it is observed now, that immediately after or during the menstrual discharge infectious diseases were most apt to be communicated.

There are many ways in which gonorrhea is distributed in thickly-settled and in rich communities. One of the most important is prostitution, but that is by no means the only method, and in certain respects it is not the most common method. Prostitution has become a business involving a great deal of capital and skill, and commanding medical talent of a certain grade; and the consequence is that in well-regulated houses of prostitution the danger of infection is recognized, the pecuniary loss to the business is appreciated, and strong efforts are made, by the instruction of the unfortunate inmates in the care of their health, against the house getting a bad name. It is the great army of immoral persons outside the houses of prostitution, ignorant girls who have enough modesty not to take the means to secure themselves against infection, and not enough modesty to avoid the opportunity of infection, who are the great spreaders of this disease. In the last ten years I can remember only two cases of actual prostitutes coming from brothels who have required surgical operations, whereas the multitude of other young women thus affected who have passed under my observation has been something painful to contemplate. In Europe the great standing armies are a menace to the health of the community from this disease. I will merely quote a few lines from a paper recently read by Dr. Burr, in which, after referring to the various attempts to limit this disease in India, Holland and Japan, he says:

"The soldiers of the great standing armies of Europe carry this disease to their homes, on furlough or at the end of their term of service, and distribute the mischief to the innocent. Though not afflicted with the attendant evils of large standing armies in America, it is quite within bounds to say that one-half of our male population becomes infected with gonorrhea at some period of life. When we consider what a large percentage remains uncured (Noeggerath believed it to be 90 per cent.), we may know that a vast number of unfortunate wives must become infected also through no fault of their own."

If we, fortunately, have not great standing armies, we have other evils or methods of rapid distribution in the rapid growth of huge cities and the free communication between town and country, in the immense facility of commercial travel, in the growth of riches and luxury side by side with the spread of poverty and destitution, in the great armies of young women crowded in the cities, living alone and supporting themselves, living on insufficient wages, far removed from all the safeguards which in other times were thrown about women. That is something which has come up in the last ten or fifteen years to a great extent. The cities have increased, and the number of young women living and earning not enough to clothe and feed themselves is something appalling, and they are in contact with other women who have from their male friends clothes and all they wish for. The great aggregation of students in our large cities and great universities, as youths "just free from bar and bolt,"

has increased very much during the last generation. When I was in college 50 to 70 was considered an average number to graduate in a class. Now they number 200, 400, or even more, in the larger colleges, while the whole number of institutions of learning has increased immensely. Of course, out of such numbers of students there is a large proportion given to various forms of dissipation, and about all they really accept and remember of their alleged classical education is the maxim of Horace:

"Nec dulces amores
Sperne puer, neque tu choreas;
Donec virenti cauities abest
Morsus. Nunc et campus et aræ,
Lenesque sub noctem susurri
Composita repetantur hora."

It has been argued that gonorrhea is a useful disease and an aid to morality, because it acts in the long run by obstructing the ducts of the epididymis of the too erotic of the men, and by destroying the function of the Fallopian tubes of the unchaste among the women, and thereby acts as an aid to the restraining influences of civilization, by permitting the propagation only of those who are able to restrain their sexual natures according to the requirements of the environment they live in, thereby furthering Herbert Spencer's idea that the future men and women will accommodate themselves to the limitations of civilization. That is probably a long way off. As far as we can see at present, the natural man has not changed very much from the earliest times. As for the ladies, we certainly have the very oldest bit of history of any kind extant to show that there were different kinds of women from the beginning. In the Talmud it is written that before Eve was created Adam had another wife—Lilith, blonde and emotional and sprightly—who would not live with Adam because he was slow and because he was a farmer, and who ran away with an interesting demon. There have been Liliths and Eves ever since. Few men know how women feel on these matters, and they will never tell, and it would be a libel on the sex to tell what women think and say about each other, but we have the authority of poets to think that women are not attracted by men to fall in love with them because they are good. You recognize that Goethe would have made a mistake if he had made Marguerite fall in love with a man who was pious and diligent and good to his mother; what took away her rest and made her heart heavy was:

"Sein hoher Gang, sein edler Gestalt,
Seines Mundes lacheln, seiner Augen Gewalt."

And so it will be forever.

Now, given the fact that gonorrhea is with us to stay, perhaps it would be all very well if it were limited so that it merely affected prostitutes, erotic young women and immoral young women. If it stopped there it would soon purify civilization. It has been said, if we had a jumping toothache fifteen minutes after every sin, there would soon be no more sins. Unhappily it does not stop here; wives are infected, babies are cursed with blindness, little girls become diseased.

A very large proportion of young men acquire gonorrhea. I think that is not subject to dispute. Just how large is the proportion I will not attempt to estimate. What proportion of men once affected with this disease become thoroughly free from it, and after how long a time, is a difficult thing to determine; but so much is known, that a very large proportion of

men who think they are cured are not cured, and infect their wives soon after marriage. Possibly the disease is aggravated by the fact that the natural excitement attending marriage puts an undue strain on the genital apparatus, and an undue congestion, and starts the latent germs into activity. At any rate, there are an immense number of innocent women infected. It is one of those things which has little influence on the people, because nothing is said about it, as the fatality of tuberculosis is not noticed, although if all the tuberculous could be gathered together we should see that it is worse than cholera or the plague. We had a great explosion the other day, and the city and the whole country were horrified. If I could bring together all the ruined lives, and the misery caused by gonorrhea, which I have seen in the last year, and put it together, there would be a worse shock and greater number of miserable victims from this one disease.

I have here very little to do with the pathology of this thing. I will merely run over the way in which it infects the women. There is first the localization in the genito-urinary tract, the glands of Bartholini, vulvitis; it passes into the cervix, into the uterus, into the tubes, makes salpingitis and the conditions which obtain as result of this gonorrhea. I see cases which have resisted treatment, which are brought for operation, and which do not get well under ordinary treatment. I have no doubt from what my friends tell me that a great many cases have it in a lighter way and do get well, and that the tubes may open and discharge, and the patient pass through a period of convalescence similar to that which occurs in epididymitis when the ducts are stopped up. Still, careful observations will have to be made on this subject. There have been great discussions in Germany lately; and Baum, formerly of Wurtzburg, brought up his observations on treatment. In spite of every kind of treatment, active or expectant, general or local, some 10 per cent. of his cases acquired pelvic disease of a serious nature.

The disease appears to vary in different places and in different communities. I am persuaded that in Philadelphia there is a more virulent form of the disease, with more tendency to suppuration, than here. There is something in the climate, in the race. In China and among the negroes they have a particularly virulent form; and I think what makes the Philadelphia gonorrheal infection so serious is the large amount of negro element in the city, bringing the worst forms of what the darkies call "lady fever" into cultivation, and thereby increasing the virulence of the whole lot. Also, they have had, until lately, no opportunity in the clinics or hospitals of Philadelphia to treat the disease.

What can we, as a profession, do in regard to gonorrhea? The first thing which reformists who wish to cure everything by law attempt is the regulation of prostitution; and that is the one thing which is bound to be a failure in this country. Evils of all kinds would immediately supervene if we tried to invent laws for the thorough regulation of prostitution. It has been tried again and again. Popes and emperors and kings and queens have attempted it, but without avail. Think of the evils which would arise if any attempt were made to regulate this thing by law! There would be a certain amount of false security which would only aggravate the disease. It is not possible to eradicate it in this way, even in houses of prostitu-

tion. I don't think any one who has followed the clinics in Paris and seen the style of doctor, or style of police supervisor, it breeds, would wish to have a similar state of affairs here. There would be demoralization of the police. Prostitution is a great business, with great capital involved, with unlimited opportunities; and from the slight uncovering of the thing in New York you can see what a stew the police would be in, in our government, if they had the system of arresting, confining and examining young women; the hideous chances of blackmail, arresting of innocent women and putting them with prostitutes. The mixing up of doctors with this is a dirty business, and it would drive the prostitutes into clandestine prostitution, which is the worst of any. Then comes the manifest injustice of punishing women and letting men go free. It would not be tolerated. It is not tolerated in England. To undertake any such system all over this country is, in my opinion, impossible, injudicious and unrighteous.

We cannot expect much from laws, for they rest upon public opinion, and until the public opinion is enlightened the laws are inoperative, and when that opinion is sufficiently enlightened the laws will follow of themselves. We have lived to see what a few years ago would have seemed impossible, the public opinion awakened to the question of tuberculosis, so that tuberculous meat and milk are condemned, and the food-supply of cities is cut off except as far as it can come from properly examined animals, and the milk unless it comes from cows that are exempt from tuberculosis. We have seen also an ordinance against spitting in the public cars. The office of the medical profession is to enlighten public opinion and not to propose laws.

Second, it has been proposed to make it incumbent on physicians to report to the board of health all cases of venereal disease under treatment. It is not the business of physicians to do the work of the police without remuneration, and it is against their first principles to go around declaring diseases which their patients do not wish declared. In certain cases where there is no moral stigma involved, as in diphtheria, and where actual danger overlies the community, the profession can be asked to do it, but they cannot be asked to carry out any such regulation as that in regard to venereal diseases.

Third, to make infection with venereal disease a ground for divorce and damages, even if latent at the time of marriage. That is a just provision, but at present it cannot be carried out; and it is a very delicate matter for the profession to take the initiative in saying anything about such things. Their position is to be dragged into the thing if necessary, but not to volunteer information.

Fourth, to make treatment of venereal diseases by druggists a misdemeanor. I don't think the public is ripe for that yet. Such legislation would be futile at present.

What can the profession do, and what is its duty in the matter? In the first place it can instruct itself so that it realizes the gravity of this thing, knows the means of scientific diagnosis, recognizes these diseases in women, really feels the seriousness of gonorrhea, as it has to treat it in young women and meet it in young wives. Next, it can act directly as an instructor of the community, naturally towards the patients themselves, indirectly through school-teachers and Christian asso-

ciations, by oversight over the police, the militia, firemen, colleges, schools, etc., and in that way the knowledge that gonorrhea is a great and threatening evil can be spread abroad among the community. Secondly, when the average young woman knows, and is instructed, that an unclean husband is going to be an imminent danger to her, she is going to refuse to marry such a man. Lastly, when the mother-in-law knows that the "catching cold" of her daughter immediately after marriage, that the "inflammation" is not catching cold, but an infection from a gonorrheal husband, that young man had better have a millstone hanged about his neck and be drowned in the sea. When the average young woman, her mother, sister, cousin and aunt, know that this disease is infectious, and that this operation is all the fault of the young husband, there will be a scorn arise for a dissolute young man such as is exercised against a dissolute young woman. What more can the profession do? They can take means to instruct themselves so thoroughly in the means of diagnosis which exist at present, that a young man before he marries may be able to get a clean bill of health and be able to know whether he will infect his wife or not. I see at least once a week all kinds of ruined hopes and blasted affections from this disease. It is a sad thing.

The profession can learn to do something to cure this disease in men. Unhappily, they cannot do much towards the cure of gonorrhea in women, but they can act by instructing and impressing on every one that it is a serious business. It used to be considered twenty or thirty years ago that gonorrhea in a man was a thing to be laughed about. All the popular misconceptions of to-day are the result of the erroneous teaching of the last generation, or the last but one of physicians. In the last twenty years we have lived down a host of things our grandfathers taught to their patients. If the profession takes gonorrhea seriously, the public will finally take it seriously. There is a great responsibility resting upon those who make scientific tests. It is no light thing to say a man is free from gonorrhea and may marry, unless a person can say it understandingly. It is no small thing for a man to say a patient has gonorrhea when he is not prepared to prove it; he may get himself into trouble. In these cases where gonorrhea affects women, and the relatives rise in wrath and want to know what is the cause of it, a man may get himself into trouble who knows too much. The easiest way out of it is to let them find out somewhere else by hypothetical questions the general facts of infection and the sources of pelvic inflammation and to settle for themselves the question of delinquency. Terrible to suggest as it may be, it is not always the husband who is the guilty party. The part of prudence and the desire to preserve the peace of families forbid us to say what we think, or even what we know.

"Est et fidei tuta silentio merces."

DR. WRIGHT: The pathology of gonorrhea is largely concerned with the gonococcus, its isolation and its occurrence in pathological processes. The gonococcus, which is the infecting organism in this disease, was discovered in 1879 by Neisser in the pus of gonorrhea and of gonorrheal conjunctivitis; and very soon after that he claimed to have discovered it in the exudate of gonorrheal rheumatism. It was early found the organism would not grow upon ordi-

nary culture media and the first successful attempt at its cultivation was made by Bumm, who used human blood serum as the culture medium. Since the work of Bumm to the present decade the cultivation of the organism made very little advances. In 1892 Wertheim gave us a fairly practical culture medium in the use of a mixture of sterile blood serum and agar-agar.

The bacteriological proof of the gonorrheal nature of various inflammatory processes has been a matter of slow development. The most important contribution to the subject was made by Wertheim in 1892. He put upon a definite scientific basis the teaching that pyosalpinx in the majority of cases was due to infection with the gonococcus. Wertheim showed that in 20 per cent. of all cases of pyosalpinx the gonococcus could be demonstrated by proper culture methods. In his paper he sums up the observations upon the occurrence of this organism in pyosalpinx. In 116 cases the gonococcus was observed in 32 while in 72 cases the material was sterile and in 12 various pus organisms were present. Since that time a number of investigations have been made on this subject and his observations have been confirmed. The interesting thing about the results of Wertheim is the fact that so many of these cases are sterile. That is to be explained on the ground that the gonococcus, produces its effects and then dies out. The mode of invasion of the gonococcus in pyosalpinx is evident. It affects the urethra first, next the cervix and the endometrium and then the Fallopian tubes. In recent years it has been shown that the organism can be the cause of endocarditis and of pleuritis. It has been repeatedly demonstrated in cultures from the joints in gonorrheal arthritis and some Vienna pathologists have claimed to cultivate it from cases of periostitis and of other suppurative conditions which were apparently secondary to gonorrhea.

The diagnosis of this condition from the bacteriological standpoint has been practised since the time of Neisser. It has long been regarded as a very simple matter to diagnose with bacteriological methods the presence of the gonococcus infection. Up to recent years the teaching was, that, if you made a coverslide preparation of suspected pus, you were to make the diagnosis of gonorrheal infection if you found micrococci, of so-called double biscuit shape, arranged inside the pus-cells. No other organisms invade the pus-cells to that extent, nor did the other pus organisms appear in these flattened hemispheres with clear line of demarcation between them. This is not a sufficient ground for the identification of the gonococcus. If one examines pus from any abscess, one is liable to find appearances which are to all practically identical with the characteristic appearances of gonorrheal pus. Every pus coccus whatever, if examined carefully enough, will show this division into two hemispheres. Under the microscope the only reliable point of distinction between the gonococcus and the other pyogenic cocci, is the fact that the gonococcus is not stained when subjected to Gram's method of staining, while the other cocci are stained by this method. This fact shows that the gonococcus differs chemically from the other cocci. No diagnosis of gonococcus infection should be made until it has been proved that the suspected organism does decolorize with Gram.

The recognition of the presence of the gonococcus in the secretions of the genital tract in women, in cases where there is no special exudation of pus, is usually

very difficult and unsatisfactory owing to the frequent presence of large numbers of other bacteria.

DR. REYNOLDS: I do not know that there is very much to say on so trite a subject as the treatment of gonorrhea. I have been confronted with it a good many more times than I should have chosen. I am interested in what Dr. Wright said about the diagnosis. I had come to the conclusion from the clinical standpoint, that it was all very well to have the discharge under the microscope, but that it did not help one practically at all. You seldom get any positive reports from the pathologist on this point, and when you do it is what you do not believe from the clinical standpoint. It affects the vagina, upper genitalia and urinary organs. As regards the treatment of gonorrheal vaginitis I have tried a good many things, and have found nothing so satisfactory on the whole as the dry treatment in the vagina. I have settled down to the routine of having the vagina thoroughly opened in the Sims position, wiped out and cleaned with dry cotton, insufflated with aristol, then dry absorbent cotton and more aristol until filled up, having that done every other day.

As regards the treatment of gonorrheal endometritis, theoretically the thing to do is to curette it. I have no doubt there is a very transitory stage where the curette would do good. Practically I think it does not amount to much. You don't want to use the curette before the endometrium has been attacked. We used to hear a great deal about curetting during the acute stages of endometritis and salpingitis. I think everybody has fallen away more or less from that and personally of late I have dropped curetting these cases after the endometrium was really attacked. I think by the time you are sure you have an endometritis you have a salpingitis beginning, though perhaps you cannot recognize it. I am inclined to think I have seen cases where a salpingitis could have been avoided if the curette had not been used. When it comes to be a salpingitis, you can curette it, but I don't believe in doing it. You can also remove the tubes, and you can let the woman alone; and of the three I think the letting the woman alone is generally the greater triumph in gonorrheal salpingitis during the early stages. A good many come to operation in the end; a good many of them atrophy. The gonorrheal tubes seldom do very badly; and the indication for operation, it seems to me, rests a good deal on whether one or both tubes are involved, on the age and social condition and desires of the woman. It is a question in my mind, whether in case one tube seems to be involved, you improve the chance of saving the other tube by removing that one. If both tubes are involved, I think the majority of women are better off with atrophied tubes and ovaries than with no tubes and ovaries. It makes a good deal of difference to a woman mentally. There is a difference in the marital relation.

As regards the invasions of the urinary tract, the urethritis does not amount to much in women, as a rule. It is an acute affair that passes off. Cystitis is a little more important; it ordinarily subsides into a chronic sort of affair which is not very troublesome. The uretero-pyelitis which used to be regarded as an extremely rare affection has in the last year been shown to be pretty frequent though ordinarily a mild affair. It may in time break down a woman's health a good deal. I think the acute cystitis is treated best by putting the woman into the knee-chest position with as

empty a bladder as you can get, letting the bladder fill with air through a Kelly speculum and then filling it with a one-half-per-cent. solution of nitrate of silver, letting that stay a few minutes and then washing it out with salt solution. As you look at the bladder you will see two or three such applications as that clear up the bladder and leave only a few localized spots which you can treat with strong applications. There is the most marked difference between filling the bladder with a solution of nitrate of silver in that position, and washing out with nitrate solution in the ordinary way. Get it fully distended, and the solution will attack the whole surface, and there is a wholly different effect. I don't think you can hurry a uretero-pyelitis much when you get it. The case in the course of a year or two may improve a good deal under appropriate medicinal treatment, it may even get well. I think the preventing of these chronic ureteral affections is the most important indication for interfering with a gonorrheal cystitis.

DR. WASHBURN: I can only reiterate what has been said. I think the most important matter in the whole question is the matter of preventing the thing and not treating it after it gets started. The difficulty of treating the conditions is so great and unsatisfactory in their results that the matter comes down to the importance of preventing the attacks primarily, and that I am persuaded will not come until the medical profession as a whole take the step of impressing on the community at large the dangers of the infection and the gravity of the results that come from it. The habit has been of making light of the disease, saying it amounts to very little, may cause discomfort a few days or last a few weeks, but that that is all there is of it, whereas the gravity of the results from the conditions are being realized more and more by the medical profession, and should be by them made known to the community at large, so that the influence of the general public may be brought to the stage of realizing the necessity for stamping out the disease as much as possible.

DR. GARCEAU: I would like to call attention to certain cases of gonorrheal cystitis which in my experience have proved to be most difficult to cure by ordinary means. I refer to long-standing cases in which the inflammation has extended into the interstitial tissue of the bladder. Under these conditions irrigations and medicines exert but little action, because they do not come in contact with the seat of the disease. These cases are very apt to be complicated by extension of the inflammation up into the ureters and the pelves of the kidneys, and the irritation caused thereby aggravates the irritability of the bladder and gives rise to the constant urgent desire to micturate. Yet this extension upwards is not always a necessary sequel of cystitis, for in at least one case now under my care the inflammation was confined wholly to the bladder. She was a woman who had contracted gonorrhea about three years ago. This was followed by cystitis, and inflammation of the ovaries and tubes, necessitating the removal of the latter. Her bladder presented on cystoscopic examination the appearances usually seen in cystitis, but there was no ureteritis nor pyelitis, and care was taken to determine the presence or absence of these affections by physical examination and analysis of urine drawn by ureteral catheters from each ureter. She was finally treated by making an artificial vesico-vaginal fistula. The acute forms of

cystitis are very amenable to treatment provided the treatment is instituted at once. This is because the lesions are superficial and affect only the mucous membrane of the bladder. The so-called "subacute forms" are more difficult to treat; while the chronic forms are often very obstinate, even cystotomy with prolonged drainage sometimes fails to cure these patients; for when the artificial fistula is closed, they may be just as badly off as before.

DR. CUSHING: There is only one point I should like to add, and that is as to the question brought up by Dr. Reynolds, whether to operate on these cases of pus-tubes or leave them alone. I would point out some of the points which guide me in making this decision. The first point is as to whether there is any sign of suppuration, whether there is a chill or decided rise of temperature. It may be replied that that is owing to mixed infection, is not a purely gonorrheal affair. That is a mere academic distinction. The concrete case is a woman who is sick, and we want to know whether to operate or not. The fact that there is fever, especially with a chill, is a strong factor in deciding upon operation. The second point is whether the disease is accompanied by a great deal of pain. No one can judge exactly how much pain there is in another person, but my observation has been that women do not submit to operation merely because they are told to do so or on general principles. If it is left to them to decide whether the amount of pain demands operation, and that the dangers are fully explained, they will immediately divide it into two classes, the women who desire and must have operation because they are suffering, and the women who, as they are not suffering very much, will conclude they do not want operation; and that will be found always to correspond with the condition internally, the amount of inflammatory disease, amount of enlargement, and particularly the amount of adhesion and involvement of the intestine. The mere fact that there is a history of gonorrhea, a mass on one side which is not particularly painful, and does not show fever, is not an indication for operation in my judgment. The fact that the woman's usefulness is destroyed is sufficient to warrant operation. The fever, the pain and the involvement of the intestine as shown by difficulty of defecation, pain or obstruction, those are the main points, or the fact that an abscess is forming which requires evacuation of the pus.

DR. REYNOLDS: I quite agree with all that Dr. Cushing has said. I think the bad cases are rather the exception, but when they occur we have got to operate on them of course. I do not think that Dr. Garceau quoted me fairly, nor do I agree with the position that he takes. The quotations that are furnished us by Skeene and other authors are, I think, rather unfair, because the whole subject of the urinary diseases of women has been so revolutionized in the last two or three years, that things in print are mostly matters of the dark ages. I said, or meant to say, that I thought the cystitis was seldom a very troublesome or important affair except when complicated with uretero-pyelitis. It has been my experience, I think I can say without exception, since I have known the modern methods, that whenever a cystitis does not do reasonably well, the ureters, or one ureter and the corresponding pelvis of the kidney are affected, and I think in almost all cases, practically in all cases, you can with sufficient care and topical treatment get a bladder

well, and so get rid of the majority of the symptoms; then you have a long, slow time with the ureter. I think in the end most of these cases get well. If I had a case where the bladder did not get well, I should suspect the ureters. I see nowadays very few cases of simple cystitis that do not get well, and get well pretty promptly.

PATHOLOGICAL SPECIMENS.

DR. CUSHING: I have brought a tumor which I removed yesterday, which is interesting in that it is a tumor of the broad ligament without any pedicle. A woman of fifty-two had noticed something wrong three or four years, but only for a few months had known it was a tumor. In opening the abdomen no adhesions. Two gallons of fluid drawn off. The tumor had no pedicle, but dipped down into the pelvic cavity. The difficulties of removing a tumor of that kind are sometimes so great that I thought it would be interesting to explain the operation from the specimen. The Fallopian tube starting from the uterus is stretched across the tumor, and just below that the sigmoid flexure and lower part of the colon appear to be inserted directly into the tumor. It is not uncommon for errors to be made, and it is a very serious matter to separate the mesocolon by mistake from adhesions, owing to hemorrhage. I cut around the tumor through the peritoneum. This circle goes all the way around the tumor, and by a process of dissection the tumor was drawn out of the pelvis. It was under the peritoneum, and lay over the iliac vessels. I tied the ovarian artery. As the sac was separated from the uterus the latter was left entirely raw on one side. I thought it was best to remove the uterus and did so. In cutting across the uterus what appeared to be antero-posterior was really lateral as the pressure had flattened the uterus laterally. I had then a vast cavity down there, but I was able to bring the peritoneum over the bladder in apposition with the peritoneum running along just below the colon, leaving a glass drainage-tube in the bottom of the wound. The patient has recovered without accident. For comparison I have brought a tumor which I removed ten days ago; it is a regular multilocular tumor, in which you find daughter cysts, and expect to find a pedicle, whereas in the tumor first shown you must be prepared to find no pedicle.

I have also brought a gonorrheal pus-tube removed from a young woman married six months, and for the last three months an invalid. Mass in the pelvis, and getting larger, causing a good deal of pain, and I removed it. I have every reason to think it was gonorrheal. Her husband is a bar-tender. Recovery.

Sunday I did another case, which at first was supposed to be pus-tubes. A young woman, single, but with a lover, had a mass in the pelvis, high temperature, very ill. On opening the abdominal cavity, I soon got into the mass containing dark grumous blood; and letting this out and some large clots, I tried to bring up what I supposed to be a large tube. I found the upper surface of this was formed by the large intestine, of which one could see the appendices epiploicæ; and reaching down behind and separating, I could reach the ovary below. It was a difficult dissection, had to be done partly with the scissors to separate the bowel from the tube. The tube was removed. The other tube was diseased. That left a cavity the size of the fist. It was cleaned as far as possible, and Mikulicz's gauze dressing put in. Recovery.

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THE INTERNATIONAL CONGRESS:
THE BRITISH MEDICAL ASSOCIATION.

The Twelfth International Medical Congress held at Moscow is over, having occupied the week from August 19th to August 26th; and the Sixty-fifth Annual Meeting of the British Medical Association is now in progress at Montreal.

The Secretary-General announced the attendance of members at Moscow as 7,300, of whom nearly 4,000 were from Russia, 800 from Germany, 800 from Austria, 400 from France, 300 from Italy, 300 from England, 120 from the United States, 20 from Mexico, 10 from Japan, 4 from China, and the rest from various parts of Europe, South America and Asia. The most notable of the addresses seems to have been one by Professor Virchow on "The Continuity of Life," in which he harks back to the Cellular Pathology and suggests that in the cell will be found the key, if it ever is found, to unlock the mystery of the ages, and the united labors of the biologist and the pathologist will be the means of the discovery.

The United States was represented among the honorary presidents by Dr. Senn of Chicago, and Dr. Thayer of the Johns Hopkins.

The next Congress will be held at Paris in 1900 during the French Exhibition. Professor Lannelongue, of Paris, has been appointed President of the Committee on Organization, and Professor Chauffard, Honorary Secretary-General. The French representatives were received with marked enthusiasm by the Russians at the Congress, though we see no mention of their being subjected to the demonstrative hugging on the part of the gentle sex which took so acute a form with the sailors accompanying President Faure as to be embarrassing even to those well-seasoned tars,

A telegraphic summary of the first two days of the Congress is given in the *New York Medical Record*. Our special correspondents will furnish presently their impressions of the meeting.

The meeting of the British Medical Association at Montreal has so far been favored with perfect weather. The opening ceremonies, preceded in the morning by a meeting of the Canadian Medical Association to discuss the subject of Interprovincial Registration, took place Tuesday afternoon at the Windsor Hall, when the President, Dr. Roddick, delivered his Address of Welcome. This was followed by receptions, and in the evening Prof. Charles Richet, the official delegate of the French Government, delivered an address. Wednesday morning the Sections, eleven in number, began their meetings. Thursday and Friday mornings were also to be devoted to the work of the Sections, the addresses being delivered in the afternoons. Wednesday afternoon Dr. Wm. Osler, a Canadian by birth and our fellow-citizen by adoption, delivered the Address in Medicine, which will be found on page 221 of this issue. Both this address and Dr. Da Costa's remarks before the Harvard Medical Alumni Association, dealing with kindred matters, are recommended to the attention of our readers. The Address in Surgery was to be delivered by Mitchell Banks, F.R.C.S., of Liverpool, on Thursday afternoon, and the Address in Public Medicine by Dr. Herman Biggs, of New York, on Friday afternoon.

The arrangements made by the committee in charge indicate that pleasure was to go hand-in-hand with profit and science, to be judiciously tempered by social relaxation and the enlarging influence of travel and excursions. There is even an international golf match. The railways in all directions, and even as far as Vancouver, have made liberal reductions to tempt those inclined to wander after the meeting.

Next week our special correspondents will give their impressions of the Montreal meeting.

MEDICAL NOTES.

THE NEW PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.—The British Medical Association will meet in Edinburgh in 1898, under the presidency of Prof. T. Grainger Stewart.

DR. MARTEN HONORED.—Dr. Marten, chief of Dr. Roux's laboratory of the Pasteur Institute, has been awarded an honorary gold medal by the French government for his work in epidemiology.

APPROPRIATION FOR THE PHILADELPHIA POLYCLINIC HOSPITAL.—An appropriation of \$25,000 has been granted by the State of Pennsylvania for the maintenance of the Philadelphia Polyclinic Hospital.

BERI-BERI AT THE RICHMOND ASYLUM.—The epidemic of beri-beri at Richmond Asylum, Dublin, is still on the increase, the number of cases now being in the vicinity of 200. Fortunately the type of the disease is mild and the mortality slight.

THE MEMORIAL HOSPITAL IN HONG KONG.—The erection of a hospital for women and children is part

of the permanent memorial in Hong Kong of Her Majesty's Record Reigu, and the foundation stone of the Victoria Hospital was duly laid on Tuesday, June 22d, by the Governor, Sir William Robinson, G.C.M.G.

PROFESSOR VIRCHOW HONORED BY FRENCH SAVANTS.—Professor Virchow has been elected a foreign associate of the French Académie des Sciences. There are six other foreign associates of the academy, three of whom are Englishmen.

INFLATED THE BABY.—A little boy of Beaver Falls, Pa., placed the tube of a bicycle pump in a baby's mouth and began pumping in air. The child's stomach swelled like a balloon and in a few minutes she became unconscious. The mother is reported to have arrived in time to save the child's life and probably "blew up" the little boy.

A NOBLE PAIR OF BROTHERS.—Prince Luigi, who has recently with conspicuous judgment and skill, led the first exploring party to successfully reach the summit of Mount St. Elias, and that without a single fatality, is a brother of the Count of Turin, whose exploit in maintaining the honor of the Italian army by puncturing the epidermis of Prince Henri of Orleans, was commented upon in our last issue. It would seem to the impartial observer that the prince had found a more really satisfactory method of employing his summer vacation than did his younger brother.

THE IMMEDIATE REDUCTION OF THE DEFORMITY IN POTT'S DISEASE.—On July 24th, at the Royal Southern Hospital, Liverpool, Mr. Robert Jones and Mr. A. H. Tubby demonstrated on a series of cases of Pott's disease the manipulations for immediate reduction of deformity. The deformities were reduced with considerable facility. The forced reduction of the deformity in caries of the spine has been advocated at various times, but it has always met with much opposition. Recently the practice has been revived by Dr. Calot, of Berek-sur-Mer, who had employed it in 37 cases when he wrote his paper, and claimed that the recovery was much accelerated.

DEATH OF A WHALE FROM A CURIOUS CAUSE.—A white whale was recently brought to the New York Aquarium from Canadian waters, and died soon after from edema of the lungs, due to a strange accident. As is well known, a whale is obliged to come to the surface every ten or twenty minutes in order to blow, and is provided with a blow-hole in which there is a valve which opens and closes as rapidly as the whale exhales impure and inhales pure air. An eel became lodged in this blow-hole and, despite the efforts of the whale to dislodge it, it held open the valve in such a manner that the water rushed in and filled the lungs, thus drowning the whale.

THE ANATOMY OF THE NOVELIST.—Our Gray is becoming pretty old, and the cover is getting loose. Some of the pages are torn and others are missing. We are in need of a new anatomy. This new anat-

omy should be in part original, and in a part compilation. The chapters that are compiled should be taken from the dissecting table. The chapters that are original should be taken from the works of the modern novelists of the romantic school. In a newly-published novel that we recently picked up at a book-stall we came upon the following graphic description of the result of a duel between the hero and the villain; "The hero fell at the first shot. The surgeon bent over him. 'Safe,' he whispered. 'The bullet has grazed his temple, but had it gone an eighth of an inch deeper it would have severed the femoral artery.'" — *Medical Era*.

NEW ENGLAND.

OVER ONE HUNDRED YEARS OLD.—Mrs. Pamela Stevens died at her home in Andover, Mass., August 25th. She was one hundred years old on July 31st last. She was born in Lawrence, and was of the family of Stevens who were numbered among the early settlers of Andover.

TYPHOID FEVER AND MILK.—Several cases of typhoid fever having been recently reported from East Boston, an investigation was begun by the Boston Board of Health, which resulted in the discovery that the cases were due to infected milk supplied by a dealer who had in his employ as a washer of cans a man who was ill with the disease. The man was, of course, discharged, and the premises and plant of the dealer disinfected. A general inspection of the milk supplied in groceries, soda-fountains and all places where milk is dispensed throughout the city, has been begun by the Board of Health, and the inspection includes, not only the milk, but the manner in which it is kept and cared for.

PORTLAND WANTS THE MAINE MEDICAL SCHOOL.—It is reported in the daily press that prominent business men and members of the medical fraternity of Portland are endeavoring to have the Maine Medical School, now located at Brunswick, in connection with Bowdoin College, moved to that city. Over \$100,000 has been pledged in Portland to erect suitable buildings for this school, and an attempt is being made by those interested to secure \$20,000 of the fund left by the late Joseph Walker to promote education in Portland. If this sum can be obtained, the Maine Medical School will certainly be moved, it is said, to that city. One difficulty in the way, so far as the Walker fund is concerned, seems to be the fact that the city of Portland has filed an application with the trustees of the fund for \$26,000 for a manual training school. It is understood that an effort will be made at the next city government meeting Monday night to have the city withdraw its application, and this will leave the track open for the medical school. A canvass of the board of aldermen shows that four favor the withdrawal of the city's claim for \$26,000, and favor the moving of the medical school to Portland, while three of the board oppose the withdrawal of the city's application.

Miscellany.

DEATH FROM COLLAPSE OF A FOLDING BED.

THE folding bed has several times proved its capabilities of doing serious injury by shutting its confiding victims up for the night in a most uncomfortable, not to say dangerous, manner, so that when they were extricated in the morning they were much the worse for their experience. It is doubtless true that the victims of most of these accidents have been the worse for liquor, and perhaps were not as active as they might have been in meeting the attack of the folding bed when it could be successfully dealt with and before it had them pinioned in its deathlike and inexorable grasp. The writer has known an injury to the knee of a serious and lasting character to be due to the tender caresses of a too affectionate folding bed, but never until the publication of a recent report in the daily press has he been cognizant of a fatal result from this accident. The report is as follows:

Chicago, Ill., August 25, 1897. Al Hankins, a widely-known sporting man, was killed to-day by the collapse of a folding bed at 3908 Cottage Grove Avenue. He had just entered the apartment and seated himself on the edge of the bed, when it unexpectedly closed. Hankins' neck was broken. Persons in the place rushed to his assistance, but they were too late. Death had resulted almost instantly.

Hankins, who is said to have conducted a gambling establishment at the number given, was the youngest of three brothers who were prominent in the early days of the Montana gold fever, and for several years conducted gambling-places in that State.

He had since been addicted to horse-racing, so that perhaps certain God-fearing people will consider that the folding bed was only the agent of the Almighty in cutting off the wicked in the midst of his sinful career. If he had not succumbed to the folding bed he might have survived only to be struck by lightning or destroyed in some other manner so impressive as to prove a lesson to all who might be tempted to indulge in similar evil practices.

HIGH MORTALITY AT BOMBAY.

THE rise in the mortality in Bombay, writes a correspondent of the *British Medical Journal*, is causing some anxiety, the total reaching to 130 to 140 daily. It is, however, probable that this excess is not due to plague, but to cholera and to the influx of famine-stricken people. Professor Hankin, who has been recalled to Bombay to finish his work on plague, is now working at the Municipal Laboratory there. A general meeting of medical men was held in Bombay, on July 21, 1897, to discuss the registration of deaths in Bombay, and to put the system on a sound basis. The meeting was convened at the instance of the Plague Committee, of which all the members were present. It was decided that the printed rules previously discussed and approved by the Bombay Medical Union should be submitted to a committee of three medical gentlemen, who should determine whether the Plague Committee should recommend that the rules be adopted and issued under the Epidemic Diseases Act. The meeting was also of the opinion that there was very little recrudescence of the plague, except sporadic cases, and that the present high mortality was not due to plague, but to cholera and diseases of the bowels. Scarcity of labor and the consequent poverty of the

people and their inability to obtain sufficient food, lead to emaciation and death, adding to the general mortality. The opinion held by most medical men in Bombay is that the disquieting increase in the mortality is due also in no small measure to the narrowed resources of many of the poor, consequent upon slackness of work and dearth of grain. Mill bands have no difficulty in finding work, but many of the coolies and laborers, who usually obtain employment at the docks and elsewhere, are less fortunate, owing to the continued slackness in trade, and there is a larger number of unemployed than usual. Meanwhile, the price of grain continues very high, and many families have to go on a very restricted supply of food. Vitality is consequently lowered, and wetting in the heavy monsoon rain often brings on diseases to which the people, if better fed, would not succumb.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 21, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York	1,868,000	750	335	21.45	11.18	15.34	1.17	2.34
Chicago	1,049,256	—	—	—	—	—	—	—
Philadelphia	1,214,256	430	190	24.23	8.28	13.22	5.29	5.22
Brooklyn	1,160,000	440	102	26.64	8.64	18.00	2.16	4.08
St. Louis	570,000	147	63	8.16	8.84	2.64	1.36	2.72
Baltimore	550,000	107	73	27.00	10.80	21.00	4.20	.60
Boston	517,732	212	92	24.91	7.99	20.21	1.8	2.35
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	350,000	77	39	30.96	2.58	20.64	3.87	3.87
Pittsburg	285,000	—	—	—	—	—	—	—
Washington	277,000	97	42	19.57	12.36	15.45	1.03	—
Milwaukee	275,000	—	—	—	—	—	—	—
Nashville	105,050	—	—	—	—	—	—	—
Worcester	105,050	47	26	36.21	6.39	34.08	—	—
Fall River	95,919	54	30	28.60	3.70	27.75	—	—
Lowell	87,133	46	32	56.42	8.68	52.08	—	—
Cambridge	86,812	30	16	46.60	10.33	43.33	—	—
Charleston	65,165	39	14	15.36	.66	2.56	12.80	—
Lynn	65,220	29	19	62.10	3.45	31.50	—	—
New Bedford	62,416	18	8	38.86	11.11	27.77	—	5.55
Lawrence	55,510	24	20	58.10	8.30	58.10	—	—
Springfield	54,790	18	7	32.33	5.55	27.77	—	—
Holyoke	42,364	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,062	25	12	20.00	—	16.00	—	—
Brockton	35,853	10	6	—	—	—	—	—
Malden	32,894	10	10	68.75	6.25	62.50	—	—
Chelsea	32,716	10	3	10.00	20.00	10.00	—	—
Haverhill	31,460	7	2	—	28.56	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,900	7	3	28.56	—	28.56	—	—
Fitchburg	28,392	8	7	50.00	—	50.00	—	—
Taunton	27,812	10	8	25.00	—	25.00	—	—
Quincy	22,562	—	—	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	4	1	—	25.00	—	—	—
Everett	21,575	11	6	27.27	—	27.27	—	—
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	8	2	37.50	25.00	25.00	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,850; under five years of age 747; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, and fever) 741, consumption 258, acute lung diseases 138, diarrheal diseases 542, diphtheria and croup 78, typhoid fever 51, whooping-cough 33, scarlet fever 12, cerebro-spinal meningitis 11, malarial fever 8, measles 6.

From whooping-cough Philadelphia 14, New York and Brooklyn 9 each, Baltimore 7, Cleveland 3, St. Louis 2, Boston, Fall River and Lowell 1 each. From scarlet fever Philadelphia and Lynn 3 each, New York and Brooklyn 2 each, Cambridge and New Bedford 1 each. From cerebro-spinal meningitis New York 3, Lynn 2, St. Louis, Baltimore, Providence, Worcester, Springfield and Malden 1 each. From measles New York 6, Lowell 1. From malarial fever Nashville 5, Brooklyn 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending August 14th, the death-rate was 29.5. Deaths reported 6,212,

diarrhea 2,038, measles 134, whooping-cough 70, diphtheria 54, scarlet fever 36, fever 35.

The death-rates ranged from 14.6 in Swansea to 43.0 in Birmingham; Bradford 27.7, Gateshead 26.3, Huddersfield 16.4, Hull 28.7, Leeds 35.4, Leicester 34.1, Liverpool 40.9, London 26.2, Manchester 38.3, Newcastle-on-Tyne 27.1, Nottingham 32.5, Salford 39.6, Sheffield 37.9.

METEOROLOGICAL RECORD

For the week ending August 21st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...15	29.92	78	84	73	86	84	85	S.	S.W.	8	13	O.	O.	.42
M...16	29.76	73	76	70	90	92	91	S.	S.	10	15	O.	O.	
T...17	29.80	69	76	62	78	87	82	W.	W.	14	12	C.	C.	
W...18	30.05	68	77	59	69	79	74	N.	S.	4	8	F.	R.	.02
T...19	29.97	67	74	60	86	88	92	W.	W.	12	7	O.	O.	.43
F...20	30.00	68	76	59	81	80	70	N.W.	W.	12	10	F.	O.	
S...21	30.14	65	77	53	67	74	60	W.	S.	8	9	O.	C.	

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threaten- ing; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 21, 1897, TO AUGUST 27, 1897.

Leave of absence for one month, to take effect about September 1, 1897, is hereby granted CAPTAIN W. F. CARTER, assistant surgeon, attending surgeon, Baltimore, Md.

Leave of absence for three months, with permission to go beyond sea, is granted MAJOR PETER J. A. CLEARY, surgeon, chief surgeon, Department of Texas, San Antonio, Tex.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 28, 1897.

W. M. WHEELER, assistant surgeon, detached from the "Marietta," and ordered to the "Wheeling," September 2d.

G. ROTHGANGER, passed assistant surgeon, detached from the "Wheeling," and ordered to the "Marietta," September 2d.

RECENT DEATH.

DR. THOMAS JOSEPHUS HAYES died at Beverly, August 25th. He was born in Beverly, January 24, 1862. He was educated at Boston College and the Harvard Medical School, graduating June 24, 1887. Immediately after his graduation he began practice in Beverly. He was chairman of the Beverly Board of Health, a member of the staff of physicians of Beverly Hospital and a member of the Massachusetts Medical Society.

BOOKS AND PAMPHLETS RECEIVED.

Is There Ever a Serous Iritis without an Involvement of the Ciliary Body, or Choroid, or Both? By William Cheatham, M.D., Louisville, Ky. Reprint. 1897.

Insanity as a Neurosis. Medical, Scientific and Educational Work at the Illinois Eastern Hospital for the Insane, under the Superintendency of Clarke Gopen, M.D., LL.B. Reprint.

Crime and Criminals. By J. Sanderson Christison, M.D., formerly of the New York City Asylums for the Insane, Blackwell's Island and Ward's Island, etc.; Author of "Normal Mind," "The Evidence of Insanity," "Drink and Disease," etc. Chicago: The W. F. Keener Co. 1897.

Direct Autocopy; Kirstein; with Demonstration. Exaggerated Arytenoid Movement, Anchylosis of the Crico-Aryte- noid Articulation. Fatal Hemorrhage from the Nose and Pharynx from Unusual Cause, with Exhibition of Specimen. Medical Education. President's Address delivered before the Colorado State Medical Society, June 17, 1897, by Robert Levy, M.D., Professor of Laryngology and Physiology, Gross Medical College, etc., Denver, Col. Reprints. 1896-7.

Original Articles.

GENERAL REMARKS ON GASTRIC DYSPEPSIA.¹

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

DISTURBANCES of the gastric digestion are perhaps among the most frequent of human ailments. When we consider the complicated processes of the gastric digestive act, the wonder is, not that there are so many disturbances but that from the work we expect the stomach to perform we are not many more of us dyspeptics.

1. ETIOLOGY OF THE DIGESTIVE DISTURBANCES.

Frequently disturbances of the gastric digestion are caused by pathological structural changes of the gastric walls, and by morbid forms, sizes and positions of the stomach. Improper food, bad habits in eating and drinking, irrational modes of life, and general disturbances of the most various kinds, are much more frequently causes of gastric disorders, however, than are diseases of the stomach.

(1) To begin with, how we eat, quite independently of the choice of food, often lies at the bottom of functional gastric disturbances. Faulty preparation of the food in the mouth by insufficient mastication and insalivation paves the way for future trouble. Business men, physicians, artisans and others whose time is limited, frequently take in great haste large quantities of food which they wash down with hot or cold fluids. The work which the teeth and salivary glands could have performed, if they had been given the time for it, is expected of the stomach. For a time this organ performs the exacting requirements made of it, but gradually it loses its power to do so and dyspepsia has its beginning.

(2) Another great fault, and one which very frequently gives rise to digestive disorders, is, that the stomach is not allowed sufficient time to completely digest one meal before another is taken on top of it. The secretory power of the gastric gland-cells is limited, and they also require a certain period of rest in which to prepare anew from the blood plasma the store given up and exhausted by the digestive process. If this rest needed for regeneration is not afforded them a condition of exhaustion ensues, in which their secretion of gastric juice does not reach the necessary requirements, either in quantity or quality. Moreover, the filling up again of a stomach not yet emptied leads to an over-distention of the gastric walls, which gradually may produce a relaxation of the latter unless an increased motility of the stomach pushes on the food more rapidly and earlier than common. In the latter case the intestine has imposed on it a labor which is often beyond its power of accomplishing if it must receive the chyme in an insufficiently prepared condition.

The excess of food over its needs is usually rejected without further trouble by infants, though not always. In the later years of childhood the motility of the stomach is so great, especially in active children, and in those always on the go and growing rapidly, that they can take great quantities of food at relatively short intervals without being disturbed by it. When we examine the stools of such a child we will frequently find that by no means all that has been eaten

has been digested, and that in some cases in which undigested food is passed with the feces, gastric and intestinal troubles also occur.

Vigorous, full-grown adults can make the stomach perform great work when they do severe labor and take much exercise. But if they continue to take in the same amount of food when the mode of life has become sedentary, or from other reasons the bodily exercise has been given up, very soon repletion of the whole body ensues, accompanied by dyspeptic troubles.

As age advances the capabilities of the stomach, as of the other organs, diminish; the need of new nutritive material is less, and the body is more easily satisfied. The digestion of the various meals requires more time than in younger years, and supplementary between-meals may be burdensome. Disturbances of the balance between bodily taking in through food and giving out through work manifest themselves very soon with age by disturbances of all kinds and in all organs, especially in those which perform the functions of digestion, assimilation and excretion. An aged person, especially, to keep in good health, requires the wisdom to recognize what is good for the body and what is bad for it, otherwise he is threatened with premature disease.

(3) The choice of food, the composition of it, and the size of the meal taken at one sitting, naturally play an important part in the history of the development of digestive disturbances. Of itself an article of diet may be easily digestible; taken in too great quantities, poorly prepared, or in improper combination with other food, it may nevertheless upset the stomach. Milk, for example, and milk preparations, except perhaps whipped cream, which in the process of whipping takes up from the air enormous numbers of bacterial exciters of fermentation and decomposition, are generally accounted easy of digestion. But how often do we meet persons, not to mention infants, who cannot bear milk in any form or preparation, and who sicken with dyspepsia when, in spite of their aversion founded on instinct and experience, we get them to take it. There are also people who cannot bear eggs, and others who have an idiosyncrasy against this or that article of food used in daily life. I will mention here lobsters, crabs, scallops, many fish and strawberries, which are highly esteemed by many people, yet in others give rise to urticaria with oftentimes very severe dyspeptic difficulties.

It is impossible to lay down general laws about the digestibility or otherwise of certain articles of food, for the digestibility of a food depends on the individual secretory and motor power of the stomach, which in the same individual is not always the same, but is subject to enormous changes. Merely to speak of the influence of surroundings, what does one not eat with impunity at a church fair, a Massachusetts Medical Society meeting, or a class reunion? Beaumont's table of digestibilities is interesting but can lay no claim to general application. Concerning digestibility, we may say the following in general: that food is, as a rule, digestible and acceptable, which, without disturbing the stomach, can be digested by the gastric juice, and in not too long a time can be passed into the intestines without burdening them.

(4) The process of digestion, especially its duration, is frequently protracted by the ingestion of too much or too cold fluid. As Fleiner² says, a drink of ice-cold

¹ Read before the Massachusetts Medical Society June 8, 1897, and recommended for publication by the Society.

² *Lehrbuch der Krankheiten der Verdauungsorgane*, p. 114, 1896.

beer can wholly stop the gastric peristalsis for a shorter or longer time and cause great discomfort or even dyspepsia of several days' duration. A bad custom is the drinking of too cold mineral water at meals, or one too rich in carbonic acid, — so-called table water. The carbonic acid which is latent in the cold, when it gets into the stomach and is warmed, is rapidly set free and overdistends the stomach. A part of the carbonic acid escapes with belching, and brings with it air swallowed, or gas formed in the stomach; another part, however, gets into the intestine, and causes unpleasant conditions of flatulence. Often, to be sure, but not always, the carbonic acid rouses the peristalsis of the intestine; at least, many people have a movement of the bowels soon after taking soda water or champagne.

Water-ices and ice-creams are refreshing substances, which are rather to be included among drinks than among foods. They usually arrive in the stomach in a fluid state but still so cold that not every stomach can bear them, especially when it is empty or when the body is in a heated state. Experience teaches us that the application of cold to the abdomen often rouses the peristalsis of the stomach and intestines and with this intention an icebag is sometimes applied. With a full and distended stomach, and cold champagne and ices usually come at the end of a large meal, taking such things may cause a more rapid emptying into the intestine. Nevertheless, an ice is frequently badly borne because it pushes food not yet sufficiently prepared from the stomach into the intestine and thereby causes harm, and because the milk and fruit of which it is composed are not protected by the freezing process from the action of bacteria, and are therefore often already in a condition of decomposition, which continues in the intestinal canal.

Children at meals usually take a very large quantity of water to wash down their food because their secretion of saliva seems to be insufficient for all their food, they also pass out much water by the lungs and skin; at least the more healthy ones and those who are constantly active do so. It is naturally difficult in a child to keep to the proper amount of liquid always, and it is very easy for the delicate organism of the child to be temporarily upset.

(5) Adults, especially men, frequently supply the needs of the body for water by means of alcoholic drinks. The strong alcoholic liquors are detrimental to the digestive processes in the stomach, and are directly injurious to the mucous membranes of the throat, esophagus, stomach and upper intestines where they are chiefly absorbed. This is especially true of the customary glass of brandy or similar liquors taken after dinner. The chronic catarrh of the throat and stomach of spirit drinkers is ample proof of this statement. Nevertheless, we cannot deny that certain gastric discomforts, which arise after taking food rich in fat, can be removed by taking a glass of liquor. It is well known that fat in the fluid condition of fat drops remains lying in the stomach a long time, and causes by its separated fat acids an unpleasant burning sensation. Physiologists teach us, Quincke for example, that a relatively large surface covered with a thin layer of fat can be very easily freed from the latter by alcohol. One drop of alcohol put on an oiled glass plate is sufficient to completely clear up the layer over a large surface and free the same from oil. It is possible that a similar process takes place in the stomach, though we cannot prove it; while on the other hand

it is a fact that alcohol causes a powerful flow of liquid into the stomach, which may have a cleansing and emptying action. We must not forget, however, that alcohol precipitates pepsin and thereby has a checking action on the gastric digestion. For this reason the pepsin wines which are in frequent use seem to be irrational, and are said by Dr. Pfaff, of the Pharmaceutical Laboratory of the Harvard Medical School, to be without exception wholly inactive.

Though we may strongly advise against the use of strong alcoholic drinks after meals, and the so-called stomach bitters before them, we cannot wholly condemn the use of milder alcoholic drinks, as for example light wines or beers. The taking by adults of a moderate quantity of wine or beer with dinner, better toward the end or after it, is not only harmless but frequently is of service. Fanatics on the alcohol question who in the place of wine or beer would have us drink coffee and tea, according to most experience, thereby prove more detrimental to the digestive, the circulatory and the nervous systems, than by allowing the mild alcoholic drinks. In many persons coffee, and still more tea, rouses the nervous and muscular apparatus of the stomach to such a degree that the chyme is driven too quickly and hence in an insufficiently prepared condition into the intestine and gives rise there to all kinds of dyspeptic disturbances, as great formation of gas, flatulence, peristaltic restlessness, increased peristalsis, diarrhea and later relaxation of the intestine. The cardiac muscle, like the gastric and intestinal canal, is unduly excited, and not infrequently we observe after taking tea a long-continued pulse-beat of one hundred and more.

(6) The misuse of spices and succedanea as a cause of dyspepsia should be mentioned. The moderate addition of condiments to food has become necessary to most people through custom, and one may well say that the processes of digestion are hastened by condiments, in that they stimulate the secretory and motor functions of the stomach and often of the intestine as well. Nevertheless, all condiments are irritants. In tardy and insufficient action, atony of the digestive organs, the use of these irritants may be proper under certain circumstances; but healthy organs scarcely need them and they are directly harmful to excitable individuals, not only to their digestive organs, but also to the entire system, and particularly the nervous system. The continuous stimulation of the gastric nerves by highly spiced food leads to overstimulation and gradually to blunting and weakening of these nerves. Highly-seasoned food, as of hotels and clubs, by stimulating the digestive organs to excessive activity, may be the starting-point of immoderate eating and drinking, which may in turn be followed by diseases of the most diverse kinds.

Most of the patented meat- and albumin-surrogates found in hospitals and private houses act as stimulants, like condiments, and without calling forth the agreeable sensation of satisfaction. Personally I use the pharmaceutical fluid, or solid substitutes for meats only exceptionally, when the products of the kitchen are not accessible. The use of medicines in diseases of the digestive organs demands great care also, for the number of useful and necessary medications is not very large.

(7) Behavior after eating. If now in the choice, preparation and eating of food we must follow the laws of health, so must we also pursue a certain

course after eating or we shall suffer troubles. According to a Latin proverb quoted by Fleiner, "*Post cenam stabis aut mille passum meabis*," we should take a short walk after eating. An old German saying, cited by Schüle, *klinische Beiträge zur Physiologie des Magens*,³ is "*Fliehe den Schlaf nach dem Essem*." On the other hand, we see the household pets go to sleep after being fed, if they are permitted to do so. A great desire for repose comes over most people after the chief meal of the day, which has its explanation in this, that the stomach requires so much blood for its functions that but relatively little is left over for those of the other organs. At all events, great headwork is well-nigh impossible after an abundant meal, and if such work is forced it is at the expense of the digestion, which becomes retarded. Also, great muscular exercise after meals is not well borne, as was definitely settled by experiments of Dr. Cohn,⁴ and we frequently find dyspepsia among people of every age, who must walk in a hurry a long distance after eating to get to their work, whether it be school, work-shop or counting-room. The emptying of the stomach in such persons is interfered with mechanically, and also the muscular exercise takes away a good portion of the blood from the stomach to supply the muscles, and a diminished portion is left to help secrete gastric juice. The stomach for this reason remains too long burdened with food, the gastric walls relax under the too protracted pressure of this load, and there follows as a result the atonic disturbances of digestion.

With physical rest after eating, on the other hand, the secretion of gastric juice and the motility of the stomach increases; and in a comfortable dorsal or right lateral decubitus, the stomach can best push on the fluids it has received, and the contents which have become liquefied, into the intestine. Here the fluids are very rapidly absorbed and may cause a very considerable increase in the blood-pressure. In corpulent people of apoplectic habit this rapid rise of blood-pressure is often very serious and may prove fatal. An apoplectic attack which comes on during sleep after a meal is not to be attributed to the sleep, but to this increased blood-pressure because of too much food and drink.

II. GASTRIC DISTURBANCES AS ACCOMPANIMENTS OF GENERAL DISEASES.

The stomach takes a more or less active part in the diseases and disturbances which affect the rest of the body. It shows this most in the diseased processes of the parts of the digestive tract, lying above and below it and in direct connection with it. Diseases of the neighboring organs, hepatic, splenic and tumors, abdominal tumors, collections of fluid in the peritoneum or pleura, may mechanically interfere with the performance of its motor functions by crowding it or displacing its ostia, or by causing changes of shape or position, and thereby call forth dyspeptic conditions. Other disturbances, local or general, draw the stomach into sympathy through the medium of the nervous system, or the blood. Among the changes of the blood the ones we know most about are chlorosis and anemia, and all considerable degrees of these disturbances are accompanied by dyspeptic conditions. Anemic dyspepsia, as Fleiner calls it, is one of the most frequent

of conditions affecting young girls and women, not sparing children and men even. It is very probable that chlorosis, like many other conditions of abnormal composition of the blood, arises from anomalies of nutrition and digestion; the auemic conditions, on the other hand, arise from losses of blood of all kinds. An especially frequent one is the profuse menorrhagia, which is seen in women after a single severe pregnancy, or after several pregnancies which have rapidly followed each other. It is also frequent in uterine misplacements and inflammations.

In order to understand how dyspeptic conditions may arise in poor-blooded people, it should be remembered that all glandular secretions come from the blood and are only formed out of it by the specific activity of the secreting epithelial cells. Claude Bernard's experiment on the submaxillary gland best demonstrates this fact. On irritation of the facial nerve at its root the vessels of the gland become dilated, the capillaries become so distended with increase of blood-pressure that the pulsation of the arteries is propagated even into the veins, and, according to Laudois, more than four times as much blood as is normally the case flows back out of the vein. The small store of nutritive material is naturally soon exhausted from a small amount of blood, and thus it happens that too little and too feeble gastric juice is secreted by the stomach of poor-blooded people. It is probable also that the same thing is the fact with the saliva and the intestinal juice. The dyspepsia of anemics depends in the first place on a secretory weakness of the stomach. But poor-blooded people have also weak muscles, and their insufficiently or abnormally nourished nerves have an increased or diminished irritability. The small, feeble, gastric secretion of such people therefore may be coupled with motor and nervous disturbances of all kinds. With the improvement of the composition and quantity of the blood, and the stopping of the sources of loss of the same, these forms of dyspepsia are cured.

In like manner, as in anemia, the functions of the stomach, especially the secretion of gastric juice, may be disturbed by the influence of cachectic conditions, cachectic dyspepsia; and of acute or chronic fever, febrile dyspepsia. Presumably in the dyspepsias of the latter class, toxic conditions, toxic dyspepsia, play a greater rôle than high temperature; at least the gastric disturbances considerably outlast the febrile period in, for example, infectious anginas and particularly diphtheria. Often weeks and months even pass after an attack of diphtheria before the stomach completely recovers.

There are no pathological appearances to be expected in these forms of dyspepsia mentioned except perhaps in the auemic ones, since they are chiefly functional disturbances without organic changes of the gastric wall.

III. SYMPTOMS OF DYSPEPSIA.

Digestive disturbances usually accompany most of the gastric diseases dependent on pathological changes of structure. They also occur in the morbid shapes and positions of the stomach, and, as might be inferred by what has preceded, they appear as purely functional disturbances of great variety, affecting either the stomach alone or the whole organism as well. They give rise to troubles of a very subjective character and often of markedly individual type. Naturally a negative local or general examination is by no means suffi-

³ Berliner klin. Woch., 1895, Nr. 50.

⁴ L'Abeille Médicale, Nov. 19, 1898.

cient to refer the troubles experienced by a patient to purely functional disturbances, and to exclude an organic change, that is, a true disease of the stomach; for even the most severe diseases of the stomach, as ulcers and even cancers, may often run their course without any external appearances.

According to their origin and course we may divide dyspeptic conditions into the two groups, acute and chronic. Generally, but not always, the troubles which come from acute dyspepsia are more severe than those from the chronic form. Nevertheless, in the latter there are often transient exacerbations of the digestive disturbances and accompanying troubles which take on an acute character.

(1) Acute dyspepsia begins as indigestion, following a meal which does not set well, an error in diet, an excess in eating or in drinking, and shows itself as a general sense of discomfort and an unpleasant feeling of pressure and fulness in the gastric region. The food lies heavy on the stomach, as if it were not digested and passed on. Rapidly or gradually the discomfort increases, the stomach becomes distended, and nausea comes on accompanied by increased secretion of saliva. A feeling of burning in the stomach and behind the sternum increases the sense of thirst and causes repeated swallowing of saliva or the drinking of water, which allays the burning for a time. The patient temporarily feels relieved by eructations which may occur spontaneously or may follow a drink of water. But the trouble soon returns and increases in severity and may develop into intense crampy pains. Finally vomiting ensues with relief. Some people vomit with the greatest ease, especially children and adult males, while many women and girls can either not vomit at all or only with the greatest difficulty, the stomach being low down and forming a loop, and the esophagus being long and flattened. Where vomiting speedily follows or can be produced voluntarily either by suggestion or by thrusting the finger down the throat, the indigestion is soon over if the stomach can completely throw up its contents. Many people, not alone children, can immediately eat again after the stomach has been thus relieved of its burden, but they are more usually able to continue to drink liquid without great harm. A sound stomach endures much and will suffer long-continued abuse before it becomes disordered, and though it is usually considered to be a fortunate thing to possess a good stomach, it is an old observation that those who have to be careful of their digestion are the ones who live the longest.

The troubles last longer and often increase in intensity in people who either cannot vomit or can do so only after the course of some hours or the next day. In these cases, a greater or less considerable portion of the gastric contents, which is harmful through imperfect digestion and perhaps abnormal decomposition, gets into the intestine and causes great gaseous distention, colicky pain, increased peristalsis and diarrhea. It is noteworthy that where vomiting is relatively late the vomitus often consists chiefly of solid particles of food, which can be recognized, — the stomach in such cases having pushed forward into the intestine only the fluid drunk and the food which has become liquid. We see cases also where all the contents, both solid and fluid, have remained in the stomach with a considerable additional amount of fluid secreted by the gastric mucous membrane. These are especially the cases which are accompanied by great pain and seri-

ous general symptoms, as collapse and cramps; which complications are mostly due to reflex processes set up by the great distention of the stomach, or by the sudden relaxation of an over-distended gastric wall from the vomiting of large quantities.⁵ Fleiner⁶ considers that in the over-distended stomach there is a spastic or passive pyloric closure caused by mechanical pressure, more rarely that the downward traction of the overloaded stomach causes a kink in the duodenum. These conditions may be caused by the tight lacing of corsets, favored by dancing, sports, or other considerable muscular exercise.

(2) In chronic dyspepsia, the gastric symptoms are not so prominent as in acute dyspepsia; and what symptoms are present are mingled with general disturbances, which may be either the causes or results of the gastric dyspepsia. Intestinal disorders are also combined with chronic dyspepsia. As a result, the whole process of digestion, from the taking in of food to the time of fecal discharge, is associated with unpleasant sensations, sometimes more, sometimes less, according to the kind of food and drink taken. The sufferings which dyspeptics experience seem to increase when they are dwelt on even when those affected are not hypochondriacs, so that it is very difficult to provide for them in a household. Sometimes one kind of food, sometimes another, or its mode of preparation, is thought to be at fault. The result is that the diet list of most chronic dyspeptics gets to be smaller and smaller from omissions, and there follows a one-sided diet or insufficient taking of food and consequent loss of flesh. We sometimes see, however, well-nourished and even fat dyspeptics, who eat and drink too much and too good food and have contracted bad habits of all kinds to which their gastric troubles are attributable.

With the loss of weight, strength, and quantity of blood there is also a diminution of the gastric powers, the stomach becomes more sensitive and irritable, and digestive disturbances increase so that, at the first examination of such patients, one might well think there was a severe or even fatal disease. And yet frequently it only needs a proper diet and a rational arrangement of their mode of life to change, in the course of a few weeks or months, what was thought to be a severe condition of disease into one of perfect health.

The appetite in chronic dyspepsia is frequently, though not always, disturbed. It is oftener more from fear of the consequences of indulgence than from lack of appetite that too little is eaten. The tongue may be perfectly clean, though it is often coated, and many complain of a nasty taste in the mouth. There is very frequently chronic pharyngeal catarrh, especially in smokers and those who take liquors after eating to lessen their discomforts or strong wines to increase their strength. Hawking, retching and tendency to vomit in the morning, in such cases, is oftener attributable to the pharyngeal catarrh than to the gastric disturbances.

Complaints about the stomach in dyspeptics are tolerably uniform. Feeling of fulness, weight, uncomfortable pressure in the region of the stomach, especially in the pit of the stomach, come on during eating or soon after, and increase for a time and then

⁵ Fleiner *Archiv der Verdauungs Krankheiten*, 1895, Band 1, s. 243.

⁶ *Lehrbuch der Krankheiten der Verdauungsorgane*, 1896, s. 151.

gradually diminish again. At the same time the pressure of the clothing is so burdensome that it must be loosened over the epigastrium; still a sense of stricture remains, there is frequently palpitation, intermittent or irregular pulse, anxiety sometimes coupled with feeling of heat in the head and coldness of the hands and feet. If there is belching, relief follows; and many dyspeptics try to bring on eructations as soon and as often as possible by contracting the diaphragm and abdominal muscles. Such eructations may occur during the entire duration of digestion; they often cease sometime after eating, and again they keep up even when the stomach is empty. Such patients usually say that this or that article of food keeps rising, and they claim to have this or that sense of taste with the eructations. It is exceptional, however, for dyspeptics without gastric dilatation, cancer, or ulcer to belch anything but an odorless gas. Frequently with the eructed gases, fluid, more rarely solid, gastric contents come up into the mouth, from which they are usually swallowed again or less frequently spit out.

Dyspeptics complain most of pyrosis or heartburn, that is, a burning sensation in the epigastrium, which may reach up behind the sternum to the throat or even to the mouth. It is generally considered that here we have to do with the rising of acid gastric contents and an increased secretion of acid in the stomach, but Einhorn⁷ says that the sensation can exist even without the presence of an acid, and McNaught has called attention to the fact that symptoms of pyrosis may be present with the normal quantity of acid. Ewald⁸ and Leube⁹ regard pyrosis as a kind of motor neurosis, especially a condition of irritation of the motor centres.

In simple dyspepsias, as a rule, vomiting does not occur if there are no accidental exacerbations of the old trouble through dietetic errors. The same is true of severe pain. On the other hand, most gastric dyspepsias are accompanied by intestinal disturbances which are often quite painful. Even during a meal or soon after it, many people with stomach trouble experience a distention of the intestines and a restless activity of the same, which are indicated by a rolling, clucking, quacking sound which may be heard even at a distance. Either the fluid and fermenting gastric contents get too soon into the intestine and are moved onward, or the energetic peristalsis which is roused in the stomach by being filled with food and drink, is imparted to the intestine. In many patients a desire to defecate comes on soon after eating, which may be several times repeated, and an abundance of stinking gas may also be passed at the same time. Such patients are often much troubled in thinking that it is the food just taken which has passed through them, which, of course, is not true. Wholesome advice in such cases always is, not to eat so fast and not to eat so much; for any one who regularly has two or three stools a day without at the same time emaciating, eats too much for his needs.

In sedentary people with a relaxed colon and abdomen a large and hasty meal may cause rapid accumulation of gas in the intestine at the hypochondria and epigastrium close under the stomach, giving rise to sharp, colicky pain, often wrongly attributed to the

stomach or to the liver or gall-bladder. The intestinal canal in such cases need not be diseased at all.

In contrast to these cases another series of dyspeptics complain of constipation. This arises in many instances from the fear of gastric discomfort, leading them to eat too little, and moreover to partake of a food which has little refuse matter, as meat and eggs. By the introduction of boiled farinaceous foods and vegetables into their dietary, the stools are frequently regulated without any further trouble.

Real diarrhea is found in dyspeptics, as a rule, only when the intestine, especially the colon, is affected together with the stomach.

IV. DIAGNOSIS AND APPLICATION OF THERAPEUTIC INDICATIONS.

In order to gain a knowledge of the processes which take place in the stomach, it is necessary in the first place, since external characteristic conditions in most dyspeptic cases are not to be found, to carefully compare the history of the patient with the known physiology of digestion and pathology. We should first try to draw diagnostic conclusions from the history of the patient which justify our therapeutic attempts before we use the stomach-tube and make analyses of the gastric contents. These latter should only be used when nothing more can be accomplished without them, and we are convinced of the necessity of their use. We are glad if we can help our patients without the need of the stomach-tube; on the other hand, we should never omit its use where we can thereby either avoid harm or may reasonably expect benefit to result.

It is especially the symptoms of eructation, formation of acid and pain in gastric dyspepsia, which are often very difficult to interpret.

In eructations, as a rule, only gas comes from the stomach, more rarely with the gas portions of the solid or fluid gastric contents come up also. The question now arises what kind of gas is this, and what is its source? By many it is too frequently regarded as the product of abnormal fermentation processes, carbonic acid, hydrogen, and so forth. The development of carbonic acid in the stomach occurs in alcoholic fermentation through yeast spores, and of carbonic acid and hydrogen in acetic fermentation, but almost always only in very severe gastric diseases accompanied by motor insufficiency. In such cases the development of an inflammable gas is no great rarity. In the ordinary functional dyspepsias gas fermentation is relatively rare. For this reason creosote, naphthol and other modern anti-ferments are seldom of any special good. Hoppe-Seyler says that the gas which is removed from the stomach by eructation is for the most part only atmospheric air. In many foods and drinks much air is held, and by this means gets into the stomach, where it remains a longer or shorter time. In mineral water, which is often irrationally taken with food, much air and carbonic acid is often contained, which thus gets into the gastro-intestinal tract. Moreover, many dyspeptics swallow considerable air with the saliva.

Increased production of acid in the stomach, and the sensation of heartburn dependent on it, may have a twofold cause: either increased secretion of hydrochloric acid, hydrochloric hyperacidity of the gastric juice, or increased formation of organic acids in the stomach. In the first case we have either increased irritability of the nerves of secretion, or gastric ulcer

⁷ Diseases of the Stomach, New York, 1896, page 418.

⁸ Klinik der Verdauungs-Krankheiten, s. 425.

⁹ Spezielle Diagnose der inneren Krankheiten, ii, s. 240.

and the gastric contents irritating the ends of the secretory nerves exposed in the base of the ulcer.

The increased formation of organic acids in the stomach depends on abnormal fermentation during gastric digestion. Perfectly healthy persons, who produce a good gastric juice, and whose gastric motility is sufficient, may at times be plagued by heartburn caused by organic acids. In such cases something eaten is at fault; the food has been too fat, as fried food, meat, or cereals, perhaps mayonnaise dressing, or food and drink undergoing the acid fermentation, whipped cream, sour cream, new beer or wine, and so forth. There is reason to believe that here the fat and fat acids remaining in the stomach give rise to the trouble, and, as already mentioned, a drink of spirits, as brandy or whiskey, will probably clear out the stomach the quickest, but it is to be very seldom employed for this purpose for obvious reasons. The acids which do not come from fats are soonest removed from the stomach by a glass of simple water, weak alkaline water, or a cup of weak tea.

In patients suffering from chronic dyspepsia a hyperacidity of the gastric juice due to organic acids may develop even when there has been no dietetic error, as the result of atony, the stomach not emptying itself soon enough, and the food therefore remaining too long in the organ. Here the ferment organisms already present, or taken in with the food and saliva, have time to develop their activity. The fermentation process, moreover, is favored by a weak gastric juice, that is, one poor in free hydrochloric acid, as it does not sufficiently inhibit the pathological fermentations. If, however, there is good or increased gastric motility, such patients do not complain of heartburn but of intestinal discomfort; so that instead of a gastric trouble one thinks he has to deal with an intestinal difficulty.

How can we then in any given case with some probability determine, without chemical examination of the gastric juice, whether the pyrosis comes from hydrochloric or organic acids?

The burning caused by hydrochloric is much more severe than that caused by organic acid. It frequently increases to intense pain of a cramp-like or neuralgic character, which only ceases with the act of vomiting. Moreover, the burning, pain and vomiting often come on directly after eating, frequently even when the stomach is empty, and sometimes during the night. The taking of milk and egg sometimes lessens the trouble. There is often desire to take food at frequent intervals. Oftener patients with such symptoms suffer from constipation than from diarrhea or flatulence.

On the other hand, the heartburn caused by organic acids is much more frequent than from hydrochloric acid and, as a rule, appears sometime after a meal. It begins slowly and increases gradually without reaching great intensity or causing great pain. It is more troublesome than painful. Desire to take food is absent so long as pyrosis is present, but not because small amounts of food between meals really increase the heartburn. Occasionally a little sour-tasting gastric contents rises into the throat with eructations, but there is no real vomiting except exceptionally after great dietetic errors. On the other hand, there is frequently with the heartburn a marked gaseous distention of the intestine which may lead to severe colicky pain, if the intestinal peristalsis is slow, as so frequently happens. This latter condition then often gives rise to constipation, sometimes, however, there is tendency to diarrhea

or at least irregularity of the stools. Six or seven hours after the chief meal this sort of heartburn usually ceases and the feeling of hunger returns again. With an empty stomach in the night, for example, or early in the morning before food, heartburn caused by organic acid never occurs in contradistinction to that from excess of hydrochloric acid, unless the stomach is insufficient in motility.

External examination shows such stomachs as a rule to be relaxed, at least succussion sounds may be obtained in them several hours after the last meal.

Over-abundant secretion of hydrochloric acid is to be treated as in gastric ulcer and neuroses of secretion. A tumbler of cool water should be given early in the morning on an empty stomach. The diet should be restricted to milk, eggs, white meat, easily digested cereals, and vegetables and fruit. Usually more than the three stated meals are indicated. Symptomatically alkaline spring waters, lime-water and calcined magnesia can be used to neutralize the acid. Of the former, Fachinger, Bilin, Vichy and Vals are much used in Germany, a tumblerful of either of the first two, and a wineglass of either of the last two, a quarter of an hour before each ordinary meal. Alcoholic drinks should usually be interdicted and all condiments. Jaworski, Ewald and Hyem claim that sulphate of sodium has the property of reducing the rate of secretion of hydrochloric acid, and the latter author claims that the use of Carlsbad water may lead to the total disappearance of hydrochloric acid. He gives a small quantity of sulphate of sodium or of Vichy water every morning before breakfast. The chief thing is to reduce to a minimum the direct or indirect stimulation of the gastric mucous membrane. An objection which has been urged to the continued use of bi-carbonate of sodium is, that it becomes chloride of sodium in the stomach, which is a great excitant to the secretion of hydrochloric acid.

In severe cases the stomach should be systematically washed out before breakfast as well.

The treatment in the increased production of the organic acids is that of chronic gastric catarrh and gastric atony. As there is usually much secretion of mucus, this is to be removed either naturally by giving water to drink early in the morning, or artificially by washing it out by means of the stomach-tube. By the former or natural method the mucus is washed on into the intestine where, under certain circumstances, it can cause harm. By the latter or artificial means the mucus is directly discharged from the body. In all severe cases the artificial means is preferable to the natural because it is more thorough. The natural means is indicated in slight cases or in the subsequent treatment of severe ones already benefited and nearly cured by the washing process. Since mucus is not readily soluble in ordinary water, we usually add an alkali to it when we wash out with the stomach-tube. Experience teaches that a mixture of table salt and soda in the proportion of two to one is the best. The ordinary formula is chloride of sodium two parts, carbonate of sodium one part, of this a heaping teaspoonful is added to two or three quarts of water at 90.5° Fahr.

For drinking-waters there are many to choose from, for all the alkaline-saline and saline waters are proper to use. Among these are Carlsbad, Marienbad, Bilin, Saratoga Hawthorne Spring, Kissingen, Hamburg, Soden and Saratoga Congress. A diet of

milk, different cereals with milk and eggs, gruels and purées is best to begin with and is gradually increased.

Pain in the stomach when there is no decided structural change of the gastric wall, as hemorrhagic erosion, ulcer or carcinoma, present is most frequently caused by spastic contractures at the gastric ostia or by excessive distention of the stomach. In spasm of the cardia, true cardialgia, the location of the severest pain is behind the tip of the xyphoid cartilage in the pit of the stomach, and even higher up in the chest between the sternum and vertebræ, corresponding to the position of the esophagus. Since frequently no distinct cause can be found for this pain, and because it occurs suddenly and unexpectedly, and after a shorter or longer time disappears just as suddenly usually after a few eructations, it is for the most part regarded as nervous.

Nevertheless, such a cardialgia may very frequently be referred to purely mechanical causes. G. von Sweiten maintained the opinion, that in rapid overdistention of the stomach the orifices of the same were convulsively closed tight, and that such a closure could as well be the result as the cause of a painful gastric cramp. Furthermore, Fleiner¹⁰ calls attention to a bulging of the esophagus, which is frequently found partly above and partly below the diaphragm, which is bounded above and below by a narrowing, and which he calls a *vormagen* or *antrum cardiacum*. Gases, sometimes also acid gastric contents, rising from the stomach or coming from the esophagus, particles of food swallowed, caught in such an *antrum cardiacum*, become incarcerated and then give rise to troublesome pressure under the sternum, which usually disappears after one or two belchings.

Fleiner also says that the escape of gas through the mouth may be rendered difficult, in a purely mechanical way, without either spasm of the cardia or *antrum cardiacum*, by the powerful traction on the esophagus of a downward displaced and well-loaded stomach, or by a kink in the esophagus when the fundus is pushed up or displaced to one side.

Spasms of the pylorus, like spasm of the cardia, may be the result of undue distention of the stomach. It is, however, more often the cause of distention, because the sphincter of the pylorus can wholly close the opening and stop the exit of the gastric contents into the intestine. Also solid food may be temporarily held fast by it at the moment of its passage through the pylorus. Spasm of the pylorus is stronger than that of the cardia because the muscle is here in greater development.

Trousseau was the first to claim that half the so-called gastralgias were located in the intestine, namely, in the two flexures of the colon, more seldom in the transverse colon.

We have now seen that, with the exception of the pains dependent on great structural changes of the gastric wall, stomach pains and cramps come only from hindrance of the movements of the gastric contents either up or down. The important rule for the treatment of stomach and intestinal diseases to be deduced from this is that we should use opiates as seldom as possible, because morphia and opium paralyze the movements of the gastric and intestinal muscles for a long time. It is true that a subcutaneous injection of morphia acts rapidly and surely in a

gastric cramp, but it only gives temporary relief, it is not curative. The pain disappears quickly, the spasm relaxes, the muscle ceases to contract, but not alone where there was spastic contraction before but also in the whole stomach. The relaxed paralyzed gastric wall yields to the weight of the ingested contents and dilates, in which condition it is less able to drive out its contents than before. When the action of the opiate has ceased the stomach resumes its work under more unfavorable conditions than when it was interrupted. For this reason we must forbid all chronic dyspeptics the use of opiates if we wish to cure them, and restrict their employment to incurable and inoperable cases, as in carcinoma.

Almost all the medicaments used for gastric pain, especially cramp, have in view the facilitating of the emptying of the stomach into the intestine. And the household measures, except hot compresses to the abdomen, such as tea, black coffee, chamomile, peppermint, balm, valerian teas and the like, arouse peristalsis, open the pylorus and favor the emptying of the gastric contents into the intestine.

To find the relation or dependence of dyspeptic conditions on other local diseases or general disturbances we should not content ourselves with simply inspecting the tongue, examining the stomach, and perhaps the other abdominal organs, but we should make a complete examination of the patient all over. The lungs especially should be thoroughly examined, since very frequently the beginning of phthisis is concealed by gastric disturbances which spring to the fore. We should also never neglect to examine the urine at least for albumin and sugar. And sometimes the excretion of large amounts of uric acid will give points on many improper habits of diet and modes of life, or the finding of acetone or increased production of indican.

The blood should also be examined, especially as to its quantity of hemoglobin, with Fleischl's or other fit apparatus, once a week, and the patient should also be weighed. If by arranging the diet, changing the mode of life, ordering times of work and rest, resting after meals in anemic dyspepsias, we do not increase the hemoglobin beyond a certain limit, we must use mild preparations of iron, as ferratin or iron peptonates, in addition. A change to the mountains or seaside is often beneficial. If there be too great a loss of blood at the menstrual period, sometimes fluid extract of *hydrastis canadensis* in medium doses three times a day continuously, and of *viburnum prunifolium* twice a day, twenty to twenty-five drops, only during menstruation, prove of service. If these simple means do not suffice Czerny and also Fleiner advise the use of a tampon applied twenty to twenty-four hours after menstruation has begun, or in some cases directly at the beginning of the process in the ordinary manner. The tampon is allowed to remain in place twenty-four hours and is then removed, and after emptying the bladder and washing out the vagina it is reapplied a second time. Often a single tamponing suffices, though at times a third, fourth, or even fifth repetition may be needed. Of course this procedure has to be repeated at the next menstrual epoch. As the patient increases in strength the tendency to undue hemorrhage diminishes and finally ceases.

The oldest medical society in Russia is said to be the Physico-Medical, founded at Moscow in 1804.

¹⁰ Frankheiten der Verdauungsorgane, s. 153.

TREATMENT OF CONSTIPATION.¹

BY FRANZ PFAFF, M.D., BOSTON.

THE best treatment in a given case of constipation will be the one by which the cause of the constipation can be removed. But the causes are very numerous. If a retro-flexed uterus is properly replaced, an intestinal stricture dilated or operated on, anemia cured or congestion of the lungs relieved, the accompanying constipation may be cured. Dozens and dozens of pathological conditions may cause constipation. It is not my intention to speak of all the different ways in which constipation has to be treated rationally according to its causation. I shall only deal with the treatment of cases which are generally classed under the head of the intestines, and in which peristalsis is believed to be insufficient.

In the treatment of these cases of atony of the intestines, it may be necessary to employ all the therapeutic agents available. Hygienic, physico-chemical, dietetic and medicinal measures, even suggestion and hypnosis, either alone or combined, may prove beneficial if regularity and perseverance in the treatment are maintained. Regular habits, out-door exercise, gymnastics, hydrotherapy, massage or electricity may alone prove sufficient in many cases of constipation.

But there still remains a vast number of cases of constipation which do not yield to such measures and in which we must promote peristalsis by other means. This may be done by diet or by medicinal agents. It is of these two factors I wish to speak very briefly. The dietetic treatment ought always be tried first, and if faithfully adhered to will often prove successful.

Of what should this dietetic treatment consist? The general rule is to increase in the daily meals vegetable matter, such as fresh green vegetables, fresh or dried fruits and the various grains. Further, to use the coarser breads, such as rye bread or graham bread, etc. The aim of this dietetic treatment is to introduce, with the green vegetables and fresh fruits, more water into the system, and at the same time, what is more important, to increase peristalsis through the stimulation of the intestine by the undigestible substances found in greater amount in vegetable material than in meats or fats.

There is absolutely no doubt that a great many cases of constipation improve under the treatment just outlined, and may even recover. But, on the other hand, there still remains many which are not benefited, but are often even made worse.

In spite of frequent failures, the principle of the treatment is not wrong, but only the application of it in special cases. The fault lies in making the increase in coarse vegetable diet without discrimination. A strong, fat, constipated patient whose digestive powers are normal may improve remarkably under such a diet, and his constipation be relieved for months and even cured. If, on the other hand, the same dietetic regime is prescribed in a case of chronic constipation, in a feeble patient with weak digestive powers, the result may be quite different. The constipation may become aggravated and the patient even lose strength and flesh. The reason for this is that the absorption of the real nutritive elements from our food stuffs is easier and more complete when they contain little undigestible matter than when they are loaded with such in-

soluble stuffs as cellulose, of which coarse vegetable material contains so much. And it is just this cellulose which is believed to act as the main stimulus to peristalsis.

The dietetic treatment of constipation is a much more complex problem than is generally thought and believed.

Any one who has examined the dry feces of cases of constipation microscopically and chemically will know how loaded they may be with vegetable waste products, and that the abundance rather than the lack of such undigestible matter should here be adduced as the cause of the constipation. The strength of the peristaltic movements are here entirely insufficient for expelling such an amount of waste products. If in such cases of constipation the quantity of undigestible matter of vegetable origin be reduced by the suitable choice of certain articles which have less cellulose, etc., but an equal amount of salts and carbo-hydrates, mucilage, pectins and other colloids soluble in water, the symptoms would very likely disappear, and the patient gain in weight. Recovery depends not only upon introducing vegetable matters into the intestine, but upon choosing such vegetables as are suitable to special cases.

Several different factors contribute to the good influence which the vegetable substances have on constipation. Of these the following are the more important:

(1) The transformation of carbo-hydrates into CO_2 and fatty acids such as acetic, butyric, etc. These fatty acids, it is true, are nearly entirely lost for nutritive purposes, but they stimulate peristalsis of the small intestine and so hurry the contents through more quickly, thus causing them to reach the large intestine in a more liquid form.

(2) Further, the presence of the different neutral salts and gums, mucilages, pectins and other colloids contained in vegetable material are most curative in an increased vegetable diet. The sugars are entirely absorbed in their passage through the intestine, but they are not so very easily absorbable from their watery solutions, and therefore keep the contents of the small intestines longer in their liquid form. The colloids, soluble in water, act in much the same way. The different neutral salts act in two ways. They also keep the intestinal contents in a more liquid form and act directly as stimulants to peristalsis.

Of the action of salts I shall speak more in detail when treating of medicinal agents.

The good influence attributed to the presence of water and undigestible material present in vegetable matter is of less importance. An excess of undigestible matter may even be hurtful.

Vegetable material containing a large percentage of tannic acid, such as blueberries, cocoa, chocolate, tea, have also to be avoided on account of the constipating action of this acid. The formation in the small intestines of fatty acids which act normally as stimulants to the peristalsis of the small intestines may of course be increased by adding fats to the diet. If the diet list is made up according to the principles just laid down, even a feeble constipated patient with weak digestive powers will be benefited, as he will have all the benefits of the vegetable diet without the unnecessary extra work of getting rid of too much undigestible material.

However, there still remain patients in whom, in

¹ Read, by invitation, before the Massachusetts Medical Society June 8, 1897, and recommended for publication by the Society.

spite of attention to general hygiene and diet, medicinal agents must be given to facilitate or promote peristalsis. These agents may be properly divided into two groups, the inorganic salts and the different organic compounds. The inorganic salts are subdivided, according to their action, into two classes, the chloride of sodium group and the sulphate of sodium group. To the chloride of sodium group belong all neutral salts, which are easily absorbed in the small intestine from their watery solutions. The beneficial effect which chloride of sodium and its allies have on constipation is in promoting absorption of food stuffs and peristalsis of the small intestine. These salt solutions are entirely absorbed in the small intestine and excreted with the urine. But during the passage through the small intestines these salt solutions stimulate absorption and peristalsis, and hurry along the contents, so that they reach the large intestines in a more liquid form.

Here then, the inspissation of the remnants will not be so complete as to hinder their expulsion.

To the sulphate of sodium group, on the other hand, belong all the salts difficult of absorption, such as sulphate of sodium, sulphate of magnesium and other magnesium salts, the phosphates and tartrates. All these salts are absorbed with difficulty in the intestinal tract, and are expelled for the most part with the feces, and not with the urine. In their passage through the intestinal tract, they prevent the absorption of water, and thus keep the intestinal contents, even in the large intestines, in a more liquid form, thus facilitating their expulsion.

The large group of organic compounds used in the treatment of constipation act, so far as we know, mainly by producing peristalsis of the large intestines. I will only mention rhubarb, senna, cascara sagrada, aloes, gutti, elaterium, colocynth, jalap and croton oil. It would take too long to describe the special merits of each of these; suffice it to say that some are powerful irritants, and have, therefore, to be used very cautiously; while others, like senna, cascara sagrada, have less irritant properties and may be given with impunity for long periods.

From this very short description of the main characteristics of different medicinal agents, their indications for use may, nevertheless, be deduced. But before doing this, I may be permitted to draw your attention to another medicinal agent, which, in helping normal absorption in the small intestines and promoting intestinal peristalsis, may be used with success in the treatment of some cases. If dried ox bile be given in suitable form and in sufficient quantity, constipation may be relieved even in very obstinate cases. When given in salol-coated pills to prevent absorption from the stomach and in large quantities, fifteen to thirty grains three times a day, before meals, the evacuation of the bowels may become entirely normal. Bile acts mainly on the contents of the small intestines, and the indications for its use are, therefore, limited. But we have seen that not enough stress has been given to the conditions of the contents of the small intestines in the treatment of constipation. In many cases, the accumulation of fecal matter in the large intestines is thought to be entirely due to the imperfect peristalsis of this organ, and the treatment is directed to it, often with varying results, whereas a modification of the contents of the small intestine would prove curative. In concluding the short list of medicinal agents employed in

the treatment of constipation, we must not omit atropine and physostigmine. The latter acts in stimulating the unstriated muscles of the intestine, and may, therefore, prove beneficial when those have to be strengthened. Atropine acts in the opposite way. It paralyzes undue contraction of the muscles of the intestine. If constipation be due to spasmodic contraction of the intestine, it may overcome this spasmodic contraction and allow the evacuation of feces, which could not be accomplished otherwise by the strongest aperient.

Morphia, which in general favors constipation, may also relieve spasmodic contraction. In speaking of spasmodic contraction of the intestines as a cause of constipation, especially in nervous persons, I will only add that Kussmaul and Fleiner, in 1893, described this form more in detail, and recommended large oil enemas as the best means of overcoming the spasmodic contraction and helping evacuation of the retained hard feces. These large oil enemas may also be used with great advantages in cases of simple atony, where retention of fecal matter is present in the large intestine.

Now to the indications for medicinal agents!

If we intend to promote absorption of food stuffs and peristalsis of the small intestine, we ought to use the substances belonging to the group of common salt. Mineral waters containing mainly this substance are Wiesbaden and Kissingen. To this group may be added bile. If we intend to promote peristalsis of the large intestine, the different organic aperients or laxatives have to be used. In case our intention is to keep the contents of the large intestine less solid, salts like sodium and magnesium sulphate and other salts difficult of absorption have to be employed. Very often it is best to give a combined medicinal treatment, that is to say, one which keeps the contents less solid and helps peristalsis along at the same time. In such a way we shall need to use less quantities of drugs to obtain the desired effect than if we used a medicine acting in only one direction.

But even in cases where we have to use medicine, the attention to diet must be paramount, and if carried out with perseverance will often permit of dropping medicinal treatment entirely, which must be the desideratum in the treatment of constipation.

ROUND SHOULDERS.¹

BY E. H. BRADFORD, M.D., BOSTON.

THE condition of round shoulders has been classed as a form of kyphosis, and this is undoubtedly a correct classification, but certain features deserve especial consideration. They are frequently seen in growing girls and boys, and occasionally in weak adults. The scapulæ drop forward, the posterior edges projecting behind. The shoulders seen from in front project with marked depression to the inner side, as if the clavicles were curved inward to an unusual degree. The neck is thrown forward, and the abdomen is protuberant, owing to an unusual hollowing in of the small of the back. The spine may be flexible, but in many instances, the upper part is stiff.

If the individual attempts to bring the uplifted arms to a vertical line, it will be seen that the hollowing of the back is increased by the individual, who thrusts

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the abdomen forward, while stretching the arms straight above the head.

quite noticeable in many instances. Where the arms are raised, this is only done by an exaggerated hollowing in of the back.

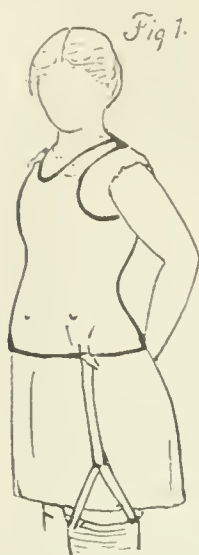


FIG. 1. Waist, with shoulder-straps and side stocking-supporters attached.



FIG. 2. Skirts buttoned to waist.



FIG. 3. In raising the outstretched arms the back is arched forward in the lumbar region.

This condition can be more carefully examined, if the child is placed flat, face downwards upon a hard surface like a board, or table, with the arms at right angles with the trunk. If the hand of the examiner is placed upon the back between shoulders, and with the other hand, the elbow raised, it will be found that the arm can be pressed above the plane of the trunk. If, however, the arms are brought to the side of the head in the axis of the trunk, it will be found that in many instances they cannot be raised to the plane of the trunk. Frequently, the arms cannot be brought to the side of the head without raising the shoulders from the board, on which the patient is lying. In other words, the play in the shoulder-joint is limited in certain directions, and in some instances, the back play of the raised arm is seriously impaired. In some instances, this lack of free movement in certain directions will be found greater in one arm than in the other,

giving an inclination to twist on the upper part of the body. Usually, however, the defect is bilateral. This affection is not due to a contraction of the pectoral



FIG. 4. The effect of shoulder-straps upon the upper contour of the trapezius.

If a gymnastic class of growing children be watched while performing exercises, this will be found to be



FIG. 5. Front view, showing weakened trapezius.

muscles, which would manifest itself when the arms were at right angles with the trunk, but to a shortened condition of the ligaments, and possibly to an alteration in the joint surface in a certain direction.

In seeking a cause for this affection, some impediment to the upward movement of the arms suggests itself, and the effect of clothing needs to be examined.

Both for convenience and owing to an exaggerated fear of injury to the pelvis, as well as for the purpose of arranging the clothes tastefully, it is the custom in dressing children to throw the weight of the garments upon the shoulders, fastening the skirts, and in many instances stockings, to the waist. These waists are made of various shapes, but usually have a narrow shoulder-strap, which presses upon the upper portion of the trapezius, and upon the clavicles to the inner side of the head of the humerus. They also exert pressure, if pulled downward, upon the upper portion of the sternum. Where, as is usually the case, the skirts are buttoned to the front of this waist, a considerable drag is exerted, and in this way pressure falls upon the trapezius and the sternum, the head is thrown forward, the shoulders drop forward, and the chest is contracted. The amount of weight of the clothing is not inconsiderable, making the erect position less easily borne, the child naturally seeking the position of greatest comfort. Where stocking-sup-



FIG. 6 Side view, shoulders falling forward from weakened trapezius.

porters are added, the downward drag may become more than would be supposed. Where a faulty position is assumed a greater part of the day, the soft tissues adapt themselves, and a faulty attitude becomes habitual, the ligaments adapting themselves to such a shape. It is not probable that any pressure upon clavicles is exerted, which would not cause a marked distortion, as these are particularly strong bones, though this may occur in rachitic children. Fortunately, however, in rachitic children, when rickets is most prevalent, the weight of the garments is not great. Somewhat the same effect may result from the use of suspenders or from the straps of an antero-posterior support in Pott's disease. Suspenders, fortunately, are not worn ordinarily until the figure assumes its shape.

The prevention of this deformity is more important than the cure, which must necessarily involve a long-continued treatment, designed to stretch the ligaments and strengthen the muscles. It is important to bear in mind that the clothing should be so arranged that

none of the weight of the skirt or underwear should drag upon the front of the waist. As far as possible, where any weight is thrown upon the shoulders, it should be a force that would pull the shoulders back. The waist should be so constructed as to make no pressure upon the sternum. The shoulder-straps should not bear upon the middle of the clavicles, but upon the tip of the acromion. In young, growing children, most of the weight of the underwear should be borne upon the hips, lessening the load upon the shoulders.

A RECORD OF THE TREATMENT OF FOUR CASES OF PULMONARY TUBERCULOSIS WITH KOCH'S NEW TUBERCULIN T. R.

[BY HENRY F. HEWES, M.D., BOSTON.]

I HAVE recently completed the treatment of four cases of pulmonary tuberculosis with Koch's tuberculin T. R.

The tuberculin used was manufactured by Lucius & Brüning. It is known commercially as "The New Tuberculin, Koch." In the administration of the tuberculin the plan outlined by Koch was followed.¹

The treatment was given on every second day. Each patient received an initial dose of one-five-hundredth of a milligramme, solid substance. At each treatment the dose of the preceding treatment was doubled, unless untoward symptoms occurred. The treatment was continued until the patient received a dose of 20 mg. without reaction. In the fourth case the treatment was pushed more rapidly. In the second case the doses were run up to 30 mg. The symptoms which were taken as signals for a halt in the treatment were, a rise of temperature of over .9° F. (one-half degree Centigrade), extreme malaise of the patient, or other evidence of marked constitutional disturbance. Where such symptoms occurred and appeared to be due to the treatment, the succeeding dose was omitted or made smaller than the rule called for, in accordance with the severity of the symptoms.

Where no untoward symptoms interfere the period of treatment should extend over 28 days. In the three cases which were treated by the rule the periods of treatment were 30 days, 40 days, 30 days, respectively. The fourth case was treated in 25 days. The total number of injections given was 64; the least number in a case 13, the greatest 21. The total amount of tuberculin given in the four cases (omitting the extra dose of 30 mg. in Case II) was 157.66 mg. The total cost of tuberculin for the four cases was \$49. The amount of tuberculin by cases was as follows: Case I, 39.02 mg.; Case II, 43.98 mg. (up to 20 mg.); Case III, 38.53 mg.; Case IV, 38.13 mg. The lowest cost by case was \$11.71, the highest \$13.47.

The tuberculin was given by injection into the muscular tissue. An ordinary hypodermic syringe was used. This was washed out with boiling water before using. For doses of 2 mg. solid substance and less the tuberculin was diluted with .6 per cent. salt solution, and, where necessary, preserved in 20 per cent. glycerine. The larger doses were given straight. The largest amount of fluid injected at one injection was one cubic centimetre. The first 20 mg. of tuberculin used was of the April manufacture, the next 20

¹ Deutsche med. Woch., 1897, No. 14.

mg. of the May manufacture. The remaining 117 mg. were of the July manufacture.

The temperature, pulse and respiration were taken in each case at least every second day, when the patient came for treatment, and as much oftener as possible. In one case the temperature was recorded three times daily. The other three patients worked throughout the treatment, and it was impossible to get as accurate a record as was desirable. All drugs were discontinued during treatment except cod-liver oil. The diagnosis was by bacillary finding in each case. The cases were in no sense picked cases. None of them were incipient in the strict sense of the term.

My idea in reporting the cases at this time is to give a record of the action of four cases under the tuberculin treatment. No conclusions as to the therapeutic results of the treatment can be drawn after so short an interval.

CASE I. Female, age 23, white, sewing-girl. Family history, good. Duration of symptoms, eight months.

October, 1896. Pleurisy of right chest. Acute attack lasted three weeks. Since that time a constant cough, at first hacking, of late loose, with profuse expectoration. For two months has been losing flesh and strength rapidly. Cough keeps her from sleep. Much shortness of breath with exertion.

Vomits on every morning with cough. No night-sweats. Weight last December 135 pounds.

Patient came to me May 1, 1897. Symptoms at that time were those described above.

Examination. Face thin, cheeks flushed. Respiration 28. Chest: both sides moved equally; at right apex fine explosive râles on inspiration; slightly increased respiratory and voice sounds; throughout right upper lobe scattered râles of a rattling, moist character. In the left chest, just below clavicle, an area (extending from the outer half of the clavicle to the third rib) of dulness; bronchial breathing and fine râles; moist and rattling râles at base. Heart normal. Abdomen normal. Trunk very thin. Throat: chronic follicular pharyngitis. Sputum consisted of leucocytes and epithelial cells. Tubercle bacilli present in large numbers. Urine contained no albumin. Weight 115 pounds. Temperature 99.8° F., pulse 100, respiration 28.

Patient was treated with inhalations of oil of peppermint and administration of cod-liver oil and oil of turpentine.

June 1st. Reported by letter. Feels much better. Cough much less frequent. No cough nights. No vomiting. Weight 117 pounds.

June 24th. Patient has taken no medicine since June 1st. She felt so much better that she thought she did not need it. Cough is getting worse again; growing weaker. Weight 114 pounds. Temperature 99.2° F.

June 28th. Examination of chest gave same results as on May 10th. Temperature at 11 A. M. 99° F.; at 4 P. M. 99.5° F. Sputum: tubercle bacilli present. At 4 P. M. $\frac{1}{800}$ mg. tuberculin T. R. injected to upper arm. Injections after this given at 1 P. M.

June 30th. Temperature 99° F. No malaise. T. R. $\frac{2}{800}$ mg.

July 2d. Temperature 99.2°. T. R. $\frac{1}{800}$ mg.

July 4th. Temperature 99.9°. Soreness and slight redness at point of injection. Much lassitude of a character which she has not experienced before. No T. R.

July 6th. Temperature 99.5°, pulse 98, respiration 28. Feels better; no soreness. T. R. $\frac{1}{800}$ mg.

July 8th. Temperature 99.5°. T. R. $\frac{1}{800}$ mg.

July 10th. Temperature 99.2°. T. R. $\frac{1}{280}$ mg.

July 12th. Temperature 99.4°. Slight nausea and general malaise last night at 7. No soreness of injection focus. T. R. $\frac{1}{16}$ mg.

July 14th. Temperature 99.4°. No malaise. T. R. $\frac{1}{8}$ mg.

July 16th. Temperature 99.2°, pulse 94, respiration 26. Examination of chest: Signs as before, but râles less marked. Weight 115 pounds. T. R. $\frac{1}{4}$ mg.

July 18th. Temperature 98°. T. R. $\frac{1}{4}$ mg.

July 20th. Temperature 98.8°. Slight nausea last night at 7. T. R. 1 mg., injected into thigh.

July 22d. Temperature 98.8°. No soreness or redness over area of injection. Weight 114 pounds. T. R. 2 mg.

July 24th. Temperature 98°. No malaise. Thinks that cough is much looser than at any time. Does not cough at all at night, but raises much sputum in day. Appetite good. Feels much better than at start of treatment, stronger and less easily tired. Some lameness for twenty-four hours after injection. T. R. 5 mg.

July 26th. Temperature 99°, pulse 94. Feels better than ever. Some redness about point of last injection still visible. Much soreness for twenty-four hours. Extreme lameness in walking. T. R. 10 mg.

July 27th. Temperature 98.7°, pulse 96, respiration 28. Very dull and tired yesterday afternoon. Much lameness after injection. No chill or collapse; no redness over injection. Feels all right to-day.

July 29th. Temperature 98.8°. Feels first rate. Examination of urine gives same results as before. Cough very loose. Sputum of a lighter green color, consistency not creamy as before, but tenacious. T. R. 20 mg.

August 1st. Temperature 99°. No malaise from last dose, but has felt well as usual ever since. Some lameness, but no redness over point of injection.

Examination of chest. Fine crackling râles at right apex. Fine râles and slight bronchial breathing at left apex. Râles at both bases. The râles everywhere are of a coarser, looser character than formerly. Weight 112 pounds.

Sputum: viscid, tenacious character; contains many cells as before. Tubercle bacilli present in fair number. The bacilli stain less brightly than before, many of them showing but a faint shell. I mention this difference in the staining of the bacilli simply as a fact, without intending to attach any significance to it.

Summary of Case. — Patient has felt better and stronger during and at the end of treatment than at any time during the month previous. Has worked throughout in a factory. Appetite excellent. Cough looser and less troublesome. No change of a definite character in local signs of lungs. Slight loss of weight. No reaction and very few untoward symptoms experienced as result of injections. Lameness for twenty-four hours after injection the principal discomfort. The treatment in this case could, in all probability, have been carried through in the 28 days without reaction.

CASE II. Male, white, age 48. Family history good.

Symptoms date from September, 1896. Cough, weakness, loss of flesh, all progressive up to February, 1897. At this time cough, with profuse green and yellow expectoration; drenching night-sweats; fever; vomiting; extreme emaciation; utter prostration; soreness of throat. Confined to bed from February to April. Took no medicines except stimulants. April 20th went to South Carolina. Improved rapidly in the South. Returned to Boston in June, at which time I first saw him.

June 6th. Symptoms: Constant cough, with much yellow sputum; constant soreness in throat, localized subjectively in region of left tonsil; weakness and shortness of breath. The weakness was much less than before his trip South. The weight, which had decreased 40 pounds from September to April, had regained 20 pounds. The night-sweats and stomach trouble had disappeared.

Examination. Very thin, skin sallow, cheeks slightly flushed, cervical glands enlarged. Respiration 26. Right chest moved much more than left. Over apex of left lung, just above the scapula, was an area of comparative dulness; bronchial respiration, and fine explosive râles at end of expiration. Back and front an area (corresponding to upper lobe of lung) of dulness; bronchial breathing and voice, but with no râles. At base of lung some moist râles, but no dulness or abnormal breathing. Right lung showed no signs of disease. Heart normal. Abdomen normal.

Much emaciation of trunk and limbs. The throat showed some chronic follicular pharyngitis, with anemia of membrane. Superficial ulceration of the left ventricular band of larynx. Ulceration of indolent appearance with much muco-purulent exudation.

Sputum was yellow and creamy; consisted of leucocytes and epithelial cells in large numbers. Tubercle bacilli present in large numbers. Temperature 100.8° F. at 2 P. M., pulse 100. Weight 121 pounds.

From June 6th to June 22d the patient was seen every third day, and the pulse, temperature and respiration recorded at these intervals. The pulse record varied between 90 and 100, the temperature between 100.8° F. and 99° F., the respiration from 24 to 28. The treatment during this time consisted of inhalation of oil of peppermint, menthol spray to larynx, and administration of cod-liver oil and nux vomica.

Urine examined twice. Contained slightest possible trace of albumin; specific gravity 1.028; few hyaline casts in sediment.

June 22d. Patient felt better than for months. Cough much less frequent; none nights. Pain in throat less. Appetite excellent. Bacilli present in sputum. Temperature 99° F., pulse 94, respiration 26. Weight 119 pounds. At 2 P. M. given injection of $\frac{1}{500}$ mg. tuberculin T. R. in upper arm. All other medicines discontinued.

June 23d. Temperature 98.8°. T. R. $\frac{1}{250}$ mg.

June 25th. Temperature 100°. No malaise. No dose owing to temperature.

June 26th. Temperature 100.4°. No malaise. T. R. $\frac{1}{500}$ mg.

June 28th. Temperature 99°. T. R. $\frac{1}{250}$ mg.

June 29th. Temperature 100.2°. No malaise. No dose.

June 30th. Temperature 99.8°, pulse 100, respiration 28. Weight 120 pounds. Throat appearances same. Lung signs unchanged. T. R. $\frac{1}{167}$ mg.

July 2d. Temperature 99°. T. R. $\frac{1}{100}$ mg. Much smarting after injection.

July 4th. Temperature 99.8°. T. R. $\frac{1}{75}$ mg.

July 6th. Temperature 99.8°. Lassitude and weakness. No T. R. given.

July 7th. Temperature 99.8°, pulse 100. Feels thoroughly ill.

July 8th. Temperature 100.2°. Does not feel well; lassitude; no appetite; pains in legs. It seems doubtful whether this off spell is due to treatment.

July 10th. Temperature 99°. Still feels listless. T. R. $\frac{1}{100}$ mg.

July 11th. Temperature 98.8°.

July 12th. Temperature 98°. Feels better. T. R. $\frac{1}{50}$ mg.

July 14th. Temperature 98.8°. T. R. $\frac{1}{40}$ mg. Severe pain with dose.

July 16th. Temperature 99.4°. T. R. $\frac{1}{30}$ mg.

July 19th. Temperature 99°. T. R. $\frac{1}{20}$ mg. Injection painful.

The doses were increased thus gradually, with the purpose of avoiding, if possible, the extreme malaise which was experienced from the 6th to the 12th. It is quite probable, however, that this malaise was due to the variation in his condition independent of the treatment, as it lasted one week after the tuberculin was discontinued.

July 21st. Temperature 100°. Seems better. Appetite good. Weight 117½ pounds. Pain in throat is worse. Examination of throat shows some spreading of ulceration to aretynoid; same indolent appearance.

From this date the ulceration was treated twice a week by application of 50-per cent. lactic acid. T. R. $\frac{1}{10}$ mg.

July 23d. Temperature 99.8°. T. R. $\frac{1}{5}$ mg.

July 25th. Temperature 100°. T. R. $\frac{1}{2}$ mg.

July 27th. Temperature 99.8°. T. R. 1 mg.

From this time on temperature taken three times a day. Injections now made in loins.

July 28th. Temperature 99.8°, 99°, 99.4°. Lassitude and pains in legs.

July 29th. Temperature 99°, 99°, 99.8°. Some sore-

ness at point of injection. Up to this time the soreness has never been troublesome, and has not lasted over twenty-four hours.

July 30th. Temperature 99°. T. R. 2 mg.

August 1st. Temperature has varied from 99.9°, six hours after injection, to 98° now. T. R. 4 mg.

August 3d. Temperature on 1st, at 6 P. M., 99.8°; on 2d, 99° at 7 A. M., 99.4° at night; now 99°. Much lassitude; pains in legs; feels very poorly. Much weaker and thinner than one week ago. Appetite poor. T. R. 6 mg. in back.

August 5th. Temperature from 100° to 99° since injection. Much lassitude. Weight 112 pounds. Pulse 90, respiration 26. Lung signs unchanged. Throat ulcerations cleaner, but still spreading a little. T. R. 10 mg. in loin.

August 7th. Temperature 98.8°, pulse 88. Feels very ill and weak. Some local soreness and slight redness for first time. T. R. 20 mg. in loin.

August 8th. Temperature 99.4° in morning, 99° at noon, 99.8° at night. Injection caused pain at point of insertion for half an hour; none since. Feels better than last week.

August 12th. Temperature has not been over 99.4° since injection; now 99.4°. No constitutional discomfort from dose. Appetite improving. Throat lesions holding their own; no spreading; no definite healing. Lung signs unchanged. Weight 112 pounds. Thinks cough much less frequent and entirely from throat. Character of sputum the same. Tubercle bacilli present in less number than before. Stain less brightly. Urine as before.

After the last three doses patient noted that the urine passed during twenty-four hours was full of urates. The throat examination and treatment in this case was made by Dr. J. L. Goodale, who has kindly given me his report.

Summary of Case.—It is very difficult to distinguish the changes in condition due to variations in the disease from the changes due to treatment in this case. The patient suffered from almost constant lassitude, loss of appetite and mental apathy during the second and third weeks of treatment. He certainly felt much worse than during the month before treatment. Symptoms unchanged. Physical signs unchanged. Loss of 10 pounds in weight. Much immediate discomfort from injections, especially the later ones. No definite reaction during treatment, but continual discomfort. Strength less than at start. The lassitude most marked, as a rule, about 6 P. M., four to five hours after a dose.

CASE III. Female, age thirty-eight, colored, domestic. Family history showed that mother died of phthisis. Patient first came to me September 21, 1896.

Duration of symptoms three years. Cough for three years, at the start dry and hacking, later loose with green expectoration. Except for cough has been very well until within six months. Since March, 1896, cough has been much worse; keeps her awake at night. Sputum occasionally blood-streaked. Steady loss of flesh and strength. Cold night-sweats. Dyspnea on exertion. Unable to work. Weight in December last 123 pounds.

Examination. Thin, exhausted appearance. Large glands in cervical region. Trunk very thin. Over both apices fine explosive râles at end of inspiration; no dullness or bronchial breathing. At left base behind, fine moist râles throughout lower lobe; no dullness. Heart normal. Sputum consists of leucocytes, epithelial cells and elastic fibres. Tubercle bacilli present in small number. Temperature 98°, pulse 90, respiration 24. Weight 103 pounds.

Treatment. Inhalations of oil of peppermint, administration of cod-liver oil and oil of peppermint.

During the winter patient improved very much. Cough became much less frequent, none at night. Sputum diminished in amount. Night-sweats disappeared. Strength returned. Returned to work. Weight in January 120 pounds.

January 10th. Examination. Very few râles at both apices; none elsewhere. No bacilli found in sputum. Peppermint inhalations discontinued.

February 20th. Cough worse again. Strength failing. Weight 108 pounds. Peppermint resumed.

May 20th. Weight 121 pounds. Feels much better again. Signs in chest as in January. Peppermint discontinued.

June 28th. Weakness and cough returned. Weight 113 pounds. No tubercle bacilli in sputum.

July 2d. Examination. Thin and exhausted appearance. Fine râles at both apices, of explosive character; no dulness. At bases of both lungs moist, bubbling râles in abundance. Weight 112½ pounds. Sputum characteristic of phthisis, but no tubercle bacilli found. Slight trace of albumin in the urine. Temperature 98° F., pulse 90, respiration 26. Given 500 mg. of tuberculin T. R. by injection into left upper arm; injection given at 9 A. M.

July 4th. Temperature 99°. No malaise. T. R. 2½ mg.

July 6th. Temperature 98°. T. R. 1½ mg.

July 8th. Temperature 98.6°. T. R. 8 mg. No soreness.

July 9th. At 6 P. M. in night, taken with a severe rigor, followed by fever. Felt as if she were going to die. Much palpitation and dyspnea; extreme weakness; profuse sweating. To-day feels very weak and ill. Pain in head and in bones. Temperature 100° F., pulse 104, respiration 30.

Examination. No change of signs in lungs except that the râles are less abundant than formerly. Urine: slightest possible trace of albumin. Sediment as before. No redness or soreness at point of injection. Weight 108 pounds. No T. R.

July 10th. Temperature 99°. Feels better but still weak. No dose. The patient had an attack similar to this one in character and in consequences on June 17th, two weeks before the beginning of the tubercular treatment. In view of this fact it is difficult to fasten the blame for this attack of July 8th upon the tuberculin. However, I increased the doses more gradually for a time.

July 11th. Temperature 98°. Still weak. T. R. 1 mg.

July 13th. Temperature 98.8. No malaise. Some soreness over point of last injection and a lump distinctly felt. T. R. 2½ mg.

July 15th. Temperature 98.7°. Much lassitude and weakness; worse at 4 P. M. Nausea and dizziness. T. R. 1 mg.

July 17th. Temperature 98°. Better. T. R. ½ mg. in thigh.

July 19th. Temperature 98°. T. R. ½ mg.

July 21st. Temperature 98°. T. R. ½ mg.

July 23d. Temperature 98°. Feels much better. T. R. 1 mg. in thigh.

July 25th. Temperature 98.7°. Pulse 90. Stronger and looks better. Weight 112 pounds. T. R. 2 mg. in thigh.

July 27th. Temperature 98°. Some pain throughout whole leg for three hours after injection. No tenderness now. Thinks cough is much lessened. Appetite very poor. Much general lassitude. T. R. 4½ mg. in loin.

July 29th. At 4 P. M. on 27th a sinking spell; palpitation and dyspnea followed by sweating and much weakness. Pains in limbs. No chill. Felt better but weak next morning. Now feels fairly well. Temperature 97°. No dose.

July 30th. Feels all right. Temperature 98°. Appetite poor. T. R. 10 mg.

August 1st. Temperature 98°. Felt dead and lifeless after dose of July 30th, but no collapse. Still weak. Lameness in leg for twenty-four hours after dose.

August 2d. Temperature 98°. Feels better. T. R. 20 mg.

August 3d. Temperature 99°. No reaction of any kind except general lassitude. Weight 109 pounds.

August 5th. Temperature 98°, pulse 90, respiration 24. On examination, signs of lungs unchanged. Looks thoroughly worn out. Thinks that cough is less frequent. Has noted that cough is more frequent on the afternoon

after treatment, and expectoration more profuse, especially with last four treatments. Thinks color of sputum has changed. Is weaker than at start, and suffers much from shortness of breath on exertion. Weight 107 pounds.

Sputum more tenacious and of clearer green color than formerly. No bacilli found.

Urine as before. Patient noted that for 24 hours after each of last two doses the urine was of high reddish color and cloudy. Examination showed that this was due to urates.

Summary of Case.—Patient has undoubtedly felt worse during treatment than at any time during eight months under observation. Has lost weight and strength. No appetite. Has complained of lassitude and weakness throughout. Physical signs unchanged. Patient experienced two distinct spells suggesting a reaction during treatment. That of July 9th did not appear to be due to treatment. That of July 29th did appear to result from treatment. Much lameness from injections in thigh.

CASE IV. Female, age thirty-four, colored, home, family history good.

Patient first came to me June 20th. History of a hacking cough for seven months. Two weeks before, sharp pain in the left chest, fever, chills, vomiting, extreme prostration. Constant cough, with profuse green expectoration, since. No night-sweats. No hemoptysis. Temperature 102°, pulse 120, respiration 36. Tubercle bacilli present in sputum.

Examination. Over left apex, extending to fourth interspace, an area of dulness, with bronchial respiration and voice sounds. Fine explosive and bubbling râles abundant. Few scattered râles at left base. Right lung normal. Heart normal.

After two weeks of treatment in bed patient returned on July 5th. Signs in lung unchanged. Patient still weak. Weight 99 pounds (weight in May was 125 pounds). Temperature 100° F., pulse 100, respiration 30. Tubercle bacilli numerous in sputum. Many cocci present.

July 6th. Given 500 mg. Tuberculin T. R. by injection in arm. Temperature 100° F. Injections at 10 A. M.

July 8th. Temperature 99°. No malaise. T. R. 20 mg.

July 10th. Temperature 98.7°. Arm sore. T. R. 10 mg.

July 12th. Temperature 99.4°. Cough troublesome. Feeling better than at start. T. R. 1 mg.

July 14th. Temperature 99.5°. Felt ill all day yesterday; headache, lassitude, pain in limbs. T. R. 1 mg.

July 17th. Temperature 99°. No malaise. Patient here went into the country for a week.

July 26th. Treatment resumed. Patient not very well in country. Signs in chest same. Weight 100 pounds. Temperature 99°. T. R. 1 mg.

July 28th. On the night of the 26th was very chilly, and then very hot towards morning; weakness for half the day; but since then has felt better than usual. Temperature 98.8°, pulse 98°. T. R. 1 mg.

July 30th. Temperature 98.8°. T. R. 3 mg.

August 1st. Temperature 98.8°. Soreness in leg at point of injection. A firm mass felt beneath skin, not tender. General feeling of lassitude for four hours after dose, then feels better than usual. T. R. 2 mg.

August 3d. Temperature 99.4°. Same experiences with dose as with others. Weight 102 pounds. T. R. 5 mg.

August 5th. Temperature 99.2°. Slight malaise of six hours. T. R. 10 mg.

August 7th. Temperature 99.2°. Eight hours after dose much lassitude. Chilly all evening, then very hot and sweat much. Felt fairly well next day, and now first rate. Extreme lameness all yesterday. T. R. 20 mg.

August 9th. Temperature 99.2°. Same lassitude and sense of impending illness in afternoon and evening. Physical signs unchanged. Râles perhaps less numerous. Feels stronger. Weight 99 pounds. Coughs much less. Urine as at start of treatment. Character of sputum the same. Tubercle bacilli present in the same number as

before. Stain with same brightness, but the contrast between the nodes and the spaces between is more marked than I have seen in any case. Noted passage of high-colored, cloudy urine after last two doses.

Summary of Case.—Patient felt better on the average during treatment than during the month before. Feels much stronger. Has gained weight. Showed a marked susceptibility to the tuberculin doses, which showed itself regularly about six hours after a dose, lasted six to twelve hours, and left her feeling brighter than before.

GENERAL SUMMARY.

The greatest difficulty in connection with the treatment arises from the impossibility of distinguishing in a given case whether the untoward symptoms are a result of an overdose or an accident of the case. In no one of the four cases was treatment completed without some discomfort to the patient. The principal untoward symptoms experienced were lassitude, weakness, loss of appetite, general sense of an impending illness, pain in the limbs. These symptoms where present reached their acme at from four to twelve hours after the injection. In two cases the untoward symptoms did not entirely disappear in the interval between treatments. In two cases they cleared up within a few hours.

No reaction of an alarming character, clearly connected with the treatment, was experienced. Two cases gained in strength and spirits during the treatment. Two cases lost decidedly in both. All four cases lost weight. No definite change in the physical signs was demonstrable at the end of treatment. The injections into the thigh caused much less pain at the time than those into the loins. The injections into the thigh, however, caused much greater subsequent lameness.

Reports of Societies.

HARVARD MEDICAL ALUMNI ASSOCIATION.

SEVENTH ANNUAL MEETING, JUNE 29, 1897.

THE PRESIDENT'S ADDRESS.

FELLOW-MEMBERS OF THE HARVARD MEDICAL ALUMNI ASSOCIATION, GENTLEMEN:—We have reached the age of seven years; and, although from the earliest times there has always been held to be something mystic about that number, there is nothing to show that we are any the worse or that we even feel queer for indulging in it.

For details as to the present status of the Association, I refer you to the last Bulletin, No. 10, which is in the hands of all, and will not detain you by repetition or elaboration. Some facts not therein contained or occurring since its publication it is my function to refer to.

By the death of Doctor, the chevalier, O. Robitaille, of Quebec, the Association loses one of its most distinguished members and one of the oldest graduates of the Medical School. He was born in December, 1811, in Quebec, took his medical degree at the Harvard Medical School in 1838, and died in November, 1896. He practised his profession in Quebec for nearly fifty years. He was a member of the city council, mayor of the city of Quebec, and a founder and governor of the two most important financial institutions of the province. His son, a practising physician in Quebec,

writes, "He spoke to me very often of his Alma Mater, Harvard."

An Alumnus in Iowa writes to your Treasurer in answer to a request for personal information and for attention to annual dues: "I enclose your note with post-office order. This note suggests several questions. How old am I? Seventy-seven last Friday. Not dead. Not much sign of old age about me except my white old head. I rode twenty miles in the country to-day without fatigue. Not an ache or a pain about me. Never drank any liquor, never had a chew of tobacco. Was I too poor to send the money due? By no means. Why have I neglected it? Damfino. Please accept this as my excuse."

An Alumnus in a distant town, who has been unable to practise his profession for some years on account of illness, finding it necessary to withdraw from the Association, writes: "I love the old spot Harvard and all of the associations. I may never see her again; but, when on my bed, I frequently think of and cherish the old names and friendships." Those who hold that graduates of the professional schools form no ties and have no sentiment for or interest in Harvard, and are not to be trusted with a vote for the members of the Board of Overseers, should talk with some of these Alumni. By vote of your council the tie which binds your sick brother to Harvard will not be severed.

The class graduating in 1893 has this year set the excellent example of having a class dinner, which it is proposed to make periodical. To judge from the dinner programme prepared for this festivity, neither the school training nor the subsequent stern realities of active life have been able to rob these devotees of an arduous profession of a capacity for relaxation.

The conception of such class reunions is a virtuous and praiseworthy one. May they increase and multiply, bringing forth much fruit in due season, and never forgetting the veneration due to the Faculty and to the School!

Since the last Catalogue, Bulletin No. 10, was issued in February, eight members have died, among these Dr. B. E. Cotting, of Roxbury, an honorary member by election, and an ex-president of the Massachusetts Medical Society. He died in May, at the age of eighty-five. The others were Dr. H. Blanchard, an old practitioner in Dorchester; G. W. Burdett, of Clinton; C. W. Cooper, of Northampton; J. W. Cushing, of Brookline; A. H. Nickerson, of Central Falls, R. I.; J. P. Walker, of Manchester, N. H.; and F. W. Whittemore, of Cambridge.

Since the last annual meeting seventy enrolment cards have been received by the Treasurer, ten of these coming from members of the Class of 1897.

There are seven new life-members since the first of last May. The list of life-members now numbers forty-four. I would again emphasize the desirability of this form of membership, especially for those who anticipate length of years, and who would escape the annoyance or inconvenience of remitting the small annual due. The Treasurer continues to suffer from the forgetfulness of some and the negligence of others, who, in remitting, omit to sign their names to the card which is sent them, and therefore cannot be credited. It seems necessary to remind the Association that the annual due is not used to defray the expenses of the annual dinner, which some attend, and others, on account of distance or more pressing duties, cannot enjoy,

but is used for the expenses of the Bulletins, which are sent to all, for such lectures as are occasionally given by invitation of the Association, and for other general purposes.

Since our last annual meeting four interesting lectures were given, by your invitation, by Mr. R. de C. Ward, Instructor in Climatology in Harvard University, on "Climatology and its Relations to Medicine." Arrangements have been made for a short series of lectures in the autumn by Dr. David Hunt, on the "History of Medicine."

The Council have had and still have under consideration several suggestions for the employment of surplus funds for the honor of the Association and the profit of the School, the support of an Alumni Association Scholarship being one.

There are three subjects in connection with medicine and medical education which are evidently forcing themselves more and more upon the attention of those whom they concern. Of these subjects you are likely to hear something from those who follow me in speaking to you, and you are likely to hear more from year to year. First, there is the absolute necessity of increased endowments for medical schools, — a necessity arising mainly from the large number of instructors and the increasing laboratory work. It is now recognized that the best clinical instruction is given to small classes. This means more teachers. In regard to laboratory work this is still more true; and laboratory teaching is costly teaching. The recognition of this necessity for endowments is exhibited in the eagerness of the old independent schools to ally themselves with organized universities. The latest instance of this was the attempt to unite the Bellevue Hospital Medical College with the Medical Department of the University of the City of New York, — an attempt apparently frustrated by the difficulty of fusing two such long names and two such large Faculties. It is said that the Bellevue School once before made advances to Princeton. The desire for a university alliance undoubtedly exists, and its value is illustrated. Endowments do not go so readily to schools managed as independent business enterprises for the welfare of the individual teachers.

The second subject is the consolidation of separate schools in the universities. This in a measure follows from the first, though the time may not yet be ripe for its application to the schools related to medicine, — the veterinary and the dental. If there must be increased endowments for more instructors, for larger and for more laboratories, there must also be a minimum of reduplication and of repetition.

The third subject is not entirely dissociated from the other two, and is certainly not the least pressing or important of the three. I refer to the constantly increasing disproportion between the immense development of the medical sciences, of the requirements of medical practice, and the ability or capacity of the individual, however favored by our enlarged facilities, to grasp these. Medical science is expanding by geometrical progression, and the possibilities of the individual who seeks to follow it by an arithmetical progression.

We have hardly finished congratulating ourselves upon the establishment of a four years' course. But the earnest teacher already finds that the earnest student of to-day with his four years bears a less, one might say a much less, favorable relation to the sum total of medical knowledge and requirements than did

the three years' student of twenty years ago or the two years' student of forty years ago to the knowledge of those periods. Art is getting longer and longer at a terrible pace; and time is really proportionately getting shorter and shorter in an almost discouraging fashion. This makes itself felt, not only in the schools, but in the sciences and in the practice of medicine. In the Congress of American Physicians and Surgeons there are fourteen societies, all founded within the last thirty-three years, and all but two within the last twenty-two years. More than ninety titles of papers were sent to the Section of Medicine alone of the American Medical Association at its annual meeting this year.

New medical periodicals are starting, and the best of the old are crowded with papers seeking publication. All the work done is not good work, as in other fields; but all is not bad, and the amount which has to be reckoned with is enormous. A new American *Journal of Experimental Medicine* was started scarcely more than a year ago. Already it is so unequal to the demands upon its pages that a new American journal is projected devoted to physiology alone.

For the student who is brought face to face with this state of things in his tender medical years something more must be done, and done soon. His student life cannot be again lengthened immediately, and there must be a limit. There must be a sharper line drawn between the absolutely essential and the unessential for a medical degree, a further development of graduate or post-graduate work, perhaps the establishment of a higher degree for those with larger aspirations and more waiting power, — for the medical scholars.

I scarcely more than mention these three problems which seem to me to claim serious study, and the last, at least, prompt action. I will not detain you to say all that I have in mind, for we are fortunate in having those with us who are eminently fit to discuss them.

I have had the honor of presiding over your Association for three years, and my presidential life has reached its constitutional limit. I desire to thank you for the confidence you have shown me, and to express my regrets if at any time either directly or indirectly I have been to any of you unwittingly a source of sorrow. I shall leave office with less reluctance realizing that you could not be better represented than by the successor whom I shall later have the pleasure of presenting to you.

(The report of the Committee on the Medical School, presented by Dr. S. W. Driver, of Cambridge, will be published later.)

THE PRESIDENT. — We are always glad when the many claims upon his time inseparable from this Commencement season permit us to have the President of the University with us at our annual dinner. I have but to name President Eliot.

SPEECH OF PRESIDENT ELIOT.

The interesting paper to which you have just listened suggests my first remark. The greater part of the men in this room knew some of the medical men mentioned by Dr. Da Costa who were also scholars and authors. I cannot but recall in this connection one of the most delightful scholars it has ever been my privilege to know, who on the foundation of medical training was all his life a naturalist. I speak of Jeffries Wyman, beloved in this community alike by

the naturalists, the physicians, and the men of letters. I desire to say that this combination of the medically trained man and the scholar is going to persist. With few exceptions Dr. Da Costa named only the dead; but I see in the University now two of our most eminent men whose early training and whose induction into their present callings came through the Medical School. I refer to the first cryptogamic botanist of this country, Dr. William G. Farlow, and to the first psychologist, Dr. William James. The line which Dr. Da Costa has so charmingly traced is to be prolonged. I observe, too, that the value of this early training in medicine for scholars who subsequently pursue other studies is founded in the nature of things. The training of the medical man, after all, is largely the training of the naturalist. The naturalist, by birth or by the bent of his mind, takes kindly to medical training. At the start Dr. James was not attracted to the ordinary studies of language, philosophy and literature, but came to them after he had obtained an elaborate training in natural science and medicine. I believe, therefore, that we shall see a whole series of men who win a congenial training from medicine, and then couple medical learning with a great variety of other learnings.

Dr. Da Costa said that he must be excused from treating the subject of medical education, and intimated that you might have had enough of that subject for the present. Nevertheless, I shall venture to say a little on that topic; for I know it to be a topic of perennial interest to medical practitioners. Twenty-six years ago, when the University undertook to re-organize its Medical School, the hard problem would not have been solved as well as it was—indeed, it would not have been attacked—except for the eagerness of the medical profession to urge and support fundamental changes in the School. I believe that we are now on the eve of other considerable changes in medical education,—changes forced on the schools and the profession by the enormous development of medical science within the last ten or fifteen years. It is, therefore, consoling to believe with your President that it is easier to obtain endowments for medical training when medical schools are connected with universities. We have just been illustrating that in our own University. In most departments of the University the last four years have been dry years as regards new endowments. The annual gifts have shrunk in most departments, but not so in medicine. The two most considerable gifts in the last two years are both for the endowment of medical teaching,—the Fabian Professorship last year and the Moseley Professorship this year. The present current of benefaction tends more strongly to the endowment of medical education than in any other direction; and this I believe to be a fortunate tendency, not only for the Medical School, but for the community at large.

In another way, I believe that medical education is about to undergo a considerable change. Year before last, I think it was, I mentioned to you a topic which Dr. Shattuck has again presented to you to-day,—the probability and expediency of the union of all the biological departments of the University under one Faculty. That is not, however, the point that I want to make to-day. I want to urge on you this view: that an elementary school in medicine—and any school that asks for no more than four years' residence will necessarily be an elementary school in these days—that

an elementary school in medicine, intended for the training of the ordinary practitioner, cannot be supported at its best, cannot rise to its best level, unless it is associated with a graduate school of medicine. I do not mean by graduate school a school to which young practitioners can occasionally come to hear brief courses of lectures. I mean a school all whose instruction, including the highest laboratory teaching, is given, not in short courses, but continuously by the year,—a school to which the students give all their time for a year or years, a school where medical research is steadily prosecuted. This building of a graduate school above the undergraduate school is what has been accomplished in several American universities in the department of arts and sciences, and the effect produced on the undergraduate department has been everywhere altogether admirable. The graduate instruction indirectly raises the quality of all the undergraduate instruction. The superintendence of men whose time is mainly given to the graduate work animates all the lower work, and makes it fresher and less archaic, dealing less with the past, and more with the present and the future. I hold that in all departments of university instruction the institution of the graduate school is necessary for the maintenance of the undergraduate departments at their best; and, therefore, I hope that a graduate school will soon be added to the medical department of Harvard University.

THE PRESIDENT.—New York cannot get on without professional aid from Massachusetts and from Harvard, and we are not at our best without assistance from New York.

Last year Dr. McBurney answered our summons to a consultation. This year Dr. F. P. Kinnicutt, also a graduate of Harvard, and then of the Medical School of Columbia College, has come to help us in our perplexities. A modesty which could not prevent his becoming Professor of Clinical Medicine at Columbia and a Visiting Physician at various leading metropolitan hospitals has induced him to regard the process by which, he says, I involved him in this occasion as a sort of illicit vivisection, without anesthesia. I know by this time he has abandoned that feeling. We do not regard him as a stranger, and we cannot let him feel so towards us.

SPEECH OF DR. F. P. KINNICUTT.

GENTLEMEN OF THE HARVARD MEDICAL ALUMNI ASSOCIATION:—Permit me to thank you very warmly for your more than kind welcome. Dr. Shattuck has spoken of perplexities. You have no perplexities at Harvard: they are all left for the medical schools of other cities. Among Harvard Alumni I can never feel quite a stranger; for it was at Harvard I received my first incentive for subsequent professional work,—and not only the incentive, but the foundation on which to build. Happy should you esteem yourselves, gentlemen, that you have never wandered away from the fold, but have continued to live constantly under her influence; for I am convinced that the intellectual atmosphere, the conditions of life, which prevail about Massachusetts Bay and throughout New England, are far more conducive to the attainment of the highest kind of scientific work than the turmoil, hurry and stress which ever are associated with life on Manhattan Island. As we journey further to the South, however, all the conditions are again favorable; for I am credibly informed that the very acme of restful repose abides in that portion of our country over whose intellectual development

the great University of Pennsylvania presides. The President of Harvard University, who has preceded me, has spoken so wisely and so fully on some of the subjects that your distinguished President mentioned in his address that it would be presumptuous in me to add anything further to the subject. There is a burning question with us in New York, to which I would refer; and that is the question of the true position of clinical instruction in the four years' curriculum which is being so generally adopted by the great schools of medicine in this country. I learned last night in a long and interesting conversation with my classmate, your distinguished Professor of Clinical Medicine, Dr. F. C. Shattuck, much that was valuable in regard to the system that prevails at Harvard; and I find that we have much to learn on this point, as on many others, from you. It was really a variance of opinion on this subject — I do not speak officially, but I believe I am correct in the statement — which brought to naught the lately proposed union of two great medical schools in my adopted city under the wing of the University of the City of New York. A single individual's opinion and experience is but the contribution of a mite to the subject, and my mite is very modestly offered; but as I look back upon my own student life, with its dearth of clinical instruction, compressed into a single year or two years of the curriculum, as I regard an experience gained in twenty-five years of medical work more or less constantly associated with students, as I also regard the ever-growing tendency to specialism in medicine, I am convinced of the wisdom and necessity of combining clinical instruction with the academic teaching of the schools from the *beginning* of the student's medical education. As I have observed the students, the very best of them, as they have been graduated from our schools, especially in the last ten years, I have been impressed with the extent of their theoretical and laboratory knowledge of disease, with their comparative lack of familiarity and intimate knowledge of disease as seen at the bedside.

We must remember that the great majority of our students pass directly from the schools into the active work of their profession, while another large number almost immediately enter upon some special field of work. The former are heavily handicapped for years, if not for their professional lifetime, by the lack of a varied and extended clinical experience, which, it seems to me, it is quite possible to give them during their student life; and of the latter I maintain that they can never attain to the highest usefulness of the specialist without that intimate knowledge of internal medicine which is only gained by its study at the bedside. As to the best methods of clinical instruction, your own school affords a very brilliant example; and I would only express the opinion, in which I believe many of you will concur, that it would seem wise, to a greater extent than is now the custom, to do away with the great amphitheatre with its large classes, and bring the students into the closest possible relation with the patient in the hospital wards. That is only possible, of course, by opening hospital wards to a greater extent than now to clinical instruction. This system has been introduced very lately into some of the large hospitals in New York, I am happy to say in one with which I have the privilege of being connected, through the broad and liberal views of the board of management as to the educational function of

their institution. As many students as can be advantageously instructed at one time are permitted to pursue their studies in the wards under their teacher, and the wards are open at all times for such instruction. The system demands a division of students into classes, a far greater number of clinical instructors, and possibly more arduous work on the part of the individual; but, surely, the good results are proportionate. And in this connection the growing recognition on the part of the boards of governors and trustees of our large hospitals of their responsibilities as educators, the recognition of the fact that the educational function of the hospital holds an equal place with its care of the sick is full of promise. Gentlemen, the stern edict of your distinguished President that I should compress all that I knew about medical education into a five minutes' expression on it is extremely flattering to my powers of conciseness; and I most cheerfully obey it.

THE PRESIDENT. — You will be glad to know that there is in New York a flourishing Harvard Medical Society. Its president, one of your number, is with us again to-day, as is his custom. He can tell you how it feels to go away and come back, and whether there is any way of making a good thing still better, — Dr. John Winters Brannan of the Class of 1878.

SPEECH OF DR. JOHN WINTERS BRANNAN.

FELLOW-ALUMNI OF HARVARD: — As your Chairman has stated, it has been my custom to be present at the annual meetings of this Association, but never before in an official capacity. To-day, through his courtesy, I have the pleasure of bringing you greeting from the Harvard Medical Society of New York City. May I also testify in their name and my own to the distinguished success with which President Shattuck has administered the affairs of this Association during his term of office now closing? Our New York society may be considered as an outpost of this greater body, for three-fourths of its members at least are also members of this Association; and I am sure that the remaining one-fourth will promptly enroll themselves now that your President has called attention to the fact that we are bone of one bone and flesh of one flesh, all owing allegiance to one Alma Mater, Harvard University. The object of the Harvard Medical Society of New York is the promotion of the scientific and social interests of its members, as well as the cultivation of the Harvard spirit in the metropolis. All graduates of the Harvard Medical School who reside in the city are eligible to membership. A large proportion of the members are also Alumni of Harvard College. Yale College also sends a large contingent; and the Yale men are included among the most active of the city, second to none in their recognition of the benefits they have received from the university training of Harvard. Although organized some six years ago, it is only during the present year that our proceedings have been published in the medical journals. I fancy that the keen professional eye of your President caught sight of some of our recent productions, and in this way he became aware of our existence. Perhaps some of you may be interested to know how the Harvard Medical Alumnus gets on in New York. I have here a list of members of the society, forty in number. Of these at least twenty are connected with the staffs of the various hospitals of the city. Fifteen or more

form part of the teaching force of the different medical schools, some holding places of the first rank. One of our number, whose modesty will not permit my mentioning his name, was chosen last week to be the Professor of Gynecology in the recently reorganized and strengthened Bellevue Medical College. It appears, then, that the training of the Harvard Medical School stands a man in good stead when brought into the fierce competition of the metropolis. When I received President Shattuck's kind letter, I found myself in the position of the man who said he was sure he had good blood in him, and could resist many things, but could not resist temptation. I do not here refer to your President's suggestion that I should speak of the Harvard medical men in New York, but rather to the fact that I found that I had something to say which could hardly be included within that field. However, as my subject is closely related to that of medical education—a subject which is always in order before this Association—I have thought that I might venture to bring it before you. During the past ten years the advisability of shortening the college course at Cambridge, so that the graduates of the academic department might enter the professional schools at an earlier age, has been frequently under discussion. Two years ago, in this room, President Eliot stated that he had long been in favor of cutting down the undergraduate course for all students to three years; and I have been informed that the college Faculty has recently voted, though by but a small majority, in favor of this measure. I believe, however, that it has always been understood that the reduction of the college course was solely for the benefit of those students that were to enter upon professional study. It has never been suggested that four years is too long a period to be spent at Cambridge by those whose studies end with the attainment of the degree of Bachelor of Arts, even though that degree is obtained at a somewhat later age than in former years. In fact, there is every reason, on the other hand, why the man who proposes to go into business when he leaves Cambridge should not be deprived of any of the years of study which have always been allotted to a liberal education. His professional brother, with the lengthening of the courses in law and medicine, is giving more time to intellectual training than ever before. This, then, would hardly seem the time to lessen the value and significance of the degree of A.B., which represents the end of the education of a large proportion of college students.

I have taken for granted that we are all agreed that the eight years which are now required to complete the college and medical courses is too long a period. One effect of the present condition of things is shown in the reports of the Dean of the Medical School from which it appears that the percentage of college graduates in the entering classes of the school had diminished from 53 per cent. in 1884 to 28 per cent. in 1892. The Dean further finds that there is a large and increasing number of students in every entering class who have received a certain amount of collegiate training, but have left college without taking a degree. This view of the Dean of the Medical School is confirmed by a study of the occupations chosen by the students graduating from the college during these same years. According to the class reports over 44 per cent. of the Class of 1884 chose the

professions of either law or medicine. This percentage diminished steadily throughout the succeeding years, until in 1892 only about 30 per cent. entered these professions.

What shall be done to meet this difficulty? The simplest and the most natural plan would be to allow the student at the end of his Junior year to elect the studies of the first year of his professional school, and to grant him his bachelor's degree at the end of that year at the same time with those of his class who have remained in the college. He will then have performed the four years' work for his college degree, and at the same time have completed one year of his professional course. This simple measure has been suggested before. In fact, the college Faculty has considered it, but decided against it. So far as I know, the chief, if not the only, objection urged is that it is not fitting that one and the same year of study should be offered as a part of the requirements for two different degrees. It is maintained that the year in question should form part either of the college course or of the professional course, not of both. But in reply it may be said that the studies of the first year in the professional school are at least the equal in severity of the studies required of the Senior in college. There is, therefore, no lowering of the value of the A.B. degree nor any injustice worked to those students who complete their fourth year in college and then enter upon mercantile pursuits. On the other hand, it cannot be denied that the student has actually completed one year of his professional studies, and is entitled to credit therefor. The mere fact that that same year has already been counted as a year of his college course should not outweigh the great advantage of saving to the student a year of valuable time. The elective system has been so greatly developed at Cambridge that this measure might well be considered simply as a further extension of the same system. The object that we all have so strongly at heart could thus be attained without any shock whatever to those accustomed to the old order of things which has come down to us from our fathers. I would therefore respectfully recommend that the governing bodies at Cambridge authorize some such announcement as the following in the next issue of the Catalogue of the University: "The first year courses in the Law School, the Medical School, and the Graduate School are open as electives to Seniors in the college. These courses will qualify for advanced standing in these schools, and will also be counted for the degree of Bachelor of Arts."

Should the above plan be found to work well in practice with students entering the Harvard professional schools, I should favor extending the privilege so that Harvard College students who enter professional schools of equal standing with those at Harvard—perhaps I may here mention Johns Hopkins, Columbia, Pennsylvania and Jefferson—may be granted their college degrees in like manner on presenting proof of completion of their first year in those schools. In this manner no injustice would be done to those students who deem it well to study their profession in the cities in which they intend to practise, and Harvard would be free from the appearance of endeavoring to foster her own professional schools at the expense of those of other universities.

THE PRESIDENT. — You have to-day, gentlemen, for the first time, a graduating class as your guests. The class is a comparatively small one, having been nipped by the early

frost of the fourth year and by the winnowing hand of the examiner. But I understand, on the disinterested authority of the Dean of the School, that its survivors are more than usually learned, and that some of its members have broken the records in total percentages. Thirty-nine per cent. graduate with degrees *cum laude*, and one with a total percentage of 92.05, — a remarkable performance. I will ask the Marshal of the Class, Dr. Fred Maurice Spalding, of Cambridge, to say a few words for the Medical School Class of 1897. May they all make good Alumni!

SPEECH OF DR. FRED M. SPALDING.

After enjoying such a feast of good things, as has been our privilege this afternoon, I shall simply give to you a few facts in regard to our class which I think may be of general interest. We started out four years ago with a membership of 135. As your President has just told you, by the careful use of the pruning-knife, — and, I hope, through the operation of that great law, the survival of the fittest, — our graduating class to-morrow numbers but 71, — a trifle more than half of our original number. During our four years together our number has only once been reduced by death. Our entrance class was a smaller one than usual. The reason for this is perhaps hard to tell. It may possibly be explained in part by the fact of our entering just when the hard times were beginning to be severely felt, and also the change from the three to the four years' course may have kept some away. The percentage of men in our class holding college degrees was about four per cent. less than in the classes immediately adjoining ours: the percentage of men, however, holding Harvard degrees was one per cent. higher. So much for quantity. Now what can I say for quality? I don't suppose there ever was so fine a class as ours. If some of you could only have heard the words of praise which reached our ears as our professors were bidding us farewell at the end of their respective years you certainly would have thought that we were quite nonpareil. And I might say that, if any of you wish a real good recommendation of our class as a whole, if you will simply call on Dr. Councilman, I know that he will be only too glad to give you one.

The members of our class, especially those who had any aspiration toward a surgical appointment at the Massachusetts General Hospital, always held the class that graduated last year in a certain amount of awe and veneration. When their *cum laude* list was posted with thirty-five names, we realized at once that it was a record-breaker. As far as actual numbers go, it certainly was; yet, relatively, our class with twenty-nine *cum laudes* comes within three-tenths of one per cent. of equalling their record.

Socially, we have been divided more or less into cliques, as would naturally happen in a professional school where both college and non-college men come together; yet throughout our entire course there has never been the least evidence of any friction.

The members in the Boylston Medical Society spent a very profitable year under the efficient presidency of Dr. Henry Jackson. At the end of our year of active membership a first and second prize were awarded for the best papers presented during the year. To Mr. Burrows, of the City Hospital, was awarded the first prize for a paper on leucocytosis in convulsions; to Mr. Larrabee, of the City Hospital, was awarded the second prize for a paper on the sterilization of catgut. Both papers showed a very commendable amount of good original work.

The class this year has adopted the cap and gown belonging to the candidate for the degree of doctor of medicine, according to what is known as the American code of gowns. This code is in use in several of the colleges and universities of the country. Each degree has its own distinctive gown, — distinctive either in the color of the trimming or in the style of its cut. Our gowns are to be trimmed with green and black velvet, green being the medical color, — a very suggestive color, and perhaps not an entirely inappropriate one. I sincerely hope that our adopting this gown this year will prove a stepping-stone toward the future adoption throughout the University of this code. I believe that we should do everything that we can to make our Commencement exercises more interesting and impressive.

And now, gentlemen, it only remains for me on behalf of the graduating class to express to you our appreciation and thanks for your kind and generous hospitality this afternoon, to tell Dr. Da Costa and the other speakers with how much pleasure and profit we have listened to their words of wisdom; and we want you all to feel assured that whatever we can do to advance the cause of medicine, to uphold the honor of our Alma Mater, or to further the best interests of this Association, will be done, heart and soul, by each one of us.

THE PRESIDENT. — Before parting, I must present to you your new President, an old friend and an old teacher, Dr. David W. Cheever.

SPEECH OF DR. DAVID W. CHEEVER.

BROTHER ALUMNI OF THE HARVARD MEDICAL SCHOOL: — We have been together a great many years as fellow workers, students, and teachers; and I almost wish the afternoon were longer, so that I might have time to express to you how deeply I feel the honor which you have done me — in fact, a sort of final honor to my teaching career — in electing me to preside over your society for the next three years. That satisfaction, however, is very much tempered by the feeling that I shall find it difficult to fill the place of my predecessors, who have done so much to bring your Association up to its present level. You have had but two Presidents, and it is due to them largely that this Association has reached its present prosperity. I feel I owe you something for having elected me an Overseer of Harvard College. I went into the running, so to speak, as a dark horse. Having been turned down one year, I naturally felt some reluctance at putting forward my name again; but, having been solicited to do so, I was elected by the votes of those who had votes to give. I consider you all my constituents. You all ought to have had votes, because, if you had, I have no doubt I should have received them all.

DR. J. M. DA COSTA, of Philadelphia, was present, and was called upon by the President for a few remarks. His address was published on page 221 of the JOURNAL of September 2d.

EFFORTS TO ABATE THE SPITTING-NUISANCE IN JERSEY CITY. — The Jersey City Board of Health has passed an ordinance, making expectoration on the floors or platforms of trolley- or horse-cars or public conveyances of any kind punishable by the imposition of a \$10 fine.

THE BRITISH MEDICAL ASSOCIATION AT MONTREAL.

SECTION OF GENERAL MEDICINE.

FIRST DAY.

THE meeting opened Wednesday morning, September 1st, with an address of general import by Dr. STEPHEN MACKENZIE, of London, President of this Section.

Dr. JAMES STEWART, of Montreal, read a paper on

ARTHRITIS DEFORMANS.

This common affection is known under the names of "rheumatoid arthritis," "arthritis deformans," and "osteoarthritis." It often succeeds attacks of acute or subacute rheumatism, and indeed follows some of the infectious diseases, especially gonorrhea. Dr. Stewart had notes of 40 cases; quite a proportion gave a previous history of gonorrhea. In some cases the exciting cause seems to have been cold and wet; five out of 40 cases. In some, worry appeared to be a factor, 15 per cent.

Rheumatoid arthritis bears a considerable resemblance to joint affections in certain organic diseases of the spinal cord, as tabes and syringomyelia, and may be due to some functional or organic affection of the cord. He, however, finds no good ground for the belief that it is induced by changes in the nervous system. The joint affections of these diseases are, however, not at all identical with rheumatoid arthritis. There is muscular atrophy in rheumatoid arthritis, but it is not like that of anterior sclerosis, and can be explained as a consequence of the mal-nutrition accompanying the disease. Besides in many cases of chronic deforming arthritis the cord has been examined after death and no palpable lesions found, either in the cord or in the nerves. There is no apparent causal relation between the disease and tuberculosis except that the lowered resistance which attends tuberculosis may be favorable to the arthritic disease.

There is a more probable relationship to acute or subacute rheumatism. In 30 per cent. of all cases the onset was like that of acute or subacute rheumatism. But the difference is in their sequels. True acute or subacute rheumatism gets well without marked joint changes; in rheumatoid arthritis the disease goes on to distinct lesions and deformities of the joints.

Clinical types of the disease are by no means constant and there is no sharp dividing line between certain cases of chronic rheumatism and the earlier stages of rheumatoid arthritis. There are all grades, from mere stiffness of the affected joints to the formation of new bony tissue and hyperplasia and eburnation of the cartilages.

As to the alleged connection between this disease and infection, it may be said that as yet there is no proof of a bacteriological origin. The acute and subacute forms, however, have all the clinical characters of an infectious disease.

Treatment.—This affection is most rebellious to therapeutic measures. In the reader's experience, superheated air baths have done the most good. The Scotch douche, dry heat (rather than moist) is advised.

He had treated twenty cases in the Royal Victoria Hospital by the partial, superheated air baths; in all

the relief of all the symptoms was most marked. There is an increase in the mobility of the joints after a few baths.

Dr. SINGLETON SMITH was inclined to believe in the infectious origin of this disease. The arthritis is due to something besides neuropathic states, or tuberculosis or syphilis. The wasting of the muscles is incident to the amyotrophic influence of acute disease. The fact that in so many cases there is a previous history of gonorrhea gives us a clue which may profitably be followed out.

Dr. LINDSAY, of Belfast, said that his experience in the treatment of this disease in England led him still to favor the old view rather than the microbic or neuropathic. He believed that there is a direct relation between rheumatoid arthritis and ordinary rheumatism. He has followed cases where chronic rheumatism has developed into rheumatoid arthritis. The etiology is generally the same: cold, exposure, poverty, privation, errors of diet, etc. But the treatment is somewhat different; the ordinary anti-rheumatic remedies are not efficacious. He has found no benefit from any thing but cod-liver oil and tonics and liberal diet.

Dr. WILLIAM OSLER said that his experience had led him to support the neuropathic theory of this disease.

Dr. JACOBI would have been glad had Dr. Stewart defined rheumatism, and told what he meant by rheumatoid arthritis. There is no disease which we can properly call rheumatism except acute articular rheumatism or rheumatic fever. In rheumatism proper we have to do with the synovial membrane only. In rheumatoid arthritis we have to do with the cartilages and bones. The cartilages are absorbed, there is bony proliferation, there is eburnation. True rheumatic affections have nothing to do with destruction of cartilages. He believes treatment directed against the nervous debility, the constitutional state, does the most good. He especially recommends the treatment by arsenic in increasing doses for months. He has seen some good results from this and from nothing else.

Dr. J. C. WILSON, of Philadelphia, also thought that the term rheumatism should be confined to acute articular rheumatism. As for the affection which is the subject under discussion, it is frequent in elderly people whose nutrition is low after exposure to cold and damp, and it tends to changes in the bones and cartilages, stiffness and ankylosis. Often it seems to result from a succession of acute attacks, each adding its increment of change to its predecessor. He thinks the behavior of these attacks is like the repullulation of some microbic agency.

Dr. F. C. SHATTUCK thought that we still knew nothing about the pathogeny of rheumatoid arthritis. It is still the opprobrium of medicine. He has known some cases to appear in connection with a concealed source of suppuration somewhere; and he related an interesting instance where the suppuration had taken place under a plate of teeth and improved under the proper treatment.

Dr. MOREHOUSE, of London, Ontario, still adheres to the rheumatic theory of causation; only in treating the disease he finds that tonics do the most good. Iron, quinine, arsenic and cod-liver oil have in his practice been most beneficial.

Dr. GRAHAM, of Toronto, spoke of the points of

diagnosis from gout, but thought that we were all in the dark as to the nature of rheumatoid arthritis. We must bear in mind that the diagnostic criteria of rheumatoid arthritis are the osteo-cartilaginous changes. Clinically it is certainly difficult to differentiate from chronic rheumatism. He does not however believe chronic to be identical with acute rheumatism. He has found much benefit from the arsenical treatment, but these patients never get well.

DR. T. D. GRIFFITHS believes chronic rheumatoid arthritis to be due to a development of certain constitutional conditions, and to be merely a symptom, — just as eczema is a symptom of lowered nutrition, nervous shock, indigestion, gout, etc. It is more like a skin disease due to constitutional causes than an infectious disease as small-pox or even gonorrhea. It is not due to a specific poison; *the previous state is every thing*. The treatment is one of the general conditions, supporting: tonics, good diet, good hygiene.

DR. GIBNEY, of New York, regards the treatment by superheated air-baths and the subsequent forcible correction of the deformities as far the most efficacious. In the acute stages, the limb should be confined in a splint. After the exacerbation is past, a limited range of motion (within the limits of painlessness) should be permitted.

The PRESIDENT spoke of the subject as a difficult one from an etiological or diagnostic point of view. There is such a variety of joint affections, with such different causal antecedents, classed under the head of rheumatoid arthritis. It is not rheumatism, it is not gout. He likes the name osteo-arthritis; this moreover does not commit us to any theory of causation. A leading characteristic of the disease is to develop joint-deformities. Any disease that gets well without changes in the joints we would not call arthritis deformans. He thought the disease one of debility and mal-nutrition.

DR. JAS. TYSON, of Philadelphia, read a brief paper

ON THE PROPER USE OF TERMS TO DENOTE MYOCARDIAL CHANGES.

He would reserve the term "dilatation" as applied to a well-known cardiac condition to such cases as are attended with degeneration of the muscular wall. He would substitute the word *distention* or *expansion* for *dilatation* in purely physiological cases. Instead of "hypertrophy with dilatation" where there is no structural alteration, he would say hypertrophy with distention or hypertrophy with expansion.

DR. FUSSEL, of Philadelphia, read a paper on

TWO CASES OF HEMOPHILIA,

which was followed by a very practical paper

ON ATONY OF THE RECTUM,

by DR. ATCHESON, of Galt, Ontario.

SECOND DAY.

The subject of the first part of the morning session was an address

ON THE DIETETIC TREATMENT OF DIABETICS.

by DR. ROBERT SAUNDBY of Birmingham, England.

The usual diabetic diet, with its rigid restrictions, could only be carried out by the doctor's authority and the patient's docility. Compromise was the rule, but

arrived at by the doctor's opinion being sacrificed to the exigencies of the patient. Diabetes mellitus was a clinical group, of which the causation and proper classification were still debatable. These, therefore, should not be allowed to rule our views on treatment. Glycosuria was an abnormal phenomenon, but occurred when the amount of carbo-hydrates ingested exceeds the utilizing capacity of the body. This capacity varied in different individuals, and perhaps in the same individual at different times. Those who become easily glycosuric from slight excess stood in close relation to the milder forms of diabetes. In severe diabetes glycosuria persisted even on flesh diet — a fact explained by the formation of a carbo-hydrate molecule when albumin was converted into urea. Hence in severe diabetes there was no physiological ground for persisting with strict diet in the hope of thereby removing the glycosuria. We must look to clinical results for the justification of our treatment, and must not be led too far by our prepossessions in favor of any disputed pathological doctrine. Instead of following a blind routine we should give each case as much carbo-hydrate as experience showed he could assimilate. Of carbo-hydrates it was best to give one and a half pints of milk, six ounces of baked potato, one and a half ounces of levulose, and, in mild cases, four and a half ounces of dry toast. Fat bacon should, if possible, form one meal, but diabetics appeared to absorb fat badly. Alcohol, in the absence of albuminuria, might be allowed up to four ounces daily, well diluted with mineral water, or, in mild cases, a bottle of light Moselle or Bordeaux wine, or even a pint of bitter ale. It was of great importance to prescribe definite quantities, and to test the effect of the diet by weekly body weighing, urine measurement, and sugar estimation.

This address gave method of dieting delineated in his book, the main features of which are as rigid an exclusion of carbo-hydrates as possible without damage to the nutrition and general condition of the patient, the case being very carefully watched. The discussion which followed was of the greatest interest.

DR. TYSON, of Philadelphia, said that Dr. Saundby's method was essentially his own. The exclusion of carbo-hydrates can never be complete and many patients do better on a diet not too rigid. Cases drop into two classes, the mild and the severe. In mild cases it is easy to eliminate sugar by diet; in the bad cases this cannot be done. The first form may be called glycosuria, the second is true diabetes. Dr. Tyson believes that the mild cases if left alone will develop into the grave in time. He aims in the light forms to reduce the quantity of sugar in the urine under two per cent.; the patients are then practically well. You can then allow them with safety a certain amount of carbo-hydrate. Once a month put them on a pure proteid diet for a few days, and the sugar disappears completely, then relax on diet, but not so much as to exceed two per cent. of sugar in the urine. In severe cases a rigid diet will not take out the sugar. If you give nothing but pure meat, the urine will still contain sugar in large amounts, and the presence of a large amount of sugar in the urine is harmful. The polyuria is due to sugar; as is the diabetic amblyopia, the furunculosis, etc.

Is a pure proteid diet harmful? Muusen's studies seem to indicate that an exclusive proteid diet increases diacetic acid in the urine. This is responsible

for the coma. There are other toxic substances, according to this authority, due to a breaking up of albumin. It is not, however, proved that these toxic substances do not come from the body-albumin instead of the proteids of food.

DR. TYSON first puts his patients on a rigid proteid diet to see what can be accomplished. Then he adds one article after another containing more or less starch or sugar, watching the urine, and he finally makes the diet as liberal as the individual case will permit.

DR. SIDNEY COUPLAND, of England, said that his experience had been similar to that of Dr. Saundby and that detailed by Dr. Tyson. In some cases marked benefit comes from dieting, in others the benefit is slight or *nil*. In some cases the patient rapidly gets worse after being put on diabetic diet. It is impossible to altogether exclude sugar and starch.

DR. SINGLETON SMITH, of England, spoke of the diabetes of young people as being peculiarly intractable and fatal. In these patients we cannot allow much latitude of diet. In elderly people we are obliged to give more latitude. In his own practice he tries to carry out a rigid system, determining by experiment how much carbo-hydrate in each particular case can be assimilated, and making concessions only as circumstances demand.

DR. EBENEZER DUNCAN, of Glasgow, Scotland, thought that the matter of sugar in the urine is not the chief factor of prognosis. If the diabetes be pancreatic, neither diet nor any thing else will do much good. In nervous diabetes we should restrict the diet persevering as long as nutrition does not weaken and the patient can digest the diabetic diet. We must not give way to the cravings of our patients. Dr. Jacobi, of New York, has found that some patients will not thrive on any dietetic treatment. Old people often emaciate if you drop their carbo-hydrates. In the diabetes of young people, you must withhold carbo-hydrates as much as possible. Under a proteid diet young patients live longer.

As to the question of milk, he would say from his experience that he has never seen a patient get worse to whom a moderate amount of milk was allowed. In fact, they generally improve on milk. He does not believe in Donkin's skim-milk treatment. He gives milk in any form as an adjuvant. Old persons do not do well on a strict diet; they do better on a mixed diet.

DR. LINDSAY, of Belfast, England, also spoke of the necessity of allowing elderly patients much liberty. He gives milk as an adjuvant — a quart or so a day — but does not believe in an exclusive milk diet.

DR. TYSON, of Philadelphia, said that he had had much experience with the exclusive milk treatment. In mild cases it does well; the sugar disappears. But there is no permanent advantage in this, while in severe cases the consequences are disastrous. Milk is safe along with other things. The presence and the amount of sugar in the urine is generally an index of the condition of the patient, but sometimes we have to disregard this as an index of the danger of the patient.

DR. WRIGHT, of Ottawa, was inclined to look upon glycosuria as distinct from diabetes. The former is the diabetes of elderly people. You cannot much restrict their diet.

DR. STEPHEN MACKENZIE, the President, said that the paper of Dr. Saundby was a protest against blind routine, counselling a study of the individuality of the

patient and the necessity of finding out the limitations and restrictions of diet necessary, the practitioner being guided not so much by the sugar in the urine as by the requirements of the patient. Is the patient improving in nutrition, strength, weight, in respect to thirst and other symptoms, or is he deteriorating? These are questions which the physician should constantly have before him in treating either the mild or the grave cases.

DR. SAUNDBY said, in closing, that he was far from wishing to leave the impression that he advocated latitude in diet, his point was the reverse of this. He however believed in giving his patients a diet that was well tolerated by them and not repugnant. It was necessary to allow a certain amount of carbo-hydrate. He did not object to potatoes — four to six ounces a day; the quantity of sugar in the urine is not materially augmented. The sugar seems to some extent to be assimilated. We must make the lives of these patients as tolerable as we can. What is the diet which in each case will best maintain nutrition? As to milk, he has for years added it to his dietary. One litre daily may be allowed with safety.

DR. EBENEZER DUNCAN, of Glasgow, Scotland, read a paper on

THE TREATMENT OF DIABETES BY URANIUM NITRATE.

This medicine was introduced into therapeutics by Dr. West. The reader has found that in doses of fifteen to twenty grains three times a day it markedly diminishes sugar in the urine besides alleviating all the symptoms. He thinks that it stimulates the sugar-consuming cells of the organism. Best in neurogenous diabetes.

DR. TYSON said that he had tried the remedy twenty years ago. He had derived no benefit from the smaller doses (2 to 5 grains) then used. It frequently disturbed the stomach and caused diarrhea.

DR. SAUNDBY said that he had also tried uranium nitrate in small and large doses and had seen no good come from it.

Other papers read at this session were as follows:

THE BACTERIOLOGY OF PERTUSSIS,

by DR. HENRY KOPLIK, of New York, in which he said that he had been almost uniformly successful in finding the Affanassieu bacillus;

A CASE OF CROSSED HEMIPLEGIA DUE TO INJURY OF THE PONS VAROLII,

by DR. J. E. GRAHAM, of Toronto;

THE DISAPPEARANCE OF ENDOCARDIAC MURMURS, PRESUMABLY ORGANIC,

by DR. J. H. MUSSER, of Philadelphia.

HOSPITAL CAR. — A new hospital car is being constructed for the Long Island Railroad. The car is built like an ordinary Pullman, and has the best system of springs and trucks. There are seventeen cots, and, in an emergency, hammocks may be swung from the ceiling to accommodate ten or fifteen more patients. In one end of the car there is a complete operating-room, fitted up with glass tables, and all modern surgical appliances. The car will be kept in readiness at all times, so that in case of an accident it may at once be despatched to the scene.

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THE SANITARY SERVICE OF RAILWAYS AND NAVIGATION.

THERE is a meeting this week at Bruxelles, Belgium, the Second International Conference concerning the Sanitary Service of Railways and Navigation. The International Medical Congress at Moscow, the British Medical Association meeting in Montreal, and the recent meetings of the American Association for the Advancement of Science at Detroit and the British Association in Canada, have naturally drawn attention away from this second Conference at Bruxelles, which especially calls together the medical men of the navies, the mercantile marine and the railroads of the world.

The first Conference was held in 1895 at Amsterdam, September 19th-22d, inclusive. The circular sent out by the committee of organization says: "The measures taken in different countries to guarantee the physical condition of employees and their and the passengers' hygienic conditions are very different, and in many respects ineffectual. It seems, therefore, desirable to call an international conference of the medical men interested and engaged in the sanitary questions of the railroads and navigation." Prof. H. Snellen, who holds the chair of ophthalmology at the Utrecht University, was chosen as the head of the movement, and acted as President of the Conference. Some seventy gentlemen from various countries met at the Conference. Their several reports and experiences, and their discussion were published in the "Comptes rendus des Travaux de la Conference," which is now before us. This volume of some three hundred pages contains very practical reports and papers: Section I, Proofs of the Physical Condition of the Personnel; Section II, Organization of the Medical Service; Section III, Sanitary Interests of the Employees and Travellers. The interchange of experiences and the discussions were as practical as valuable. Even the

varying conditions of railroad work in different countries did not prevent a very close connection in reference to the special demands of physical condition, as shown by the interesting reports of the aurists and the ophthalmic surgeons. The necessary international character of the reports and discussions as to the navies and merchant marines was naturally much greater.

A report as to the United States had been asked of our townsman, Dr. B. Joy Jeffries. This he gave, and it is printed in the conference *Compte Rendu*. He was elected one of the Vice-Presidents. He has, as is well known, been engaged the past twenty years in endeavoring to obtain concurrent action of the maritime nations in the control of the physical condition of the officers and men of navies and mercantile marines. The necessity of such control being internationally agreed to is now admitted. It will be remembered that the rules and regulations of sailing, lights, signals, etc., which the Washington International Maritime Conference reported, went into effect July 1st last, as agreed by the several nations taking part. The British Medical Association Committee on the control of Mariners' Eyesight, etc., report July 17, 1897, the necessity of international action and urge that representatives be sent to the Bruxelles Conference. The Amsterdam Conference agreed to meet again in two years, by invitation, at Bruxelles, at the time of the International Exposition. Whilst not a part of the scientific work, which perhaps alone concerns us, we notice that the members and their families were well looked after and entertained, as they are no doubt being now at Bruxelles.

The programme of the Conference before us shows that there are plenty of important subjects and many distinguished men to discuss them. It also shows that during the five days' session the members will be fittingly entertained by the Belgian Government and the corporation of the city of Bruxelles. Dr. J. P. Nuel, Professor of Ophthalmology of the University of Liège, presides.

In behalf of the Conference, our townsman, Dr. Jeffries, has enlisted the interest and participation of the United States Government. The Navy has sent Surgeon J. D. Gatewood as a representative; the Army, Surgeon D. L. Huntington; and the Marine-Hospital Service, Passed-Assistant Surgeon Jos. J. Kinyoun.

We have called attention to and explained this Conference because it will bring before governments and organizations the true position and value of medical men, and encourage the latter to exercise their legitimate and much needed influence in certain fields. The Secretary-General well says in his circular: "This Congress is not alone of scientific and hygienic interest. In the medical point of view it deserves serious attention. Our confrères will, with eminent men of other countries, discuss their relation to the administration, and cause to be appreciated the great services which they render to the administrations and to the public."

A PHYSIOLOGICAL DETERMINATION OF MAXIMUM AND MINIMUM SCHOOL HOURS.

THE readers of educational literature must have been struck with the productiveness of the last few years in the reports of investigations of notable value, into the health of school-children, undertaken for the double purpose of ascertaining their fitness for prolonged mental exertion and for determining how they are affected by such exertion.

Inquiries of this sort have long been prosecuted in one or another form by the teachers and students of Clark University, at Worcester, and the attention excited by the statistics which were published some years ago by Dr. Warner, of Manchester, England, is still fresh in the memory.

It is, however, particularly noteworthy that our Saxon cousins in Germany, to whom study has been the breath of life, have begun to show alarm over the ill-effects of the stern cramming which seems to go on in their schools; and a number of important criticisms and comments from eminent physicians have appeared in the medical journals. The literature of the experimental investigations to which this movement has given rise has been recently reviewed by Dr. Max Brahn, of Leipsic, in a paper which is published in the *Deutsche Medicinische Wochenschrift*¹ and is commendable as a clear and concise presentation of the facts at stake.

It will perchance be long before our educators have sufficient faith in physiological methods to accept them as dictators of school customs, but it would be the folly of ignorance to treat them with contempt.

The methods followed in estimating the advent and accumulation of fatigue were either those of Kraepelin or Ebbinghaus, who tested the rate of diminution of the higher mental powers, as shown in the failing capacity to add figures, or to detect errors in spelling, etc.; or those of Griesbach or Kemsies, who sought, by the aid of special instruments, to determine changes in the sensibility of the skin, or in the strength of certain muscles, at different periods in the school day and year.

In these ways the fatigue induced by school work and the rest secured by sleep and vacation have been traced out with a good deal of accuracy, and the average capacities of children at different ages have been carefully computed, while withal, it has not been overlooked that a great amount of individualizing is necessary, both on account of varying intellectual capacity and on account of varying degrees of health.

The recommendations of the authors cited, as brought together by Dr. Brahn, are as follows:

(1) The periods which the writer calls units of study (*Lehreinheit*) should not be longer than 25 minutes for children between six and nine years old; 30 to 35 minutes for those between nine and twelve; 40 to 50 for older children. Only the higher grammar-school pupils should study uninterruptedly a longer time than this and then only under special conditions.

(2) The length of the pauses should vary in proportion to the length of the units of study, from 10 to 15 minutes and upwards. It is held to be a principle of fundamental importance that it is

not enough simply to change the character of the employment in order to get the necessary refreshment, but that a real rest is needed after every sort of mental application [including, we would add, that necessary for gymnastics].

(3) The number of hours of daily study should be from two (eventually three) for children between six and nine; three to four for children from nine to twelve; four to five for children above twelve. Afternoon hours of study should, as a rule, be abandoned.

(4) In arranging the subjects for the different hours, attention should be paid not only to pedagogic considerations, but to the relative degree of fatigue which different subjects induce. Those which call for the greatest effort, such as mathematics or number work, should come early in the day; then should follow the languages, and finally history, geography, natural history and technical branches. Gymnastics could come at the end and should not be introduced between other studies.

(5) It has been impossible, as yet, to obtain sufficient data to justify categorical statements with regard to vacations. Investigations into the rate of growth of children in the different periods of the year are much needed as a basis for conclusions on that point.

(6) More attention than heretofore should be paid to the changing needs of the years preceding puberty. The child under twelve years old needs to be stringently protected against overtaxing. The tenth and eleventh years in particular should be devoted rather to the assimilation of what has been learned before than to progress on new lines. The centre of gravity, so to speak, of the child's education, should be pushed from the years of childhood into those of puberty. It would, therefore, be desirable to have the age of seven the first public-school year and fifteen the last.

(7) Pupils ought to be separated according to their capacities. The bodily weak, the mentally backward and those predisposed to nervous ailments, should be divided into smaller sections than has been customary.

(8) All these rules, especially the last, imply the co-operation of school physicians, and those who fill these positions should have some knowledge of the elements of scientific psychology.

MEDICAL NOTES.

THE NORTHWESTERN UNIVERSITY WOMEN'S MEDICAL SCHOOL has added largely to its corps of instructors.

QUARANTINE AGAINST MONTREAL. — The health board of Ottawa has established a quarantine against trains from Montreal, because of the small-pox in the latter city.

POISONING BY CHLORATE OF POTASH. — A death from an overdose of chlorate of potash is reported from Vienna. The present case is that of a woman who took twenty-five grammes of the drug.

TEXAS FEVER IN IOWA. — Texas fever is reported to be spreading among the cattle in Southwestern Iowa. The cattlemen have become greatly alarmed and have appealed for assistance to the State authorities.

YELLOW FEVER IN MISSISSIPPI. — Yellow fever has recently appeared at Ocean Springs, Miss., a town about 56 miles from Mobile, and 84 from New Orleans. One fatal case has developed in the person of a man named Gelpi, who went to New Orleans from Ocean Springs. The New Orleans Board of Health is taking all possible precautions against the spread of the disease, and quarantine against the infected town has been declared in all the surrounding cities and States. On September 7th, three cases of

¹ No. 26, p. 422, June 24, 1897.

yellow fever were reported at Biloxi, Miss. There is at present no general exodus from New Orleans for the north; and unless the disease should, as is improbable, gain a foothold there in spite of the lateness of the season and of the efforts of the Board of Health, none is anticipated. On September 7th, there had been no new cases reported at Ocean Springs, and but one additional death.

THE FIRST QUARANTINE IN NEW YORK.—The first quarantine in the harbor of New York was established in 1737, and was due to reports that small-pox and spotted fever were raging in South Carolina.

THE PRINCESS OF WALES TRIES THE KNEIPP CURE.—It is reported that the Princess of Wales recently tried the Kneipp Cure at Woerishofen, but that one morning's walk in the wet grass resulted in such a cold that the treatment had to be abandoned.

PENCIL STERILIZERS.—The State Board of Health of Indiana has issued an order requiring all schools to be provided with pencil sterilizers and safety drinking-fountains. The former is a Russian iron oven heated by gas, gasoline, or alcohol, in which pens and pencils are to be heated daily to a temperature of 275° F.

AN EXPLOSION OF CARBIDE OF CALCIUM.—An explosion occurred recently in a laboratory at Saint Michael-de-Maurienne, where carbide of calcium was being manufactured. The building was destroyed, and one workman was killed and three others were seriously injured. Carbide of calcium, it will be remembered, is the material from which acetylene gas is produced.

A PATIENT FINED FOR LEAVING A HOSPITAL.—A patient has lately, according to the *Lancet*, been fined for leaving an English fever hospital while suffering from typhoid fever. He had been an inmate for some time and had apparently been very ill, but during his convalescence he thought he was well enough to go, and so walked out one day without saying anything to any one. Patients in general hospitals not infrequently practise this mode of departure, which probably does little harm to any one except the patient himself; but in the case of infectious hospitals things are different, for unless the patient and his clothes are properly disinfected disease may be spread to any extent.

AN EXPENSIVE BOOK.—The Pension Roll still stands as the most conspicuous figure in the long array of our heritages from the Civil War; but it has a very healthy younger relative known as "The Official History of the War of the Rebellion." This work is said to have cost the United States government nearly \$2,500,000 already, and another \$500,000 has been called for. We are told that three years more will be required for its completion, that it will consist of over 100 volumes, and will be the most expensive book ever published. We are also told, on good authority, that history *repeats* itself; but we sincerely trust that the reproductive functions of this particular history may not prove abnormally active.

Miscellany.

SUN-BONNETS FOR HORSES.

The Medical Press and Circular comments on an amusing proposal as follows:

Luton is the centre — as most people are aware — of the straw-hat making industry in Great Britain. The staple trade, dependent as it is to a great extent upon the vagaries of fashion, has many ups and downs. The latest attempt to give a fillip to its commercial activity savors not a little of the grotesque. Last week it was officially announced that the Luton Chamber of Commerce had received from the new Government Department of Commercial Intelligence several specimens of foreign-made hats for horses, sent to England by the Bordeaux British Consul who stated in an accompanying report that such hats were in general use in that district. As a proof of utility it was stated that since the introduction of such headgear the Bordeaux Tramway Company had not lost a single horse from sun-stroke, whereas their previous losses in that way averaged twelve animals yearly. The specimens forwarded were made of rush, in the shape of a wide-brimmed and high-crowned hat with holes for the horses' ears, and bound with red braid, and strings to tie under the chin.

This proceeding represents, indeed, humanitarianism run riot into stark, staring foolishness. Just now, the scientific medical man is inclined to doubt the occurrence of heat apoplexy as the direct result of the sun's rays falling upon the head, except in rare instances. Horses that fall dead in hot weather have probably been overworked and not supplied with enough water. Not even the prospect of bolstering up a decaying British industry would reconcile the average Englishman to the ridiculous spectacle of a horse rigged out by a hatter, however fitting it might appear to a nation that has actually provided its poodles with trousers. It is reported, however, on good authority, that Luton hat-manufacturers bask in the full sunshine of prosperity, notwithstanding that the straw-plait industry has been handed over almost entirely to the Chinese. It is said that the National Society for the Prevention of Cruelty to Animals has taken the matter up, we trust merely to lay it down again, unless they want to convert their society into a common laughing-stock, and to walk straight into a clever pitfall, which would be baited with a big, big gooseberry appropriately.

PLASTIC OPERATIONS ON THE THUMB.

The importance of saving the thumb for purposes of effective opposition to the fingers in complicated injuries of the hand can hardly be overestimated. A laboring-man can perhaps better afford to lose any three of the other fingers than the thumb; and a very useful hand for purposes of the rougher forms of manual labor is left if the thumb and perhaps the stump of one finger have been preserved after an accident.

Of especial interest in this connection is a paper by Nicoladoni, published in the *Wiener klinische Wochenschrift* of July 15, 1897. He describes the case of a man whose thumb was caught in machinery, and the skin of the entire member and the thenar eminence was torn off like the corresponding part of a glove. The denuded article was restored by lifting a suitably-shaped flap from the breast, which was left attached by a pedicle, folded over the thumb like the finger of a glove, and sutured in position. The hand was banded to the chest, and when the flap had become firmly attached the pedicle was cut and trimmed and sutured in position.

A very serviceable thumb resulted, the only defect

being that the linear scar which was on the palmar surface prevented more than very slight motion at the interphalangeal joint, and held the joint fixed in partial flexion. The man was perfectly able to do his work in a scythe factory. The drawing of the hand shows a thick and clumsy-looking thumb; but looks are hardly to be considered in a case of this sort when a man's ability to work is at stake.

The presence of the left nipple on the radial side of the thumb renders it a curious-looking object, and leaves no doubt as to the portion of the body from which the transplanted skin was taken.

Nicoladoni lays stress upon the importance of having a broad border of attachment for the transplanted flap, such as is furnished by the circumference of the thenar eminence, so that a plentiful supply of blood may be secured for the nourishment of the flap.

In a subsequent case in which necrosis of the skin of the thumb had been produced by the application of a strong solution of carbolic acid, but in which the thenar eminence was not involved, Nicoladoni partially denuded the thenar eminence in order to give a broad base of attachment for his glove-finger flap, and in this case also secured an excellent result. A subsequent case of necrosis from carbolic acid was similarly treated with excellent success.

Nicoladoni further describes an ingenious operation by which he proposes transplantation of a finger to replace a lost thumb by an operation performed in several stages, and also the transplantation of a piece of periosteum and bone from the tibia to take the place of the bones of the thumb, after the skin has been supplied by the method already described.

Whether these operations will be ever successfully carried out is, of course, at present a matter of doubt; but any proposed operation which gives even a chance of success in supplying the loss of this important and useful member should, if possible, be given a trial.

AN AUTOPSY IN A CASE OF INNOMINATE ANEURISM CURED BY THE INTRODUCTION OF GOLD WIRE AND ELECTROLYSIS.

D. D. STEWART, M.D., Physician to the Episcopal Hospital, Philadelphia, reports in the *British Medical Journal* for August 14th, an autopsy which he was fortunate enough to obtain on a man for whom he had over forty-one months before succeeded in completely curing of a very large innominate aneurism by the employment of electrolysis through ten feet of snarled coiled fine gold wire introduced into the sac.

The case was unfavorable in that the man was an alcoholic and syphilitic, and the subject of pronounced aortic and mitral disease, with extensive cardiac enlargement, generalized endarteritis, and chronic nephritis. The aneurism formed a large and prominent swelling at the roof of the neck. It was regarded as springing from and being limited to the innominate artery. The sac wall was of extreme thinness, and, at least externally, was unprotected by clot. This, which was apparent to the eye and touch, was further demonstrated by puncture with needles. At the time of operation the sac wall seemed on the point of bursting externally in several situations over which the skin was extremely thin and bluish.

The result of electrolysis through the introduced wire was very decided. Clot-formation, leading ap-

parently to solidification of the sac, was early manifested. The patient lived for nearly three years and a half after operation, and finally died as the result of the formation of a large thrombus in the middle cerebral artery, the result of the advanced endarteritis present. Despite the most unfavorable condition of the patient, his bad cardiac and renal disease and generalized arterial sclerosis, his having had syphilis, and being a steady spirit-drinker, the result obtained speaks strikingly in favor of this procedure as a method of treating sacculated aneurism. The sac was to be of extreme hardness, with complete consolidation and obliteration of its cavity.

At the autopsy, which was performed four hours after death, the heart was found to be dilated and hypertrophied, the aortic and mitral valves sclerosed and insufficient, and there was a distinct fusiform aneurism at the junction of the transverse and descending portions of the aorta, which throughout was the seat of extensive atheromatous degeneration:

"The sacculated [innominate] aneurism springs directly from the root of the innominate artery. The aneurismal sac is approximately the size of a fetal head at term; length, thirteen centimetres; transverse diameter, nine centimetres. The sac is completely consolidated with organized coagula in which lie the coils of wire. The consolidated sac has at its base a small *cul-de-sac*, the remains of the innominate artery. This, from the aorta, admits the little finger to a distance of four centimetres through an annular ring, sharply defined, two centimetres in diameter. The *cul-de-sac* was noted to contain in its interior a small coagulum, presumably of post-mortem formation. The sac itself was very firm and wholly solidified, and when cut into was found to be completely occupied by organized material, in the interstices of which lay the coils of fine gold wire. Brain: A large thrombus is evident in the left middle cerebral artery. Softening has occurred in the region of the corpus callosum, caudate, and lenticular nucleus, and in the internal capsule of the left side."

This cerebral thrombosis was evidently the cause of death.

"[Stewart] has now treated two cases of sacculated aneurism by the employment of electrolysis through introduced wire, and has directed the technique in a third successful case. This has naturally led him to give a good deal of attention to the subject. The result in his second successful case, the necropsy of which is here reported, and that obtained in the case treated by Dr. Hershey, of Colorado, in which the solidification of the aneurism resulted by this method, is sufficiently suggestive to engage the attention of the therapist."

The method of treating aneurism by the introduction of wire was first introduced by Moore, at the Middlesex Hospital, in 1864.¹ His case died of sepsis. Stewart thinks that in this case a great excess of wire was introduced. The cases of Loreta and Moore (both abdominal aneurisms), in which six feet and four to five feet of wire were respectively introduced, both resulted in cure. Stewart employs under strict antiseptic precautions fine silver or gold coiled wire which, after the introduction of a moderate amount, will assume snarled spiral coils which will reach the whole calibre of the sac. Failures have occurred through the use of wire which was too stiff or too bulky; and steel or iron wire will decompose, and fill the sac with a granular detritus, which may be the cause of emboli. Galvanism with a rather strong current, 40 to 80 milliampères, Stewart considers a

¹ Medico-Chirurgical Transactions, xlvii.

very important part of the treatment; for, although the presence of the wire itself may be sufficient to obstruct the blood stream sufficiently to cause thrombosis, the passage of the galvanic current through the coils is observed to cause much more rapid and firm solidification.

By galvano-puncture with needles, although firm coagula are punctured, they are of such small dimensions and engage such small portions of the sac walls, that their dissolution rather than their accretion quickly follows.

"A striking demonstration of the power of his method to promote clot-formation," writes Stewart, "is shown in my second case. In this, 10 feet of fine gold wire had been passed, and a current of 85 milliampères employed for one and a quarter hours. Four weeks after this procedure a needle of quite large calibre was thrust into the sac to a depth of two inches in several situations, in which, at the time of operation, blood spurted at its introduction when apparently only beneath the skin. The needle in the second attempt was found to firmly engage the clot, though thrust perpendicularly up to its hilt in the sac. It could not be circumducted save with effort, and escape of even a drop of blood at any depth did not occur; nor was the needle or wire (which last had been attempted to be reinserted through the needle), when withdrawn, blood tinged. This beautifully demonstrated the apparent complete solidification of the aneurism."

The electrolytic effect of the current upon the endothelial lining of the sac is, as McEwen has demonstrated, extremely favorable to the formation of organizable white thrombi, from which vascularized fibrous tissue readily springs.

The report of the autopsy on Stewart's case is certainly an important contribution to our knowledge of the treatment of large, sacculated aneurisms.

Correspondence.

HEALTH BOARDS AND THE WIDAL TEST FOR TYPHOID FEVER.

DUBLIN, N. H., September 6, 1897.

MR. EDITOR:—Why has the Boston Board of Health done nothing to furnish facilities for the diagnosis of typhoid fever similar to those now furnished for the diagnosis of diphtheria? There is not a city of any size in the United States *except Boston* whose Board of Health is not employing the Widal serum-reaction for the diagnosis of typhoid fever as a matter of public health. New York, Chicago, Philadelphia, Baltimore, Cincinnati and other cities reported the work of their respective health boards in typhoid serum-diagnosis at the meeting of the American Medical Association last June; and Dr. M. H. Richardson and I, who reported our own private work there, were repeatedly asked why our Boston Board of Health was so behind the times. We found it difficult to defend the inertia of our city. At the recent meeting of the British Medical Association in Montreal, Dr. Richardson tells me that the situation was equally embarrassing, Boston being still the only city of any importance medically whose Board of Health has done nothing to further medical science and improve the public health in this respect. The method is no longer in the experimental stage. Over 5,000 cases are on record to show its value in diagnosis and its accuracy as a test. Prof. William H. Welch of Johns Hopkins University concludes a paper read at the Philadelphia meeting above referred to, with the following propositions:

(1) Experience has demonstrated that the method of serum diagnosis of typhoid fever is of great practical value.

(2) Provision should be made, especially by the establishment and support of municipal or State laboratories, to render generally available to practitioners the serum method of diagnosis as well as other bacteriological procedures of similar practical value.

The value of the method and the details of its application by boards of health have been worked out by other cities. Is there anything for Boston to do but to fall into line, even if we are a year behind everybody else?

Very truly yours, RICHARD C. CABOT, M.D.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOUR WEEKS ENDING AUGUST 28, 1897.

SAWTELLE, H. W., surgeon. Granted leave of absence for thirty days from September 6, 1897. August 10, 1897.

MEAD, F. W., surgeon. Granted leave of absence for three days. August 2, 1897.

BANKS, C. E., surgeon. To proceed to Newport, R. I., for the physical examination of H. L. PECKHAM, second lieutenant, Revenue Cutter Service. August 4, 1897. Granted leave of absence for twenty-seven days from August 9, 1897.

CARNICHAEL, D. A., surgeon. Granted leave of absence for thirty days from September 15, 1897. August 6, 1897.

CARRINGTON, P. M., passed assistant surgeon. To proceed to Birmingham, Ala., for special duty and then to rejoin station, Evansville, Ind. August 11, 1897.

MCINTOSH, W. P., passed assistant surgeon. Granted leave of absence for twenty-one days from August 8, 1897. August 3, 1897.

KINYOUN, J. J., passed assistant surgeon. Granted leave of absence for five days. August 10, 1897.

PERRY, T. B., passed assistant surgeon. To rejoin station at Buffalo, N. Y., on return to Evansville, Ind., of Passed Assistant Surgeon P. M. CARRINGTON. August 11, 1897. To proceed to New Orleans, La., and report to commanding officer for duty and assignment to quarters. August 26, 1897.

VAUGHAN, G. T., passed assistant surgeon. Granted leave of absence for six days from August 30, 1897. August 27, 1897.

STONER, J. B., passed assistant surgeon. To proceed to Buffalo, N. Y., and assume command of service. August 26, 1897.

GRUBBS, S. B., assistant surgeon. To proceed to Boston, Mass., and report to commanding officer for duty and assignment to quarters. August 12, 1897.

AMERICAN PEDIATRIC SOCIETY.

INVESTIGATION OF INFANTILE SCURVY.

The American Pediatric Society is making a Collective Investigation of Infantile Scurvy as occurring in North America, and earnestly requests the co-operation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to any one of the committee named below. A final printed report of the investigation will be sent to those furnishing cases.

J. P. C. GRIFFITH, M.D., *Chairman*, 123 S. 18th St., Phila.

WILLIAM D. BOOKER, M.D., 853 Park Ave., Baltimore.

CHARLES G. JENNINGS, M.D., 457 Jefferson Ave., Detroit.

AUGUSTUS CAILLE, M.D., 753 Madison Ave., New York City.

J. LOVETT MORSE, M.D., 317 Marlboro St., Boston.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the American Gynecological Society, Volume XXII, for the year 1897. Philadelphia: Wm. J. Dornan. 1897.

A Plea for a Uniform Diastase Test. By C. C. Fite, M.D., New York. Reprint. 1897.

Medio-Bilateral Lithotomy. Operative Indications in Appendicitis. Report of Operations at Private Surgical Infirmary during Season 1896-1897. By Charles S. Briggs, A.M., M.D., Nashville, Tenn. Reprints. 1897.

Rheumatism and its Treatment by the Use of the Percussio-Punctator. By J. Brindley James, M.R.C.S. Eng., Licentiate of the Royal College of Physicians of Ireland; Associate of King's College, London; Author of "Replies to Questions in Therapeutics," "Aids to Practical Physiology," etc. Second edition. London: The Rehnman Publishing Co. 1897.

Address.

THE RELATION OF MENTAL DISEASES TO GENERAL MEDICINE.¹

BY EDWARD COWLES, M.D.,

Medical Superintendent, McLean Hospital, Waverley, Mass.

MR. PRESIDENT AND MEMBERS OF THE MAINE MEDICAL ASSOCIATION:—The subject upon which it is my privilege to offer you some remarks this evening is one in which I hope to interest you, although the matter presents peculiar difficulties, and, having some forbidding aspects to the general physician, it is somewhat aside from your general discussions. In the short time at my disposal, I cannot be expected to say much upon the practical details of the treatment of the different forms of insanity. But the progress in modern medicine has been so great that its new light is clearing away much of the mystery and obscurity which have surrounded mental disorders. In discussing, however briefly, "The Relation of Mental Diseases to General Medicine," I hope to give you something of practical value in showing you how these mental affections fall into line with the new principles that are coming to guide your professional labors.

In the company of physicians gathered here there are some of us who began the study of medicine in the first decade of this half century. We can remember being taught to distinguish between the sthenic and asthenic types of disease. Antiphlogistic remedies still held an important place in our therapeutics. Our fathers in the first quarter of the century, as the disciples of Rush, practised to its full extent the "depletory treatment." The second quarter-century witnessed the establishment of the scientific medicine of our day, of which Virchow, still living, was the acknowledged head. In the department of mental disease it was then, also, that Griesinger, a contemporary of Virchow, made the great advance of the age in completing the emancipation of the insane from the methods of barbarism. He established the diagnosis of diseases of the mind upon the exact basis of general medicine, and as symptomatic of pathological processes, with a more hopeful view of curability than was held under the previously prevailing idea of mysterious psychical disorders.

The alienists were leaders in the practice of the "supporting treatment" from the beginning of the century. Those of us who were students before the War of the Rebellion saw, and perhaps some of us experienced in our youth, the bleedings and the purgings, and the derivations, of the depletory theory. We were taught, however, only its waning principles and little of its practice.

How marvellous have been the changes that have brought us to the conceptions we hold to-day of the scientific principles that underlie our medical art. While the lessons of the war emphasized "the supporting treatment," and led to the new surgery of to-day, the course of this advancement illustrates the law which Herbert Spencer calls the tendency to integration of the present specialties in medical science. The basis of surgical progress, and the new principles that are revolutionizing modern medicine, are united in the newest science of bacteriology.

The earlier neurologists, working in their new de-

partment of medicine, conceived almost thirty years ago the idea of fatigue and exhaustion of functional power in the reduction of the storage of energy in nerve cells. This was Beard's conception of nervous exhaustion as "waste in excess of repair," manifested by "irritable weakness." The "supporting treatment" gained a larger and more exact significance in the "rest treatment." Here again, the alienist kept equal step in Van Deusen's priority of announcement of the theory of the condition which he called *neurasthenia*. Thus the clinical observation and treatment of mental diseases led independently and logically along the same path of progress with that of general medicine.

In the advancement of neurology of the last thirty years, the brilliant anatomical discoveries and precise localizations of nervous diseases strengthened the general demand that a definite pathological explanation should be found for all forms of disease. In general medicine the physician was expected to refer to definite structural lesions, or demonstrable physiological disorders, to explain the phenomena of each clinical form of bodily disease. There was still the too narrow conception of each organ and tissue as having its own maladies with pathological changes peculiar to itself; and the tendency still held to seek special remedies for the cure of each individual form of disease. With the improvement in the methods of microscopy there came an era of seeking for pathological findings and explanations of disease in the different minor mechanisms of the body.

While the advances just described were being made, the alienist, in the treatment of diseases of mind and brain, still had to depend upon the clinical data of general medicine. The methods of histological study did not go far enough beyond the comparatively gross anatomical determinations which permitted the localization of the effects of disease in the nervous mechanism. They were not fine enough to reveal the inner structure of nerve cells, and detect the changes corresponding to mental symptoms. In default of such explanation the alienist and his work appeared to be unprogressive and inadequate. There was, however, no lack of diligent study of mental diseases. The methods of minute observation and analysis of symptoms were pursued with the tendency to discover many new clinical forms, or subdivisions of them, to the great confusion not only of the general physician but of the alienists themselves. They had failed in the previous attempts to establish a classification of mental diseases by an explanation of them upon an etiological basis, as if post-febrile insanity, puerperal insanity, phthisical insanity or lactational insanity, and the like, presented any real differences from the phases of melancholia and mania having other exhausting antecedents.

The scientific method of the later studies did make clear one point of great value in defining the relation of heredity and of inherent defect of the nervous organization with degenerative tendencies, to those forms of mental alienation commonly known as monomania, or better, primary delusional insanity. The elucidation also of general paralysis of the insane, popularly called "softening of the brain," and its possible relation to syphilis in a large proportion of the cases, was the one successful instance of tracing a connection between a characteristic group of mental symptoms and certain definite pathological findings as belonging to a cortical disease. But while we have

¹ Delivered before the Maine Medical Association, June 3, 1897.

been becoming able to recognize the *places* of the mechanical interferences due to the lesions which cause the motor and sensory paralyses, they gave us no better explanation of the disturbances of mental function in brain cells. One great truth appears to be revealed by these studies in regard to sclerosis in the nervous system. They go to sustain the statements of Weigert and Elinger, that overwork and exhaustion may be potent causes of nervous disease, not only of a functional, but of an organic character, attended by a shrinkage and degeneration of the nerve cell and its fibre forming the neuron now recognized as the unit of structure of the nervous system. The process termed sclerosis is merely nature's process of healing by the substitution of a supporting substance within the brain and cord, to take the place of the atrophied nerve cell or fibre. The great significance of this, in relation to mental diseases, lies in the inference that anything which interferes with the maintenance of proper nutrition of the neuron, whether it be persistent overwork and exhaustion, or the effects of poisons arresting nutrition, may begin by abating power in the mental function. To this cause are due the mental symptoms which occur during the processes leading to actual organic changes.

These considerations, though presented in so bare an outline, may serve to give some idea of the relations that have existed in recent years between the conceptions of mental diseases as to their pathological basis and that of general and nervous diseases. The methods of research and of clinical investigation, that at first had done so much in revealing the pathological processes of nervous diseases, have been reaching their limitations within the last ten years. Almost absolutely nothing could be expected of them as to the physical basis of mental diseases. Indeed, it is true to-day that insanity, as to its mode of causation through pathological processes, remains for the greater part a mystery.

But the relation of mental to general diseases, on clinical lines, has continued to be a close one; and the former have been finding their way along those lines to new relations, and to some share in the great progress of modern medical science. This unity in the treatment of mental diseases, or in psychiatry, with the clinical methods of general medicine, can be made clearer by a brief mention of the therapeutics of insanity, in prevalent use during the last ten or twenty years. Then I shall try to point out some of the essential features of the new principles in medicine and to indicate how they throw new light upon mental diseases. Thus the contrast can be made between the old and the new conceptions of underlying principles which promise to make these special diseases more intelligible to the general physician.

The best advances in psychiatry, along clinical lines, have generally been made by the application of medical common-sense. Taking the principles we have to work with, those embodied in the "supporting treatment" for example, there is no mystery in the application of them to mental disease. There is no specific treatment for the large class of functional mental disorders that tend to recovery, because generally symptomatic only of reduced nervous energy and disappearing with the restoration of the general health. Consider also another class of mental affections of which I have spoken, those typified by the monomanias, otherwise called primary delusional insanity. When we recog-

nize them as the expression of constitutional nervous weakness, the indication is plain why they offer only a bad prognosis. General paralysis, also mentioned as a definite brain disease, is, for that reason, hopeless.

Now let us consider further the functional or symptomatic mental disorders forming the majority of mental cases, presenting the acute and curable forms that may occur either in sound people or in the inherently weak, and known clinically as melancholia and mania. We may regard these forms as the depressive and excited phases of one disease or morbid condition, which, for want of a better name, may be termed ordinary insanity. Whether or not we hold that these forms are but manifestations of nervous *asthenia* or its equivalent, the fact remains that for many years these conditions have been practically treated upon the common-sense plan of the "supporting treatment." Putting aside the difficulties you meet, as general practitioners, in the management of these cases, the necessity for the protection of the suicidal and the control of the maniacal, and there being provided the safe custody of a hospital, or of a private house turned into one, and looking at the strict therapeutics of your case, the indications are very plain. The specialist first properly protects and guards his patient. Then, upon investigation for all physical signs, he meets their symptoms under the common rules. There are commonly few objective symptoms, except that if there is, for example, constipation, nervous dyspepsia, neuralgia, or any of the train of neuroses, they are palliated by the means any physician would employ. But this would be done with the understanding that they are all likely to be only expressions of the prime condition which calls first for elimination, nutrition, rest and sleep; then for mental and physical hygiene; and then, as convalescence progresses, for proper exercise, entertainment, occupation and gradual restoration to self-responsibility.

In dealing clinically with these neurasthenic conditions, the advanced alienists were quick to recognize the first contributions of the principles of bacterial diseases. They were already practising upon the physiological fact that the expenditure of energy in nerve cells is attended by waste products that must be eliminated, their toxic effects being inferred to be accompaniments of nervous exhaustion. The theory of auto-intoxication then illuminated their work at once with explanation. Though there was as yet no demonstration of the pathological process, the inference was strictly in accordance with physiological laws. After this the discoveries in physiological chemistry, the work of Bouchard in pathological chemistry and its application by the French alienists and others to the conception of the relation of infectious diseases to insanity, together with the evidences of a like relation to nervous diseases, were all logical sequences of the principle of modern medicine newly discovered by Pasteur, our greatest benefactor in modern times.

This brief mention of some of the most salient particulars of scientific progress in different departments of medicine may serve to indicate the position to which psychiatry has come in the last ten years; and that what it has really accomplished in the way of advancement has been in concert with the clinical side of general medicine, rather than through the discovery of pathological changes peculiar to the nervous system itself. The reason why this is so, is well stated by Van Gieson. He says, "that much of the present obscurity in the pathogenesis of nervous and, especially,

of mental diseases, is largely to be explained by the very simple fact, that the brain and the rest of the nervous system has been studied altogether too much as something apart from the rest of the body — as something beyond the jurisdiction of the laws of the great fundamental pathological processes which operate on the whole organism."²

What is required for a better understanding of the pathological basis of insanity is the correlation of the nervous system with other tissues and organs in the body in the study of the effects of the few fundamental pathological processes which underlie mental and nervous, as well as diseases in general. We shall see that the mental symptoms of the ordinary acute forms of mental disease present, though by a less intense and slower process, a strong analogy to the mental derangement and confusion attendant upon active exhausting influences, such as starvation and mental shock, and to the commonly observed delirium of typhoid and other febrile affections.

We may now examine the new principles that have already in so short a time revolutionized our conceptions of general pathology, to see what new light they bring to the elucidation of mental diseases. We may see, also, how this specialty of mental maladies, as well as that of nervous diseases as a whole, may be brought into common alliance with general medicine. The student of psychiatry can but feel that he is at the beginning of a new epoch in mental medicine.

There are two chief additions to our knowledge, which have given us this great promise. For my present purpose, they may be stated in the order of their discovery, or application to our study. (1) The discovery of the principles which explain the effects of toxic influences upon the physiological activities, nutrition and structure of the organic tissues in the body. (2) The new methods of investigating the anatomy and physiology of the nervous system.

(1) The toxic causation of diseases. There is need here for only the briefest statement of these new principles now so well known. The accepted fact that some diseases are due to the presence in the body of some form of poison, whether it be the product of bacteria, or arises from excretions or secretions produced by some of the organs of the body, or from an abnormal condition of the blood, the general fact affords the foundation for the complete revolution of our conceptions of general pathology.

One group of these toxic influences are the substances received from *without the body*, such as active poisons, infective germs or their products. While these include such poisons as lead, arsenic, mercury, alcohol, etc., their like pathological effects upon the nervous system align them with the bacterial infections, and the poisons associated with the development of bacteria within the body. As we now know them, diphtheria, rabies and tetanus are examples of the poisonous effects of the bacteria themselves, and of their products, causing toxemia and producing the symptoms of the disease.

The other principal group is included in the auto-intoxications. In these the first effects of the intoxicants are due to poisons formed *within the body* as the products of chemical agencies in disordered physiological activities. While it is difficult to classify these self-produced poisons, their nature is indicated by men-

tioning some of them. The waste products of normal exercise, which show their effects in the feelings of fatigue and somnolence, are injurious to the organism and require free elimination. Disorders in the chemical processes of nutrition, or of the reduction of waste material to the end — products duly formed for excretion, yield the poisonous substances attendant upon indigestion, or irregularities in the action of the liver and kidneys. While we know little as yet of the sources, and conditions of production, of the poisons in the group of diseases like gout and rheumatisms, we do not hesitate to explain them as due to auto-intoxication, and we recognize their common association, not only with symptoms of bodily disease but with nervous and mental disorders. There can be no doubt of the important relation of these toxic disorders to neurasthenia as the initial condition of many diseases, both of the general organism and of the nervous system.

Another class of conditions must not be omitted here, in which there is toxemia, due to the absence of certain normal secretions. An example of this is the remarkable disease myxedema, associated with its strange disorders of nutrition. One of the brilliant triumphs of modern medicine is seen in the successful treatment of this disease with thyroid extract, when by supplying the deficient material the patient recovers, not only from long existing physical effects of the disease but the mental symptoms disappear. Of equal interest and significance is the recognition of the toxic effects of an excess of the thyroid secretion.

These meagre references to the advances that are being made in many lines of medical research will serve to show how these newly-discovered pathological principles are bringing order and unity into our conceptions of disease processes.

(2) The reconstruction of our knowledge of the nervous system in the past ten years, through the new methods of microscopical research discovered by Golgi, and developed by Cajal and others, has given us a precise and definite understanding of neural construction. The whole nervous system is now known to be built up of a vast number of elementary neurons; each one of these, independent of all others, and representing a single nerve cell with its protoplasmic processes and nerve fibre, constitutes an individual neuron. Although presenting many minor variations in form, this is the law of all. The grouping together of these in anatomical and physiological relations affords a clear conception of the nervous mechanism. Along with these discoveries in regard to the *external* forms of the neurons, we have the other great discoveries through the methods of Hodge, Ehrlich and Nissl, revealing the *inner* construction of the nerve cell. The chemical reactions obtained by new processes of staining show the physiological changes attendant upon fatigue and exhaustion in the normal cell by its shrinkage, and recovery after rest. The changes due to morbid influences are also demonstrable by these new discoveries in cellular pathology. These new methods of investigation have opened a multitude of lines of research, which are full of interest and promise.

The present results of this great progress in scientific medicine may be summed up from Van Gieson's recent description in a remarkable and comprehensive discussion of their relation to mental diseases.³ The

² The Toxic Basis of Neural Diseases: New York State Hospital Bulletin, vol. i, p. 408.

³ New York State Hospital Bulletin, vol. i, p. 417.

experimental effects, upon the ganglion cells of animals, of such poisons as arsenic, lead, mercury and alcohol, were found to be essentially the same for all these poisons and were phases of an *acute parenchymatous degeneration*. Similar studies of the internal changes in the nerve cell, due to bacterial toxemias, such as typhoid fever and diphtheria, showed effects of essentially the same type. Again, extensive observation in experimental and human rabies showed identical cellular lesions to those of the bacterial poisons. The inference was, therefore, that parenchymatous changes of uniform character are produced in nerve cells by poisons of different natures,—that an acute or chronic type of these internal changes corresponds to an acute or intense action of a poison, or to the gradual, intermittent or persistent effects of a poison of milder intensity. It further appeared that these cell changes were manifestations of a single, great fundamental pathological process; namely, acute parenchymatous degeneration of the nervous system. The great significance of this is still further extended by the inference that this same pathological process is elicited by the action of the same poisons in other organs in the body as well as the nervous system. These conclusions were sustained by observations in uremia, sunstroke, and experimental thyropraxia.⁴

It is of great interest and importance, in regard to the origin of mental diseases, to note here an explanation which is afforded through the growing belief that most of the processes of disease in general are due to toxic substances in one form or another. It cannot be disputed that the application of this toxic theory of disease must include the nervous system, and that the brain is involved like any other organ of the body, in these general toxic or somatic diseases. It thus follows that many of the insanities are but the expression of the later disturbance of the functions of the brain, dependent upon changes in the nerve cells produced by the action of toxic substances.⁵ This statement need not exclude many affections primarily of a psychic origin, for the reason that purely mental and emotional causes may initiate disorder in physiological processes so that the inefficient exercise of certain functions may start the train of toxic sequences. The interesting consideration referred to in this connection is the obvious fact that the dependence of changes in the nervous system upon general somatic diseases must be often masked. It may be a long time between the occurrence of some general bodily disease, or the initial touch of the morbid cause, and the appearance of the mental or nervous symptoms due to the damage wrought on the brain by the toxic substances associated with the acute general illness or other causation. Nothing is more certain than the frequently recurring clinical fact that in cases presenting mental symptoms practically identical, the function-reducing cause is obvious in some, doubtful in others, and not rarely altogether lost to recognition. For this reason we are in danger of seeking too much for explanation of nervous and mental symptoms as due to pathological processes originating in the nervous system, or in a disease belonging to it alone. It is more conservative to first seek a more general explanation.

It may be objected that we are but at the beginning of being able to differentiate the pathological changes in the internal structure of nerve cells, and therefore that we may expect, through better methods of study, to find different appearances corresponding to different causes.

This objection is certainly a valid one, but however far we may ever go in differentiating internal cell changes, the primary fact must remain that any failure to perfect the building up of cell contents to form the material of energy must show itself in a reduction of functional power. This is a conservative position to stand upon, and we may hope to make our distinctions in the ordinary forms of mental disease more safely when we are better able to recognize the changes in their physical basis. The alienist should not cease to study the variations of mental symptoms in even ordinary cases that appear practically identical; but, at the same time, it is a very reasonable expectation that we are approaching the most satisfactory basis of our work in the broad conception of a few simple and general pathological processes, which commonly reduce functional energy in acute or chronic degrees; and that mental symptoms largely vary through differences which pertain to normal individuals, with due allowance for the inherent defects and instability of the neuropathic. This applies to the so-called function or symptomatic mental disorders, and indicates a method for their systematic study; it is not intended to exclude the possibility of enlarging the class of mental diseases that have characteristic pathological lesions, of which general paralysis is an example.

While the demonstrations of the principles here outlined, including the observations of other investigators, are still limited, the conclusions rest so strongly upon analogy and logical inference from extensive clinical data that they are generally accepted as probably true.

The researches in physiological chemistry and the investigations of the various forms of auto-intoxication in their origin and effects in disorders of different organs of the body are building up evidences of a general truth. This truth is that, however various in origin, and different in their chemical and toxic character, they produce like effects, in progressive degrees, namely, irritability, blunting and paralysis of function, and degeneration. It is of immense importance to our new understanding of nervous and mental disease that we can bring such a conclusion to bear upon their origin. While it may continue to be practically impossible to separate and identify these complex chemical poisons, it is claimed that we have attained, nevertheless, the position that their presence can now be determined microscopically by their effects upon the nerve cells, and by the associated nervous and mental symptoms. This conclusion is of great practical value, because it is when we have knowledge of the causes and conditions of morbid processes that we can successfully seek and apply intelligent and effective prophylaxis and curative treatment.

Now let us assume that we have set forth, though in a fragmentary fashion, the new principles of a broad general pathology, on the basis of the wide influence of toxic elements in the production of morbid processes in the organism. Let us assume, also, that in all the cell structure of the organs and tissues of the body, the common effect of these poisons is essentially one process, attended by irritation, weakening, reduction of functional power, often shown alike by mental depres-

⁴ A case of acute insanity associated with definite changes in the internal structure of the nerve cells, occurring at the McLean Hospital, was reported by Dr. Hoch, February 17, 1897. See Boston Medical and Surgical Journal, August 19, 1897, p. 182.

⁵ Loc. cit., p. 409.

sion and excitement. The process, continuing, goes on to degeneration in various degrees, until recuperative force is lost, and destruction supervenes with the possible substitution of sclerotic tissues.

Assuming these things, the conclusion of this discussion may be devoted to an application of these principles to common experiences in our practice. Our logical position is that when we approach a case of nervous or mental disease, or one in which the nervous system is especially involved, we have to deal with an individual whose neurons, in some part, are in a condition of disorder or disease. This means the observation of symptoms in the patient of mechanical or chemical effects upon the neuron elements of his nervous system. Normal activity implies the recurrence of physiological fatigue and its symptoms as accompaniments of daily toil, with the breaking down of cell contents in work, the elimination of toxic waste products, and restoration by nutrition, rest and sleep.

The history of the case may reveal an excess of waste of nervous energy over its repair. This means a greater or less persistent fatigue or exhaustion of functional power in the neuron, which includes the power to assimilate nourishment. Thus exhaustion, once initiated in some degree, begets diminished nutrition and more relative exhaustion, if the cause continues. In many cases the balance continuously turns but slightly the wrong way, and the process is a long one; again, the exhausting influences are great and abrupt in their effect, even to mental shock. Thus we note the sequence of overwork and exhaustion. The toxic manifestations appear as effects of excessive waste products, there is deficient elimination from the overworked nerve cells, toxic materials enter the blood, nervous dyspepsia and constipation betray defective innervation, and in turn contribute to further disorders of nutrition. The same relative conditions may occur in the indolent and sedentary, through deficient elimination and lack of physiological exercise necessary to normal physiological growth. The mental signs, sometimes without any bodily signs, are those of loss of spirits or depression, attendant upon a vague sense of bodily ill-being, diminished power to apply the attention, and a tendency to worry unduly. These common symptoms of neurasthenia, that are so familiar to us, are striking expressions of ill-nourished and disordered neurons. The logical treatment of such conditions is elimination to reduce the toxic conditions, rest and nutrition.

Here is the prolific soil from which all nervous diseases may spring. Mental disorders beginning in such symptoms require only increase in degree to become pronounced melancholia; and graver degrees and effects of exhausting causes induce the more serious intellectual derangement in mania. The evolution of the groups of symptoms in these acute mental diseases, the common history of exhausting causes, the process of gradual convalescence as from a neurasthenic state, are all clearly explained on the basis of their being functional and curable conditions with toxic elements in their production. The course of development of the symptoms is in the order of overwork, exhaustion, auto-intoxication.

We have to consider that insanity may follow all forms of acute disease, or from the many forms of toxemia which may affect the nutrition of the neurons, and that whatever the antecedent that induces the condition of nervous exhaustion, whether overwork, in-

fectious fevers or nutritional disorders, the same groups of mental symptoms oftenest appear. No explanation satisfies these clinical appearances so well as to ascribe the mental phenomena to one essential fact: reduction of functional power in the neurons. This accords with the pathological finding that the changes produced within the nerve cell appear to be essentially alike from poisons of widely different natures.

The terms "nervous exhaustion" and "exhausting influences" relate, in their strictest sense, to a condition of the neuron elements induced by excess of expenditure of energy over repair, along with which there is a toxic element the production and elimination of which is physiological and necessary. But the same relative condition is produced when there is small expenditure and deficient elimination, in respect to the mere vegetative processes, in persons unnaturally inactive, when the neural repair is, for any reason, still less than the waste. The fat neurasthenics described by Weir Mitchell belong to this class. In this case there may appear clinically the same reduction of functional power, nervous and mental, as in the first instance. Again, it may happen to persons of both classes that poisons from without, or produced within the body, may conflict with the physiological principle that the inner contents of a nerve cell are chemically built up into complex compounds, which constitute the material of energy and break down when the cell does its work. Any toxic cause, in the blood or tissues, that impairs or arrests this process, whether chemically or otherwise, must beget the same effect of a corresponding reduction of functional forces, and may produce like symptoms.

In like manner "nutrition" and "nutritional disorders" relate, in the end, to the chemical processes within the cell. It is not solely a matter of gain or loss of body weight; while this is a true criterion in most cases, there are many in which it is reasonable to conclude that the process of "nutrition" may go on well, even to its final stage in the nerve cell, and there become imperfect or arrested as by a chemical fault, perhaps due to some toxic element. We certainly see examples of loss of weight, sometimes rapid, not sufficiently accounted for by any apparent fault of digestion, when an abundance of food is taken that would ordinarily fatten. In the broader conception of all function-reducing factors as essentially "exhausting influences" we are enabled to extend the demonstrations of the phenomena of fatigue to explain the remarkable uniformity in groups of mental symptoms, for example, when arising from most varied causes, or in the absence of any apparent cause.

It is interesting to consider that epoch-making, and remarkable in simplicity and clearness, as are these new explanations of disease processes, they are still the fulfilment of expectations that have been long entertained. As Van Gieson remarks, our belief that the large majority of diseases are due to the circulation of poisons within the body is a result to which we have gradually come. Before we had sufficient pathological evidence, it was naturally thought that the continued fevers, the exanthemata, syphilis, tuberculosis, rabies, tetanus, hydrophobia, and in fact all the infectious and contagious diseases, were the manifestations of poisons entering from without or elaborated within the body. Bacteriology has shown the true relation of micro-organisms to some of these diseases. Functional disorders, degenerations, necroses and

scleroses, are explained as one general pathological process from diverse causes, though presenting different appearances in different tissues. The brilliant example of diphtheria, and its now familiar antitoxin treatment, gives us the clue to new and scientific modes of treatment of a rapidly widening range of disease.

This brings us exactly to the thought to which I have wished to lead you. The treatment of mental diseases is being brought more closely than ever to common ground with general diseases. In your practice you may no longer look upon insanity as peculiarly a pathological mystery. The acute and so-called functional forms certainly are not so. For general paralysis you find, as diagnostic, certain definite sensory and motor signs along with characteristic groupings of mental symptoms. Moreover, its most rational explanation is as having an initial stage of cortical exhaustion, whether toxic or otherwise. In the other great division, that of delusional insanity arising primarily without immediately recognizable exhausting causes, there must be conceived an inherent asthenia of the nervous system, by which it is rendered less resistive, even to the initial stress of its own normal activities.

There is just one thing more in the philosophy of this matter that ought to be said here. The purely mental causes or beginnings of insanity should always be taken into account. There is only need to remember the intimate connection of mind and body, the physical accompaniments of the emotions, the depressing effects of fear through the sympathetic and vaso-motor mechanisms, upon circulation and nutrition. Mental shock, or prolonged anxiety and worry from real causes, may initiate the exhaustion from which all else may follow, in the regular pathological sequence which I have described, on the lines of overwork of the neuron, exhaustion, auto-intoxication and increasingly aggravated mental symptoms in a descending scale. The process of cure should begin with the arrest of this descent toward dementia, and must go on with a gradual and often slow recovery of functional power in the neuron. If the morbid process has not gone too far, regeneration of the neuron and the cell contents may occur, otherwise there may be some degree of chronic degeneration, and thus begun, the descent continues toward dementia.

Now that mental pathology is becoming clearer in the light of general pathology, shall not a new interest arise in the study and treatment of insanity? Already the practice of alienists is getting upon new lines. Great success has been attained in some torpid mental and bodily states of long standing by the use of thyroid extract. Much attention is being given to the disinfection of the intestinal canal and its systematic and thorough evacuation by high enemata. Elimination of retained auto-intoxicants has been attempted with some success by the subcutaneous injection of large doses of a solution of common salt. These and other procedures are still largely experimental. But whatever you do, while you exhibit all the effective tonics, of which nutrition, rest and sleep, are the best, there is one controlling practical principle to be remembered, and, with this, one special caution. It is a safe rule that mental symptoms always mean weakness; excitement is an extreme degree of irritable weakness, in which there is great exhaustion in the mechanism of mental control. This thought should beget care in the use of sedatives and hypnotics.

Beware of the coal tar compounds and the like; they are good and sometimes necessary for proper use, but not for many days in succession. Change them and omit for a while; they go against nutrition, and drug intoxication often aggravates the disease and is mistaken for it. When your patient is taking food well, be content with his getting two or three hours of sleep or less in each twenty-four hours, even when excited. Such sleep is better than when it is drug produced. When the appetite flags and sleep is not produced by persistence in hypnotics, the complete suspension of all medicines, and frequent feeding will often be followed by gradual cessation of excitement, a clearing tongue, and improvement in sleep. These brief hints are simply mentioned by way of example. Above all things it should be remembered that the indication is always for a "supporting treatment."

Original Articles.

OBSERVATIONS UPON PULMONARY TUBERCULOSIS IN COLORADO.¹

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THE object of this paper is to institute an inquiry, from a clinical standpoint, as to the relation of the Colorado climate to the course of pulmonary tuberculosis.

For its proper consideration a large experience is essential, to be secured only from a prolonged residence in the State in constant intimate association with the disease, with ample facilities for extended investigation.

Although appreciative of the exhaustive nature of the subject, and mindful as well of my own limitations, I venture to offer the results of my experience, together with brief statistical data, in the hope that therefrom may be derived some approximately accurate and practical conclusions. It is not my intention to enter into an elaborate analysis, as I am somewhat sceptical as to its practical utility.

My opportunities for observation have been extended through a residence of five and a half years in Colorado. I present, however, a series of 200 cases seen in private practice during a period of two years. These cases have been carefully selected, subjected to continued personal supervision, and conscientiously recorded.

In order to obtain great accuracy of conclusions, an effort has been made to include only those in the list whose condition upon arrival seemed to be especially applicable to the climate, and who have subsequently remained under constant observation.

No case is presented that has been observed for less than six months, nearly all, however, having been seen during a much longer period.

The diagnosis was confirmed by examination of the sputum in all cases where the physical signs did not furnish indubitable evidence of the nature of the affection. In fact, this was adopted as a routine measure in the majority of instances.

Considerable difficulty was experienced in the proper classification of the cases. Usually quite extensive infection had taken place before the arrival of the patient

¹ Read at the Fourteenth Annual Meeting of the American Climatological Association, Washington, D. C., May 5, 1897.

in Colorado. The very incipient stages were therefore but exceptionally observed, while far advanced cases with practically hopeless prognosis were not admitted in the list.

It may be fairly assumed, therefore, that the 200 cases form a rather distinctive class, embracing in a general way those with pronounced tubercular infection, which would have pursued an unfavorable course at home, but offered reasonable assurance of improvement in Colorado.

Further classification, made solely with reference to the stage of the disease or the extent of the process, would be, I believe, very misleading. I have preferred to make the division according to the individual prognosis at the time of arrival, the estimate of which was based upon a careful review of all the factors having a possible bearing upon the case, without exclusive reference to the area or degree of pulmonary involvement.

There are three classes, based upon relative prognosis :

CLASS A. Prognosis excellent. Moderate infiltration, limited to one lobe or a portion of the same; evidences of moisture; no softening; pulse, appetite and digestion good; temperament sensible. Other considerations favorable.

CLASS B. Prognosis fairly good. More extensive involvement of one lung, or portions of both, namely: consolidation of one lobe with moist râles, or with possible beginning cavity formation; partial consolidation of entire lung, with evidences of moisture; infection of both lungs, with signs of consolidation limited to apices or thereabouts.

Finally, cases that, from consideration of physical signs alone would belong to "Class A," but owing to nervous, circulatory or digestive disturbances, or other unfavorable circumstances, would properly come under "Class B."

CLASS C. Prognosis doubtful. Extensive active infection limited to one lung, with or without small or moderate-sized cavities. Definite invasion of both lungs, with but moderate activity of the process. Cases with somewhat less pronounced pulmonary involvement, but with considerable constitutional impairment, or associated with other obviously unfavorable factors.

I am too well aware of the deficiencies of this method of classification, but have been able to adopt none other affording upon the whole equal satisfaction.

In describing the results obtained, I make no mention of any cases as cured.

By apparent total arrestment, I allude to entire absence of moisture, or of other evidences of activity of the tubercular process, complete cessation of cough or expectoration, and no apparent constitutional disturbance.

By marked improvement, I refer to an excellent general condition, frequently sufficient to justify the performance of work, but the persistence of signs of slight existing trouble, with or without morning cough or expectoration.

By improvement, I refer to a material lessening of the activity of the process as disclosed by physical signs, diminution of cough and expectoration, lowering of pulse and temperature, increase of appetite, digestion and weight.

Of the 200 cases under consideration, 40 are included in Class A, as follows :

Apparent total arrestment	21
Marked improvement	7
Improvement	8
No change	2
Dead	2

Thirty-six out of 40, or 90 per cent., have received material benefit.

Class B numbers 54 :

Apparent total arrestment	10
Marked improvement	21
Improvement	12
No change	5
Grown worse, or dead	6

Forty-three, or over 79 per cent., have gained in this class.

Under Class C, with a total of 106, the results are :

Apparent total arrestment	2
Marked improvement	29
Improvement	28
No change	15
Distinctly worse, or dead	32

Over 55 per cent. have improved, a large proportion in view of the character of the cases considered in this class.

The results obtained for the entire number, without distinct reference to class, are :

Apparent total arrestment	33
Marked improvement	57
Improvement	48
No change	22
Grown worse, or dead	40

Sixty-nine per cent. of the cases have improved in Colorado; 45 per cent. have made very decided improvement; 16½ per cent. have obtained complete arrestment of the tubercular process.

The significance of these figures is emphasized by the comparatively short period of observation.

It is manifestly fair to assume that a fair proportion of those classed as *much improved* will, in the course of a more prolonged period of observation, obtain ultimate complete arrestment.

In like manner, it may be expected that several exhibiting moderate improvement now may subsequently be placed in the column of *decided improvement*.

There appears, however, from my own experience, but little probability, save in exceptional instances, of any very distinctive change for the better taking place in those who had failed to show improvement during one year in Colorado, if under competent medical supervision.

In justice to the climate, an important modification of these results should be explained by the effects of intercurrent disease, accident and pronounced individual indiscretion.

Among the 62 cases reported as not having responded favorably to the climatic influences, 11 had previously done well, but in whom subsequent failure may be ascribed as follows :

Appendicitis; operation, death	1
Empyema; operation, death or grown worse	2
Suicide	2
General tubercular invasion	1
Palpable imprudence	5

Should these facts be admitted in the analysis of results, it would appear from the entire data introduced that about three-fourths of all the cases properly applicable to the climate may be expected to improve.

It is interesting to note that my report of general

results is much in accord with that of Dr. Fisk in his elaborate analysis in 1889 of 100 recorded cases in Colorado.

My further observations are summarized briefly as follows:

AGE.		Cases.	Improved.
Periods.			
17 to 20	. . . . .	12	8, or 66%
20 to 30	. . . . .	102	75 73
30 to 40	. . . . .	67	41 61
40 to 50	. . . . .	14	10 71
Over 50	. . . . .	5	4 80

From these figures, the influence of age within certain limits upon the course of the disease in Colorado would seem but slight, although somewhat in opposition to the generally accepted opinions. The similarity of results at the several periods of life referred to is somewhat surprising, but is nevertheless offered for what it is worth as perhaps one of the anomalies of my experience.

SEX.		
Males, 145.		
Improved	. . . . .	100, or 69%
Females, 55.		
Improved	. . . . .	38, or 69%
Married Females, 21.		
Improved	. . . . .	12, or 57%
Unmarried Females, 34.		
Improved	. . . . .	26, or 76%

It was noticed that a very large proportion of the males came to Colorado alone. Of the females, those who were married were almost invariably accompanied by husband or children. The unmarried females were found, with two or three exceptions, to be under thirty years of age. The practical points to be recognized from reference to the above are —

(1) Notwithstanding the fact that the disease has been universally found to attain greater prevalence among the members of the female sex, yet opportunity for a possible arrestment by a change of climate is not offered to the female nearly as frequently as to the male.

(2) That the percentage of improvement in females is materially greater in those who are unmarried and without family encumbrances.

(3) That, despite obvious adverse conditions and contrary to established conclusions, the female in this series of cases has responded to the favorable influences of the climate equally with the male.

Lest this be regarded purely as an instance of the strange fallacies of statistics, I offer several possible explanations in support of my results.

In Colorado, the question of success or failure in the effort to secure arrestment depends largely upon the ability of the individual to conform to a proper regimen of daily life, entailing for its greater perfection certain physical and mental requirements. These, I believe, are possessed to a greater extent by the female.

I cannot see that the separation from family is essentially harder for her to bear than for the male. On the contrary, she seems to adapt herself to strange conditions quite as quickly and as comfortably. While, in general, less opportunity is offered for an existence in the open air with judicious exercise, a life of more complete rest is assured, with perhaps as many hours of sunshine. There is less chafing under restraint, less of the cares and responsibilities of life, less tendency to acts of imprudence, and, from my experience, more implicit obedience to detailed instructions.

It is but fair to add that the financial circumstances of the female invalid in Colorado are in general relatively superior to those of the male. It is no uncommon occurrence to meet the young man with extensive tubercular infection and insufficient means, who has been sent to Colorado (and usually to Denver) with instructions to secure immediate employment by which to supply his necessities. In the event of either success or failure in his effort to find work, the battle is for him against great odds. As a general rule, cases with such limited resources are better at home.

The female invalid does not usually seek change of climate unless proper provision has been made for her support.

RACE. DISTRIBUTION. PREVIOUS ENVIRONMENT.

Fifty-three, or rather more than one-fourth of the cases occurred in those of direct foreign descent, although many were born in this country, and in most instances from the better class. It does not seem profitable to enumerate statistics relative to the several nationalities.

The 50 cases are distributed somewhat equally among the Jews, Irish, Germans, Scotch, Swedes, English and Canadians.

The Jews, numbering eight, have almost uniformly shown more extensive pulmonary involvement upon arrival, but have exhibited apparently greater resisting power than any other race. I have been impressed with the disproportion in these people between the physical signs and the general condition. While the course of the disease has been usually prolonged, the process of arrestment, on the other hand, has been slow and disappointing. The Jew has been invariably obedient and conscientious to the last degree in following instructions.

The Irish, from my experience, have seemed to be more especially predisposed than others. The disease has been more rapid, the process more active, with greater tendency to nervous disturbances, and the patient harder to control.

The Swedes, although apparently hardy and vigorous, have succumbed much more quickly than those of our own country. They are usually exceedingly apprehensive, and easily managed.

It has been my general experience that the Germans, Scotch, English and Canadian adapt themselves quite readily to an appropriate system of living, excelling in this respect our more restless Americans.

The latter number 147 in my series of cases, and are principally from New England and the extreme Eastern States. The list includes 30 from the Middle States, 10 from the South, and strangely, none from the region west of the Rocky Mountains.

I think it may be said that certain tendencies incident to previous surroundings and environment are, like racial characteristics, not without some influence in modifying the course of the disease. The lighter the burden of business responsibilities, the more phlegmatic or philosophical the individual, with less of general restlessness or irritability of temperament, the better the prognosis.

Too frequently the patient comes to Colorado for a prescribed number of months. His recovery must take place in that period, as no further extension of time can be diverted from his business, which he often continues to conduct by correspondence, and mean-

while indulges occasionally in speculative investments in Colorado.

The previous occupation appears also to possess some significance. From my experience, those who have previously led sedentary lives are likely to do better upon coming to Colorado, under a system of rational management, than those who have been accustomed to outdoor occupations, the obvious explanation being the opportunity permitted for greater change in the mode of life, and consequent greater impression upon the course of the disease.

INHERITED PREDISPOSITION.

Seventy-seven of my cases present a history of previous family taint. Without entering upon an unnecessary analysis, it is of some interest to state that in nearly one-half the cases, brothers and sisters were alone affected.

In noting final results, there are singularly no distinctive differences relative to the source of the inheritance. The percentage of improvement for the entire number is 60, as compared with 72 per cent. for those with no apparent inherited susceptibility. May not the similarity of results possess some significance in the proper estimate of the influence of predisposing causes other than those of inheritance?

The frequent existence of definite predisposing causes among several members of the same generation in one family, without history of immediate inheritance, is to my mind strong supplementary evidence in support of the view that the relation of heredity to the etiology of the disease consists, as a rule, not in the direct transmission of the bacillus, but in the increased vulnerability of pulmonary tissue, with diminished resisting power of the individual.

The occasional occurrence of congenital tuberculosis is demonstrated by the detection of the bacilli in the placenta or in the organs of the newly born, as well as by the positive results in exceptional instances, attending inoculation in guinea-pigs from the placenta, or the organs of the child, despite the failure to discover either the bacilli or the evidences of tuberculosis in the tissues.

Inasmuch, however, as negative results have frequently followed similar investigations, even where active tuberculosis existed in the mother, it is safe to say that no conclusive testimony has yet been adduced to substantiate any frequency of intra-uterine infection.

EXTENT AND CHARACTER OF PULMONARY INFECTION.

At the time the cases came under my observation, the tubercular process was limited to the right lung in 59 cases, to the left in 31, and with involvement of both in 110.

The fact that more than one-half of those in my entire list came to Colorado with pronounced signs in each lung should emphasize, I think, the necessity for earlier diagnosis and more prompt climatic treatment.

It is somewhat remarkable that the percentage of improvement for those with double infection is nearly equal to that of those with single lung invasion.

Well-defined cavities have been recognized in 23 cases, in 13 of whom the improvement has been very perceptible.

The significance of these facts must be to the effect that the prognosis is dependent not alone upon the

area of involvement, nor the degree of tissue destruction, but as well upon the present activity of the process, and upon the influence of other factors of recognized importance.

I desire to make mention of the frequency with which I have found localized areas of active infection in the mid-scapular space, with no signs elsewhere in the same lung.

I feel that this region, the importance of which is perhaps hardly appreciated, is occasionally the seat of the only active trouble existing within the chest, the same not infrequently escaping recognition. I am also led to believe that signs of incipient infection in the axilla of the apparently non-affected side are occasionally overlooked.

In the extension of the tubercular process from the right lung to the left, I have several times observed the locality first infected to be the tongue-like projection of lung covering the apex of the heart, the signs extending slightly to the left before evidence could be detected of involvement elsewhere.

MODE OF ONSET.

Thirty-eight cases were said to have been shortly preceded by *la grippe*. The history usually given was that of an acute attack of but few days' duration, attended with cough, which persisted or subsequently returned. In round numbers, 60 per cent. of these have improved in Colorado.

Thirty-two cases were associated with hemorrhage in the very early stages, this being the first intimation of existing trouble. Over 84 per cent. have made improvement.

Seventy-six cases conform to the anemic type; percentage of improvement, 59. Seventeen began with symptoms of *cold*, 82 per cent. showing an improvement.

The remaining cases either followed pleurisy, with or without effusion, pneumonia, typhoid fever, measles, or whooping cough, statistical observations concerning which are hardly profitable.

Special attention is called to the prevalence of *la grippe* as a causal factor, with its relatively unfavorable results, the high mortality-rate attached to cases of insidious anemic origin, and the remarkable percentage of improvement obtained in initial hemorrhagic cases. The probable explanation of the latter is found in the opportunity offered for more early diagnosis, and more prompt removal to Colorado.

RELATION OF CLIMATE TO CASES WITH HEMORRHAGE.

Seventy-eight of my cases presented the history of one or more hemorrhages before arrival. Of these 13, or about 16 per cent., had recurrences subsequently. Seven were distinctly of aneurismal origin, occurring after long periods of relief, and induced by obvious acts of over-exertion, or other indiscretions.

Of the remaining 122, eight have experienced their first hemorrhage since coming to Colorado.

With reference to the general condition, the percentage of improvement for the entire number of hemorrhagic cases is 79; for the non-hemorrhagic cases, 62 per cent.; for those with previous hemorrhage, but no recurrences in Colorado, 87 per cent.; for those with subsequent recurrences, 38 per cent.; for those with initial hemorrhage occurring after arrival, 37 per cent.

A comparison of these results would indicate broadly that hemorrhagic cases do remarkably well in Colorado, even better than the non-hemorrhagic; that the proportion of recurrences is small, that cases with recurrent hemorrhages after arrival are less favorable, and that hemorrhages *beginning* in Colorado are attended with still more serious results.

In general, I am impressed with the restraining influence of the climate upon the tendency to repeated hemorrhages in those cases of more remote origin, but question the effect of the altitude upon those of very recent date, the very means of subsequent protection becoming at first a source of increasing danger.

Hemorrhages beginning in Colorado are apt to be severe, being in very many instances of the aneurismal type.

I am not prepared to venture any clinical opinion as to the general severity or degree of shock attending hemorrhages occurring in Colorado, as compared with the same at lower elevation, on account of insufficient opportunities for observation at the sea-level. My patients, however, from their own experience, have seldom been able to perceive any marked differences in this respect.

Since the compilation of these results some two or three months ago, I have been forced to recognize the existence of a considerable number of exceedingly small hemorrhages without disastrous results among patients apparently doing well, the most of whom, however, are not included in this list.

In view of the uniformly benign character, their origin is presumably incident to slight disturbances of circulation consequent to retrogressive interstitial contraction, and hence a possible indication of the favorable progress of the disease.

FUNCTIONAL NERVOUS DISTURBANCES.

It is frequently urged that residence in high altitudes for the consumptive is contraindicated by the coexistence of certain nervous phenomena, as severe and protracted headaches, insomnia, irritability and other manifestations of hysteria. The reason adduced is the supposed aggravation of the nervous symptoms, and the consequent unfavorable influence upon the course of the tubercular disease.

The inference implied is that improvement in the nervous derangement must precede any change for the better in the lungs.

These conclusions, however, are not borne out by the established facts of experience.

The observations for many years in Denver of the neurologists, Drs. Eskridge and Pershing, indicate no influence of altitude whatever upon functional nervous disorders. With this, my own experience relating to the nervous disturbances to the pulmonary invalid is in complete accord.

Fourteen of my patients included in this paper exhibited nervous symptoms to such an extent as to seriously prejudice the chances of recovery. No history could be obtained of any aggravation of the same upon coming to Colorado.

Nine have obtained partial arrestment of the process and material improvement in the general nervous condition. Two have shown no abatement of physical signs, but have made a distinct gain from the standpoint of the neurologist.

I am convinced that such results could not have been secured in the warm, moist climate with low

elevation, so frequently recommended for this class of patients.

I recognize that the existence of pronounced nervous manifestations offers a serious obstacle to improvement in any climate, but regard the pulmonary infection as the paramount issue, and insist upon the functional derangement as demanding greater attention to details of management, rather than change of climate.

I have frequently observed improvement in neurotic, as well as other cases, following change of surroundings, without the slightest difference in climatic conditions, as even from one section of Denver to another.

The psychical influence of the change appears to be the essence of the benefit produced. It has invariably been the case that improvement in the nervous symptoms has been in proportion to the degree of arrestment and the gain in the general strength.

BRONCHIAL IRRITATION.

It must be admitted that this annoying condition exhibits a tendency to persist for a period, or to become temporarily aggravated in Colorado. I am convinced, however, that in but exceptional cases does there exist any relation to the prognosis. The possible irritative effect of the altitude and dryness upon the bronchial mucous membrane, disagreeable though it may be, is by no means a criterion of the precise influence of the climate. The efficiency of the latter is measured solely with reference to the subsequent course of the tubercular process, which is the only consideration of especial importance.

The bronchial irritation presented in these cases is of minor significance, and may be assumed to be rather an expression of individual idiosyncracies, susceptible in nearly all instances of decided amelioration under a proper régime.

Twenty-three of my cases suffered to a greater or less extent from a frequent dry, useless cough, often of a paroxysmal nature, and subject to exacerbations, without apparent cause. In all these, the irritative bronchial character was sufficiently defined to permit distinct classification.

Thirteen have made decided progress toward arrestment of pulmonary disease, with a correspondingly marked diminution of the bronchial irritation.

Five are about the same with respect to the active process, but with bronchial irritation much diminished.

One is doing poorly, with bronchial irritation less.

One is doing poorly, bronchial irritation not diminished.

One is about the same, but with bronchial irritation unchanged.

Two are dead.

The results obtained are certainly satisfactory, and if possessed of any value from which to draw provisional conclusions, would suggest that the presence even of a considerable degree of bronchial irritation is to the pulmonary invalid no contraindication for the Colorado climate.

Only in cases where this condition is associated with or dependent upon extensive pathological changes, involving the pulmonary or circulatory apparatus, of themselves demanding a different climate, would I consider such a course advisable.

I will add in this connection that I have not regarded the existence of simple valvular heart lesions as necessarily contradictory to high altitudes for the con-

sumptive. Aside from gross degenerative changes or dilatation, I believe that the question of residence for the consumptive, with cardiac complication, must be settled solely with reference to the relation estimated to exist between the demands for work upon the heart, and its power to respond to the same.

FEVER.

There is perhaps no single feature in the final estimate of the prognosis of greater importance than the temperature, as denoting the degree of activity of the process, and the measure of individual resistance.

Cases presenting the fever of septic absorption are not included in this list, the most of my cases conforming to the intermittent type of tuberculization or ulceration.

Sixty-eight upon arrival exhibited daily in the afternoon a temperature of 100.5° or over; 55 per cent. of these have gained very perceptibly.

From my general observation I do not incline to the opinion that fever is increased in Colorado, or that pyrexia in itself (other conditions permitting) is a contraindication for high altitudes.

COMPLICATIONS.

Among the various complications, simple mention is made, without reference to statistics, of the occasional development of empyema, pneumothorax, fistula, syphilis, sarcoma, purpura hemorrhagica, acute rheumatism, typhoid fever, and tubercular involvement of brain, glands, intestines, bones and epididymis.

In six cases, the tubercular process developed in patients who had been subject for some years to genuine asthma. These have all done well in Colorado. I do not refer, of course, to the dyspnea of symptomatic asthma, dependent upon pronounced pathological changes.

There is one complication, however, of especial interest, and worthy of more extended notice — tubercular laryngitis.

Twenty-one of my patients have suffered from this condition. Six have shown general and local improvement. Ten have grown worse. Five have died.

In ten the disease existed before arrival. Four of these have done well. Six have died or grown worse.

In eleven the laryngeal involvement developed in Colorado. Of this number, however, seven presented no evidence of the disease until a few weeks before death from pulmonary involvement, and therefore without especial significance.

Of the remaining four, who may be fairly said to have developed the disease in Colorado, two have improved in every way.

These results do not suggest any deleterious effects of the climate with reference to the development or the course of laryngeal tuberculosis. In fact, with local treatment, improvement in this respect is largely commensurate with the gain in the general condition.

The existence of tubercular laryngeal involvement, and especially if not confined to the interior of the larynx, is a serious complication in any climate.

MANAGEMENT.

Without enumeration of details, I may state that none but the more rational and conservative measures of treatment have been employed. In no instance has use been made of tuberculin, anti-phthisin or nuclein injections, inhalations of any kind, the various forms

of breathing appliances, or other special methods of treatment with their modifications.

The general essentials recognized have been an inactive life in the open air during as many hours as possible in the day-time; the maximum amount of proper nourishment, contentment of mind, attention to digestive and other disturbances, as they arise; strict regard to the minor details of daily life, with occasional admittances, frequent reassurances, but constant vigilance.

The patients have been uniformly instructed, as far as practicable, concerning the true significance of their condition, in the hope of appealing directly to their own intelligence, and securing their more active co-operation.

An effort has been made to recommend, from personal knowledge, suitable accommodations providing proper conditions for the individual case.

I have preferred a residence in the higher and more thinly settled portions of the city or neighboring ranches, and during the summer-time, removal to the mountains. The latter is usually of decided benefit.

A large proportion of the reported cases spent the summer of 1896 at the same mountain resort, thus admitting closer medical supervision than if widely scattered, and with altogether more satisfactory results.

Strychnine has been of chief importance in my medicinal therapeutics, together with nutrients, creosote to a moderate extent, and rational measures looking to the relief of cough, as well as digestive, circulatory and nervous disturbances.

No matter how complete the arrestment, I have never approved of a permanent return to the previous conditions of climate or general surroundings.

The increased expansion with vesicle dilatation resulting from a somewhat extended residence in elevated regions, is no argument against the selection of Colorado as a health resort, but does constitute one of the strongest objections against a subsequent return.

I will submit for your acceptance my conclusions, namely:

That climate offers to the pulmonary invalid greater assurance of improvement than can be otherwise obtained.

That the meteorological conditions along the Eastern Rocky Mountain slope are especially applicable for this purpose.

That throughout this region, portions of Colorado surpass other localities by virtue of her immensely superior accommodations, her increased social advantages, and, later on, her favorable business opportunities.

That a greater number may be expected to acquire ultimate permanent arrestment, or at least secure material improvement in this State than elsewhere.

That residence in Colorado, at an elevation of from 5,000 to 7,000 feet, is indicated for the large majority of cases without especial reference to age, sex, race or family predisposition.

That functional nervous derangements, bronchial irritation, pyrexia, moderate-sized cavities, tubercular laryngitis, and valvular cardiac lesions are not of themselves contraindications to the high altitude.

The hemorrhagic cases, within limits previously mentioned, are peculiarly appropriate for the Colorado climate.

Broadly speaking, that the only cases unsuited for residence in this State are those with very extensive

infection, considerable destruction of pulmonary tissue, enfeebled cardiac power, well-marked sepsis or exhausted finances.

That the benefit derived is dependent, not upon climate alone, but as well upon the conscientious attention to mode of life and management.

That for the successful management, conservative rational measures are essential to the exclusion of the special methods.

Finally, that cases should come early and come to stay.

REPORT OF FORTY CASES OF INTUBATION.¹

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STENOSIS of the larynx may be due to pseudo-membrane or to inflammatory edema; and these may be caused by Klebs-Löffler bacilli, streptococci or staphylococci. The stenosis may be associated with measles or scarlet fever. The cases here reported illustrate these various causes. The list includes 22 intubations done in private practice and treated by antitoxin, with eight deaths; six intubations done at the Isolation Hospital, with no deaths. Mortality, 29.5 per cent. Aside from these were two cases in private practice, not treated by antitoxin, both fatal in a few hours. There were also 10 cases not diphtheria, with three deaths. Total 40 intubations, with 13 deaths, mortality 32.5 per cent. These represent cases in which either tracheotomy or intubation seemed imperative to relieve fatal dyspnea.

The diagnosis of obstruction by inflammatory edema was made in three cases of dyspnea after measles. Laryngitis complicating measles is associated with bronchitis and broncho-pneumonia. Probably serious stenosis of the larynx could occur only in small children. Two of my patients were under two years, the other was six and one-half years old.

The indication for operation was the character of the breathing, which was similar to that of laryngeal diphtheria. There was retraction of the soft parts of the neck, and especially of the epigastrium and ribs along the attachment of the diaphragm, in distinction from the dyspnea of broncho-pneumonia in which the intercostal spaces are drawn in but the epigastrium not markedly. Respiration is slower in laryngeal obstruction and faster in broncho-pneumonia. Whatever was the cause of the dyspnea, it was clear that the dyspnea was extreme and that the operation gave immediately relief, proving that the stenosis had been mainly in the larynx. In all three cases there was long-continued coughing after intubation, which is evidence of bronchitis. In all there was difficulty in getting along without the tubes during convalescence, so that each had to be replaced once or twice. Antitoxin was not injected in any of these cases because diphtheria was not supposed to be present and cultures revealed no Klebs-Löffler bacilli. The cultures were taken from the throats and from the tubes after removal. All three cases recovered.

CASE I. F. G., age one year, ten months. Wore tube twelve days. Two older sisters (ages three and five) had been having measles, and had had difficult breathing. The patient had been ailing one week,

and had had trouble in breathing, when in the afternoon of November 9th he became suddenly worse.

November 9th, 8 p. m. I found a distinct measles rash; pharynx red; breathing irregular and very labored, with extreme retraction of the epigastrium and soft parts; cyanosis and exhaustion. Pulse 180, temperature 101.4°, respiration 50. Intubation done; relief immediate. Cyanosis disappeared, the pulse dropped to 120, and the patient fell asleep and slept most of the night. He was allowed to drink milk from a glass during the night.

November 10th. I attempted to feed by the nasal tube; but the nares were too small, so I allowed the child to drink milk from a glass, as it produced little coughing. Semi-solids were also given. Patient comfortable, sitting up in bed; pulse 120.

Date.	Name.	Age.	Tube worn.	Intubated.	Antitoxin.	Termination.
<i>Measles.</i>						
Nov., 1896.	F. G.	2 years.	12 days.	3 times.	None.	Recovery.
Feb., 1897.	G. A.	1½ "	23½ "	3 "	"	"
Dec., 1896.	I. B.	6½ "	11 "	2 "	"	"
<i>Measles and Diphtheria.</i>						
Feb., 1897.	J. M.	2 years.	2 hours.	Once.	None.	Death.
<i>Staphylococci.</i>						
Jan., 1897.	C. M.	2 years.	11 days.	3 times.	Yes.	Recovery.
<i>Streptococci.</i>						
Jan., 1896.	A. B.	1½ years.	14 hours.	Once.	Yes.	Death.
Jan., 1897.	M. S.	5½ "	17 "	Twice.	"	"
Jan., 1897.	J. G.	1½ "	2½ days.	Once.	"	Recovery.
Dec., 1896.	C. C.	4 "	4 "	"	"	"
Jan., 1897.	G. P.	4 "	2½ "	"	"	"
<i>Scarlet Fever and Streptococci.</i>						
Dec., 1896.	S. L.	3½ years.	2 days.	Once.	Yes.	Death.

November 11th. Thirty-six hours after intubation the tube was extracted. Dyspnea returned at once and increased so that in twenty minutes the tube had to be replaced. Relief was immediate; the pulse dropped from 180 to 120, and the patient fell asleep. For four days more the child was very comfortable. Temperature 99° to 100°, pulse 120, respiration 30. Some coughing.

November 15th. Tube again removed, but after two hours was replaced for extreme dyspnea and exhaustion.

I waited six days more. The patient's condition continued good. Temperature 99° to 100°, respiration 30 to 35.

November 21st. Tube removed for the third time. At first there was no obstruction, but it soon returned, and the child was put in the bathroom, which was filled with steam and sublimed calomel. This relieved the dyspnea; and from this time convalescence was uninterrupted. Cultures from the throat showed no Klebs-Löffler bacilli. There was no evidence of diphtheria and no history of contagion. It was simply a case of measles.

CASE II was very similar. G. A., age one year, eight months. Tube worn twenty-three and one-half days.

¹ Read before the Worcester Medical Association, April 14, 1897.

January 31st. Began to have measles.

February 4th. Intubated by Dr. R. P. Watkins, assisted by Dr. J. M. W. Farham. Measles rash present. No membrane in throat.

February 8th. Tube extracted; replaced in fifteen minutes.

February 16th. Tube again extracted; replaced in half an hour.

no false membrane seen, and no history of contagion, but only an inflammation of the air-passages associated with measles. The difficulty in getting rid of the tubes was probably due to return of edema as soon as the tubes were taken out.

CASE IV. Following these cases of measles above, comes one of measles and diphtheria combined. J. M., two years old. Tube worn two hours.

DIPHTHERIA.			Age.	Day of Intubation.	Tube worn.	Day of 1st injection of Antitoxin.	Number of injections.	Total amount of Antitoxin in units.	Membrane in Throat.	Termination.	REMARKS. (All had Klebs-Löffler bacilli in culture)
No.	Date.	Name.									
1	1895. Apr.	M. R.	4 years.	2d.	2 hours.	2d.	1	1000 State Board.	Yes.	Death.	Sepsis and convulsions.
2	Oct.	L. T.	2½ "	3d.	7 days.	3d.	3	2500 " "	"	"	Broncho-pneumonia and blocking of tube.
3	Dec. 1897.	M. B.	1½ "	6th.	2½ "	5th.	2	3000 " "	"	"	Sepsis, convulsions, nephritis.
4	Feb. 1896.	J. M.	2 "	5th.	2 hours.	...	...	None.	(?)	"	Diphtheria and measles. Broncho-pneumonia.
5	June.	L. S.	2½ "	6th.	29 "	6th.	1	1300 Gibier.	Yes.	"	Sepsis and broncho-pneumonia.
6	Oct.	P. R.	10 months.	6th.	18 "	5th.	2	1000 State Board.	"	"	Sepsis and convulsions.
7	Nov.	H. L.	3½ years.	5th.	3½ days.	5th.	1	1000 Mulford's.	"	"	Death from gangrene of lung, 1 month after removal of tube.
8	Dec.	B. D.	5 "	3d.	10 hours.	3d.	1	1000 "	(?)	"	Blocking of tube.
9	Dec.	A. H.	4½ "	3d.	17 "	3d.	1	1000 State Board.	(?)	"	Paralysis of heart.
10	Dec. 1895.	A. B.	1½ "	3d.	7 "	...	...	None.	(?)	"	Edema of lungs.
1	March.	E. G.	2 "	4th.	3 days.	6th.	2	2500 Gibier.	No.	Recovery.	
2	Sept.	E. T.	4 "	3d.	2½ "	2d.	2	1000 State Board.	Yes.	"	Albuminuria.
3	Oct.	C. C.	4 "	3d.	3 "	3d.	6	4800 Gibier.	"	"	
4	Nov.	C. M.	2 "	4th.	2 "	4th.	2	1000 State Board.	"	"	Broncho-pneumonia.
5	Dec. 1896.	M. W.	3 "	3d.	2½ "	4th.	1	2000 Gibier.	"	"	
6	June.	C. T.	11 "	5th.	4 "	5th.	3	1400 "	"	"	
7	July.	J. S.	2 "	4th.	3 "	3d.	2	5000 "	"	"	
8	Aug.	M. S.	3 "	4th.	2½ "	4th.	2	1100 State Board.	"	"	
9	Oct.	M. D.	5 "	6th.	4 "	6th.	1	2000 Gibier.	"	"	
10	Oct.	E. A.	6 "	6th.	3 "	6th.	1	800 State Board.	"	"	Nephritis, bronchitis.
11	Nov.	M. L.	7 "	5th.	4 "	5th.	1	1100 "	"	"	Nephritis.
12	Dec. 1897.	E. P.	7 "	5th.	4 "	5th.	1	1000 Mulford's.	"	"	
13	Jan.	D. L.	7 "	5th.	3 "	5th.	1	1000 State Board.	"	"	Had diphtheria 3 years ago.
14	March. 1896.	R. H.	5 "	4th.	3 "	4th.	1	1000 Mulford's.	"	"	
15	Dec.	E. H.	7½ "	3d.	3 "	3d.	1	1000 State Board.	"	"	Treated at Isolation Hospital.
16	Dec.	R. O.	4 "	4th.	6½ "	4th.	1	1100 "	"	"	
17	Dec. 1897.	M. C.	4 "	4th.	4 "	4th.	1	1200 "	"	"	
18	Jan.	M. J.	6 "	2d.	6 "	2d.	1	1000 "	"	"	
19	Jan.	E. J.	2 "	2d.	7 "	2d.	1	1000 "	"	"	
20	Feb.	E. L.	1½ "	2d.	16 "	2d.	1	1200 "	"	"	

February 27th. Tube again extracted, and remained out. Convalescence uninterrupted.

CASE III. I. B., age six and one-half years.

November 25th. Began to have "measles and croup."

Croup continued every night for three weeks.

December 17th. Symptoms much worse. Patient in extremis. Intubated. Immediate relief.

December 20th. Tube extracted; replaced in two hours.

December 28th. Tube again removed. Convalescence uninterrupted.

In these cases there were no Klebs-Löffler bacilli,

January 31st. Began to have measles.

February 3d. Seen by a physician, who made a diagnosis of broncho-pneumonia, and said that the child would die during the night.

February 4th. At 10 A. M. was seen by another physician, who advised intubation. At 5 P. M. I found the patient moribund and unconscious. There was extreme retraction and cyanosis, and the pulse could not be counted. Measles rash present; no membrane seen in throat; and I thought the case was one of broncho-pneumonia with edema of the larynx due to measles, without diphtheria, and did not expect much benefit from the tube and did not inject antitoxin. A

tube was inserted; the breathing was relieved, but remained rapid, and the pulse continued weak and very rapid. One hour later the breathing got worse again, and in two hours the child died. The tube removed after death was not blocked. Cultures taken from the tube after death, and from the throat before intubation, both had Klebs-Löffler bacilli. There was no history of contagion before or afterward. The cause of death was broncho-pneumonia.

The result of intubation in cases of bronchitis or broncho-pneumonia with laryngeal obstruction is further illustrated by the following case, in which cultures showed no Klebs-Löffler bacilli, but a pure growth of the staphylococcus aureus.

CASE V. C. M., twenty-one months old. Tube worn eleven days. Recovery.

January 6th. Began to have a purulent discharge from the ear, and later developed a severe cough.

January 15th. On account of labored breathing two physicians were consulted, who made a diagnosis of bronchitis.

January 17th. The dyspnea had grown worse and more laryngeal, so that intubation was advised. At 7.30 P. M. I first saw the patient. I found extreme retraction, considerable cyanosis, extreme exhaustion and severe coughing. A one-year tube was inserted in the larynx, but gave no relief, and death on the table seemed imminent. A two year tube was then put in and the stenosis was immediately relieved; but there was incessant coughing for one hour, and a profuse discharge of mucus, which the child seemed unable to get rid of. No membrane was seen in the throat, but it was thought best to inject 1,000 units of antitoxin. The patient slept most of the night. Coughing was severe at times, and was relieved only by holding the patient's head down so that the mucus that collected might be coughed out. For two days the temperature varied from 102° to 103°, pulse 140 to 150, respiration 25 to 35.

January 19th. The dyspnea increased; the patient got very restless and the respiration more rapid. The condition was alarming. The tube was therefore removed, and found partially occluded. The breathing was better for a few minutes; but it soon grew worse than ever and in half an hour the tube was replaced. This again relieved the breathing, and allowed the discharge of much mucus. A culture from the tube showed a pure growth of the staphylococcus aureus.

For the next three days the child's condition slowly improved. Temperature 100° to 101.5°, but coughing persisted.

January 22d. Tube again removed. It remained out eight hours, but finally had to be put back for cyanosis, exhaustion, dyspnea and weak pulse. The tube again relieved the patient. A second culture showed a pure growth of the staphylococcus aureus.

January 28th. Tube again removed. Hoarseness and a croupy cough continued, but no dyspnea, and recovery was uninterrupted.

In this case there was probably no false membrane, but only inflammatory edema associated with bronchitis. Drugs had been used without success, and the character of the breathing justified intubation and the injection of antitoxin without waiting for the culture.

Laryngeal obstruction may be produced by streptococci, and I have had five cases in which streptococci seemed to be the cause of the trouble. Klebs-Löffler bacilli were absent, but antitoxin was used in all cases

because the symptoms were those of diphtheria. How many had pseudo-membrane in the larynx, I do not know. Some probably did not, their stenosis being caused by inflammatory edema. One had the characteristic false membrane of diphtheria on the fauces, two were simple laryngeal cases, and two had broncho-pneumonia with laryngeal stenosis, and died of broncho-pneumonia.

CASE VI. A. B., one year, five months old. Tube worn thirteen hours. Breathing temporarily relieved. Death from broncho-pneumonia.

CASE VII. M. S., five and one-half years old. Tube worn seventeen hours. Breathing temporarily relieved. Death from broncho-pneumonia. The symptoms at time of operation and history of these two cases were similar to those of Case V.

CASE VIII. J. G., one year, four months old. Tube worn two and a half days. Recovery.

CASE IX. C. C., three years, ten months old. Tube worn four days. Recovery. These two cases had the symptoms of laryngeal diphtheria.

CASE X. G. P., three years, nine months old. Had always been subject to croup. A brother died five years ago of membranous croup after tracheotomy.

January 2d, patient began to have croupy cough.

January 3d. Tonsils and pharynx were covered by a thick white sloughing membrane. Breathing easy. Antitoxin (State Board) 1,000 units injected.

January 4th. Began to have dyspnea and retraction in morning. At 5.30 P. M. retraction and cyanosis were extreme. Patient very restless. Lime and steam had been used with temporary benefit. Intubation was imperative and was done, giving perfect relief. Tube was worn two and a half days. Patient slept and ate well. Temperature 99.5° to 100°, pulse 120 to 140.

January 7th. Membrane had disappeared from the throat so the tube was extracted. No return of dyspnea. Recovery was rapid. Two cultures in this case showed streptococci, no Klebs-Löffler bacilli. The pseudo-membrane in the mouth associated with croup made a typical picture of diphtheria and reveals the similarity of streptococcus infection in its results to true diphtheria. These five cases were not associated with any cases of diphtheria.

Another case in which streptococci were present without Klebs-Löffler bacilli proved to be scarlet fever. The pseudo-membrane on the fauces is quite common in scarlet fever but this membrane rarely extends to the larynx to produce croup. Edema of the glottis is also rare in scarlet fever but may produce death by suffocation. The association of scarlet fever and diphtheria is more common and the larynx may thus be involved; but the following case showed no Klebs-Löffler bacilli in culture and so must be classed as one of the rare cases of involvement of the larynx in uncomplicated scarlet fever.

CASE XI. S. L., three years, eight months old. Tube worn two days. Death seven days later of pneumonia.

December 31st. 1.30 A. M., began to have croup, treated by emetics. Dyspnea continued during the day. At 8 P. M. I found the patient restless and exhausted, considerable retraction. Temperature 102°, pulse 150, respiration 26. Membrane on tonsils. Intubation was done, with immediate relief to breathing, and antitoxin was injected.

The next day temperature, pulse and respiration gradually rose.

January 1st, 5 P. M. Temperature 104°, pulse 168, respiration 33, and a scarlatinal rash was apparent.

January 2d. The tube was removed with no return of the laryngeal obstruction but the respiration remained rapid. Temperature 103° to 105°, pulse 160 to 180, respiration 30 to 50.

January 3d. Pneumonia developed. The temperature ranged from 103.5° to 105°, pulse 150 to 170, respiration 40 to 50 for one week longer.

July 9th. The patient died. Temperature half an hour before death was 109.5°.

The commonest cause of stenosis of the larynx requiring intubation is, of course, diphtheria. I have had 30 such cases with 10 deaths. Six died within twenty-four hours and one died twenty-nine days after removal of tube. The fatal cases will be considered first.

CASES I, II and III. Previously reported.²

CASE IV. Diphtheria and measles, described above. No antitoxin.

CASE V. L. S., two and a half years old. Death from sepsis twenty-nine hours after intubation. Sick one week before antitoxin was injected. Waiting two days for report of culture before using antitoxin, was disastrous in this case.

CASE VI. P. R., ten months old. Death from sepsis eighteen hours after intubation. Sick five days before injection.

CASE VII. H. L., three and a half years old. Had the most extreme dyspnea of all the cases.

November 15th. Began to have cough, aphonia and noisy breathing. Restless and wakeful at night.

November 19th. At 7 A. M. extreme dyspnea came on. At 12.30 P. M. I found the patient deeply cyanosed and unconscious; almost no air entered the larynx. The breathing was characteristic of the last stage of asphyxia, two or three weak respiratory efforts followed by a powerful one. Pulse could not be felt. Hypodermics were given. The mouth was pried open and a tube put in. After a few seconds breathing began again, without obstruction, and color returned. Breathing became regular and deep, but the child remained unconscious and exhausted. At 5 P. M. the symptoms had improved; temperature 103.2°, pulse 168, respiration 33.

November 21st. Temperature 104.5°, pulse 168, respiration 63.

November 22d. Temperature 101.5°, pulse 140, respiration 40. Membrane had disappeared from the throat, and tube was removed. For a few hours the breathing was worse, but the tube did not have to be replaced. After this the child gained strength slowly, and was able to sit up in bed. He was fed at irregular intervals by the mother by Casselberry's method; but the amount was less than a pint of milk per day. The temperature was from 101.5° to 102.5°, pulse 140 to 160, respiration 30 to 40, with much coughing and evidence of bronchitis.

December 3d. The child was sent to the Memorial Hospital because neglected at home. At the hospital fever and cough continued, râles and area of dullness, and finally purulent expectoration.

December 22d. The patient died, twenty-nine days after removal of tube. Autopsy showed gangrene of right lung. The larynx showed a granular condition, most marked about the vocal chords. There was a cicatrix on the anterior wall of the trachea,

opposite the lower end of the tube. Cause of death, gangrene of lung. Gangrene of the lung after intubation is due to inhalation of food, and is generally avoided by care in feeding.

CASE VIII. B. D., five years old. Death in ten hours, from partial blocking of tube.

CASE IX. A. H., four years, eight months old. Death in seventeen hours, from paralysis of heart. The antitoxin used in this case was from a bottle that had been opened several days before.

CASE X. A. B., one year, eight months old. Death in seven hours, from edema of lungs.

December 24th. Had an attack of croup at 6 A. M.

December 25th. At 9 A. M. dyspnea came on again. Seen by physician at noon. No membrane in throat. Diagnosis made of croup. Inhalations of lime and steam, and emetics, were later used. The symptoms grew worse. At 11 P. M. child cyanotic and pulseless. Strychnia and brandy brought up the pulse. Apomorphine (one-twentieth of a grain) was given for further emesis. At 1 A. M. I found the child in *extremis*, pulseless, respiration very rapid, retraction extreme. Tube inserted, which relieved obstruction, but respiration continued rapid and superficial. Respiration 70, temperature 105°, pulse 200. Brandy and strychnia revived the patient, and she coughed up a quantity of mucus, which collected faster than she could get rid of it. She soon grew worse, and died seven hours after intubation. Culture from tube after death showed Klebs-Löffler bacilli. No antitoxin was used. This patient should undoubtedly have been operated on earlier, and was made worse by emetics and lime inhalations, which were used too persistently in this case by the parents.

The recoveries are more encouraging. All were treated with antitoxin.

CASES I to V. Previously reported.²

CASE VI. C. T., eleven years old. Wore tube four days.

June 25th. Taken with sore throat; membrane on tonsils. Temperature 103°.

June 27th. Began to breath noisily.

June 28th. Began to have dyspnea.

June 29th. Breathing became worse in early morning. At 9.30 I found breathing noisy; slight retraction when quiet; very little action of the sterno-mastoids; no cyanosis; little fatigue. Pulse 140, temperature 101°. Extensive membrane in throat. I injected antitoxin (2,500 units, Gibier), and decided to wait. After three hours retraction of the epigastrium became marked, and after six hours cyanosis and exhaustion followed. Pulse 162, temperature 102.5°. At 4.30 P. M. intubation done, with perfect relief. From that time the patient breathed quietly and slept well. Was fed every four hours by the nasal tube. At 10.30 P. M. injected 1,300 units of antitoxin.

June 30th. At 9 A. M. injected 1,200 units. The membrane, which at first covered tonsils and pharynx completely, began to disappear in two days and in four days only a bit remained on the uvula.

July 3d. Tube removed. Dyspnea did not return. Convalescence uninterrupted.

CASE VII. J. S., two years, one month old. Tube worn three days. Tube coughed up once; replaced in half an hour for dyspnea. Rapid convalescence.

CASE VIII. M. S., three years old. Tube worn three days.

² Boston Medical and Surgical Journal, July 9, 1896.

³ Boston Medical and Surgical Journal, July 9, 1896.

CASE IX. M. D., five years old. Tube worn four days. Sepsis and nephritis.

September 28th. Began to have croup. For five days was dressed in daytime, but croupy at night.

October 3d. Vomited after breakfast, after which breathing became suddenly bad. At 2.30 p. m. I found the respiration rapid and labored, retraction marked, color cyanotic. Child exhausted and unconscious, in the last stage of asphyxia. Pulse 100. Intubated; relief immediate, but not perfect. Respiration and color gradually improved. Antitoxin, 800 units. At 3 p. m. temperature 102.6°, pulse 164, respiration 30. The urine contained albumin, one-eighth per cent. Feeding was at first by the nasal tube, but there was difficulty in passing it, so the child was allowed to drink. This careless feeding was probably responsible for continued cough during convalescence.

October 4th. Temperature 104.5°, pulse 165, respiration 40, albumin, one-half per cent.

October 6th. Symptoms improved.

October 7th. Albumin, one-half per cent. At 2 p. m. I found the temperature 104.2°, pulse 156, respiration 44; color worse, respiration labored. At 4 p. m. extreme dyspnea and cyanosis came on from blocking of the tube. Tube extracted; relief immediate.

Convalescence was slow but uninterrupted. Albumin, one-half per cent., continued for one week. The recovery of this case was not expected, and the condition was worse than that of other cases that proved fatal.

CASE X. E. A., five years, ten months old. Tube worn three days. Nephritis.

CASE XI. M. L., seven years old. Tube worn four days.

CASE XII. E. P., seven years old. Tube worn three days. Had a previous attack of diphtheria three years ago.

CASE XIII. D. L., six years, ten months old. Tube worn three days. Had been sick five days with diphtheria, as shown by membrane in throat and Klebs-Löffler bacilli in culture, but the symptoms were not considered severe enough for using antitoxin. However, dyspnea came on suddenly in the night, and at 10 A. M., January 12th, I found the patient much exhausted. The pulse was weak, marked retraction, some cyanosis. Intubated, with immediate relief. Mulford's antitoxin (1,000 units) injected. The patient got along well while the tube was worn; was fed at first by inversion, but when she resisted she was fed by the nasal tube.

January 15th. Membrane had disappeared, and tube was removed. No return of dyspnea. Convalescence uninterrupted.

CASE XIV. R. H., five years old. Had been ill three or four days.

March 18th. At 4.30 p. m. I found membrane on tonsils, aphonia, and croupy cough. Dyspnea came on temporarily after attempts to look in throat. Temperature 100.6°, pulse 144, respiration 20. The girl was able to sleep, so intubation was not indicated. Antitoxin (2,000 units) injected. After this the breathing grew worse, extreme retraction and cyanosis came on, and inability to sleep. Patient exhausted; pulse 160, weak. At 10 p. m., longer delay being impossible, a tube was inserted in the larynx. No relief, no air entered the lungs. Tube quickly extracted, and breathing began again. Loose membrane had been

pushed down before the tube and blocked it. Breathing was good for a few minutes, but soon grew worse, so that the tube was again put in the larynx, this time with perfect relief.

March 22d. Tube removed. Convalescence uninterrupted.

CASES XV-XX were treated at the Worcester Isolation Hospital. Three of these were intubated before being sent to the hospital, thereby saving valuable time.

What is the value of intubation, and when is it to be done? No comparison can be made between cases intubated and cases left alone. Probably the majority of cases of laryngeal diphtheria get well without operation. I have had 15 laryngeal cases of diphtheria the past year get well without operation. In seven of these the dyspnea was quite marked; but as long as they could sleep and were not getting exhausted, they were let alone. On the other hand, in six other cases delay was advised; but operation became necessary later, and all recovered. This indicates that the mortality need not be high in cases seen before the dyspnea gets extreme, even if they come to operation later. My rule has been to operate only when I thought that non-interference would be fatal in a very short time. All the cases but one have been seen in consultation. Except the hospital cases, only one has had a trained nurse. The idea prevails that some cases are too far gone for operation. Operation is never useless if stenosis of the larynx is present.

FOOD NOSTRUMS.¹

BY CHARLES HARRINGTON, M.D., BOSTON.

THE inventors and promoters of quack medicines have always shown the greatest commercial enterprise in pushing their wares, persuading the people that though feeling well they really are sick and in need of blood-purifiers, health restorers, spring medicines, kidney and liver cures and such; but in spite of their efforts, they have been unable to invade, as successfully as they would like, the ranks of the more intelligent, who hold quack medicines in deserved contempt. But this latter field is now being tilled by another class with enormous success, and many who would scorn to use a secret medicine are easy prey to the vendors of so-called health foods, which, in various forms and under fancy scientific-appearing names, are recommended for all ages from the suckling babe to the tottering nonogenarian. We have substitutes for mother's milk of greater nourishing qualities than the food given by Nature; blood-making preparations for the growing youth; foods of enormous potential energy for the adult worker; checks on tissue waste; preventives of rheumatism and calculus, and tissue builders for the aged; and aids to digestion for all. We have also special foods for the diabetic, the constipated, the dyspeptic and the convalescent, some of which might appropriately be advertised as sure preventives of longevity.

These foods are all successful from a pecuniary standpoint, for the public not only likes to be fooled but is encouraged in its folly by the unconscious connivance of the profession, who should no more permit

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

the use of secret foods than of secret medicines. And it is further encouraged in its folly by certificates and reports based on insufficient and unscientific data, signed by graduates in medicine who may or may not be creatures of the imagination, and, worse than all, may take the foods by order of the medical adviser.

In the course of my work during the past fifteen years I have had occasion to analyze a very large number of these foods, and am prepared to assert that I have yet to find a patent food which is not either a quite unnecessary and comparatively expensive substitute for ordinary food, or capable of producing harm rather than good.

The food nostrums may be divided into classes, as follows:

Some are simple frauds, incapable of producing harm, and equally incapable of exercising any of their advertised curative influences, but containing a reasonable amount of nutriment. There are many of this class, and two examples will suffice. A more or less popular food for dyspeptics, guaranteed "to instantly relieve acid or sour stomach, abnormal hunger, and sinking, all-gone feeling," "to prevent the injurious effects of ice-water," and "to relieve any trouble arising from indigestion," proves to be a very innocent meal, costing about ten times as much as corn meal or graham flour, made from the refuse of a popcorn factory, and quite free from added substances which might neutralize acids in the stomach. Another of this class, which at present is being well advertised, is a form of bread which is supposedly endowed with the property of self-digestion; it is said to be made with the addition of malt extract before being put into the oven,—a needless waste when one considers at what low temperature the ferment diastase is killed.

A second class includes such as are perfectly harmless and abundantly nutritious, but expensive and unnecessary, since the same dietetic results may be achieved quite as pleasantly and much more economically with the materials at hand in every kitchen.

In another group may be placed the infants' foods and substitutes for mother's milk. Most of the manufacturers of these preparations are willing to concede that Nature is a good guide to follow, and attempt to imitate her food; but they are not unanimous on this point, for there are those who, not satisfied with things as they have been created, have improved on Nature's methods and given us foods which they advertise as "superior to mother's milk." The infant foods may be divided into those made from cow's milk and those intended to be added to cow's milk, either to enrich it or to favorably affect its digestibility. Since it is impossible to reduce milk to a dry powder which, when treated with water, will again assume its original form, and since milk containing a normal amount of fat would tend, even if milk concentrated, to quickly become rancid, and since another valuable constituent, the proteids, would become incurably altered in character in the process of drying, the manufacturers are driven to remove the (for their purposes) objectionable fat, and to add other substances foreign to milk, as cane sugar, malt sugar, dextrin and starch, so that a powder may be obtained, and then they impudently claim that their finished product, by virtue of this treatment, is either made to closely resemble human milk or to surpass it in nutritive value.

The other infant foods intended as additions to cow's milk are made from cereals, which should have no place

in the food of young infants, whose digestive organs are not yet ready for substances foreign to milk. When all that is needed to imitate natural food for infants is milk sugar, and water, and milk, which can be separated into cream, and skimmed milk, and when with these four simple substances one needs only to know how much of each is required for the mixture, how can we justify the use of the expensive substitutes which introduce foreign substances, starch, dextrin, malt sugar and cane sugar, into young stomachs which are doing well enough if they can digest what Nature intended they should? And not only do they introduce foreign matter, but unless they are fortified by milk or cream they furnish a very insufficient proportion of fat.

A fourth group may include those foods which are harmful to the particular class to whom their use is commended. Here we may place all the diabetic flours and biscuits and breads. What would be thought of a physician who should order for his diabetic patients unlimited sugar candy, dry crackers and white bread? No answer is necessary, but such a course would be not much if any worse than permitting them to use the commercial diabetic foods. Some years ago I exposed to the profession the character of all the diabetic foods in the market. Since that time I have examined such new flours as have appeared, but I have yet to meet one made from cereals which does not contain a liberal supply of starch, and most of them are as rich in it as whole flour.

The fifth and last group includes those which may act unpleasantly, injuriously or even dangerously to sick and well alike. Who would direct that a patient suffering from weak digestion and irritable stomach should be given a nauseous mixture of beef blood, sheep's blood and glycerine? Would a knowledge of the character of the ingredients tend to assist the patient in retaining and digesting it? Add now to the mixture some fruit juices or syrup. Is it thereby improved, or made more nauseous and repulsive? But this is not enough; in order that this food may be preserved indefinitely without the body, let us now add a substance which will also retard its digestion within the body and at the same time irritate the stomach, the kidneys and the bladder, namely, a liberal dose of salicylic acid. With this addition the mixture now resembles the animal arcana so much in demand for making blood in anemic persons, building up convalescents, furnishing strength to the weak and strong alike, and rescuing from the hand of death the sufferer from wasting disease. To this class belong also the canned and bottled clam broths, that waste product so poor in nutriment and so rich in chemical preservative. Such, also, many of the horde of alcoholic beverages masquerading under the magic name of Malt, with their freedom from diastase and richness in salicylic acid.

Such, then, are the patent foods so widely advertised in print and by the gratuitous distribution of sample packages—all unnecessary and expensive, some harmful as well.

We attempt to educate the people as to the desirability of purity in the common articles of food so that they may understand the dangers of adulteration, and then we leave them the helpless prey of the crafty medical food specialists. We ought rather to continue to teach them that it is to their physical and pecuniary advantage to avoid nostrums of all sorts, and that the proper feeding of children and the sick can be carried

out more intelligently, more beneficially and more economically with the food materials in common use, which need no fancy names and claim no medicinal virtues.

A RARE FORM OF OCCIPITO-ATLANTAL ARTICULATION.

BY GEORGE A. DORSEY, PH.D., CHICAGO, ILL.

Assistant Curator of Anthropology, Field Columbian Museum.

ABNORMAL conditions in the manner of articulation of the atlas with occipital bone are not uncommonly met with, and have been described in large numbers. The most frequent condition which is encountered is the bony union of the atlas with the occiput. This may be confined to ankylosis of the articular facets of the atlas to the occipital condyles, or part or all of one or both arches of the atlas may be involved, or the jugular processes of the occiput may be unusually long and join in bony union or articulate with one or both transverse processes of the atlas. These or similar abnormal conditions have been described by Lawrence,¹ Toynebee,² Hussey,³ Boxhammer,⁴ Turner,⁵ Schuiffer,⁶ Grawitz,⁷ Zoja,⁸ Allen,⁹ MacAllister,¹⁰ and Slade.¹¹ The paper by Dr. Slade contains a careful review of the subject and describes eight cases. The paper by Professor MacAllister is perhaps the most valuable and contains very full references to the literature.

It is outside my purpose to discuss the causes of abnormal occipito-atlantal articulation or their frequency, and they are common enough, but rather to describe a peculiar form of articulation in which several points of interest are involved. But first a word in regard to the skeleton itself. It is one of many purchased by the Field Columbian Museum from Sr. Montez, of Peru, who found it along with others in a rock-tomb at Huaracundo, a small village near Cuzco, Peru. When received into the museum it had on the original wrappings of fibre rope and had never been opened. It was a good example of the mummy packs which come from that region, and may be considered as belonging to the Inca branch of the great Kechua stock. It may not be without interest to note in passing that these same Huaracundo rock-tombs have been very fertile in their yield of anatomical anomalies. Thus, of three mummy packs from the Montez collection from that region, one contained a skull in which the atlas was fused with the occiput, in the second the skull had been most skilfully and successfully trepanned in two places, while the third serves as the basis of this paper. Again, in a small collection of crania made by the writer in that locality in 1892, one was trepanned, another had the atlas joined to the occiput, while four

others showed the effect of disease by the presence in each skull of a large circular hole.

Turning now to the skull which directly concerns us, we may begin with the occipital bone. On the right side (see Fig. 1) the jugular process extends downwards and slightly backwards into a prolongation which measures 23 millimetres in length, and 17 millimetres in its greatest diameter. The process is somewhat compressed in a slightly oblique antero-posterior direction. On the anterior surface, toward its lower extremity, is a nearly circular articular facet which



FIG. 1.

measures 10 millimetres in diameter. The facet is concave from side to side. On the atlas (see Fig. 2) there is a corresponding facet on the posterior border of the right transverse process, which is unusually deep at this point. The facet is concave from above downwards and is rougher than that of the paramastoid process.

A reference to Fig. 3 shows that when the atlas is in place on the condyle it is perforce twisted slightly out of its normal position. There has been, as has already been said, a slight backward tendency in the growth of the process, but while it has been enough to escape

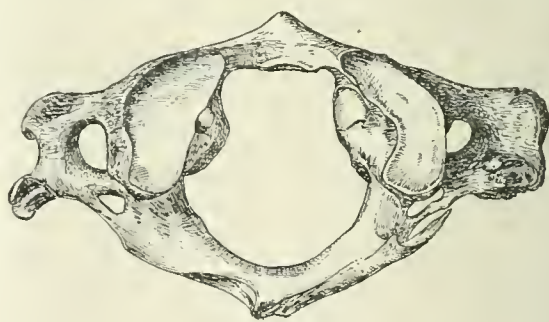


FIG. 2.

¹ Lancet, London, 1827, vol. xi, p. 31.

² Abnormal Articulation of the Occiput with the Atlas, Transactions Pathological Society, London, 1848-49, vol. ii, p. 93.

³ Ankylosis of Atlas and Occiput, *ibid.*, 1856-57, vol. viii, p. 314.

⁴ Die angeborenen synostosen an der enden der beweglichen wirbelsäule, *Zeitschrift für rationelle Medizin*, iii, Reike, Bd. 15, p. 1.

⁵ St. Bartholemew Hospital Reports, London, 1867, vol. iii, p. 368.

⁶ Ueber die Architectur des Schädelsgrundes in der Norm bei assimilation des Atlas, *Virchow's Archiv*, vol. lxxiv, p. 320.

⁷ Beitrag zur Lehre von der basillären Impression des Schädels, *idem.*, vol. lxxx, p. 463.

⁸ Intorno all' Atlante, *Mem. e. inst. Lomh. di sc. e lett.*, 1881, 3, s., V., p. 269.

⁹ On the Varieties of the Atlas in the Human Subject, *Journal of Anatomy and Physics*, vol. xiv.

¹⁰ Notes on the Development and Variations of the Atlas, *ibid.*, 1893.

¹¹ Abnormal Attachment of the Atlas to the Base of the Skull, *Boston Medical and Surgical Journal*, lxxxiii, p. 57.

the superior surface of the transverse process and to avoid fusion with the atlas, it has not been sufficient to permit of the atlas retaining its normal position. As a result, the atlas makes an angle of about 20° to the sagittal plane of the foramen magnum. A compensatory change, however, has taken place in the odontotlantal articulation, which permitted the head to be directed forwards and to be sustained in something like its original equilibrium at the same time. Referring to Fig. 2 again, it may be noticed that in the atlas a new articular surface for the odontoid process has been formed on the right antero-inferior surface of the

lateral mass, occupying the position normally occupied by the tubercle for the transverse ligament. The effect of this new condition can also be plainly made out on the odontoid process, where extended around on the

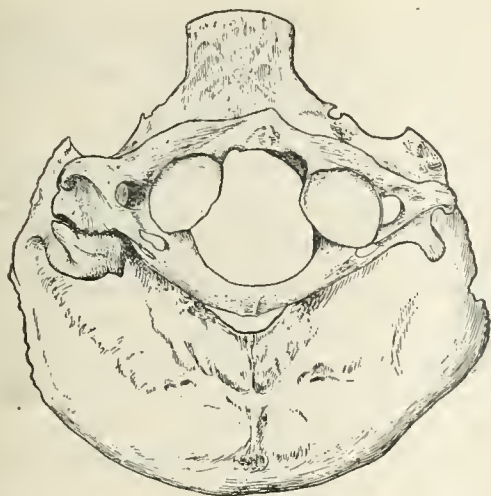


FIG. 3.

right side is an articular surface which corresponds to the lateral articular surface on the axis.

It may not be without interest to call attention also to the fact that the left transverse process is bifid, a condition not often met with. It can also be seen in Fig. 2 that the groove for the vertebral artery on the left side is almost bridged over by a spiculum of bone which begins near the middle of the posterior arch, and terminates half-way between the posterior border of the superior articular process, and the anomalous facet on the transverse process. There is also a small spine which begins along with the one just mentioned and is directed towards a similar process from the middle posterior surface of the superior articular process. These two spines probably would ultimately have united and formed a canal for the vertebral artery. There is also on each side just posterior to the vertebral foramen a rather large well-defined *supernumerary* foramen.

In regard to the form of atlanto-occipital articulation just described so far as I can learn, only two similar cases have ever been recorded. These are to be found in Testut,¹² and the paper, already mentioned, of Professor MacAlister.

The reference in Testut is as follows: "Je l'ai vue (l'apophyse paramastoidienne) dans un cas atteindre 22 millimètres de longueur et s'articuler avec l'apophyse transverse de l'atlas à l'aide d'une facette ovale à grand axe transversal qui mesurait 10 millimètres de largeur sur 8 millimètres de hauteur."

The statement from MacAlister is this: "In the skull of an Egyptian this par-occipital process is a thick styliform column, 22 millimetres long by 11 millimetres thick, which ends in a flat facet that articulates with a similar facet on the transverse process of the atlas."

Although neither of these cases is exactly similar to the one I have just described, yet in a male skull from Ancou, Peru, a condition very similar to that de-

scribed by Professor MacAlister is present. Unfortunately we possess only the skull, so it is impossible to determine what was the nature of the atlas. But the left jugular or paramastoid process has extended downwards and backwards, and measures 10 millimetres in length and 15 millimetres in diameter. It terminates in an irregular circular facet which has an upward and backward inclination and is slightly and obliquely concave from side to side. The occipital bone shows a large amount of platybasic deformity.

In the second skull from Huaracundo, which I have already mentioned, the atlas is fused with the occipital bone through bony union of the condyles. The anterior arch remains free, as does the posterior, the latter, however, is incomplete. There is no abnormal development of the jugular process. The right vertebral foramen is very small, while that of the left side has no anterior border. The transverse processes are greatly undersized.

The fourth specimen is that of a male Kwakiutl from British Columbia. The condition is somewhat similar to the one just described. The atlas is ankylosed to the occipital bone through the condyles and superior articular surfaces. The jugular process of the left side is also united to the transverse process, as is the left half of the posterior arch, which is incomplete for about eight millimetres. The anterior arch is free for the greater part of its course. The left transverse process is bifid.

Reports of Societies.

MAINE MEDICAL ASSOCIATION.

THE FORTY-FIFTH ANNUAL MEETING, PORTLAND, JUNE 2-4, 1897.

FIRST DAY.

THE Association was called to order at 10.30 o'clock A. M., on June 2d, by the President, DR. D. A. ROBINSON, of Bangor. Prayer was offered by REV. H. L. BURRAGE.

After routine business, a report was received from the Special Committee on Membership. An interesting feature of this report was the fact, that out of 400 registered regular physicians to whom application blanks were sent upon recommendation of members of the Association, only 110 availed themselves of the privilege; of this number 67 appeared before the Censors during the sessions and were elected to membership.

The Treasurer's Report showed a balance on hand, with no indebtedness, of \$1,783.59.

DR. S. J. BASSFORD, of Biddeford, reported

TWO COMPLICATED NERVOUS CASES IN THE SAME FAMILY.

One of these, in a child of ten years, was diagnosed as "amyotrophic lateral sclerosis"; the other, occurring in a sister aged twelve years, was regarded as hysteria, with symptoms simulating those of the sister first affected. Both had marked chorea.

DR. C. D. SMITH, of Portland, read a paper on the BACTERIAL FEATURES OF TYPHOID, WITH SPECIAL REFERENCE TO PATHOLOGY AND DIAGNOSIS.

In the abstract presented, the writer aimed to show,

¹² Testut: *Traité d'Anatomie Humaine*, third edition, *Osteologie*, p. 125.

first, the inutility of direct intestinal antiseptics, in a disease due to an absorbed toxin, produced for the most part outside the intestinal tract, and, secondly, to present a description and explanation of the sero-diagnosis. He gave the results of 105 blood tests from 12 cases of typhoid. Six cases showed the reaction from the seventh to eleventh day. In two, it was delayed until the seventeenth day in one, until the thirteenth in the other. From one a reaction was obtained with blood taken on the evening of the second day of fever, subsequent examination of blood from this case during convalescence showed an absence of the reaction for days at a time with reappearance at irregular intervals. Of the remaining three cases two have shown no reaction; one gave agglutination with only enfeebled motility, although a typical typhoid case, with characteristic symptoms. All the examinations were by Johnston's modification of Widal's test.

RESUSCITATION AFTER SUBMERSION

was the title of a paper by DR. HIRAM HUNT, of Greenville.

AFTERNOON SESSION.

The Association met at 3 o'clock.

Prof. F. C. Robinson, of Bowdoin College, was elected to honorary membership in recognition of valuable contributions to the scientific meetings of the Association.

THE PRESIDENT'S ADDRESS

was then delivered by DR. D. A. ROBINSON, of Bangor. Among its recommendations it urged the appointment of a committee to take into consideration the abuse of medical charities in the State, to bring the State Association into closer touch with the various county societies by the appointment of delegates to these societies, and to invite to a participation in the proceedings of the Association the State Board of Registration in Medicine, with a suggestion that the homeopathic and eclectic members might perhaps be turned from the error of their ways.

A special committee was appointed to take into consideration these recommendations, and later reported advising action in accordance with the President's suggestions. Those relating to charities and the county societies were unanimously adopted, but the Association evidently had no desire to engage in missionary work and refused to adopt that relating to the Board of Registration.

The address was an able review of the progress of the Association in its relations to medicine during the year past, and topics of interest to the profession were touched upon in a witty and forceful way.

The question of Medical Inspection of School Children was brought prominently to the attention of the Association, but no action was taken expressive of the opinion of its members.

DR. J. N. MERRILL, of Skowhegan, presented a paper on

PREVENTIVE MEDICINE, OR NOTES ON SEWER AIR POISONING, AND SANITATION.

DR. W. K. OAKES, of Auburn, read a paper entitled

THE TECHNIQUE OF AMERICAN SURGERY.

It presented a careful analysis of the methods in vogue in New York, Philadelphia and the Johns

Hopkins Hospitals so far as related to the room and furniture, the preparation and care of instruments, sponges, dressings, sutures and ligatures and to the preparatory technique as applied to both patient and surgeon.

Great stress was laid upon the constant, painstaking attention to details, which explains, with skill in operative procedures, the success of American surgery.

A paper on

HIP-JOINT DISEASE,

by DR. HENRY H. BROCK, of Portland, made prominent the point that whatever the predisposing or underlying causes, hip-joint disease is a local disease of local origin. The outline of treatment was, extension and counter-extension for months after all inflammatory symptoms have disappeared. Absolute rest in bed, early evacuation of pus to prevent extension of the suppurative process and the wearing of a fixation appliance for a year or more after the patient gets up on crutches.

EVENING SESSION.

DR. O. ST. C. O'BRIEN, of Rockport, Mass., read a paper on

ADDISON'S DISEASE,

regarding it as a disease of the sympathetic nervous system caused by tuberculous, cancerous or other degeneration of the supra-renal bodies. The treatment advised was mainly symptomatic.

A series of five-minute papers followed on various phases of the

MANAGEMENT OF LABOR,

by four Portland physicians.

DR. ADDISON S. THAYER spoke upon the "Medicinal Treatment," laying special stress upon the value to be derived from the use of ether and morphia, not only as aids to the normal progress of labor but as preventives of complications.

DR. STANLEY P. WARREN treated of the "Antiseptic Treatment," claiming that the parturient state demanded the same kind and degree of antiseptics as major surgery.

DR. FREEMAN E. SMALL presented the subject of the "Manual and Postural Treatment" as obviating recourse to more severe operative procedures.

DR. JAS. B. O'NEIL discussed the question of "Instrumental Treatment."

He thought the rule to apply forceps when the head stopped advancing a better one than to apply them when it stopped receding.

In the discussion DR. C. G. ADAMS, of Portland, reported a case in which the head did nothing but recede with the pains. The condition was, after delivery by forceps, found to be due to a cord less than six inches in length.

For an hour following the adjournment the members enjoyed an informal reception in the form of a "smoker."

SECOND DAY.

The first paper was read by DR. F. N. WHITTIER, Director of the Gymnasium at Bowdoin College, on

PHYSICAL TRAINING AND ITS THERAPEUTIC VALUE.

The paper demonstrated by reference to details of work in modern gymnasia how the aim of physical training was attained by adapting it to individual needs,

supplementing it by careful attention to the rules of personal hygiene.

THE FREQUENCY OF ERRORS IN MEDICAL CERTIFICATES.

DR. W. E. ELWELL, surgeon of the National Soldiers' Home at Togus, read a paper as above.

STATIC ELECTRICITY.

The advantages of this force as a remedial agent in nervous and muscular diseases unattended by structural changes were presented in a paper by DR. W. T. GOODALE, of Saco.

ACCURACY AND HONESTY OF PURPOSE IN THE PRACTICE OF MEDICINE.

DR. G. M. WOODCOCK, of Bangor, read a paper on this subject.

AFTERNOON SESSION.

DR. D. E. BAKER, of Newtounville, Mass. and DR. A. P. RICHMOND, of Dover, N. H., were introduced as delegates from their respective societies and presented their greetings to the Association.

The annual election of officers resulted as follows:

President, Wallace K. Oakes, Auburn; First Vice-President, E. A. Thompson, Dover; Second Vice-President, G. M. Woodcock, Bangor; Corresponding Secretary, H. B. Palmer, Farmington.

Board of Censors: W. B. Moulton, Portland; F. C. Thayer, Waterville; W. J. Maybury, Saco; E. M. Fuller, Bath; Alfred King, Portland.

Committee on Publication: The Recording Secretary (*ex officio*); H. H. Brock, Portland; Geo. C. Parker, Winthrop; W. T. Goodale, Saco; G. M. Elliot, Brunswick.

Business Committee: E. J. McDonough and A. S. Gilson, of Portland.

DR. A. G. YOUNG, of Augusta, Secretary of the State Board of Health, read a paper on

THE LATER RESULTS WITH DIPHTHERIA ANTITOXIN.

The discussion brought out the gratifying fact that antitoxin was being used with greater freedom and in much larger dosage than a year ago, with correspondingly excellent results. The writer presented the latest results of the Pediatric Society's second report, and from connective reports of the German Hospitals, the latter showing 14.7 per cent. mortality for a year, against an average of 26.5 per cent. before antitoxin came into use.

At 4 o'clock the Association adjourned and became the guests of the physicians of Portland. Cars were taken for Riverton, a summer garden six miles from the city, where the Association and visiting delegates were entertained by a band concert, and a lunch served in the Casino.

EVENING SESSION.

Returning to the city, the Association again met at 8 o'clock, and the Annual Oration, a most scholarly and instructive discourse on

THE RELATION OF MENTAL DISEASE TO GENERAL MEDICINE.¹

was delivered by DR. EDWARD COWLES, of the McLean Asylum, an Honorary Member of the Association.

² See page of 277 the Journal.

Following the oration PROF. F. C. ROBINSON, of Bowdoin College, read a paper on

NEW METHODS OF DISINFECTION.

This paper dealt with the practical application of formaldehyde, for gaseous disinfection.

One quart of wood alcohol would furnish gas enough for each 2,000 cubic feet of space; more should be used rather than less as saturation of the atmosphere is absolutely essential.

The writer was conservative, as to the penetration power ascribed to the gas by various manufacturers of generating lamps and thought from his own experience that further experimentation would be necessary to determine accurately this point. So far as laboratory results go it was infinitely superior to sulphurous acid.

CLOSING SESSION, FRIDAY.

This, as usual, was devoted to business. Reports were received from delegates to other medical societies, Visitors to the Maine Insane Hospital, the Medical School of Maine and the Portland School for Medical Instruction.

The report of the Necrologist gives the deaths during the year of Osgood N. Bradbury, Norway; Andrew J. Fuller, Bath; Thomas A. Foster, Portland; Francis E. Hitchcock, Rockland; Daniel Moody, Clinton; John O. Webster, San Diego, Cal.; Wm. Lawrence Dana, Portland. Drs. Foster and Fuller were ex-Presidents of the Association.

The Board of Censors made a final report.

Appointments were recommended as follows:

Visitors to the Maine Insane Hospital: Addison S. Thayer, Portland; J. L. Bennett, Bridgton; W. P. Giddings, Gardiner.

To Portland School for Medical Instruction: C. B. Sylvester, Harrison; C. H. Cumston, Brunswick.

To Medical School of Maine (two years): R. D. Bibber, Bath.

Delegates to American Medical Association: B. B. Foster, Portland; Aug. S. Thayer, Portland; J. K. Phillips, Bangor.

Delegates to New Hampshire Medical Society: J. D. Cochrane, Saco; Ambrose H. Weeks, Bar Mills.

Vermont: F. E. Small and J. B. O'Neill of Portland.

Massachusetts (1898): D. A. Robison and Jas. F. Smith of Bangor.

Rhode Island: J. B. Thornton, Boston; E. M. Plummer, Charlestown.

Connecticut: Chas. A. Ring and I. E. Kimball of Portland.

New Brunswick: John A. McDonald, East Machias; F. A. Chandler, Addison. Maritime Medical Association, Daniel Hennessey, Bangor; L. H. Wheeler, South Brewer.

New York State Medical Association: E. E. Holt, Portland; G. M. Woodcock, Bangor.

The selection of an Orator was postponed.

The appointment of Delegates to County Medical Societies was left to the President and Secretary.

The date of the next annual meeting will be June 1, 2, 3, 1898, and the place of meeting Portland.

AUGUSTUS P. CLARKE, M.D., of Cambridge, Mass., was chosen an honorary president of the Section of Obstetrics and Gynecology of the Twelfth International Congress, held in Moscow, August 19th to 26th.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, SEPTEMBER 16, 1897.

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SPLENECTOMY.

JONNESCO, of Bucharest, made at the Twelfth International Medical Congress a contribution of great importance to surgery upon this subject.

During recent years the literature of splenic surgery has been small, as our knowledge of the subject has been passing through the experimental stage. Enough cases of splenectomy, however, had by the time Jonnesco began his work, in 1896, been accumulated in surgical literature to show that splenectomy for the hypertrophied leukemic spleen was uniformly fatal; while the hypertrophied spleen of malaria, and the wandering spleen had been removed with comparatively frequent success.

Jonnesco had noticed the steady improvement in the statistics of splenectomy for the hypertrophied spleen of malaria. He collected 36 cases, with a mortality of 18, or 50 per cent., but found on examination by dates that, from 1887 to 1896, there had been 25 cases, with 8 deaths, or 31.7 per cent.; and that from 1891 to 1896 there were 15 cases, with 3 deaths—a fall in mortality to 15.4 per cent. This fall in mortality is due undoubtedly to two causes: improvement in technique, including asepsis; and a more intelligent choice of cases for operation. Among the contraindications established by the experience of previous operators have been (1) profound cachexia, (2) extensive adhesions, (3) great size of the organ, (4) leucocythemia.

With all these contraindications Jonnesco's experience leads him to agree, except that of the size of the spleen. Péan, Vulpian, and Adelman have considered that splenectomy, in order to be successful, should be limited to spleens of a weight of less than three kilogrammes. Jonnesco's experience does not lead him to agree with these authors, for in four out of his twelve operations he removed spleens weighing over three kilogrammes, the largest weighing 5.750, with success.

The indication for operation Jonnesco considers to

be, the failure of medical treatment to relieve the pain, disability and beginning cachexia; and his experience has shown that these symptoms, as well as the general health, rapidly improve after splenectomy. He considers the undue prolongation of medical treatment both useless and dangerous; for as long as the patient is the subject of splenic hypertrophy, cachexia progresses, and the prognosis of the operation becomes worse.

The prognosis will vary according to whether the operator is dealing with an adherent, fixed, mobile or dislocated spleen.

With regard to the effect of splenectomy upon the blood and system, Jonnesco has had the same result as previous observers, finding that a great increase in the number of red blood-corpuscles resulted, sometimes beginning immediately after the operation, sometimes after a short period of diminution. The white corpuscles also increase, and with relatively greater rapidity than the red ones; so that during a certain period of varying length there is a temporary leucocytosis.

These conclusions of Jonnesco's are certainly given additional weight by the extent of his experience, for between February 3, 1896, and August, 1897, he had performed splenectomy 12 times, 11 times for malarial hypertrophy, and once for hydatid cyst. His mortality was three, or 25 per cent.; and at the time of his writing one of his patients had not yet left the hospital. The three deaths occurred in extremely unfavorable cases. In all of them the spleen was very large and universally adherent. In freeing the spleen in one case the pleura was opened in two places, and in another the diaphragm was torn so that it had to be sutured.

With regard to operative technique, Jonnesco lays stress upon the operator's standing on the patient's right, the median incision, complete exposure of the vault of the diaphragm, the rupture of adhesions at the expense of the abdominal walls, in order to avoid traction on, and rupture of the spleen, the section of adhesions between two ligatures, the section of each vessel of the pedicle between two ligatures. Wounding the splenic capsule should be avoided, and complete hemostasis secured before closure of the abdomen. Strong compression with an elastic bandage should be employed.

A temporary rise of temperature, which frequently follows splenectomy, may be due to a recrudescence of malarial poisoning, or to a bronchitis, which frequently ensues. No mention is made of the anæsthetic employed.

Jonnesco concludes his paper as follows: "The comparatively slight danger of splenectomy, its excellent results in malarial hypertrophy, the disappearance of the symptoms of cachexia after the operation, lead me to propose extirpation of the spleen even in cases where the spleen is comparatively small and the local symptoms not severe, as preventive treatment against malarial cachexia. I am led to this con-

clusion by Laveran's discovery that the spleen is the source from which the hematozoa of malaria are distributed to the body in the blood stream. Each discharge of hematozoa coincides with the rise of temperature, and hypertoxicity of the urine.

Jonnesco's paper, a copy of which we have just received, is illustrated by excellent cuts of several of his patients before and after operation, and of the organs removed. It is a contribution of distinct value to surgical science; although the advanced position taken by him with regard to the removal of slightly hypertrophied spleens as a preventive of malarial cachexia will probably be regarded as somewhat too radical for immediate adoption by the profession.

THE NEW TUBERCULIN.

IN spite of the great expense of Koch's new preparation, T. R., a constantly growing number of valuable reports are coming in, chiefly from the German clinics. It is clearly evident that a very much larger number of observations, and extending over longer periods of time, must be made before we can arrive at any definite conclusion as to the efficiency of the new remedy. Nevertheless, certain evidence of value is already at hand.

In the *Deutsche Medicinische Wochenschrift* for August 19th appears a series of clinical articles concerning the use of T. R. as applied to the treatment of tuberculosis in its various forms. Professor Doutrelepont, of Bonn, gives a list of fifteen cases suffering from lupus and treated by the new method. In the treatment of these cases the directions as given by Koch were followed as closely as possible, namely, to begin with an injection of one-five-hundredth of a milligramme of the preparation, with a gradual increase of the dose about every second day, care being taken to avoid an elevation of more than half a degree in temperature. Doutrelepont found that higher temperatures than desirable were often induced, even by a gradual increase of the dose. In general he made it a principle never to repeat the injection until increased temperature had entirely disappeared.

From his experience he concludes with Bassenius¹ that the age of the T. R. is probably of influence in relation to elevation of temperature. The largest dose used in this series of cases was four milligrammes, being the thirty-eighth injection. In addition to the rise of temperature, in certain cases headache, lassitude, vertigo and sensory disturbances in the limbs were noted. In general the patients increased in weight during the treatment. The injections were usually well borne. There was an occasional complaint of pain at the seat of injection which often showed some infiltration. The diseased area showed a comparatively quick formation of skin over the ulcers. The hypertrophic lupus, in a measure, disappeared, and scar tissue took its place. The swollen lymph-

glands decreased in size during the treatment; some, however, suppurated and demanded incision.

Doutrelepont concludes that T. R. has a favorable effect upon lupus, and is of the opinion that it has a greater curative action than the old preparation. He warns against a too rapid increase of the amount of the dose because of the liability to fever, which always has a more or less deleterious effect upon the patient.

In a second paper, Dr. Bruno Leick reports a series of fifteen cases of lung tuberculosis in which the new tuberculin was used. At first the back between the scapulae was used as the point of injection, which was later changed because of the pain occasioned when in the lying position. Of the fifteen cases treated a decided improvement was noted in but two, and in these the suspicion is raised that an equally good result might have been attained under the ordinary routine treatment.

Professor Rumpf approaches the question of the therapeutic value of T. R. with an equal or greater scepticism. Rumpf found that the injection in most cases was painful and frequently followed by an inflammatory infiltration of the skin. A case of interest is one in which Koch's maximum dose (twenty milligrammes) was injected without temperature reaction. Later, however, a marked rise of temperature came on, much like that noted in the use of the old tuberculin, the outcome of which for the patient must be regarded as ominous. Rumpf reports a number of cases, both favorable and unfavorable in their course, and reaches conclusions of importance which we reproduce in part.

First, the new tuberculin, in doses as recommended by Koch, frequently causes painful inflammatory infiltration of the skin which is slow to heal.

Secondly, by gradual increase of the injected dose it is possible to reach the maximum dose with but slight reaction, but it does not follow that a more or less serious fever may not supervene upon the later injection of a previously well-borne amount.

Thirdly, it appears from this that the reaction or failure to react is inconstant under similar conditions.

Fourthly, the reaction frequently consists in general manifestations, such as frequency of the pulse, vertigo, pain, etc., as well as in increase in temperature.

Fifthly, it is doubtful whether Koch's maximum dose produces immunity in men.

Sixthly, should its immunizing power be shown lacking, the advantage of the new tuberculin over the old would consist merely in containing more toxic substance.

Seventhly, it is desirable to proceed with much caution in primary and localized tuberculous processes of the lungs.

It will be seen that Rumpf's attitude is one of extreme scepticism.

Following the report of a case of acute tuberculous inflammation of the middle ear during a new-tuberculin treatment, Dr. Richard Müller, of Berlin, warns us of the possible danger of the preparation, inasmuch

¹ *Deutsche Med. Woch.*, 1897, No. 28.

as in his case there was some evidence to show that the process in the ear was rendered more active by its use.

Dr. Herzfeld, of Berlin, furnishes a report of the treatment of seven cases of larynx tuberculosis. Here, again, results are discouraging, since in but one case was a decided improvement noted as probably due to the use of tuberculin. The opinion is expressed that in all the other cases more would have been accomplished by the usual local treatment. In any case Herzfeld rightly maintains that whether or not T. R. be used local treatment should never be omitted.

A paper perhaps of more interest than those hitherto considered, as coming from the directing physician, Dr. Baudach, of a sanitarium for tuberculosis, concludes the series of reports. Baudach was extremely careful in the choice of patients and in his system of injection. Twenty patients in all were treated, most of them suffering from tuberculosis of the lungs. Excepting for slight symptoms, such as those already alluded to, there was for the most part no evil effect from the injections, nor was there a single case of abscess formation. Baudach reports at considerable length twelve cases in which the treatment might be regarded as entirely, or almost entirely completed. As a result of his observation of these cases, he arrives at a much more hopeful judgment of the working of T. R. than those previously expressed. He found the treatment in general to be followed by decidedly good results and productive in a number of cases of a more rapid improvement than would otherwise have been the case.

It must be remembered that these patients were under the most favorable possible conditions for improvement; nevertheless, a careful reading of Baudach's paper leaves the impression that, apart from the favorable surroundings, a distinctively curative action is to be attributed to the tuberculin.

So far as it is possible to draw conclusions from the various cases to which allusion has been made we may say, first, that the new preparation has proved itself decidedly useful in lupus and probably of limited specific action in visceral tuberculosis; and, secondly, that at present it should be employed only in conjunction with other recognized methods of treatment.

THE DIMINISHING DEATH-RATE IN NEW YORK CITY.

DURING the week ending September 11th there was a slight increase in the mortality of that city, which is probably to be attributed to the high temperature prevailing in the latter part of the week. The number of deaths reported was 746, representing an annual death-rate of 19.44 per thousand of the estimated population; against 732, representing an annual death-rate of 19.09, in the preceding week. There was one death from sunstroke. As the weather conditions up to the advent of the short hot wave have been extremely favorable, the public health has con-

tinued good and the mortality exceptionally low. During the week ending August 28th the number of deaths reported was 716, a decrease of 34 from the previous week.

It is interesting to note that the Bureau of Vital Statistics, in its mortality report, September 4th, for the first time places the population of New York above the two million mark, its estimate being 2,000,916. In the week ending September 11th the population is placed at 2,002,031. An increase in an estimated population is one way of diminishing a death-rate.

Typhoid fever, in the mortality from which there is usually some increase at this season of the year, appears to be on the decrease, as the number of deaths from it in the week ending August 28th was 12, while in each of the two succeeding weeks there have been but seven deaths from it. In the week ending September 11th there were only 11 deaths from diphtheria, which is the lowest mortality from that disease for a very long time. The deaths from diarrheal diseases decreased from 107 in the week ending August 28th to 89 in the week ending September 4th, while the total number of deaths in children under five years of age, in whom the vast preponderance of mortality from this cause occurs, amounted to 335.

On September 8th President Wilson, of the Health Department, sent to the mayor a communication in which is shown the diminishing death-rate in the city during the past five years. It contained the following table, which gives the deaths, with the annual death-rate, in the first eight months of each year.

Year.	Estimated Population.	Deaths, Jan. to Aug. Inclusive.	Annual Death-Rate.
1893	1,758,010	31,982	27.3
1894	1,809,353	29,397	24.4
1895	1,879,195	30,599	24.5
1896	1,934,077	30,307	23.5
1897	1,990,562	26,888	20.2

This decline in the death-rate of seven per thousand is equivalent to a saving of 13,933 a year, and is attributed by President Wilson to an improved sanitary condition in the city, especially as regards pavements and clean streets.

The *Montreal Gazette* of September 4th, in an editorial on the Address in Public Medicine by Dr. H. M. Biggs at the recent meeting of the British Medical Association, says: "What intelligent work is capable of accomplishing for the public health was well illustrated in the paper read by Dr. Biggs." After quoting statistics covering the death-rate in New York during the past twenty years, it continues: "There could not possibly be a better illustration of what 'authorities on sewers' can do. Not only do they make it possible for the people to live longer, but they reduce the suffering from diseases, and from that fact enable the masses to better provide for themselves. Such a condition of affairs is a credit to the capacity of New York's Health Department, which promises to make the city a rival of London in being among the healthiest of the great centres of population of the world. It is a lesson and incentive to the public health departments of other cities."

MEDICAL NOTES.

VIOLENT REMEDIES.—Professor Brouardel, in a recent lecture related the following case: A man had a pharyngeal abscess, so deeply seated that his medical attendant was afraid to meddle with it. One night a burglar broke into the house, and on the sick man calling for help tried to throttle him. The abscess burst, deluging the burglar with pus and causing him to beat a rapid retreat. His intended victim experienced instant relief and made a rapid recovery. — *Medical Record*.

THE SURGEON-GENERAL OF THE NAVY.—Surgeon-General Tryon of the Navy has just completed his term of service, having made a highly honorable record during the thirty-five years in which he has been connected with the medical department of the Navy. It is confidently expected that President McKinley will, in recognition of his meritorious service, renew his appointment; as, if reappointed, he will be able to retire on September 29, 1899, with the rank and pay of the highest grade he has filled.

DISPENSARY ABUSE.—We are glad to note that the failure of the governor to sign the bill regulating dispensary practice, and doing away with many of its present evils, has not thrown cold water upon the efforts of the advocates of the bill. On the contrary, it has acted as a decided stimulant to the fight against dispensary abuse. Medical societies are exerting their power against it; medical periodicals have discussed it *pro* and *con* and from every conceivable standpoint. We are pleased to see that the crusade has become so general and strong, and that this strength presages the ultimate doing away with, to a degree at least, of a practice which is not only sapping the profession of its income but its dignity. — *Albany Medical Annals*.

YELLOW FEVER.—During the week ending with this number of the JOURNAL, yellow fever in New Orleans and Mississippi has, contrary to the predictions of the sanitary authorities, continued to spread slowly, and gain a moderate footing. In New Orleans the type of the disease has been mild; up to September 15th there had been one death in 14 cases. The epidemic at Ocean Springs has continued; and Dr. Wasdin of the Marine Hospital Service is ill with the disease at that place. On September 14th there were 15 cases at Biloxi. In the hamlet of Berkly, La., out of a population of 25 persons only three had failed to take the disease. Several cases have occurred at Mobile, Ala., and Dr. Guiteras of the Marine-Hospital Service apparently admits the possibility that the disease may become epidemic in that city. The period of the year offers a reasonable guarantee against a serious disturbance.

BOSTON AND NEW ENGLAND.

A FREE HOSPITAL FOR BAR HARBOR.—A movement is on foot for the establishment of a free hospital at Bar Harbor, Me.

BEQUEST TO A HOSPITAL.—By the will of the late Charles T. Wilder, of Wellesley, \$5,000 was left to the Mary Hitchcock Memorial Hospital at Hanover, N. H., to found a Charles T. Wilder Free Bed.

CEREBRO-SPINAL MENINGITIS IN MASSACHUSETTS.—The Massachusetts State Board of Health has recently sent a circular letter to physicians with a view of ascertaining the extent of the epidemic of cerebro-spinal meningitis, which has prevailed this year, and the prevalence of this disease in private practice. Six questions with regard to the disease are asked, and a description of the epidemic form of the disease and its various types is given. Replies are to be sent to Dr. W. T. Councilman, Harvard Medical School, Boston, who will make a report upon the subject.

THE STATE BOARD OF HEALTH ADMONISHES PHYSICIANS.—The Massachusetts State Board of Health has found it necessary to remind physicians of the reciprocal duties they are expected to perform in return for the furnishing of antitoxin, facilities for the bacteriological diagnosis of diphtheria, etc., by that body. In a circular recently issued they are reminded that the antitoxin is furnished gratuitously, to be used in the cases of persons unable to pay for it, and on condition that a description of the case and the effect of the remedy be furnished the board of health in return. The State Board of Health will withhold future supplies of antitoxin from local boards which fail to secure compliance with this rule. Care in the storage and distribution of antitoxin are also enjoined upon the local board, and instructions in the use of the diphtheria culture tubes are given. With regard to the examination of sputum, the State Board will receive for examination only specimens forwarded in the receptacles furnished by the board. Leaky receptacles endanger all persons who handle them. Material sent by mail will be rejected. Cover-glasses for the examination of blood with reference to malarial infection, with instructions for their use, will be sent on application to any part of the State. Examination of cultures, sputum, etc., will be made gratuitously by the board's pathologist, if the conditions of transmission are complied with, and not otherwise.

NEW YORK.

WHAT A LOW DEATH RATE MEANS.—In the management of ambulance cases the ambulance first arriving at the spot where an individual requires immediate medical or surgical aid is supposed to take the patient to the nearest hospital; but a recent case where a man had his skull fractured in the vicinity of Roosevelt Hospital and was taken by an ambulance of that hospital a long distance to Bellevue, where he died in a few hours, has called renewed attention to the practice of the large private hospitals maintaining an ambulance service, all of which receive more or less assistance from the public funds, of sending dying patients, sometimes taken directly from their own wards, to the public hospitals. Naturally, such transfers are not, as a rule, beneficial to the patient; but it

is highly desirable that the death-rate in such hospitals, which depend to a greater or less extent on private contributions for their support, should be kept as low as possible, in order that in their annual reports a favorable showing may be made to their patrons.

DEATH FROM IVY-POISONING.—A death is reported from Chester, near Middletown, N. Y., from rather an unusual cause, the effects of ivy-poisoning. The patient was a female, sixty-nine years of age, who came in contact with the plant early in July. Her whole system seemed to be profoundly affected by the poison, and death resulted after two months of great suffering.

Correspondence.

THE BRITISH MEDICAL ASSOCIATION.

MONTREAL, September 6, 1897.

MR. EDITOR:—This meeting was an event in many respects unique in the medical history of this continent. Never were more elaborate preparations made for a series of medical meetings, or greater pains and expense lavished for the comfort and entertainment of guests and members. It was the first time that a meeting of the British Medical Association had been held outside the British Islands; and in order to comply with the obligations imposed upon the Association by statute and by its by-laws, it was found necessary to hold the first part of this annual meeting in London, England.

About nine hundred members were present who registered their names; of these only about a hundred were from the United Kingdom. There were representatives from New Zealand, Australia, India, and other foreign countries. It speaks well for the interest manifested in the Association, that so many were present from abroad; and it is creditable to the profession of the Dominion that out of eight thousand physicians (a constantly increasing number) scattered through that vast country, a large part of whom (unfortunately for them) take no medical journals and attend no medical meetings, there should be such a considerable proportion members of the British Medical Association, whose meetings they can so seldom attend.

Of invited guests (mostly from the United States) who registered their names, there were present about two hundred and forty. The public meetings were also attended by a considerable number of the citizens of Montreal and by medical students from the various universities. Some of the meetings—notably the General Meeting on the afternoon of the 31st ult., in Windsor Hall—were honored by the presence of Lord Aberdeen, Governor-General of the Dominion; the Mayor of Montreal; Sir Adolphe Chapleau, Lieutenant-Governor of the Province of Quebec; Sir Donald Smith, now Lord Strathcona and Mount Royal; Sir James Grant, Prof. Charles Richet, delegate of the Faculty of Medicine, Paris, France; Lord Lister, and others. A pleasant occasion was the laying of the foundation-stone of the Nurses' Home at the Montreal General Hospital on Thursday by Lord Lister; all the dignitaries above mentioned were present and participated with speeches.

Nothing could exceed the hospitality extended to the members of the British Medical Association and its guests by distinguished citizens of Montreal. On Thursday, the Mayor of Montreal entertained a large party at lunch upon the mountain. Lunch was served in the observatory, from which the Mayor's guests commanded a splendid view of the city and across the valley of the St. Lawrence to the hills beyond.

On Wednesday afternoon a garden-party was given on the grounds of the Royal Victoria Hospital; it was attended by a large number of the members of the Association and ladies. The Governor-General was present, accompanied

by Lord Lister. The excursion on Wednesday afternoon to Lachine Rapids was participated in by over five hundred persons, who went by special train to Lachine and came down the Rapids in the steel steamer *Sovereign*. This, and a number of excursions around the city and island, were free to members and invited guests.

A Ladies' Reception Committee devoted their energies to providing for ladies visiting Montreal entertainment during the morning when the discussion in the Sections was going on. On Tuesday afternoon, Miss Roddick, sister of the President of the Association, gave a tea in the Art Gallery, and a large number of guests and members attended.

A great number of excursions were planned to take place before and after the meetings, and the various railroad and steamship lines reduced their fares one-half to the members of the Association and their families. Among these excursions were trips to Quebec and back; down the St. Lawrence and up the Saguenay and back; to Halifax, N. S., and return; to St. Johns, N. B., and return; to Ottawa and return; to Toronto and return, etc. A great many of those attending the meeting availed themselves of these opportunities to enjoy at little cost the finest Canadian scenery at a season when nature is especially attractive, the mid-harvest time of Canada.

On Wednesday afternoon, after the General Meeting, the degree of LL.D., was conferred by McGill University on Lord Lister (a fitting recognition of his services to surgery); on Prof. Charles Richet, of the University of France; on Sir Walter Foster; on Sir William Turner; on Dr. Henry Barnes; on Prof. Michael Foster; on Dr. W. H. Gaskell; on Mr. Christopher Heath; on Dr. Alexander MacAllister; on Dr. R. Saundby; and on Dr. Claud Wheelhouse.

I cannot presume on this occasion to enumerate a tithe of the excellent papers presented to the Association at the General Meetings and at the various Sections. There were eleven Sections, at which for four days papers were read and discussions held between the hours of 9 A. M. and 1 P. M. We would have been glad to have taken in all. It was truly an *embarras de richesse*. In all these Sections there were distinguished representatives of general medicine, or of some special department of medicine or surgery whom it was worth a journey to Montreal to see and hear. Fortunately, the *Daily Journal*, published by the Association, and distributed during the morning hours to attendants of the various Sections, supplied in a measure the need felt of having the principal papers in full and an epitome of all the discussions. This is a feature of these meetings which I do not remember ever to have seen in any other Medical Convention; certainly not at the annual meetings of the American Medical Association. The cost of these *Daily Journals* must have been large; it was, I believe, paid out of the funds of the Association.

On Tuesday evening there was a *Conversazione* at Laval University, where an address was given by Prof. Charles Richet, in French, "On the Work of Pasteur and the Modern Conception of Medicine." Those who were fortunate enough to get seats where they could hear this address (it was delivered apparently *impromptu*, without notes or manuscript) had a rare treat.

The address of Dr. Roddick, President of the Association, on the afternoon of Tuesday, on "Canada, its Medical Life and Resources," was full of interesting information respecting the climatic conditions, health resorts and spas, the medical schools, etc., of the Dominion. At this meeting, Dr. O'Donnell, the delegate of the Government of Manitoba, in behalf of the Premier of Manitoba, invited the British Medical Association to hold its next meeting in Winnipeg. He stated that this city was young; thirty years ago it was but an outpost of civilization; fifteen years ago the stream of emigration began to turn in that direction; and out of the wilderness has been formed the province of Manitoba with a population of 300,000, and the city of Winnipeg has grown up, containing a population of between 40,000 and 50,000. It is not likely that the invitation will be accepted!

The work of Wednesday comprised the Presidential Ad-

dress of Dr. Stephen MacKenzie, "On the Influences which have determined the Progress of Medicine during the Preceding Two and a Half Centuries"; the address of Mr. Christopher Heath, F.R.C.S., "On the Teaching of Surgery"; the address of Dr. Lachapelle, "On the Progress of Sanitation in Canada"; the Presidential Address before the Section of Pharmacology and Therapeutics, "On Past and Present Views as to the Actions of Medicines"; Dr. Watson Cheyne's address before the Section of Pathology, "On the Progress and Results of Pathological Work"; the Wednesday afternoon address of Dr. Osler, published in the *Boston Medical and Surgical Journal* for September 2d, etc.

I must not omit to mention the able and original paper by Dr. Maurice Backe, of London, Ontario, "On Mental Evolution." Dr. Backe, in a few incisive paragraphs under a dozen heads, has indicated the standpoint of modern psychology, as I believe. Some, however, will be astonished to learn that "the musical sense does not appear in the individual before the average age of about twenty years"; that it has existed less (probably) than 5,000 years in the race; that the human moral nature "is congenitally and permanently absent in four per cent. of all individuals"; and that "it cannot have existed in the race more than 10,000 years at the most." Equally novel are some of this author's views as to the future development of mind. "So-called telepathy and clairvoyance seem to be specimens of nascent faculties. As also the phenomena often named spiritualism. . . . To me these are not cases in which outside agents are acting on or through a human being, but are cases in which a given human being has faculties which are not commonly possessed. . . . Whether such faculties shall grow and become common . . . will depend on the general laws of natural selection, and upon whether the possession of the nascent faculty is advantageous or not to the individual and to the race."

The address of Dr. Malcolm Morris "On the Rise and Progress of Dermatology" was a masterly *résumé* of the history of Cutaneous Medicine, in which due credit was given to such American dermatologists as Fox, Bulkley and Duhring.

On Wednesday there was a large flocking to the Surgical Section to hear the eloquent address of Christopher Heath, and the discussion on Appendicitis, in which participated Drs. Jordan Lloyd of England, Sir William Hings-ton of Montreal, Dr. C. B. Ball of Dublin, Dr. H. O. Marcy, and others. Dr. Ball's division of acute appendicitis cases was a very practical one, that is, into three classes: the fulminating, those with abscess formation, and those in which the symptoms were such that the progress of disease could not be exactly ascertained. It is in this latter form that the question of operation is very difficult to decide.

The address by Dr. Mitchell Banks, in Windsor Hall, on Thursday, "On Military Surgeons, Ancient and Modern," was full of interesting information and was listened to by a large audience. The excellent army medical service of to-day was contrasted with that of former generations, but no mention was made of the splendid and unique organizations for surgical aid during the late Civil War in the United States (a singular and infelicitous omission).

The work of Friday in the various Sections was of unusual interest, and I regret that I cannot dwell on any of the topics presented. In the Section of Medicine, the subject of Cholelithiasis was discussed; in the Surgical Section, the Surgery of the Bile Passages. In the Section of Pharmacology and Therapeutics, the discussion on Diuretics was opened by Dr. Barr of Liverpool, and ably continued by Dr. Marshall of Cambridge, when a very important paper was read by Dr. H. A. McCallum of London, Ontario, "On Behring's Serum in Diseases not caused by the Klebs-Löffler Bacillus." The effect on consumption, cancer, pelvic inflammation, lupus, etc., was discussed. A favorable action was reported in the case of lupus. The theory suggested was that the serum increased the internal secretions. In connection with this paper, Dr. Bazin's "On Diphtheria Antitoxin" was read. He regarded it as important that

the strength, date of production, etc., should be stated on the label. He believed that "a clinical suspicion" afforded sufficient grounds for the use of a serum; bacterial examination should follow this.

In the Section of Bacteriology, Dr. V. Moore made a communication on "The Nature and Differentiation of Infective Diseases of Swine in the United States." He spoke also of swine diseases in Europe, seeking to group the diseases. Dr. W. H. Welch maintained that Metschnikoff's bacillus of hog cholera was not that of American hog cholera. He referred to the extreme difficulty of differentiating the pathogenic organisms in hog diseases. Dr. Boyce read a paper on "The Tubercle Bacillus in Milk," and discussed the communicability of tuberculosis from the lower animals to man. Tubercle bacilli have been found in the milk of cows with and without disease of the udder. Milk from tuberculous cows had been proved to be infectious.

In the afternoon meeting in Windsor Hall, Dr. Hermann M. Biggs of New York, delivered a masterly address "On Public Medicine," of which I will venture on no synopsis, as it will probably be published in several journals.

I think that I may say, fearless of contradiction, that the delegates and invited guests from the United States (such as took part) were not behind their British confrères in the merit of their contributions to the meetings. I felt on many occasions that our men were to be congratulated on the good points which they made and on the favorable impression which they gave. I think that the members of the Association from Great Britain and other foreign countries will go home feeling more respect for American physicians and surgeons, and that the bonds of union and friendship between the medical men of the several nationalities will be greatly strengthened. Such gatherings are cosmopolitan.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, AUGUST 28, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,868,060	716	293	21.14	14.42	14.98	1.68	2.80	
Chicago . .	1,619,256	434	222	34.96	7.36	28.52	2.07	2.99	
Philadelphia .	1,214,256	387	160	25.44	8.06	12.22	2.08	6.76	
Brooklyn . .	1,160,000	427	107	21.39	7.56	13.34	.92	5.52	
St. Louis . .	570,000	156	66	11.52	10.24	3.84	4.48	1.92	
Baltimore . .	550,000	204	92	30.38	8.33	24.01	4.41	1.47	
Boston . .	517,732	244	88	24.37	9.66	15.58	4.10	2.46	
Cincinnati . .	403,000	92	—	8.64	9.72	2.16	1.08	3.27	
Cleveland . .	350,000	115	56	7.3	3.48	6.09	—	1.74	
Pittsburg . .	285,000	109	60	32.00	8.28	21.16	2.76	5.60	
Washington .	277,000	101	34	26.00	9.00	7.00	9.00	2.00	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	105,050	30	7	13.32	13.32	6.66	6.66	—	
Worcester . .	105,050	29	14	27.52	—	24.08	—	3.44	
Fall River . .	95,919	38	24	39.45	5.26	54.19	—	2.63	
Lowell . .	87,133	47	25	42.10	6.36	42.40	—	—	
Cambridge . .	86,812	33	19	48.48	24.24	36.36	—	6.06	
Lynn . .	68,220	17	8	17.64	17.64	—	11.76	—	
Charleston . .	65,165	—	—	—	—	—	—	—	
New Bedford .	62,416	31	18	48.45	9.69	45.22	—	—	
Lawrence . .	55,510	29	14	27.00	10.35	24.15	3.45	—	
Springfield .	54,799	23	7	39.10	13.03	26.06	8.70	4.35	
Holyoke . .	42,364	1	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Salem . .	36,062	10	6	40.00	—	40.00	—	—	
Brockton . .	35,853	8	3	25.00	—	25.00	—	—	
Malden . .	32,844	15	1	59.94	13.53	46.62	—	—	
Chelsea . .	32,716	17	7	35.08	5.88	55.08	—	—	
Haverhill . .	31,406	10	4	30.00	20.00	30.00	—	—	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton . .	28,930	11	7	45.45	9.09	36.36	9.09	—	
Fitchburg . .	28,332	9	5	33.33	—	33.33	—	—	
Taunton . .	27,812	16	5	18.75	6.25	12.50	—	6.25	
Quincy . .	23,562	—	—	—	—	—	—	—	
Pittsfield . .	21,891	—	—	—	—	—	—	—	
Waltham . .	21,812	8	3	12.50	37.50	12.50	—	—	
Everett . .	21,575	9	4	22.22	11.11	11.11	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,784	4	—	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,471; under five years of age 1,411; principal infectious diseases (small-pox, measles, diphtheria and croup,

cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 876, diarrheal diseases 613, consumption 338, acute lung diseases 196, diphtheria and croup 116, typhoid fever 81, whooping-cough 37, scarlet fever 13, cerebro spinal meningitis 9, measles 7.

From whooping-cough Chicago 9, Philadelphia and Washington 5 each, New York, Brooklyn and Pittsburg 4 each, Cincinnati and Cambridge 2 each, St. Louis, Boston and Everett 1 each. From scarlet fever Philadelphia 6, New York 3, Boston 2, St. Louis and Baltimore 1 each. From cerebro-spinal meningitis Washington 3, Malden 2, New York, Philadelphia, Lynn and Somerville 1 each. From measles New York 4, Philadelphia, Brooklyn and Fall River 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending August 21st, the death-rate was 28.7. Deaths reported, 6,058, diarrhea 1,997, measles 138, whooping-cough 74, diphtheria 42, scarlet fever 34, fever 34.

The death-rates ranged from 12.0 in Huddersfield to 52.6 in Wolverhampton; Birmingham 42.9, Bradford 31.6, Derby 27.8, Gateshead 23.2, Hull 45.2, Leeds 29.9, Leicester 35.6, Liverpool 38.3, London 24.2, Manchester 39.2, Newcastle-on-Tyne 29.5, Nottingham 32.0, Portsmouth 25.4, Sheffield 33.2, Swansea 17.2.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 4, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	732	335	19.14	12.60	12.46	.98	3.50	
Chicago	1,619,246	366	195	31.36	10.04	23.52	3.36	3.08	
Philadelphia	1,214,556	—	—	—	—	—	—	—	
Brooklyn	1,160,000	436	118	21.39	10.58	15.87	.92	3.22	
St. Louis	570,000	170	81	9.28	11.02	2.90	4.06	1.74	
Baltimore	550,000	186	82	29.20	7.36	18.36	3.78	5.94	
Boston	517,732	244	108	25.40	7.65	14.40	2.70	3.60	
Cincinnati	400,000	97	—	8.24	13.39	5.15	1.03	2.06	
Cleveland	350,000	111	50	21.00	4.50	18.90	.90	—	
Pittsburg	285,000	100	49	25.00	6.00	15.00	6.00	4.00	
Washington	271,000	91	49	32.70	7.63	14.17	6.54	5.45	
Milwaukee	270,000	—	—	—	—	—	—	—	
Nashville	106,050	27	8	20.60	11.11	22.22	3.70	3.70	
Worcester	106,050	38	16	23.67	5.16	21.04	—	—	
Fall River	96,919	48	26	39.42	6.24	31.20	8.32	—	
Lowell	81,143	49	33	33.33	—	33.33	—	—	
Cambridge	80,812	25	9	28.00	16.00	25.00	—	—	
Lynn	68,220	53	16	39.39	8.00	30.30	—	—	
Charleston	60,165	—	—	—	—	—	—	—	
New Bedford	62,416	26	16	42.24	7.68	34.56	7.68	—	
Lawrence	59,510	21	12	37.08	4.76	23.80	—	9.52	
Springfield	54,790	17	13	58.80	11.76	60.94	5.88	—	
Holyoke	45,041	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	—	—	—	—	—	—	—	
Brockton	35,753	—	—	—	—	—	—	—	
Malden	32,834	11	4	27.27	9.09	18.18	—	9.09	
Chelsea	32,716	10	5	20.00	—	20.00	—	—	
Haverhill	31,466	11	7	5.88	17.64	5.88	—	—	
Gloucester	28,775	—	—	—	—	—	—	—	
Newton	28,590	8	2	12.50	—	12.50	—	—	
Fitchburg	28,392	10	6	30.00	—	20.00	—	10.00	
Taunton	27,512	8	3	25.00	—	12.50	—	12.50	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	7	3	42.84	—	42.84	—	—	
Everett	21,575	1	6	57.12	14.28	42.84	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	9	3	22.22	—	22.22	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,967; under five years of age 1,221; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 602, consumption 293, acute lung diseases 186, diarrheal diseases 388, diphtheria and croup 91, typhoid fever 66, whooping-cough 27, cerebro-spinal meningitis 11, measles 8, scarlet fever 8, erysipelas 3.

From whooping-cough New York 9, Brooklyn and Washington 5 each, Chicago and Boston 2 each, Baltimore, Cleveland, Cambridge and Lynn 1 each. From cerebro-spinal meningitis New York, Boston and Cambridge 2 each, St. Louis, Baltimore, Cleveland and Lawrence 1 each. From measles New York 5, Chicago, Brooklyn and Providence 1 each. From scarlet fever New York and Chicago 2 each, Baltimore, Boston, Cleveland and Lawrence 1 each. From erysipelas New York 2, Boston 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending August 25th, the death-rate was 24.6. Deaths reported 5,180, diarrhea 1,490, measles 106, whooping-cough 71, fever 45, diphtheria 39, scarlet fever 32.

The death-rates ranged from 14.4 in Huddersfield to 47.6 in Preston; Birmingham 34.5, Bradford 25.5, Cardiff 22.4, Gateshead 29.4, Leeds 27.3, Leicester 27.9, Liverpool 30.6, London 20.4, Manchester 28.9, Newcastle-on-Tyne 30.0, Nottingham 23.5, Sheffield 29.2, Sunderland 31.2.

METEOROLOGICAL RECORD

For the week ending September 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-	Relative		Direction		Velocity		We'th'r.		Rainfall in inches.			
	meter	eter.	humidity.		of wind.		of wind.		.					
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.					
S...29	30.04	68	74	62	67	74	70	N.	S.	6	12	C.	C.	.55
M...30	29.92	72	80	64	76	70	70	S.W.	N.	14	9	F.	C.	
T...31	30.04	68	77	59	68	58	63	N.W.	W.	8	8	O.	C.	
W...1	30.10	68	79	58	59	63	61	W.	S.W.	7	6	C.	C.	
T...2	30.08	65	68	62	96	92	94	N.E.	N.W.	4	4	R.	C.	
F...3	30.28	60	66	54	71	68	70	N.	E.	14	2	C.	F.	
S...4	30.38	59	65	63	69	71	70	N.	S.	4	7	C.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 11, 1897.

F. L. ROGERS, surgeon, detached from the Boston Navy Yard, October 4th, and ordered to the Norfolk Navy Yard.

J. L. NELSON, medical inspector, detached from the Norfolk Navy Yard, September 30th, and ordered to the Boston Navy Yard, October 4th.

RECENT DEATHS.

ISAAC HOLDEN STEARNS, M.D., M.M.S.S., died in Cliftondale, September 6, 1897, aged seventy-two years.

DR. JOHN C. BOLLES, of Montville, Conn., one of the oldest members of the New London County Medical Association, died at his residence September 11th, aged eighty-one years.

DR. JULES BERNARD LUYTS, the eminent alienist physician, member of the Academy of Medicine and officer of the Legion of Honor, died recently in his sixty-ninth year at Divonne-les-Bains. Born in Paris in 1828, resident medical officer at the hospital in 1853, and graduated as M.D. in 1857, Dr. Luyts became in 1862, physician to the Salpêtrière and the lunatic asylum at Ivry (Seine). His best-known work, "The Brain and its Functions," was published in 1878. Dr. Luyts was for a long time professor at the Salpêtrière, afterwards at the Charité, where he devoted himself especially to the study of the phenomena of hypnotism.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Maine Medical Association, 1897, Vol. XII, Part III.

Annual Report of the Board of Health of the Health Department of the City of New York for the year ending December 31, 1896. New York. 1897.

Recherches Expérimentales et Cliniques sur les Nerfs Sécréteurs des Larmes. Par le Dr. M. Campos. Paris: Henri Jouve, Imprimeur de la Faculté de Médecine. 1897.

A Text-Book of Diseases of Women. By Charles B. Penrose, M.D., Ph.D., Professor of Gynecology in the University of Pennsylvania; Surgeon to the Gynecean Hospital, Philadelphia. Illustrated. Philadelphia: W. B. Saunders. 1897.

Phthisis Originating in Colorado. A Case of Double Pulmonic Murmur, with Diastolic Thrill. Interrupted Respiration, a Study of Certain Physical Signs of Diseases of the Chest. A Case of Pulsating Pleurisy. The Physical Signs of Acute Bronchitis. By J. N. Hall, M.D., Denver, Col. Reprints. 1897.

Atlas and Essentials of Bacteriology. By Prof. K. B. Lehmann, Chief of the Hygienic Institute in Würzburg, and Dr. Rudolf Neumann, Assistant in the Hygienic Institute in Würzburg. With 63 chromo-lithographic plates, comprising 558 figures, and numerous engravings. New York: William Wood & Co. 1897.

Original Articles.

THE HUMAN FOOT IN ART.¹

BY E. H. BRADFORD, M.D., BOSTON.

WHEN the sculptor Hiram Powers pointed with pride to the anatomical excellence (in his eyes) of his "Greek Slave" in contrast to the anomalies in the classic masterpieces, he argued himself lacking in true artistic spirit.

Correct commonplace is not preferable to what is beautiful even though the latter is defective in minor details.

It is certainly hypercriticism to lay undue stress upon small trivialities where the whole commands admiration.

No true Romanist kissing the bronze toe of St. Peter pauses to examine the modelling of the foot; and any one who looks at the anatomical defects of Fra Angelico's "Coronation of the Virgin," or Botticelli's "Madonna" at the Louvre, robs himself of time which might be more enjoyably employed.

And yet a study of great Homer nodding has its interest and value, and need not detract from our true admiration.

Any one whose attention has been called to the subject of the shape of the human foot will find it of interest to examine the feet in a collection of statues. While there is some variation in the work of different sculptors, it will be found that the types can be classed under three heads: first, Barbaric and Egyptian type; second, the Classical type; third, the neo-Classical and Modern.

The first may be considered the type of the barefooted or sandal-wearing people; the second, sandal- and cothurnus-wearing people; and the third, those of the races that have worn shoes.

The Barbaric and Egyptian type is, as a rule, badly modelled, with the exception of some of the best of Egyptian sculptures, where modelling in some instances is carefully done.² The various statues of Rameses II, B. C. 882, the famous wooden statues of the Fourth Dynasty, B. C. 3700, are all excellent types of this class. Under this head can also be placed Assyrian specimens and the works of early Indian, Burmese, Siamese, Chinese and Japanese art, as well as the few crude figures from Africa, Mexico and Alaska, and also the archaic Etruscan, Cyprian, and the early Greek statues.³ This class is characterized by the lack of divergence of the axes of the feet in standing figures, that is to say, by the parallel position of the axes of the feet, by the straight inner edge of the foot, and by the straight and uncrumpled condition of all the toes. In the Egyptian and early Greek art, where there is any attempt at careful modelling of the toes, the first toe is separated from the second, and in most instances the second toe is represented as somewhat longer than the first.

The second, or Classical, type is best represented by

¹ Read before the American Orthopedic Association, Washington, D. C., June, 1897.

² A mummy may be seen in the Museum of the Louvre, illustrating the care with which the straightness of the toes was preserved; each toe, including the fifth, was separately wrapped. In the British Museum an unwrapped mummy of an Egyptian official of the Eleventh Dynasty showed the straight first toe seen in the statues of the Egyptian type.

³ In the Greek statues on the Sacred Way at Branchidial Caria, Asia Minor, B. C. 560, the fifth toe is uncrumpled; in all subsequent Greek statues the peculiarities mentioned of the Classical type are found. In the Museum of Northern Antiquities in Copenhagen a round beach-stone may be seen on which is cut two footprints; the inner edge is straight; the toes, including the fifth, are straight. It is of unknown antiquity.

the famous foot of the Hermes, supposed to have been made by Praxiteles. The characteristics are well marked. The line of the inner edge of the foot is always straight, except that there is a slight curve between the head of the metatarsal and the ankle. There is a separation between the first and second toes; the second, third, and fourth toes frequently diverge from the axis of the foot at an angle of at least thirty degrees and are parallel to each other; the fifth toe is represented as short and crumpled, and is placed back of the base of the other toe; the outer edge of the foot curves behind the fifth toe to the middle of the foot. The angle of divergence of the standing foot is slight. This type is seen in all Greek and Roman statues, with but little variation, the straight direction of the first toe being universal as well as the crumpled condition of the small toe. The curling of the small toe appears in Greek art after the sixth century B. C., and may be said to be universal since in all art influenced by Greek tradition.

The foot in modern sculpture as well as in that of the Renaissance is copied largely from the classic. The peculiar distortion of the small toe is universal; and, in addition, the fifth toe is often placed even farther back on the outer edge than in the best Greek type.

Wherever the sculptor has endeavored to leave classic models and to copy nature, he has produced a curious medley in distortions. This is particularly the case in recent sculpture, where deviation of the greater toe is extremely common. Modern sculptors, neglecting the classic tradition, copy imperfect models. The outward divergence of the second, third and fourth toes from the median line is copied from the Greek and exaggerated, representing the fourth toe as straight and uncrumpled—impossible in modern shoe-wearing models. The modern sculptor copies also the curved line on the outer side of the foot, which is seen in Greek and in Roman art, especially exaggerating the classic curve from a desire to present a curve of beauty.⁴

Certain modern sculptors place the feet diverging from each other at a greater angle than is seen in the Egyptian and Classical periods.

The Greek showed such a mastery in surface anatomy, the Barbaric type is so crude, and the Modern type so impossible, that the first and readiest impulse would be to accept at once the foot of the Hermes of Praxiteles and show it as a model for all sculptors, as is done in many art schools; but any inquiry as to which of these types is the most correct should rest on a firmer basis than a hasty conclusion.

To form an opinion in the matter it is necessary to bear in mind the deformities of the feet caused by the footwear in the different periods referred to, and to study the foot unaffected by shoes. Of most importance is the common distortion of the great toe, which is known as hallux valgus, which results from the yielding of the great toe to outward pressure at its extremity. The corresponding inward distortion of the small toe from shoes is also often seen. A

⁴ The number of modern sculptors who give to their statues hallux valgus is too great to be enumerated in a short paper. Even as careful an artistic anatomist as Gérôme, in his "Bellona" gives this defect. The sculptors in the earlier part of the century were more careful than the modern French school, but they frequently modelled the deviating great toe (Thorwaldsen, Canova). This is also true of the brilliant school at the time of Louis XIV and of the Renaissance (Donatello, Michael Angelo).

crumpled and crowded condition of the toes known as hammer-toe, or curling downward of the toe, results from too short shoes or from the backward pressure exerted by the front of the shoe on the extremity of the smaller toes. Another affection of the toe is extremely common in persons whose feet have been compressed by shoes, namely, a weak or powerless condition of the muscles which prevents active muscular use at the phalangeal joints.

Some distortion of the toes is seen at a comparatively early age. The examination of the feet of a number of children indicates that in communities where shoes are worn the feet, even in young children, differ in shape from the normal shape of the foot; the separation of the great toe from the second toe is lost at an early age; the fifth toe is crowded towards the fourth and the muscular strength diminishes even at the age of three. Some distortion of the foot in modern cities may be said to be universal, and sculptors seeking perfect models for the feet find no model with uninjured feet.

SHAPE OF THE FOOT UNAFFECTED BY SHOES.

If the foot of a young infant is examined, it will be seen that there is muscular power in the movement of all of the toes. The great toe can voluntarily be drawn to the inner side, and the fifth toe can be drawn to the outer side by voluntary muscular exertion; the toes can be flexed readily. The second toe is, when stretched to its full length, frequently longer than the first; the third is of the same length of the first; the fourth is somewhat shorter; and the fifth, though shorter, is but slightly so, and is readily moved, flexed, extended as well as abducted, by muscular action. None of the toes remain permanently curled, though when in a relaxed condition the terminal phalanx drops somewhat and the smaller toes curl. A separation between the first and second toes is normal when the muscles are active, and the great toe is drawn to the inner side frequently. The line of the extremity of the toes presents a gradual curve, the greatest convexity being at the tip of the second toe. There is no twist inward of the fifth or small toe. The curved line connecting the proximal end of the toes is a curve similar to that formed by the extremities of the toes. The line of the inner edge of the foot is always straight, except when there is contraction of the muscles when the great toe diverges to the inside.

Adult feet that have not worn shoes present shapes similar to that of infants, except that in the ordinary wear and tear of locomotion the skin is thickened, and some curling downwards of the smaller toes is frequently seen, owing to the strength of the plantar muscles. For this reason the second toe is not usually seen longer than the first, as the position which it assumes is usually less straight, it being less strong. The inner edge of the foot is always straight; but in people who walk actively, the great toe and its metatarsal becomes developed in strength and size more than is seen in infants. The foot is longer relatively to its width; the fifth toe, being the weakest, is very susceptible to slight changes from lateral pressure, and where slippers have been worn or loose shoes, a slight twist of the terminal phalanx of the fifth toe is frequently seen. The widest part of the foot is at the cross-line drawn across the toes and including the fifth toe, as in the Egyptian foot. The foot somewhat re-

sembles that depicted in the Egyptian sculptures, except the toes are parallel, and the second, third and fourth do not diverge from the long axis of the foot, and in the position of rest the smaller toes are more flexed than in the Egyptian statues.

An investigation of the deformities of the foot due to footwear leads to an inquiry into the different kinds of foot-covering. No proof is needed to show that the modern shoe distorts the foot, and an examination of any collection of shoes (as the excellent one at the Museum of the Cluny and the remarkable historical exhibit of shoes at the Chicago World's Fair) shows that shoes of the Middle Ages distorted the feet nearly as much as the modern ones.⁵ Distorting shoes were probably not as universally worn as at present, and were perhaps used chiefly by the leisure classes. But pointed-toed shoes were fashionable even among the Egyptians. In fact, it may be said that as soon as man ceases to need the free use of the foot in hunting, bread-earning, marching or locomotion, he attempts to use the shoe as a means of ornamentation, according to his own fancy; as an evidence of distinction and a mark of freedom from base toil — like the compressed foot of the Chinese lady.

Footwear can be classified as follows: boots or shoes, where the whole of the foot is covered; slippers, where the front of the foot is covered, both holding the front by the upper, covering the dorsum of the foot; and sandals, where an inter-toe strap connected with cross-straps holds the sole.

Although boots, shoes and slippers vary in shape according to period and fashion, with the exception of the boots of laboring men and jack-boots, ornamental shoes were almost always pointed, though at the period of the Thirty Years' War, and at a time in the seventeenth century, square-toed shoes were occasionally seen for men. Medieval and Oriental slippers do not retain the heel, and allow the foot to slip backward without crowding the front of the foot forward.

Sandals furnish a protection to the sole, and are secured to the foot by some form of thong or strap. The oldest form of sandal seen in sculpture is the Assyrian,⁶ which was retained by a strap around the great toe connected with straps from the sides of the sole and behind the heel. In the Egyptian sandal a thong passing between the first and second toes, from the middle of the front of the sandal over the dorsum of the foot, was connected with thongs from the sides of the sandal. This sandal is the most common type, and resembles the modern Japanese and the modern Mexican and South American sandal. The ancient Toltec sandal was furnished with two thongs, one passing between the first and second toe, and the other between the third and fourth. The modern Somalis wear a sandal with a thong split so as to admit the second toe, leaving the other toes free. The early Etruscans wore a sandal with cross-straps, the front one passing from the sole of the sandal, between the first and second toes, over the second, third and fourth toes, where it is secured to the sandal, leaving the first and fifth toes free, the other toes being secured under a strap.⁷

In all these forms of sandals, no pressure is exerted upon the small toe; but in a form of sandal with a

⁵ This is also seen in the sculptured tomb monuments of the Middle Ages.

⁶ Collection at the Peabody Museum, Harvard University.

⁷ This is seen in the rare terra-cotta tomb effigy of the early Etruscan period (uninfluenced by Greek art) in the British Museum — showing a sandal differing entirely from any seen elsewhere.

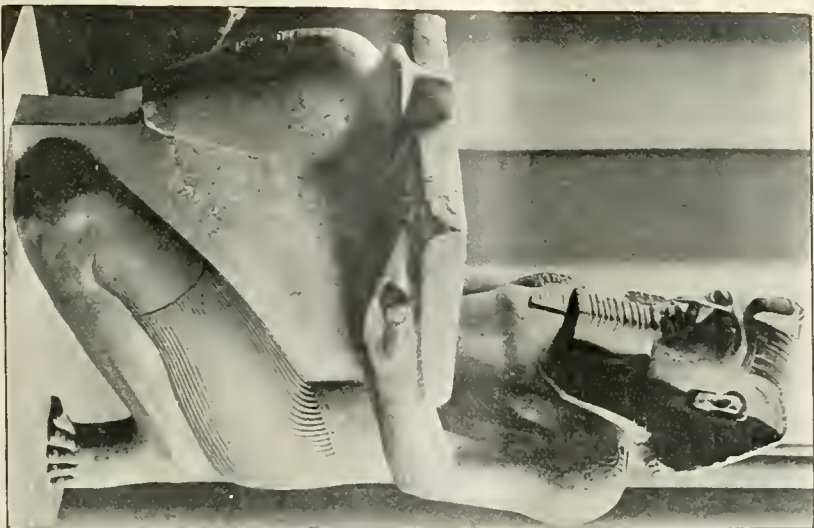


FIG. 7.



FIG. 8.
THE HUMAN FOOT IN ART.



FIG. 9.

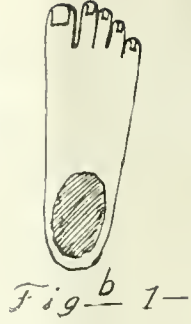


Fig-1-



Fig-2-



Fig-3-



Fig-4.



Fig-5.



FIG. 6.

front, a cross-strap seen in the Orient for the insertion of the front of the whole foot, a certain amount of pressure is exerted on the side of the little toe, as in a slipper. This strap, however, is as loose as the cross-strap in snow-shoes. In the Greek sandal, however, a cross-strap or straps were connected by lacings to be tightened in such a way as to be more firmly held to the foot. The forms varied greatly. In most a single inter-toe strap existed to be caught in the cross-straps. In later sandals, however, the inter-toe strap was omitted, a reminder surviving conventionalized in the shape of the sole, which preserved a slight depression at the front of the sole between the first and second toes. The Greek and Roman sandal gave freedom to all the toes except the little toe, which was crowded by the tight cross-strap, as well as by oblique straps, which in some forms of sandals passed backwards from the sides of the front of the sandal to the instep, raising and crowding the little toe and the side of the first metatarsal. When this was snugly laced, an inter-toe thong became unnecessary, as the pressure on the little toe and the top of the foot prevented the foot from slipping forward.

This form of footwear can be easily imagined, if we suppose a low bicycle shoe, with the tip removed, leaving all the toes except the small toe free. A sandal of this sort was perhaps not developed in the early period of Greek history; but, judging from sculpture, the cothurnus of the late Greek and Roman period differed but slightly from that of the Classical period.

The ancients wore at times beside the sandal a loose covering like a moccasin, which did not affect the shape of the foot. Footwear of this sort would develop the shape in the foot seen in the *Hermes of Praxiteles*, crowding the small toe, giving the full length of the fourth, third and second toes (from the free and strong development of these toes), allowing a straight first toe and the slight inward curve on the inner edge of the first metatarsal at its proximal end, from the pressure of the oblique strap, and also the outward curve on the outer edge of the foot, as the chief pressure of the oblique strap came upon the little toe and not on the metatarsal. The inter-toe strap accentuated the separation of the first and second toes and the deviation from the axis of the foot of the smaller toes. This slightly distorted foot was seen in the models studied by the Greek masters.⁸

The dominating influence of Greek art explains the fact that the shape of the foot has been copied since

then by all true sculptors who have accepted Greek art as its fountain source.

In the Renaissance, where models were used by the great masters in painting and sculpture, the deformity of the great toe following the use of the shoes which crowded the first toe outward is commonly depicted, and in sculpture is occasionally seen. In modern French sculpture, among the realists this defect, the well-known *hallux valgus* of the model, is added to the classic defect, namely, an exaggerated difference between the fourth and fifth toes, and exaggerated rounding of the outer edge of the foot. Modern sculptors frequently also give a greater angle divergence to the axes of the feet in the standing figure than is seen in Classical statues, and much greater than in Egyptian or Barbaric figures. In this, too, the modern artists are copying defective models to the detriment of their art.

It can, with a certain amount of justice, be argued that, when a conventional use has been sanctioned for a long period of acceptance without violating the laws of beauty, it has justified its existence by a right of pre-emption, and that it is hypercritical to object to it. The argument hardly applies to a deformity, and would at once seem inadmissible, if urged by a Chinese artist in defence of the beauty of the "golden lilies," as Chinese poetic fancy terms the deformed Chinese ladies' feet. The deformities here mentioned differ in degree, but not in kind, from that accepted by usage in China; they are also distortions of nature.

There is a healthy tendency in modern art to revolt against what seems classic convention, and to copy nature; but, to do this, the artist needs thorough knowledge to enable him to escape presenting as a standard the deformity observed in his own experience.

The taint of the corseted and high-heeled, weak-ankled *grisette* injures every modern art exhibition, even when the ideal is attempted. The sculptor who moulds "immortal forms" should not perpetuate deformity. There should be no *Zolaism* in sculpture.

Few, even among artists, realize how common it is to find defects immortalized in masterpieces. The wry neck of *Alexander the Great* may be allowed in a portrait statue; but it would be an error to give to the statues of all heroic generals twisted heads. Crumple-footed divinities, out-toed demigods, demigoddesses and weak-ankled national heroes cannot but offend the fastidious, when seen in lasting marble and monumental bronze.⁹

The normal foot resembles a combination of the Greek and Egyptian sculptured foot. It is straight on the inner edge, without the slight curve along the base of the first metatarsal; the fifth toe is parallel to the other, is not crumpled or twisted, and is not placed far back of the line of the other; the outer edge is but slightly curved, and does not bulge between the fifth toe and the ankle. The toes are flexible, and when at rest do not project stiffly, as in the Egyptian statues, but are slightly flexed, especially the smaller toes.

⁸ The defects in drawing the human foot seen in pictures are not alluded to here as fully as could be done in a longer paper. Less care is given to modelling in pictures than in sculpture. In brief, it may be mentioned that the defects here mentioned are more common in the paintings, even of the old masters, than in sculpture. In the gallery at Amsterdam a picture by Goltzius, A. D. 1600, depicts a dying Adonis with the feet sole forewards in the foreground and displaying double *hallux valgus* of an aggravated type. Rubens has never thrust his errors so directly upon the spectator; but his faults in this particular are fully as grievous, as is shown in his book of design in the *Musée Plantin* in *Autwerp* and in almost all his paintings. Michael Angelo, Titian, Tintoretto, Raphael—all show both the crowded fifth toe, and frequently *hallux valgus*.

⁹ An examination of Greek and Roman footwear, as seen in sculpture, is made difficult from the fact that in many instances the sandal is conventionalized. A great variety is also found, from the moccasin-like foot-covering shown in the fragments from the Parthenon to the elaborate sandals of the Roman emperors. A sandal is to be seen in the late Greek statue of *Ariadne*, found in *Koma Vecchia* and now in the British Museum, showing side loops for a cross thong over the base of the toes and crowding the fifth toe, leaving the thong to the imagination. The sandal of the statue of *Jason*, at the Louvre, shows the indentation in the sole opposite the space between the first and second toes, where a thong would be attached, but not only is there no inter-toe thong, but the sandal is apparently to be kept in place without one by the side leathers over the instep. A peculiar sandal is seen in the group of the Roman period, in the Louvre, called "*Mars and Venus*," in which a depression is delineated, allowing the longer toes to drop to a lower level. The Roman sandals in the Museum of the *Cluny* (found near the Rhine) and at the Museum in Munich show a straight inner edge which would have satisfied a North American Indian; and the sandals depicted in the Greek votive tablet in the British Museum would have been acceptable to a modern Japanese. The bronze statuette of the youthful *Bacchus*, in the Payne King collection in the British Museum, shows the side compression of the inner edge of the foot and of the little toe without a cross toe-strap, while the statue of *Hadrian*, also in the British Museum, the *Diana Chasseresse* and the *Seated Philosopher* of the Louvre, as well as many other statues, show the compression by lacing including the cross toe-strap.

There is not much vitality in the contention that this foot is not as graceful as that presented by the Greek artist, in the mind of any one who has seen normal feet uncrumpled by shoes or distorted by toil; but even if there were more, although it is the province of the artist to furnish us with beauty as he sees it, he must find it within the lines of truth, and it is as true now as in Shakespeare's time that

"Above the art we add to Nature
Is the art which Nature gives."

DESCRIPTION OF CUTS.

FIG. 1. Diagram representing the Greek (a), Egyptian (b), and modern type (c) of sculptured foot.

FIG. 2. (a) Foot changed by modern shoe. (b) Infant's foot, toes extended. (c) Infant's foot, toes at rest. (d) Child's foot, showing beginning changes from shoes.

FIG. 3. Types of sandals: (a) Mediterranean single-thong sandal. (b) Chaldean sandal secured to first toe. (c) Somalis sandal secured to second toe. (d) Toltec sandal secured to second and third toes. (e) Early Etruscan sandal secured to second, third and fourth toes.

FIG. 4. Greek sandal with inter-toe thong, causing divergence of toes; cross straps crowding the little toe; and an oblique strap pressing on the inner edge of the first metatarsal and binding the foot at the mid-tarsal joint.

FIG. 5. Drawn from the fragment of the statue of Apollo from Phigaleia (in the British Museum), showing the compression of the small toe.

FIG. 6. Drawn from the Hermes of Praxiteles found at Olympia.

FIG. 7. Egyptian seated statue (British Museum).

FIG. 8. Japanese feet, showing the lack of crowding of the fifth toe seen in Greek and modern art.

FIG. 9. From a picture of Sir Joshua Reynolds showing the hallux valgus distortion of the great toe in addition to the crowded little toe.

HEMORRHAGE ATTENDING THE EXTRACTION OF CATARACT.¹

BY O. F. WADSWORTH, M.D., BOSTON.

THE exact cause of hemorrhage attending the operation for extraction of cataract has remained an unsolved riddle. But our very ignorance as to the cause makes such cases interesting. The condition of the eyes, and the age and health of the individuals who have been the subjects of this accident, have presented very decided differences; and probably the cause is not always the same. The cases observed in my own practice do not throw much light on the nature of the affection, yet they may serve with others as material to lead eventually to a satisfactory solution.

CASE I. A man eighty years of age had been under observation for two or three years with slowly maturing cataract. During this time he had been repeatedly examined, and, aside from the lenticular opacity, no defect found in the eyes. After an interval of some months he came again to the hospital; and a somewhat hasty examination showing the cataract, in the left eye at least, mature, he was admitted and etherized. When the speculum was introduced, it was noticed that the perforating veins of that eye were larger than usual, but the tension was not specially abnormal, although perhaps somewhat increased. Puncture and counter-puncture were in the scleral edge, the summit of the flap in the cornea. Almost immediately after the section was finished a small, threadlike stream of blood was seen to flow upward across the lens from behind the lower border of the pupil, followed quickly by larger quantities which caused extensive prolapse of the iris and gaping of the wound. The eye was bandaged, and it subsequently atrophied. A few months later, when the patient desired operation on the other eye, it was found to have lost perception of light.

CASE II. A sailor, seventy-five years of age.

Cataract in both eyes. Right eye: sight failing one or two years; counts fingers at 17'. Left eye: sight failing four or five years; cataract quite dense; projection faulty; a number of superficial and several deep veins running backward from near the corneal edge, and along its upper half forming an anastomosis about $\frac{1}{2}$ " from the limbus; anterior chamber of good depth; tension normal.

October 8, 1877. Extraction, left. Puncture and counter-puncture in sclera, the summit of the flap in clear cornea. Large iridectomy before division of capsule, a small amount of cortical following spontaneously the withdrawal of the cystotome. Brief and unsuccessful attempt to remove a portion of capsule by forceps. The speculum was raised so as not to press on the globe and a moderate sized nucleus and some cortical was readily pressed out, but a considerable amount of cortical remained and several attempts to remove this by pressure through the lower lid were only partially successful. At a moment when no pressure was being made blood welled up from behind the iris, filled the anterior chamber and flowed out of the wound. After a few minutes the anterior chamber became partially free from blood and a bandage was applied.

The following day the anterior chamber was again filled with blood and a clot distended the wound. The clot gradually protruded until the corneal flap was folded backward by it, and the whole cornea became densely infiltrated. The man was discharged at his own request on October 27th.

CASE III. A man of forty-five years, always well and strong. Right eye, normal and with good vision. Left eye, mature cataract. He said this eye had been struck by a fork when he was a child, but he experienced little inconvenience at the time and the sight had been failing only a year. There was no scar to be perceived. Tension was normal; pupil active; he counted fingers at one to two feet and projection was good.

February 3, 1893. Simple extraction. The speculum removed as soon as the corneal section was completed. The lens was removed without difficulty, the pupil immediately became round and even. But within a few seconds, while the eye was still open, there was a sudden and great prolapse of the iris attended by severe pain. The lids were closed. Shortly there was a large gush of fluid vitreous, followed soon by a smaller gush and this by a stream of blood which trickled down the cheek. The man was told of the condition of affairs, enucleation was advised and done. There was no excessive bleeding from the enucleation and the healing was normal.

Although in this case the man's history so far as known was good, it is a significant circumstance that he is reported to have died suddenly of apoplexy within a year.

CASE IV. A man of sixty-nine. Good general health; mature cataract of two and a half years' duration in the left eye. Size and dilatability of pupil good; projection normal. Eight years before, a cataract had been removed from the right eye by an experienced oculist, followed by sloughing of the cornea and panophthalmitis.

April 8, 1895. Simple extraction under cocaine. Section smooth, wholly in the cornea. Ecchymosis of conjunctiva where grasped by fixation forceps. Speculum removed after capsulotomy. The nucleus

¹ Read before the American Ophthalmological Society.

and a considerable amount of soft cortical removed without special manipulation. The iris prolapsed, but went back into place with slight stroking of the cornea, leaving a round, clear, central pupil. There was no apparent tendency to gaping of the wound or dilatation of the pupil, although the globe seemed a little more rounded out than usual. Eserine, one-tenth per cent., dropped into the eye, a light pad wet with solution of bichloride laid over the lids, and the bed rolled aside, to wait for a while before the bandage was applied. Some fifteen minutes later the patient complained of severe pain; the lower lid was found to be covered by a large amount of fluid vitreous and the iris extensively prolapsed in the gaping wound. A bandage was applied; he was given a subcutaneous injection of morphia; he had a chill.

Three days later the prolapse had flattened, the lower part of the anterior chamber was of good depth, there was no blood in the pupil; but after another four days the prolapse had increased and a fibrous membrane was adherent to it and overlapped the upper part of the cornea. This membrane was snipped off with scissors; the prolapse was removed as completely as possible, and only recurred slightly afterward.

The bandage was continued till April 25th. May 2d there was a small amount of blood in the anterior chamber and a membrane tinged with blood stretching across the pupil; very gradually the pupil was drawn upward. There was no tenderness. Tension was slightly diminished. Twice the membrane in the pupil was divided to some extent by a knife needle, but the opening closed quickly; each time there was a small hemorrhage into the anterior chamber, which was readily absorbed. Until the time of his discharge, May 30th, there was perception of light.

CASE V. An American woman, seventy-five years old, of good general health. Cataracts in each eye, which had been recognized for three years. The front of the eyes appeared normal; there was a good depth of the anterior chambers; the irides were active. Tension normal. There was sufficient vision in the left eye to enable her to find her way about with some difficulty. Projection good in both. The lenses presented numerous striæ, with less opaque areas between them; and when the pupils were well dilated with homatropine, a view of the fundus of the left eye (very imperfect, but enough to show that there were at least no very gross changes) was obtained.

Several days later, March 12, 1897, simple extraction of the right eye under cocaine. The section was wholly in the cornea and quite smooth. The speculum was removed as soon as the section was completed. T-shaped division of capsule, without difficulty and without displacement of the lens. Just at the end of the capsulotomy the patient complained of some pain, but she did not move and neither then nor at any time during the operation was there any special contraction of the orbicularis or of the ocular muscles. On placing the spoon on the lower part of the limbus it was noticed that the eye was quite firm and the probability of hemorrhage was mentioned. A rather large, slightly brownish lens, followed by a very small amount of cortical, was expelled by moderate pressure, with no prolapse of the iris. Almost immediately the wound was widely distended by vitreous and there was complaint of severe pain. The lids were closed, and in one or two seconds a large amount of apparently healthy vitreous oozed out between them. A pad wet

with solution of bichloride was laid over the lids and a subcutaneous injection of morphia given. A few moments later blood was trickling out between the lids and running down over the cheek. The condition was explained, enucleation advised and agreed to. By the time etherization was complete a clot had formed in the wound so firm that it was not disturbed during the removal of the eye. The enucleation was attended by no unusual hemorrhage. Healing was normal. The eye was hardened and divided. Its cavity was filled with blood-clot, which was situated in part beneath the extensively detached choroid. The few sections examined showed no apparent disease of the choroidal vessels.

Of these cases the first may be regarded as suspicious before the operation. Too much reliance was placed on examination made some months before, and hence the examination at the time of operation was imperfect. When the discovery of the large perforating veins and doubtful tension was made the patient was already etherized, and on the whole it seemed better to go on and operate. Had cocaine anesthesia then been known it would still have been possible to make further examination of the functions of the eye; or had we then realized as we do now the comparative unimportance of complete maturity of the cataract, the other eye might have been operated on instead, with perhaps better results.

The second case was certainly an unfavorable one. While the record does not mention the fact, I do not doubt that under such circumstances I operated only on the urgency of the patient. Whether even then it was justifiable may perhaps be a question. The other three cases presented no unfavorable symptom.

In none of the cases was there anything in the behavior of the patient to contribute to the result — no undue restlessness, no squeezing of the lids or sudden contraction of the ocular muscles. Possibly this may not be wholly true of the fourth case, the only one in which the hemorrhage did not occur during or immediately after the operation. This patient also was quiet so long as he was under observation; that there was no spasmodic contraction during the fifteen minutes that elapsed between the time that he was moved to one side and his complaint of pain cannot positively be asserted.

Nor was there any want of smoothness in the course of the operation except in the second case. Even in this case the introduction of forceps to seize the anterior capsule did not stir the lens from its position, and although the manipulation for removal of cortical was somewhat prolonged it was not excessive; and this case was the one in which the symptoms before operation were distinctly unfavorable. This case also was the only one in which there was an iridectomy. In the first case iridectomy was to have been a part of the operation, but hemorrhage ensued before that step was reached. In the last three cases the section was wholly in the cornea.

Preliminary iridectomy of the second eye has been more than once suggested as a measure of probable value when the first eye has been lost by hemorrhage, and cases have been reported in which such procedure has been successful. The following case shows that success may be obtained without preliminary iridectomy even when the general conditions are not favorable.

A woman of sixty-six was operated on by a colleague in the summer of 1896. Extraction was quickly fol-

lowed by hemorrhage, and the eye shrank. The gentleman who had operated asked me to operate on the other eye. The patient stated she was in fair health; but she appeared much older than her years, was rather feeble, very thin and much wrinkled. There was mature cataract; the pupil was fairly active; tension normal; projection somewhat doubtful. She was quite desirous to have the operation performed.

January 8, 1897. Simple extraction under cocaine. The pupil dilated rather slowly to admit the passage of a fairly good sized nucleus; a small amount of cortical was coaxed out. After extraction of the lens the eye seemed softer than usual. The iris returned to place readily. Eserine, one-tenth per cent. The bandage was maintained for four days. The pupil was small, round, central.

She returned home January 26th, sooner than I advised. The eye quiet, a little cortical in the upper part of the pupil. Vision .4.

A STUDY OF MEASUREMENTS IN CURVATURE OF THE SPINE.¹

BY G. W. FITZ, M.D.,

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DURING the past six years measurements and strength tests² have been made upon curvature cases in the Out-patient Department of the Boston Children's Hospital to determine the factors instrumental in the production of curvatures of the spine.

The strength tests taken are as follows: of the back, of the right and left side, and of the muscles moving the arms in the cardinal directions. The purpose was to measure the strength of the trunk muscles which had influence upon the postures of the spine, shoulders and arms, and to determine whether any unilateral weakness existed which could account for the curves. Cases in which the curvature was secondary to a paralysis have not been included in this study. In paralytic curvature there is weakness of the convex side, but in some paralytic cases there is marked asymmetry of strength without coincident curvature.

The back strength was taken with the back well bent and the legs straight by means of an ordinary dynamometer fastened to the floor. For the reason that varying age and gymnastic training produce great inequality in its value, it has not been included in this study: only those bilateral tests have been included which check each other regardless of the total strength of the individual.

The side strength was tested by the same dynamometer, and measured the ability of the individual to pull up with one hand, the body being bent side-wise and legs straight.

The tests named deltoid, scapular, latissimus dorsi and pectoral measured the pull made by the arms extended laterally at right angles to the body; in the general direction of these muscles. In each case the feet were placed widely apart to give full support, and in most cases several tests were made and the maximum recorded. In order to get a satisfactory test of

the forward and back pull (pectoral and scapular) and to avoid the slipping of the feet upon the floor, it was found necessary for the operator to press upon the back of the shoulder for the pectoral test and upon the front for the scapular. This tended to localize the effort in the muscles immediately about the shoulder. Undoubtedly a better way to test the trunk muscles would be to fix the pelvis firmly and to allow the subject to make the effort unassisted; it was found difficult, however, to arrange the necessary apparatus and the other test was fairly satisfactory.

AVERAGE STRENGTH TESTS IN RELATION TO CHARACTER OF CURVE.

	Side.		Deltoid.		Scapular.		Lat. Dorsi.		Pectoral.	
	R.	L.	R.	L.	R.	L.	R.	L.	R.	L.
Rt. dorsal.	53.9	53.0	8.4	8.1	8.2	8.0	11.6	11.1	8.4	8.6
No. obs.	(22)	(22)	(41)	(41)	(40)	(40)	(41)	(41)	(41)	(41)
Left dorsal.	53.0	49.0	8.3	7.6	7.7	7.3	10.4	10.2	7.6	7.7
No. obs.	(12)	(12)	(21)	(21)	(21)	(21)	(21)	(21)	(21)	(21)
Rd. shoulders.	45.3	44.9	6.6	6.5	7.3	6.7	9.0	8.8	6.9	6.2
No. obs.	(13)	(13)	(33)	(33)	(33)	(33)	(33)	(33)	(33)	(33)
Miscellaneous.	55.7	51.3	7.4	7.4	7.1	6.5	9.4	9.1	7.3	7.1
No. obs.	(20)	(20)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)

It will be seen by reference to the table that the curvature cases are divided into two groups with right and left dorsal convexity respectively. A preliminary examination of the records failed to show evidence of consistent unilateral variation in strength. It was thought that a combination of all the observations would bring out in the averages any latent inequality of strength; therefore in the table are given the average lateral strengths for the number of observations indicated. These averages were obtained by adding together all the strength tests for each group of individuals and by dividing the resultant sums by the number in the group. A comparison of the numbers so obtained shows remarkable equality in strength between the two sides and suggests that there is no unilateral weakness to account for the curves. It will be noticed that there is a slight superiority of the right over the left in all the groups.

CONCLUSIONS.

(1) The cases of right dorsal curvature show no evidence of unilateral weakness.

(2) The cases of left dorsal curvature also show no evidence of unilateral weakness.

(3) The cases of round shoulders show similar equality between the strength of the two sides.

(4) The miscellaneous cases, including wry neck and other deformities, show bilateral equality in the strength of trunk muscles.

These cases of spinal curvature suggest that unilateral muscular weakness does not enter as an etiological factor in idiopathic curvature of the spine.

It may be added that in nearly all the cases of curvature studied a detailed history of deforming posture in sitting, standing, or more especially sleeping, was obtained, and seems to suggest an essential etiology of the trouble.

¹ Presented at the meeting of the American Orthopedic Association, Washington, D. C., May, 1897.

² These observations are reported through the courtesy of Dr. E. G. Brackett, who has charge of the Curvature Clinic.

THE PREVENTION OF PNEUMONIA FOLLOWING ANESTHESIA.¹

BY WM. F. WHITNEY, M.D., BOSTON.

OF late the attention of the profession has been called to the frequency of pneumonia after operations where anesthesia has been used. Whether it is really more common to-day than in the past is doubtful; but there are two factors which make it appear so. One is, that with the larger number of surgical cases a greater number of pneumonias may occur and yet the percentage remain the same. Another is, that with the perfection of asepsis, other infectious processes have been eliminated to such an extent that this one has an opportunity to develop unobscured, and thus has come into greater prominence.

Attempts have been made to prove that there is something peculiar to the pneumonia after ether, and directly attributable to that agent, and the name of ether-pneumonia has even been proposed. But the most careful observations have shown that the disease in the fatal cases differs in no way from the ordinary fibrinous form, and the cultures have shown it is caused by the same class of micro-organisms, at the head of which stand the pneumococcus.

While all the ways by which these bacteria can enter the system are not known and their introduction by means of the circulation cannot be denied, still, their direct route is through the air-passages, and this is a perfectly rational assumption of their mode of entrance.

In the distribution of these microbes, it has been found by Sternberg and others that they are present in the mouths of healthy individuals. It is probable in such cases that under ordinary circumstances the organism can render their action harmless. But there are exceptional conditions which render a person susceptible to pathogenic bacteria. As experimentation upon animals has shown prolonged and profound etherization is one of the conditions which increases this liability to infection for any of the septic ones. The patient, therefore, is in the most favorable condition for the development of the germs if they can find entrance, which is favored by the inhalation of mucus and saliva in the unconscious state.

While much cannot be done to prevent this increased susceptibility beyond as short and light etherization as possible, the thorough disinfection of the mouth before anesthesia is within the control of the surgeon, and should be as carefully attended to as the breast or leg that is to be amputated.

The details of this should be a thorough aseptic cleansing of the mouth, nose and pharynx at least twice, once in twelve hours and again immediately preceding anesthesia.

Each time the teeth should be brushed, then the mouth rinsed, especially about the roots of the teeth, and the throat gargled several times with a warm solution of chlorinated soda.

R	Lig. sodæ chlorinat.	. . . . .	3ij
	Aq. menth. piper.	. . . . .	3ij
	Glycerine	. . . . .	3ij

Afterwards the pharynx and tonsils sprayed with a solution of

R	Peroxide of hydrogen	. . . . .	1
	Aq.	. . . . .	3

Then the nose to be douched with a pint of a warm

saturated aqueous solution of boracic acid, to which a half a teaspoonful of salt has been added.

As a last detail, the cone or sponge used for the anesthetic should be sterilized for each case.

It may be urged that to carry out the above in every case would be exacting, and it would be very well to do it if it was certain that the organisms entered in no other way. Our knowledge, unfortunately, does not permit at present a selection of cases for which such a course should be reserved, and therefore every patient has the right to demand of the man in whose hands he so implicitly places his body and life that he should be given every chance for a rapid recovery. And he is entitled to the benefit of every detail, if it can be shown to be consistent with the line along which the science of surgery is advancing.

Clinical Department.

CLINICAL REPORT OF AN EPIDEMIC OF CEREBRO-SPINAL MENINGITIS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

I DESIRE to outline briefly the experience we had at the Boston City Hospital with an epidemic of cerebro-spinal meningitis during last winter and spring.

The first case entered the hospital December 30, 1896, and nearly all the cases since then have been in the services of Drs. Withington and Bowditch and in my own. The records of the hospital from 1880 to December 30, 1896, include 39 cases, with a mortality of 59 per cent. From the latter date to June 1st there have been 47 cases,¹ 42 of which entered in March, April and May; that is to say, during the past five months there have been more patients with this disease in the hospital than in the previous seventeen years.

The tabulation of these 47 cases by localities, made by Dr. C. B. Dunlap, shows that one part of the city has not been more affected than another. The patients have been youths and adults, as the children have been sent to the Children's Hospital; and the form of the disease has been very severe. It has been characterized by sudden onset, with an average duration of about 13 days in the fatal cases, and the very high mortality in 47, the whole number of cases, of a little over 72 per cent.

The prominent symptoms have been intense headache, delirium, a stiffness of the muscles of the back of the neck, retraction and stupor; in some cases there have been diplopia, strabismus, deafness and vomiting; in 11 cases herpes labialis; in seven cases some form of eruption, but this does not justify the name of spotted fever, which is sometimes given to this disease. In 12 cases a blood-count was made, and in most of these there was leucocytosis. The serum test for typhoid fever was tried in eight cases, and found to be negative in all. Lumbar puncture was done in 32 cases; and judging from these this puncture does no harm, and it readily establishes the diagnosis when fluid containing pus and organisms is found. In the seven cases in which I performed the operation it yielded a positive result in all.

The operation, under strict antiseptic precautions, is

¹ Read before the Surgical Section of the Suffolk District Medical Society, April 7, 1897.

¹ To make this report more complete I have included the cases that entered during May.

readily done by using a small trocar to tap the sac surrounding the spinal cord, and draw off some of the fluid; the point of insertion is between the third and fourth lumbar vertebrae. I have usually chosen a point slightly lower than the lowest part of the spinous process of the second lumbar vertebra, and one inch outside of it, and inserted a small-sized trocar, somewhat downwards and inwards, to a depth of rather more than two inches. I have always used a trocar instead of a needle, as the latter is liable to be bent or broken off and is too small to allow the thick pus that is present in some cases to flow through it easily.

The lumbar puncture is very serviceable for diagnosis, as often there is no history and the symptoms may be few. It may also relieve pressure temporarily. That there is pressure is shown by the fact that the fluid is apt to squirt out at first with some force; and sometimes two ounces may be readily withdrawn. The diagnosis has been established in more than half of these 47 cases either by examination of the fluid obtained by lumbar puncture or by autopsy.

The present treatment of the disease is wholly unsatisfactory; but the fact that we have the means of making an early diagnosis in many cases, and that the organism is not a robust one and seems to be short-lived in the body, offers the hope that better treatment may soon be found.

A CASE OF DISLOCATION OF THE STERNUM: REDUCED.

BY J. S. STONE, M.D., AND F. J. COTTON, M.D., BOSTON.

E. B., age twenty-one, entered the accident-room at the Massachusetts General Hospital, May 19, 1896. He walked in, complaining of pain in the chest, of dyspnea, and inability to take a deep breath. He had fallen in the gymnasium in doing the "giant swing."

Examination showed a displacement of the gladiolus backward from the manubrium, with some overlapping. There was no other injury. Attempts at reduction by traction and extension from the head, while the patient coughed, were unsuccessful. He was then so placed that the angles of the scapulae rested on the end of the table, while an assistant lay across and fixed his legs and pelvis. The spine was then strongly extended by traction downward, applied to chin and occiput, and the arms were brought up and outward, the patient resisting the outward rotation. He was then directed to cough. At the first trial there was some slipping of the displaced bone; at the second, it jumped back into place. A plaster swathe was applied, and the patient was put to bed.

Next morning, after relief of slight dyspnea by slitting the swathe, the patient was discharged, with no symptoms other than slight soreness of the neck muscles.

Five days later he reported, anxious to resume training. In a letter written nearly three years after the injury, he writes that he resumed gymnastic work even before he reported at the hospital; and that neither then nor since did he suffer any inconvenience from the injury.

The mechanism of the injury is unusual and interesting. The patient stated that the bone (the gladiolus) was driven in by his chin, the brunt of the fall being received on the head and the back of the neck. In the ordinary individual the flexed chin does not

nearly reach the gladiolus; but this patient, a tall, big-boned athlete, had a long neck and an unusually long heavy jaw, and evidently flexion was carried beyond any usual limit by the rotation of the body about the head as a fixed point.

The outward rotation of the arms, acting through the tense pectorals, was tried, with the idea that this might give a more direct traction on the upper rib insertions of the muscle, and so, indirectly, on the manubrium. It certainly was of help in making extension; but, as the previous trials (where this scheme was not tried) were made with less rigid fixation of the trunk, no positive statement can be made as to the value of the innovation.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 8, p. 181.)

THE TREATMENT OF ARTIFICIAL ANUS BY PRIMARY INCISION INTO THE PERITONEAL CAVITY.

IN the treatment of artificial anus by operative procedure great difficulty is encountered in preserving aseptic conditions in the peritoneal cavity and gaining a knowledge of the exact position and the amount of adhesions which bind the intestines together.

To overcome these difficulties Gangolphe²⁵ advises the following method of operating. The abdominal parietes surrounding the artificial anus are incised down to the peritoneum, isolating the anus and surrounding area. The incision embraces the skin and subcutaneous tissues solely. At the upper angle of the incision the cut is deepened so that it includes the peritoneum and admits the passage of the exploratory finger within the abdominal cavity. After a careful examination of the conditions present, curved scissors are passed along the finger and the entire incision is completed. The anus thus freed is drawn outside, surrounded by aseptic pads, and the intestine united by the most suitable method of enterorrhaphy. The intestine is then returned to the abdominal cavity and the parietes closed by a suitable method of suture, as in laparotomy.

The author claims the following advantages for this method:

(1) It is rapid. The surgeon is in no danger of wounding any portion of the intestines, and can go immediately into the peritoneal cavity.

(2) It is sure. The finger introduced in the cavity explores beforehand, and then guides the scissors, which cut free the artificial anus without endangering the remaining intestines.

(3) It permits of the drawing out of the entire mass upon sterilized compresses, where the principal part of the operation can be done leisurely and with easy access. This insures asepsis and diminishes the chance of infection.

(4) It is applicable in all cases, and produces success in cases that were formerly unsuccessful.

SUBPHRENIC ABSCESS AND ITS TREATMENT.

Dr. Lauenstein of Hamburg, in an article on this subject, states that he has had six cases of subphrenic

²⁵ Rev. de Chir., April, 1896; American Journal of Medical Sciences, December, 1896, p. 719.

abscess, and says that as to the etiology, they might arise from (1) the stomach and duodenum; (2) the vermiform appendix; (3) the bile-ducts and liver; (4) the kidney; (5) hydatids; (6) they might be metastatic; (7) they might come from the thorax; or (8) from the ribs. Occasionally they get well spontaneously by rupturing into a hollow viscus; but out of 104 cases treated expectantly only 6 lived, while of 74 cases treated surgically 39 recovered.

SURGERY OF THE PANCREAS.

Bottini (Cagliari)²⁶ summarizes an article written by him on this subject as follows:

(1) Operations on the head of the pancreas are possible if one of the two excretory ducts are left intact.

(2) Small wounds in the ductus choledochus can heal without closing the lumen of the duct.

(3) After removal of the entire head of the pancreas the flow of pancreatic secretion into the intestine cannot be restored by any known means, and death results.

(4) The pancreatic fluid may indirectly cause peritonitis if it comes in contact with the peritoneum. Hence wounds of the pancreas should be well closed or treated extra-peritoneally.

(5) Complete extirpation of the pancreas is fatal either from infection, lesion of nerve plexi, intestinal necrosis or by elimination of its function.

(6) Solid benign tumors of the head, if not too extensive, can be removed with a fair chance of success. Also with cysts, hemorrhages, abscesses, fat necrosis, primary tuberculosis, calculus and "annular" pancreas, the same is true of the results from operation.

PERINEAL PROSTATECTOMY.

Neinhaus²⁷ reports the results of 11 cases from Socin's Clinic at Basel. Socin uses the transverse curved incision of Kocher, that begins at the ischial tuberosity on one side, extends forward across the perineum in a curved line to the bulb of the urethra, and then backward and outward to the tuberosity of the opposite side. Through this incision the whole prostate is exposed, and the urethra and rectum can be well retracted.

No patient died from the operation. Spontaneous micturition returned in all, and continued in all but one. Six cases were cured. Five had permanent fistulae due to accidental injury of the urethra or rectum.

The operation is indicated where there is retention of urine from general enlargement of one or both prostatic lobes. The enlarged or pedunculated middle lobe can be best treated by suprapubic cystotomy. The operation should be done before the mucous membrane of the bladder is extensively affected by catarrhal inflammation or before the tonic capacity is entirely lost. In the latter case the bladder is unable to expel the urine after the obstruction is removed.

PATHOLOGY AND TREATMENT OF CHILBLAINS.

Wright²⁸ has investigated the condition of blood-coagulability in ten cases of chilblains. Two of these cases were cases of aggravated chilblains occurring in adult males. The blood-coagulation occurred in these

patients in respectively nine minutes and nine and a quarter minutes. Four of these cases were cases of aggravated chilblains occurring in adult females. The blood-coagulation occupied respectively thirteen minutes, eleven minutes, eight and three-quarter minutes, and seven and a half minutes. Lastly, four of these ten cases were mild cases of chilblains occurring in schoolboys. The coagulation of these cases occupied respectively eleven minutes, nine and a quarter minutes, seven and three-quarters minutes, and four and a half minutes. It is obvious, therefore, when we consider that the normal blood coagulation takes place in three or four minutes, that all these cases of chilblains, with the exception of the last case, were associated with a very notable defect of blood-coagulability.

In view of the etiological facts which are thus disclosed, the obvious indication for treatment in a case of chilblains is to take steps to augment the patient's blood-coagulability. In conformity with these indications the author placed his patients upon a regimen of calcium chloride (after duly cautioning them against lowering their blood-coagulability by the ingestion of sour fruits, alcohol, or excessive quantities of fluids).

EXTIRPATION OF THE ASCENDING VENA CAVA.

Marconi's²⁹ (Pavia) reports a case of removal of a portion of the vena cava with a large pre-vertebral lympho-sarcoma, with success; and which he claims to have demonstrated at autopsy, three years later, his patient having died from pulmonary tuberculosis. He found a defect of the vena cava of four to five centimetres a short distance above the junction of the iliac veins. Collateral circulation was through the ovarian, supra-renal, small phrenic, small azygos, and renal veins. The explanation of the result is that the tumor had gradually closed the vena cava, and that collateral circulation existed at the time of the operation, which simply removed an already obliterated vein.

THE THERAPEUTIC VALUE OF THE MIXED TOXINS OF THE STREPTOCOCCUS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS IN THE TREATMENT OF INOPERABLE MALIGNANT TUMORS.

Wm. B. Coley³⁰ draws the following conclusions from a careful study of a series of cases:

(1) The mixed toxins of erysipelas and bacillus prodigiosus exercise an antagonistic and specific influence upon malignant tumors, which influence in a certain proportion of cases may be curative.

(2) This influence is slight in most cases of carcinoma (including epithelioma); most marked in sarcoma; but varies with the different types, the spindle-celled form showing by far the greatest influence.

(3) The action of the toxins is not merely local in character, but systemic.

(4) The toxins should be used only in clearly inoperable cases, or after primary operation to prevent recurrence.

(5) The results will vary greatly with the strength of the preparation, the most virulent cultures giving the best results.

CONCERNING THE BASIS AND RESULTS OF BACTERIAL THERAPEUTICS OF MALIGNANT TUMORS.

Petersen³¹ has made a thorough and careful inves-

²⁶ La Clinica Chirurgica, 1896.

²⁷ Beiträge zur klin. Chir., Bd. xiv, p. 418.

²⁸ Lancet, January 30, 1897, p. 303.

²⁹ La Clinica Chirurgica, May, 1896.

³⁰ American Journal of Medical Sciences, September, 1896, p. 251.

³¹ Beiträge zur klin. Chir., Bd. xvii, Heft 2.

gation of this method of treatment. His conclusions he formulates as follows:

(1) With carcinoma all methods to date have failed.

(2) With sarcoma only in (quite) exceptional cases is a successful result to be expected. The reasons of these exceptions are unknown, and future efforts are confined to inoperable cases and for prophylaxis after operations.

(3) The result is in general proportionate to the amount of the general reaction and also to its degree of danger. The different fluids are, in order of effectiveness: Inoculation of a virulent streptococcus, the sterilized mixed and prodigious *sterile* culture, streptococcus filtrate and carcinoma serum. The action of the sterilized mixed culture (*Mischkultur sterilisat*) depends mostly on the prodigious toxins. The cancer serum corresponds in its characteristics and action to a diluted streptococcus filtrate.

(4) The action of the toxin corresponds to the general reaction (especially the fever) and the local reaction of the tumor (parenchymatous inflammation).

(5) The questionable advantages of the treatment are counterbalanced by the danger of toxin poisoning and a stimulation of the tumor growth.

AMPUTATION AT THE HIP-JOINT.

Wyeth⁸² reports 69 cases of amputation at the hip-joint by his method; 11 patients died, a death-rate of 15.9 per cent.

His method, which is also applicable to the shoulder-joint, is as follows: The patient should be placed with the sacrum resting upon the corner of the operating-table, the sound limb and arms being wrapped with cotton-batting and thoroughly protected from unnecessary loss of heat. The limb to be amputated should be emptied of blood by elevation of the foot, and by the application of the Esmarch bandage, commencing at the toes. Under certain conditions, the bandage can be only partially applied. When a tumor exists, or when septic infiltration is present, pressure should be exercised only to within five inches of the diseased portion for fear of driving the septic material into the vessels. After injuries with great destruction, crushing or pulpefaction, one must generally trust to elevation, as the Esmarch bandage cannot always be applied. While the member is elevated, and before the Esmarch bandage is removed, the rubber tubing constrictor is applied. The object of this constriction is the occlusion of every vessel above the level of the hip-joint, permitting the disarticulation to be completed and the vessels secured without hemorrhage and before the tourniquet is removed. To prevent any possibility of the tourniquet slipping, I employ two large steel needles or skewers, three-sixteenths of an inch in diameter and ten inches long, one of which is introduced one-fourth of an inch below the anterior superior spine of the ilium and slightly to the inner side of this prominence, and is made to traverse superficially for about three inches the muscles and fascia on the outer side of the hip, emerging on a level with the point of entrance. The point of the second needle is thrust through the skin and tendon of the origin of the adductor longus muscle, half an inch below the crotch, the point emerging an inch below the tuber ischii. The points should be shielded at once with cork to prevent injury to the hands of the operator. No ves-

sels are endangered by these skewers. A mat or compress of sterile gauze, about two inches thick and four inches square, is laid over the femoral artery and vein as they cross the brim of the pelvis; over this a piece of strong, white rubber tubing, half an inch in diameter when unstretched, and long enough when in position to go five or six times around the thigh, is now wound very tightly around and above the fixation needles and tied. If the Esmarch bandage has been employed, it is now removed. Excepting the small quantity of blood between the limit of the Esmarch bandage and the constricting tube, the extremity is bloodless, and will remain so.

The author has reported his cases in detail.

THE SUTURING OF ARTERIAL WOUNDS.

Glück reported to the Berlin Medical Society, in July, 1895, the suturing of an arterial wall in an arterio-venous aneurism. Heidenhain⁸³ reports a case in which, during the removal of a carcinoma of the breast, the axillary artery was wounded. The edges of the wound were caught with hemostatic forceps, and a continuous suture of catgut introduced with needles, such as are used in inserting intestinal sutures. The wound was packed and not closed until the end of forty-eight hours, when all danger of secondary hemorrhage seemed to be past. The case recovered completely, and there was no evidence of traumatic aneurism when the author examined the patient six months later. The author advises the use of catgut, such as is used for ligatures, and the union of endothelium to endothelium; sometimes there is a slight oozing through the stitch-wounds after the suture is completed, but packing for a few minutes will stop it. He does not believe it is necessary to heal the wound by secondary suture, as the healing of the tissues about the artery tends to support it.

THE TREATMENT OF FRACTURE OF THE PATELLA WITH CONTINUOUS EXTENSION AND WITHOUT CONFINEMENT TO BED.

Bryant⁸⁴ describes the following method of treating recent fractures of the patella, which he has found satisfactory in 13 cases. The plan is presented, the author says, not as a substitute for operative measures, but as an adjunct to them, as the patient can with this appliance be about without special danger or discomfort after wiring, etc.

A plaster-of-Paris cast is applied to the leg, beginning at the bases of the toes and extending up to and partly embracing the lower fragment of the patella, and allowed to dry. An ordinary Buck's extension is next applied to the thigh. The adhesive plaster extends from the perineum to the upper border of the upper fragment and terminates in a loop at either side of the limb a little below the knee. After the plaster has become firmly adherent gentle traction is made by attaching elastic cords, which pass under the sole of the foot to the loops on either side of the knee, and a plaster-of-Paris cast is applied to the thigh, reaching from the upper limit of the adhesive plaster down to the upper fragment, where the plaster is so fashioned and padded as to hold it as nearly as possible in contact with its fellow. A posterior support or splint is then applied and secured with a plaster-of-Paris ban-

⁸³ Centralblatt f. Chir., 1895, No. 49; American Journal of Medical Sciences, December, 1896, p. 719.

⁸⁴ Medical Record, 1896, vol. xlix, No. 14; American Journal of Medical Sciences, July, 1896, p. 99.

⁸² Annals of Surgery, February, 1897, p. 129.

dage. The final step consists in drawing together the fragments of the patella as firmly as possible, either with adhesive strips obliquely applied or by means of a knee-cap suitably constructed.

After the apparatus is comfortably in position the patient is permitted to walk about with the aid of crutches, the limb being kept in an advanced position however, by a sling carried beneath the sole of the foot and around the neck of the patient.

DOUBLE-POINTED TACKS FOR SUTURES.

A novel substitute for a suture in skin incisions is recommended by Wachsmann in the *Berl. klin. Woch.*, November 9, 1896.⁸⁵ It is neither more nor less than a double-pointed tack, such as is used to nail matting to the floor. The points are made short, about one-quarter inch long, and are slightly bent toward the centre so as to prevent their slipping out. It is claimed that they can be applied in about one-quarter of the time required for a suture. They are made of fine steel wire and nickel-plated. They can be sterilized in any manner, and may be left in the skin ten days if necessary without setting up any irritation.

CELLULOID BANDAGES.

Landerer and Kirsch,⁸⁶ have experimented with celluloid as a substitute for plaster-of-Paris in bandages. The weight of such a bandage is less than one-fourth that of a plaster-of-Paris one and less than half that of one stiffened with water-glass. It is said to be not very expensive. According to the authors, a jacket costs in Germany about five marks (\$1.25), which is no real objection to its use when one considers that, if well made, it will last for months, and presents the further advantage of a smooth surface, readily cleaned, and is impervious to urine and other discharges.

Its application is as follows:

The sheet celluloid is cut into small pieces and dissolved in a close-stoppered bottle in acetone, enough of the fluid being used to rise four times as high in the bottle as the celluloid. This solution of celluloid is rubbed into each layer of the gauze or crinolin bandage or jacket, an ordinary kid glove being worn for the purpose, as the celluloid otherwise dries on the skin, and can only be washed off by acetone. For a jacket at least ten layers are necessary; for a bandage from four to six layers, according to the strength required. The outer layer is smeared with a coating of the celluloid, which forms, when dry, a highly polished surface. It takes three or four hours for a celluloid bandage to dry. That is considerably longer than is the case if plaster-of-Paris is used. In order to permit of ventilation, small holes may be punctured in the jacket wherever necessary.

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Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, April 7, 1897, Dr. H. L. BURRELL in the chair.

Dr. A. T. CABOT read a paper entitled,
OBSERVATIONS UPON THE RECURRENCE OF STONE
IN THE BLADDER.

Dr. MALLORY presented a specimen from
A CASE OF RUPTURED AORTA.

He said: I was called to make the autopsy in this case about a year ago. A man with his wife and child were driving through a neighboring town in a buggy on a dark night. The road was in very bad condition. One of the wheels went into a deep rut: the woman was thrown out, and the child, which she had been carrying in her lap, fell with her, she holding him in her arms, and struck her on the breast. Her condition was very serious. It was two or three days before they could get her to her home. A physician there attended her. At the end of two weeks she was up and around, although she had considerable pain; but as she was attending to her work, he told her at the end of that time he thought there was no need of his coming to see her any more. Two weeks later, after breakfast, when she was up and dressed, she suddenly died, and I was called to do the autopsy.

The woman was of medium size and well-built. From the left chest, when I opened the thorax, serous fluid flowed out, and beneath that was a large amount of clotted blood, the whole amount weighing three pounds and twelve ounces. The left lung was shoved up to the upper part of the thorax, the apex was quite firmly adherent by old fibrous adhesions. Just at the top of the adhesions there was a rent where I could get in a couple of fingers. The pericardium was normal. The thoracic organs were taken out in one piece so as to examine the heart and blood-vessels in continuity. On slitting up the aorta a rupture was found just at the beginning of the descending portion of the arch—a spiral rupture, running a little more than once around the aorta. The rupture in the aorta was quite sharp, the edges three centimetres apart. It opened into a very irregular sac about the size of a hen's egg. Apparently all the coats of the aorta had been ruptured. The base of this sac was formed in part by the apex of the lung and by the adhesions which bound the lung to the vertebrae at the upper part of the thorax. The blood had also worked its way down between the coats of the aorta, dissecting off the media from the adventitia, and there was clotted blood below the diaphragm—in other words, a dissecting aneurism had formed there. It would seem that, as a result of the increased blood-pressure due to the child striking the woman on the chest, there had been a rupture of the aorta; following that had come an aneurism which would probably have burst at once into the pleural cavity if it had not been for these old fibrous adhesions. At the end of four weeks the aneurism had dissected its way through these adhesions, and finally the blood poured into the pleural cavity. The specimen does not show very well unless you take it in your hands and draw the vessel apart. The

⁸⁵ *Medical News*, January 9, 1897, p. 52.

⁸⁶ *Centralblatt f. Chir.*, 1896, No. 29; *Medical News*, September 26, 1896, p. 354.

cusps of the aortic valve are, at this point, here the ascending portion of the arch, and here the upper portion of the thoracic aorta. The rupture occurred at this point. You will notice a certain amount of arterio-sclerosis. The woman was forty-two years old, and had slight general arterio-sclerosis and arterio-sclerotic kidneys. Still without the great pressure due to the blow, she undoubtedly would have lived many years so far as the blood-vessels are concerned.

In rupture of the aorta, in the majority of cases, there is some lesion of the intima, but it is not necessary. Cases have been known where the violence of the blow was comparatively slight. In one case, in the Warren Museum, a young man fell twenty feet and ruptured his aorta, which was practically normal. Quite a rupture shows at this point. Another case is even more interesting. The autopsy was done by Dr. Fitz. A woman of about sixty was found dead in the water-closet. Examination showed a rupture of the aorta, with a dissecting aneurism secondary to that, and then rupture of this aneurism into one of the cavities. It would seem that the cause of the rupture had been the straining at stool. In this case the aorta is otherwise in very good condition.

DR. GOLDTHWAIT: The length of time the patient lived is rather interesting compared with Dr. Bradford's case of dissecting aneurism of the common iliac. This patient was about several days after the first pain in the side. At the time of admission to the hospital there was simply a fulness in the iliac fossa, which was supposed to be inflammation of the appendix. The dissection after death showed that the two inner coats of the artery had ruptured, and that the outer coat had confined the blood until the time for operation. The swelling was fusiform and two or three inches across.

DR. W. F. WHITNEY exhibited a series of

SPECIMENS PRESERVED WITH THEIR NATURAL
COLORS BY KAISERLING'S METHOD.

DR. BURRELL: Do I understand this hardens the specimen?

DR. WHITNEY: The formaline used at first hardens it. I cannot say what it hardens exactly. It hardens in a somewhat different way from alcohol. It seems to preserve more of the tissues, to harden more regularly. There is not so much distortion of the tissues with formaline. Perhaps Dr. Cabot remembers a little tumor he took out in the popliteal space without cutting it. I hardened that for him; and on taking it out and cutting it, it turns out to be a little hematoma. It preserves the shape perfectly.

Dr. Whitney read a paper on

THE PREVENTION OF PNEUMONIA AFTER ANESTHESIA.¹

DR. ENGELMANN: Can Dr. Whitney tell us the percentage of such pneumonias and their mortality?

DR. WHITNEY: I cannot. I only knew that it is a not infrequent thing to hear of pneumonias following operation. I won't say that it is any more fatal than other pneumonia, because it is the same.

DR. ENGELMANN: It is not a question of the mortality alone, but of the frequency as well, of pneumonia after ether anesthesia, which has proved a most annoying and serious complication to operators on the other side of the Atlantic. Dr. Whitney's paper is most opportune, as placing the question squarely before us;

¹ See page 311 of the Journal.

and I trust that it may serve to bring out the facts in the case as here observed, where ether has been so constantly employed to the exclusion practically of other anesthetics.

Recent English and German reports show a mortality and a frequency of pneumonia, following the administration of ether, here entirely unknown or unnoted. Whatever the cause, these results observed by capable and experienced surgeons demand our consideration. In fact, if we include these cases, as we should, the death-rate from ether is greater than that from chloroform, and the latter is decidedly the safer anesthetic.

Most startling are the observations made at the clinic in Erlangen from 1887 to 1894. In the 338 narcoses ether was employed 38 times, with 6 pneumonias, 4 fatal; chloroform in 300 cases, with 15 pneumonias, of which 4 were fatal.

Gurlt, who has made a compilation at the request of the German Surgical Congress, to determine the relative safety of anesthetics, finds, in his 52,677 cases, the mortality of ether to be 1 to 6,004; of chloroform, 1 to 2,909. He reports 30 cases of post-anesthetic pneumonia, with 15 deaths, 13 of these after abdominal operation.²

Peppert³ presents eight deaths from broncho-pneumonia after ether, and one from edema of the lungs; which alone, if added to Gurlt's statistics, increase the mortality from ether far above that from chloroform, fully double—ether deaths 1 to 1,167, chloroform 1 to 2,645 (1894).

These are data affecting the harmlessness of ether, and all lung complications are included. A distinction is not always made between true pneumonia, bronchitis and broncho-pneumonia or inhalation pneumonia, *schluck pneumonie* of the Germans. The secretions of the mouth and nose, or the stomach contents when vomiting occurs, pass into the trachea and lungs; to this the patient is far more exposed than in chloroform anesthesia. The danger seems to lie in the hypersecretion, the increased flow of mucus and saliva from ether more than from chloroform; then the direct ether vapor, in much greater quantities than chloroform, rapidly causes anesthesia of velum, palate and base of tongue, and opens the way for fluids to the air-passages. The secretions entering the bronchi lead, as a mechanical irritant, to bronchitis or broncho-pneumonia, and as a carrier of infection to true lobar pneumonia; this, as in past broncho-pneumonia, when it occurs, is due to auto-infection, to the entrance of the streptococcus, which, like the pneumococcus and staphylococcus frequently dormant in the mouth and nares, is carried down by the secretions to more fertile soil. What influence the chilling of the pulmonary tissues by the rapid evaporation of ether, as suggested by Tait, may exert, I am unable to say. In some cases the quality of the anesthetic is at fault, as an impure or carelessly kept ether will invariably irritate the air-passages.

It is evident that these complications occur more frequently in the practice of surgeons more habituated to the use of chloroform; but the danger does exist, and must be met and guarded against. It is sufficient to warrant a most thorough investigation and a review of records of the great hospital of this city where ether anesthesia has received so much attention.

Unless more favorable results can be shown it must

² Annals of Surgery, February, 1896.

³ Deutsche Med. Woch., September 13, 1894.

appear that the harmlessness of ether anesthesia is not what it has been claimed to be; while safer than chloroform during the narcosis, pulmonary sequences would mark ether as the more dangerous of the two anesthetics.

DR. CABOT: I think this field opened for our consideration is very interesting and very important, and one which I shall certainly look into. I think, however, of the cases I have seen where pneumonias have followed etherization, the pneumonia has apparently followed a bronchitis which usually existed to a slight degree before the operation. I think I have seen several of those cases. A man left the hospital to-day who gave me quite a lot of trouble after a hernia operation from fever accompanied by bronchitis. I could not get the medical men to confess to any pneumonia, although my house pupil thought he found a little lack of resonance at one part of the lung; but I have an impression got from an experience last year that different ethers may act differently in the matter of producing pneumonia. I had a case of pneumonia last year, one of the first for a long time after anesthesia, at least which I think could be traced to anesthesia, and at the same time the other surgeons were having somewhat the same experience. Dr. Elliot had two or three cases, and Dr. Richardson had some; they were my colleagues at the time. I changed the ether, and had no more trouble. I happened to have no more trouble that year. I won't say it was cause and effect. I think some of the other gentlemen who did not change did have more trouble. I think a more irritating ether may act simply by its irritation in preparing a soil for bacterial growth in the lung. Bacteria, I fancy, get to the lung pretty readily. I think the result depends on whether the lungs are properly resistant to them or are irritated so that they become non-resistant. I do not know how much there is in that idea, but it is the one I have hitherto held in regard to these cases.

I should say that pneumonia occurs very rarely after etherization. I do not remember more than two or three cases in an experience of twenty years; but, as Dr. Whitney said, one may be deceived by thinking that the pneumonia is some septic process, and accounting for the symptoms in that way.

DR. PRESCOTT: It seems to me a pneumonia due to the pneumococcus after an etherization must be quite rare, because in looking up the subject some time ago I could find few cases. Recently there has been a case at the City Hospital of which I cannot speak in detail, but some of the facts follow. The patient was admitted about the 16th of last February, and a few days later was examined under ether, no operation being performed. That afternoon she began to have pain in the side; and the next night temperature was 103° and she had an acute pneumonia. This would seem to be a case where the exciting cause, at least, was the etherization, as no operation was done but simply a vaginal examination made.

It is strange that all the cases where there has been any probability that there was a pneumonia following etherization have been those cases where the gynecologist has made an examination or where some operation has been done upon the pelvis. There was a case at the Carney Hospital (which was the cause of my looking up the subject) where the woman was examined for the question of operation for fibroid. After forty-eight hours she developed pneumonia;

within a few hours she was delivered of a good-sized baby, and shortly after she died. Dr. E. W. Cushing had a case where, after etherization for some pelvic operation, there was a pneumonia started up; but in this case there was a distinct history of exposure before the operation. There are one or two cases in literature reported by gynecologists. The case at the Massachusetts Hospital was a case which occurred after etherization for an operation for restoring a perineum. Although that case was not typical of frank pneumonia, still it was probably a pneumonia following etherization, whether it was due to that or not. It seems to me a good many of the cases have come on pretty quickly to be due to the etherization; still some of the men with whom I have talked have thought the sooner it came on after the etherization the more likely it was to be due to the irritation caused by the ether. It hardly seems possible that an irritation caused by ether after a short vaginal examination, as in the case at the City Hospital last February, could cause a pneumonia to start up within forty-eight hours that would send the temperature up to 103° . I can see no objection to the sterilizing method before etherization; but whether the cases of pneumonia after etherization are common enough to warrant so much trouble I am not prepared to say, but I should not think they were.

Dr. Munro asks me how many cases there have been at the City Hospital. I found none at the time I made the investigation. I think the period extended over ten years. I looked over all the autopsies at that time, and there were no cases that came to autopsy where the pneumonia followed etherization since the hospital started. I looked up the records of all the pneumonia cases that came to autopsy. I looked over the records at the Carney, the City and the Massachusetts General Hospitals for a number of years (during which time I estimated there must have been 100,000 etherizations), and found one case at the Carney, one at the Massachusetts General, of which I have spoken. Dr. Post said he had had a case at the City; but he could not find it, and I could not find it. Those three cases were the only cases I could find in the records of those hospitals. There was a case at the Free Hospital for Women, that Dr. Davenport had, but the records were not such as to warrant any conclusion as to its being a pneumonia. A woman was curetted, and within a few days the temperature went to 105° . Dr. Davenport told me he thought it was pneumonia. Dr. Watson told me he had a number of cases of pneumonia after etherization, and he kindly looked them up for me; but all of them were in men rather beyond middle life, and where it was more an inhalation or broncho-pneumonia than a lobar pneumonia. In my investigation I only took lobar pneumonia. When Dr. Watson looked his cases up, he could find no cases of lobar pneumonia. I asked a good many men in private practice, and they could not remember any cases; so that the only cases I could find in Boston were five where it was probable or possible.

DR. WHITNEY: Dr. Prescott says he examined 100,000 etherizations, and found only five cases of pneumonia. I know of two cases at the Massachusetts Hospital this last winter.

DR. MALLORY: It seems to me it would be very wrong to consider only frank pneumonias. If you are going to sterilize the mouth, it would be more advisable to sterilize with reference to broncho-pneumonia,

which kills just as well as frank pneumonia and much more frequently in these cases.

DR. PRESCOTT: I agree perfectly that there is much more danger from inhalation pneumonia than from lobar pneumonia after etherization.

DR. MUNRO: Every surgeon can recall cases where the patient having been prepared for operation and operation refused, the patient came down within twenty-four or forty-eight hours with frank pneumonia. I think this is a factor that ought to be considered.

DR. MUMFORD: Too much pains cannot be taken in preparing a patient for an ether operation; that almost goes without saying. Anything which may contribute to a patient's comfort and safety should be tried. Care of the nose, naso-pharynx, mouth and fauces is a rational measure. Though it is obvious that the disinfection of these parts cannot be complete, even the partial removal of colonies of bacteria must be of value; and most disinfection is partial, at the best.

One important factor in etherization, and a factor too often lost sight of, is the etherizer. Few men know how to give ether properly. I have not always seen it well done — seldom by the younger hospital house-officers, nor always by practising physicians. Etherizers are either over-bold or over-timid. The patient is drenched with ether; he is brought rapidly and through an agony of suffocating struggles to the danger-point, where he remains choked up with bacteria-laden mucus, which works its way slowly into the trachea and bronchi, or else he is under-etherized and goes through the operation in a state of vomiting and partial asphyxia.

I must admit that as my knowledge of ether broadens, I am growing less confident of its harmlessness in unskilled hands; and I do not doubt that unfamiliarity with its proper use, as admitted by the gentleman from St. Louis and other chloroform advocates, has led to a misconception of its range of value. When good ether is properly given, I believe that inhalation of bacteria-laden mucus never occurs. It is when improperly given that pulmonary disturbances follow.

DR. ENGLEMAN: I would ask Dr. Whitney whether he has not noted pneumonia from ether more frequently after abdominal operation than after any other surgical interference. This I believe to be the case, and so it would appear from the observations of Gurlt, who found that 13 of the 30 post-anesthetic pneumonias he has collected have followed abdominal operations. I emphasize the fact more especially in response to the remark of Dr. Prescott on ether pneumonia in the practice of gynecologists, which needs explanation. He, no doubt, had abdominal operations in mind; as I myself have almost constantly used chloroform, my experience with ether, though most satisfactory, is too limited to warrant deductions. I am convinced that gynecologists present accustomed to the use of ether will bear me out in the statement that post-operative pneumonias result after abdominal rather than vaginal operations; and this seems plausible, as the accumulated secretions are not so readily expelled on account of the abdominal pain in coughing, — the patient dreads the suffering and controls the cough, to her serious injury. Then, also, in this class of cases, she is generally exposed for a longer time to the action of the anesthetic.

DR. WHITNEY: Of course, as I stated in the paper,

it is one of those things it will be almost impossible to prove absolutely; yet if one has the conviction that this is a source of danger, it seems to me an attempt should be made to render the parts as clean as possible. As regards laparotomy, I have no statistics to offer. If it is a fact, the explanation of it is perhaps that abdominal operations are of considerable length, under somewhat depressing influences, attended with more or less loss of heat, and that these factors may in some way add to the liability of infection. My purpose in bringing the subject before the Society was to turn the attention of the profession to it; and if it is their conviction that stricter asepsis should be carried out in this direction, I shall feel I have accomplished all I intended to by bringing this subject up.

DR. BURRELL: There are several points that have been brought out by this paper and the discussion that has ensued that are of peculiar interest. In the first place, as to the number of cases of pneumonia that have occurred after etherization, I think we all agree that when a man with Dr. Cabot's experience says he has seen but very few cases of pneumonia following etherization, it is a statement which commands our attention. If an occasional case of "frank" pneumonia in contradistinction from inhalation pneumonia occurs, it seems to me far more logical to infer that it is due to the improper administration of ether than to the inhalation of the pneumococcus. It is very true that the fact of the inhalation of ether may have lowered the vitality of the patient to a point where he is susceptible to the pneumococcus, yet the improper administration of ether, I regret to say, is very common. I constantly see patients drenched with ether, and the vitality of such patients must be lowered. To me it has often seemed strange that patients do not die more frequently from the abuse of ether. If one is to disinfect the nares, mouth and pharynx, and rid those parts of germs, is it not probable that these same germs exist lower down in the respiratory tract? I feel sure that we all appreciate Dr. Whitney's paper, and for one I wish to thank him for having brought this subject to our attention. The frequency with which ether is given makes the subject of etherization of such importance that any light that can be shed upon it is of value.

DR. WHITNEY: I don't think the pneumococcus has been found below the pharynx in health, but that I cannot say positively.

DRAWING OF THE KNEE-JOINT.

DR. J. E. GOLDTHWAIT: Here is a drawing showing the knee-joint of a leg amputated in the dissecting-room. The case shows beautifully the focus of disease in the head of the tibia; shows the patella adherent at the head of the femur; and shows in an interesting way the amount of fibrous tissue between the femur and tibia, which explains the fact that the patella is so frequently adherent and yet the tibia can be moved back and forth.

ACTIONABLE WORDS. — To render words spoken of and concerning a physician actionable, the supreme court of Indiana states, in the case of *Divens vs. Meredith*, they must be spoken of him in his professional character. It is not enough that the language disparages him generally, or that his general reputation is thereby affected, or that the words used tend to injure him in his profession.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-THIRD ANNUAL MEETING, WASHINGTON, D. C.,
MAY 4, 5 AND 6, 1897.

FIRST DAY. — TUESDAY.

DR. M. ALLEN STARR, of New York, delivered the
PRESIDENT'S ADDRESS.

He referred to the transmission of sensory impulses through the spinal cord, and thought that the conclusions derived from physiological experiments upon the lower animals were open to grave criticism: first, because of the fact that the majority of such experiments performed years ago were done without antiseptic precautions and were attended by secondary septic inflammations of the cord and its meninges, which invalidated the conclusions drawn from them; and, secondly, because of the great variation in the anatomical structure of the cords of the lower animals and of man. While investigations have abundantly confirmed the general results long known as ascending degeneration in the spinal cord, after lesions of the nerve roots and after lesions of a transverse nature, the recent methods of investigation, especially the staining methods of Weigert, Van Gieson and Marchi, have furnished some interesting results.

It is no longer possible to speak of the columns of the cord as being exclusively ascending or descending in the direction of their fibres. Recent investigations by Hoche have shown the existence of many association fibres of limited extent in the direct cerebellar columns and in the columns of Gowers; and therefore it seems evident that every column of the cord contains fibres which pass in both directions. It is thus proven that the number of the short tracts in the cord is far greater than the number of long tracts; and inasmuch as these short tracts can only be nerve roots, or else tracts of association, it is evident that there are but few very long fibres extending through the cord to the brain. Many of these long fibres supposed to reach the brain really terminate in the spinal cord itself. There is no tract passing directly from the cord to the brain cortex. Even if the lemniscus is continuous from the medulla to the cortex, it cannot be stated that the lemniscus forms a direct sensory tract from the cord to the brain, since it begins in the nuclei gracilis and cuneatus of the medulla. A sensory impression of sufficient severity, or if continuous, may practically throw into activity almost the entire subcortical nervous system. It therefore seems quite evident that the transmission of sensations through the cord must have for an anatomical basis a series of short neurons, each conveying the impulse from the level of its reception in the cord to a level somewhat higher, where again it is transferred to any other neuron; and so on, till it reaches the cortex.

Is it not therefore evident that in the transmission of sensations through the spinal cord, cerebral axis, or brain, we have to consider the tracts as different in their structure from those conveying motor impulses, and as consisting of a series of short neurons closely connected but with very numerous and widespread connections? Is it not probable that the result of this arrangement is to secure a diffusion of single sensations to various reflex, vaso-motor, trophic, and automatic mechanisms, as well as to the organ of conscious perception? And is it not also evident that this view of sensory diffusion explains the apparent inconsistency

at present prevailing between the clinical symptoms observed in Brown-Séquard paralysis and the pathological degenerations occurring in that disease?

He concluded, that, in the conduction of sensory impulses to the brain cortex, a large number of different neurons are concerned, which are located in the gray matter and in all the various columns of the spinal cord, and that there are no true sensory columns or long continuous sensory tracts between the spinal cord and the cerebral cortex.

PRIMARY IDIOPATHIC HYDROCEPHALUS IN ADULTS.

DR. MORTON PRINCE, of Boston, reported three cases with autopsies, besides two others which terminated in recovery. The first case followed trauma and simulated latent abscess with secondary meningitis of the base. Trephining was done with negative results. At the autopsy the ventricles were found dilated to three times their normal size, the convolutions flattened, and sulci almost obliterated. The same condition was found in the second case. The third case followed sunstroke and was of the external variety, the meshes of the pia and arachnoid being filled with fluid so as to resemble a layer of jelly. There is an acute and a chronic form; the acute simulates the purulent form of meningitis, but differs from it in its course and the variability of the symptoms. The chronic simulates and is usually mistaken for cerebral tumor. The affection is common but not usually recognized.

DR. COLLINS felt certain that there were chronic conditions of this affection. He cited a case which presented all the characteristics of hereditary cerebellar ataxia, in which at the autopsy only ventricular distention was found.

The PRESIDENT asked Dr. Collins if microscopical examination had been made of the brain or cord, and was answered in the negative.

DR. SACHS said, that as the examination was incomplete, Dr. Collins's conclusions should not be accepted as final.

DR. P. C. KNAPP said that the reader of the paper had omitted to speak of lumbar puncture in differential diagnosis between meningitis and effusion. The negative findings are often important.

DR. PRINCE in closing the discussion said that unquestionably there is a chronic form. The principal differential point is in reference to the variation of symptoms from time to time in effusion.

SPINAL LEPTOMENINGITIS.

DR. FRANK R. FRY, of St. Louis, reported a case of purulent spinal leptomeningitis. The source of infection was a slight but rather chronic furunculosis on the back of the neck. The site of primary infection was the lumbar or lower dorsal region. The clinical history was that of an ascending paralysis with certain interesting features relative to temperature, etc., there was no cerebral involvement. Sections of the cord were presented, chiefly interesting in showing diffuse degenerations in the cervical and upper dorsal regions.

SUBARACHNOID SEROUS EXUDATION PRODUCTIVE OF PRESSURE SYMPTOMS AFTER HEAD INJURIES.

DR. G. L. WALTON, of Boston, read a paper with the above title, and said that in cases offering moderate febrile movement, prolongation of unconsciousness, and restlessness after trauma, it is of no vital moment

whether we adopt the term contusion, bruising, or laceration; but when to these symptoms local paralysis is added the question of operation arises and exact ideas of the pathology become important.

Operation over the area indicated sometimes shows only a tense dura, incision of which is followed by a gush of serum. Under the arachnoid membrane the greater part of the cortical cerebro-spinal fluid is collected. Serum may be exuded into the subarachnoid space as well as transuded, and sometimes the swollen and congested brain found under the fluid on operation shows that we have to do with an exudation resulting from increased blood-pressure, rather than with a compensatory process. Little attention has been paid to this process. The edema of Bullard accompanying hemorrhage is analogous; the serous meningitis of Quincke is analogous if not identical, in so far as he includes external meningitis, but he does not refer to this class of cases.

The following cases were mentioned: A boy of six years was struck by a bicycle at noon one day, was restless and drowsy, and on the following day became unconscious, with unilateral paralysis including the face. Operation was considered but postponed. The paralysis had disappeared within four days.

A child, three and a half years old, fell from a swing, striking the head; was drowsy, and the next day one arm was paralyzed. The paralysis began to lessen on the third day, and rapidly disappeared.

A young woman fell, striking the head violently. Unconsciousness, restlessness, vomiting and hemiplegia appeared. Operation revealed tense dura, incision of which was followed by a gush of serum. There was relief of pressure symptoms, but death ensued from the underlying condition.

His conclusions were: (1) a severe blow may result in local bruising and congestion with subarachnoid serous exudation; (2) the fluid may be imprisoned and cause focal paralysis; (3) the process is not compensatory, and is allied to the serous meningitis of Quincke; (4) the lesion is self-limiting; (5) diagnosis from hemorrhage is difficult, a typical course, absence of steady increase of symptoms, and persistent sensitiveness point to serous exudation; (6) immediate operation is not necessarily indicated in focal paralysis, though perhaps always justifiable; (7) this condition is specially to be borne in mind before operating on children and young adults.

DR. J. J. PUTNAM, of Boston, had seen several cases in which such a diagnosis could be borne out, but there was shifting of symptoms, which was important. He had witnessed an autopsy on a woman who after influenza developed localized twitching of arm, leg and face every twenty minutes; twenty-four hours later, hemiplegia and rise of temperature. There were only edema and a wet soft brain. There was no local accumulation under the pia. He thought the convulsions and hemiplegia were due to the general edema. The pathology in these cases is not clear.

DR. C. A. HERTER, of New York, believed that local effusion could give rise to these symptoms and spoke of a case of extreme general edema of the arachnoid following syphilis. There was some doubt as to whether the fluid is a simple effusion or an exudate. An inflammatory process, however, could not occur so rapidly. It might possibly be due to cerebral anemia. Pronounced general edema of the brain in children may be unaccompanied by any cerebral symptoms.

DR. B. SACHS, of New York, said the theory was not new. After head injuries, three possibilities were to be considered: hemorrhage, local edema and purulent meningitis. The view of Dr. Walton was natural and plausible, and he agreed with his views as to differential diagnosis. He would not operate on the skull too soon, but would wait until positive of serious damage to the brain, not until after the lapse of forty-eight hours or several days.

DR. HUGH T. PATRICK, of Chicago, added a case almost exactly like that of Dr. Prince. A child received a fall which was not severe, in the latter part of the afternoon, after which he played about as usual. At the supper table he suddenly let fall a fork from his right hand, and soon thereafter had a one-sided fit. Following this he became stuporous, and when seen several hours later was almost comatose, but a distinct hemiplegia was made out. Operation was declined by the family, and two days later the child was absolutely well. A localized edema is the only possible explanation of such an occurrence.

DR. JOSEPH COLLINS, of New York, related the case of a man fifty years of age, who fell and struck his head in the left parietal region. This was followed by shock, stupor and paralysis of the right upper extremity. At the autopsy there was some localized serous exudation, which was evidently of inflammatory origin.

DR. J. J. PUTNAM had seen venous hemorrhage into the pia which was accompanied by hemiplegia.

DR. EDWARD B. ANGELL, of Rochester, asked Dr. Walton if there was any temperature record, to which he replied that there was slight rise of temperature.

The PRESIDENT thought that the question of localized edema should be one of fact and not of theory. He had seen three cases operated upon in which apparent inflammatory edema was found. He had also observed a case in which there was a very large amount of edema involving the entire hemisphere around a very small tumor.

FOCAL CORD LESIONS.

This was the title of a paper by DR. F. W. LANGDON, of Cincinnati.

Two cases were reported: (1) Lumbar poliomyelitis anterior subacute in a white man of forty-four years without syphilitic or other dyscrasia. Onset gradual, with numbness and coldness in left toes and increasing weakness at left ankle. Five weeks later thermo-anesthesia over both legs. Tactile and pain senses normal. Foot-drop, muscular weakness and R. D. No bladder or rectal symptoms. Knee-jerks active. Ankle clonus absent. Recovery complete in about two months. The lesion was considered primarily a thrombosis in fourth and fifth lumbar segments.

(2) Traumatic poliomyelitis of cervico-dorsal cord without vertebral fracture. The medico-legal aspects of the case were important as furnishing additional proof that organic damage of the cord may occur in the absence of fracture of the bony canal.

ANESTHESIA IN SPINAL DISEASES.

DR. P. C. KNAPP, of Boston, read this paper. He referred to the researches of Ross, Thorburn, Starr and others. In syringomyelia the distribution of the anesthesia is more apt to follow another type than in cerebral disease in which the boundary of the anesthesia is at right angles to the axis of the limb. Two

cases were reported and many others cited, proving this distribution.

DR. B. SACHS referred to cases of spinal origin, but which did not seem to be of spinal type, but which he had good reason to believe to be a syphilitic affection of the cervical region of the cord. This type closely resembled syringomyelia. He did not like the term "cerebral anesthesia" but preferred "regional anesthesia."

The PRESIDENT said it was practically impossible to lay down an accurate diagram of the anesthetics from various regions of the cord. Individual variations must be considered and admitted. Irregularity in distribution is characteristic of spinal anesthesia.

SYRINGOMYELIA.

DR. HUGH T. PATRICK reported the following case: A man of forty-four years began to be weak in the legs ten years before, which gradually increased until he walked with difficulty. A year ago the hands also began to be affected. Examination showed spastic paraplegia with weakness of the grasp and slight atrophy of the small hand-muscles. There was a band of anesthesia about the trunk and extending on to the inner surface of the arms, an area of analgesia covered this and extended beyond it about four inches on the trunk and two inches on the arms. This distribution of sensory blunting is exactly the same as that which has been described by Laehr and the author as occurring in tabes, except that in the latter disease the band of analgesia is much narrower than that of anesthesia.

SO-CALLED POLIENCEPHALITIS SUPERIOR AND INFERIOR.

DR. PATRICK reported a second case, that of a woman of thirty, who was attacked with bulimia, following which complete external ophthalmoplegia and incomplete bulbar paralysis developed. She died of respiratory failure about two months after the beginning of the disease. The autopsy revealed nothing. Microscopical examination showed all the arterioles and capillaries of the bulbo-fountine region to be enormously distended. Other signs of inflammation were absent; there was no degeneration of fibres, and the cells of the various nuclei were all normal. The author considered the case to be one of transition between the so-called acute polienccephalitis and poliomyelitis on the one hand, and so-called asthenic bulbar paralysis on the other. He thought the disease essentially toxic, and suggested as a therapeutic measure the so-called "washing of the blood," that is, copious phlebotomy with simultaneous transfusion or the subcutaneous injection of salt solution.

AUDITORY APHASIA

was the title of a paper by DR. HOWELL T. PERSHING, of Denver.

He said that auditory aphasia is the sum total of speech defects due to a lesion of the auditory centre for words; it is a more precise term than sensory aphasia and more comprehensive than word-deafness.

The reader reported a case in which the symptoms were word-deafness, verbal amnesia, jargon paraphasia, paralexia, loss of comprehension of print, and agraphia, with retention of ability to copy Roman letters into script and with no visual defect whatever.

The impairment of all ways of using language, so

often observed as a result of an auditory lesion, was explained as due to the fact that the auditory centre is normally active in spontaneous speech, reading and writing, as well as in the comprehension of speech.

DR. W. T. WORCESTER, of Danvers, Mass., reported three antopsies in patients with sensory aphasia. There were softening and atrophy of the left first temporal convolution. He also mentioned a case of subcortical aphasia. The patient could not speak and had no comprehension of spoken language. He had right hemiplegia. At the autopsy softening of the external capsule and lenticular nucleus was found.

DR. CHAS. K. MILLS, of Philadelphia, agreed with the view of Dr. Pershing, and said that in such cases all forms of language might be affected.

DR. PHILIP ZENNER, of Cincinnati, referred to a case with frequent attacks of word-deafness and spasm of the right side of the tongue and face. At the autopsy a tumor was found in the lower part of the Rolandic fissure resting upon the first temporal convolution.

DR. COLLINS said that the auditory centre was localized in too small an area. The speech arc is purely a sensory one. There is only one variety of aphasia and that is sensory.

DR. PERSHING, in closing the discussion, said that he had attempted in his paper to combat the views expressed by Dr. Collins.

(To be continued.)

Recent Literature.

A Treatise on Surgery. By American authors. Edited by ROSWELL PARK, M.D., Professor of Surgery and Clinical Surgery, Medical Department, University of Buffalo, N. Y. In two octavo volumes of 1604 pages, with 786 engravings and 37 full-page plates in color and monochrome. Philadelphia and New York: Lea Brothers & Co. 1896.

Dr. Park has aimed to place at the disposal of the medical profession a work containing a condensed but complete account of the theory and practice of the most advanced knowledge of surgery, as well as a text-book meeting the requirements of students seeking the advantages of our best medical institutions, and one furnishing full practical information to the general practitioner, whose duties frequently require surgical knowledge.

To accomplish this the author has thought it wise to avail himself of the knowledge, skill and experience of those best fitted to contribute to a work of this character. His own reputation has enabled him to associate with himself some of the most distinguished members of the profession in this country. The list of contributors consists wholly of men of national reputation, and many especially identified with the subject assigned them. The work is published, as stated above, in two volumes.

Volume I is devoted to General Surgery, and is classified as follows, many of the chapters being written by Dr. Parks himself: Part I, Surgical Pathology. Part II, Surgical Diseases, including surgical fevers, septic infection, syphilis, gonorrhea, shock, collapse, acute intoxications, delirium tremens, etc. Part III, Minor Surgery, Surgical Diagnosis, and the details of

the proper method for recording a surgical case. Part IV, Injury and Repair. Part V, Surgical Affections of the Tissues and Tissue Systems, including cysts and tumors, diseases of the skin, muscles, tendons, bursæ, lymphatics, veins, arteries, joints, bones, fractures and dislocations.

Volume II contains the articles on Special or Regional Surgery. Here are described diseases and injuries of the head, spine, heart, pericardium, large blood-vessels, respiratory organs, face, neck, chest, mouth, tongue, teeth, jaws, abdomen, hernia, rectum, genito-urinary organs, female reproductive organs and breast, amputations, orthopedic surgery, plastic surgery, eye, ear and skiagraphy.

In the above table of contents the chapters which attract attention as unusual and new are those on Surgical Pathology of the Blood (a brief *résumé* of what has been done on this subject), the Bacteriological Part of Inflammation, Infection, Acute Infection and Intoxications, Surgical Sequelæ of Non-surgical Diseases, Surgical Diagnosis and Significance of Pain, the Methodical Report of a Surgical Case, Gun-Shot Wounds, and the articles on Muscles, Tendons, Bursæ and Fasciæ. It is also unusual in recent years to include in works of this character articles relating to such special branches of medicine as the eye, ear and skin.

The articles are well written and illustrated, but are with few exceptions too condensed for readers other than medical students, or those wishing only a summary of the lesion or disease under consideration. To one in the position of the former it is, of course, desirable to present a subject in as clear a manner as possible and stripped of all doubtful and conflicting opinions. The classification of subjects is excellent. The most advanced ideas and methods appear, but full detailed descriptions are usually not given. This is necessarily so in many cases. The colored plates often show a brilliancy and variety of hues rarely seen in the natural specimens. The value of the book would have been, perhaps, increased by the introduction of marginal references to the literature of the subjects under consideration, especially when important or recently acquired facts relating to pathology, operative work, bacteriology, diagnosis or treatment are given in a few lines. The book is one which will undoubtedly have an extended sale.

Five Years' Work in Surgery. Comments and Deductions Based upon a Series of Thirteen Hundred and Eighty-seven Operations. By HORACE PACKARD, M.D., Professor of Surgery, Boston University School of Medicine; Surgeon, Massachusetts Homœopathic Hospital; Consulting Surgeon, Westboro Hospital for Insane; Consulting Surgeon, Newton Hospital. Boston: Press of Samuel Usher.

In this little volume the author presents the result of his work during the past five years. It is pleasingly written, and attractive from the chromolithographs and the heliotypes and half-tones which are of value in illustrating unique or interesting cases. A fair presentation to the profession of one's work in medicine or surgery, with the deductions therefrom, cannot help being of value.

The author records in a tabular form 1,387 operations, with a mortality of 3.96 per cent. He includes in this table of operations a number of cases that would better have been omitted; for example,

the application of an angular splint (Levis) to a fracture of the arm should not be classed as an operation involving life, and the note that "no suppuration occurred" seems hardly necessary. Again, the classing of a fracture of the metacarpal of the little finger as, "Reduction, Levis splint—operation, 1; cured, 1; no suppuration, 1" throws light upon his percentage (3.96) of mortality.

We congratulate Dr. Packard on his five years' work in surgery, and are indebted to him for his carefully prepared brochure.

Elementary Anatomy and Surgery for Nurses. A Series of Lectures delivered to the Nursing Staff of the West London Hospital. By W. MCADAM ECCLES, M.S. (London), F.R.C.S. Eng.; Assistant Surgeon to the West London Hospital; Assistant Surgeon to the City of London Truss Society; Surgeon to the St. Marylebone General Dispensary; Late Senior Assistant Demonstrator of Anatomy, St. Bartholomew's Hospital. London: The Scientific Press, Limited. 1896.

This little book is an excellent elementary outline of human anatomy in its relations to minor surgery, bandaging, and the work of a general surgical nurse. The descriptions are clear, simple and well adapted to the grade of instruction for which the lectures are intended.

The book is thoroughly practical, and ought to prove a help in mastering the principles of intelligent surgical nursing.

The Principles of Theoretical Chemistry, with Special Reference to the Constitution of Chemical Compounds. By IRA REMSEN, Professor of Chemistry in the Johns Hopkins University. Fifth edition, thoroughly revised. Philadelphia and New York: Lea Brothers & Co. 1897.

In preparing this edition the author has adhered strictly to the original plan of the book, which is essentially "a brief treatise on those facts and speculations that have to deal especially with the problem of the constitution of chemical compounds." It is sufficient, in the case of a work so well known, to state that it gives a very clear and concise presentation of the fundamental principles upon which the modern theory of chemistry is based. The text of the present edition does not differ materially from that of the preceding edition.

A Manual of Physiology, with Practical Exercises. By G. N. STEWART, M.D., Professor of Physiology in the Western Reserve University. Philadelphia: W. B. Saunders.

The full title of Dr. Stewart's book indicates its chief excellence: it is a manual of physiology, *with practical exercises*, and the author deserves and will receive the thanks of laboratory men for bringing experimental and so-called didactic physiology into a union, which, in an elementary text-book, is as rare as it is desirable. The experiments are introduced in such a way that they may be used separately, in the laboratory, or as illustrations to the clear and well-arranged text. We find, throughout, the investigator's point of view, which, indeed, was to have been expected from the author of many valuable researches in physiology. The illustrations are numerous and well chosen.

THE BOSTON

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EXPERT TESTIMONY.

THERE can be no question that the matter of medical expert testimony is exciting a degree of discussion both among the medical and legal fraternities which must in time be productive of some practical reform. The methods of testimony now in vogue in most of our States are clearly unfair to the physician who is called upon for an opinion, and prejudicial, we believe, to the ends of justice; and yet so difficult is it to do away with a long-established custom, even if manifestly imperfect and unjust, and so difficult to substitute a better system, that we find ourselves in the anomalous attitude of complete dissatisfaction with the present state of affairs, and of impotence in effecting a change.

This unquestionably is due to many factors, bound up chiefly with the established customs of the courts. It is clearly evident that however much the body of right-minded physicians may desire reform, such reform will never be forthcoming until the representatives of the law are equally solicitous; and just here, no doubt, is a difficulty of much magnitude. In any given case, theoretically the interest of a lawyer and that of a physician should be identical, namely, to arrive at *facts*. Practically the lawyer wishes to arrive only at those facts which strengthen his side of the case, and almost inevitably the "unprejudiced" physician is drawn into the net and finds himself on the very verge of pleading the case in conjunction with his legal *confrère*. This outcome is inherent in the system, and human nature is often, as we know, too weak to withstand the strain, and the so-called medical expert unequivocally, though usually unintentionally, becomes the partisan which a lawyer confessedly and properly is. To the attorney pleading a case this is an evident advantage; to the physician it is, or should be, humiliating. It is clear at a glance that a systematic protest must come from physicians, and is not to be expected to come from lawyers. It is the dignity of the *physician* which suffers; he it is who finds himself so often in a ridiculous position.

Advisable, therefore, and necessary for final results as co-operation with the legal profession is, we as physicians should not abate our efforts in the slightest because such co-operation is not immediately forthcoming. The agitation has unquestionably begun, and a number of vigorous and logical papers are at hand from men of high standing in the medical profession. We would call attention particularly to an article by Putnam, which appeared in this JOURNAL of October 22, 1896, entitled "Remarks on the Opportunities and Responsibilities of Neurological Experts with regard to Medico-legal Testimony." The paper is replete with suggestions of value and temperate protest against the present state of affairs. A second paper is that of Dr. Walter Lee Munro, of Providence, being an address delivered before the Rhode Island Medical Society in June of this year, and published in the *New York Medical Journal* of July 31st. Dr. Munro chose as the subject of his address "The Physician upon the Witness-stand"; and we have seen no better or more scholarly arraignment of the present system of expert testimony. It is, in fact, conclusive, and admirably illustrated by two cases in which certain medical testimony appears in the full measure of its absurdity. He makes a vigorous appeal for a fairer system, which will tend, at least, to re-establish the medical expert in the position of dignity which was his many years ago, and from which he has so pitifully fallen.

A still more stirring appeal for reform comes from the pen of Van Gieson, in conjunction with Sidis, in the April number of the *New York State Hospitals Bulletin*, in a paper on "Epilepsy and Expert Testimony." The case which forms the basis of Van Gieson's argument is one now famous, particularly from the fact of the part played in the final verdict by so-called expert testimony. In brief the details were as follows: an ignorant young woman was seduced by her lover, and after various unsuccessful attempts to induce him to marry her, finally in a public place cut his throat with a razor, leading to his almost immediate death. The trial, conducted from a purely legal standpoint, disclosed the fact of a strong motive for the crime, and the verdict, on the evidence then presented, was murder in the first degree, with a sentence of death. Pending the execution of the sentence, a strong sentiment of mercy gained a foothold in the community, and this, associated with the possibility of showing an epileptic tendency with temporary mental aberration, led to an appeal which finally resulted in a second trial. The medical witness in this trial was prominent; a detailed family and life history of the defendant was introduced,¹ and a plea of irresponsibility made on the ground of insanity—so-called "psychic epilepsy." In this trial the testimony of the previous one was, for the most part, ignored. In other words, as Van Gieson and Sidis put it: "In the first trial no excuse was presented and sentence of

¹ See in same number of *State Hospitals Bulletin* a careful paper by Hrdlicka on "The Medico-legal Aspect of the Case of Maria Barbella."

death was pronounced. In the second trial it appears that a tissue of 'psychic epilepsy,' ingeniously woven, but very flimsy when analyzed by the data in the first trial, allowed the jury to satisfy its conscience in expressing the sentiment of female palliation in a verdict of 'not guilty,' resulting in acquittal."

It is not our purpose to discuss the arguments for or against the above crime having been committed during a period of aberration; for that we would refer the interested reader to the respective papers of Van Gieson and Hrdlicka, we wish simply to call attention to the fact that here is a case which admirably serves as an example of the uncertainties of so-called justice in its relation to medical expert testimony, and of the absolute necessity for a discriminating and scientifically conducted investigation by competent and unbiased persons of all cases in which a medical opinion is to have weight with the jury.

What possible remedy is there for so unfortunate a state of affairs as a study of the Barbella case discloses? Van Gieson and Sidis offer a solution which certainly must appeal to every right-minded person, whether or not he may consider it possible of immediate consummation. In general, they would wish to have an official body appointed, best by the State, and naturally paid by the State, whose function it should be to investigate in detail and from every point of view cases given it, or any of its members, for consideration. Of the duties of such a body, which they would tentatively designate "The State Commission of Medico-legal Inquiry," they write as follows:

In any criminal case where questions of scientific nature arise, the determination of these questions shall fall within the province of the commission, which shall work out the scientific data and *render its general conclusions thereon*, so that the court and jury shall have a solid basis to determine their verdict in connection with the ordinary testimony.

Although in no wise tending to assume any of the prerogatives of the court, such a body might also advise as to the admission of cases for scientific inquiry and prescribe how this should be done in order to dispense with the authority of the dictatorial and *ipse dixit* "science" of "expert" testimony.

Such an official body, best appointed by the State, might undertake the investigation itself or assume the responsibility of its direction and control; in the latter case scientific men would be retained whose career had gained respect in the scientific world and whose publications, investigations and real knowledge of their subjects would make their researches and opinions authoritative. This would reduce to a minimum the evil of having the second-hand knowledge of would-be "experts" whose shrewdness had gained them a reputation with the laity, that has no knowledge of pathological phenomena. After the commission or official body conducting scientific inquiry in legal cases has directed or undertaken the research, the complete data of such inquiry, together with the general conclusions therefrom, could be submitted in a dispassionate, truth-searching, scientific paper as to whether the plea of insanity is right or wrong; such a paper will serve as a guide for the jury or the judge who, under the recommendation of the commission, shall accord to the culprit the measure of punishment, restraint and care the case may demand.

That the establishment of some such commission would be of inestimable value can, we think, scarcely be questioned, nor do we believe it is too utopian to hope that a plan at least approaching this in scope may be the not-distant outcome of a concerted effort at reform.

A less radical change, and one which, if but temporary, would be a decided step in advance, is that suggested by Mather, quoted by Munro in the paper to which we have already alluded. After speaking of the present system, Mather says: "The remedy lies in the designation by the court, in each case, of the experts who shall be called upon to testify. Whether agreed upon by the parties or selected by the judge, the experts should receive their appointment from the court. They should be officers of the court, sworn and acting as its commissioners for the better ascertainment of the truth." Munro goes on to say that Mather would thus "insure the selection of actual experts," whose impartiality and disinterestedness could be counted upon, and hence all partisanship being out of the question, the lawyers for each side would unite in desiring the selection of the expert from those most competent.

The objection made by lawyers to such propositions is that they restrict the inalienable right of the litigant to call any witnesses he may see fit. It seems to us, however, that the litigant's right to call witnesses would remain unimpaired, although the importance of such witnesses as experts might be interfered with.

The almost universal verdict of disinterested writers on the matter is that the present mode of partisan expert testimony is, in its nature, dangerous and detrimental both to the dignity of the so-called expert and to the cause of justice, and that a reform along the lines indicated in the foregoing quotations is heartily to be desired. Unquestionably we should help along such reform by every means in our power. In the meantime our efforts should be unsparing in demonstrating to the body of lawyers and to the laity that a strict virtue and integrity and judicial fairness lies behind our testimony, no matter by whom we may be summoned to appear. Just here a plea may rightly be made to the whole body of physicians, a protest which constant occurrences in the courts amply justifies. It is, simply, that physicians in good standing shall testify only in those cases in which they have special knowledge; that to qualify as an expert shall mean a distinct and painstaking training along certain definite lines. In other words, that the dignified term "Expert" may not be robbed of the last vestige of its meaning.

We cannot do better than quote in this connection a passage from Putnam's paper, to which the reference has already been given. After suggesting certain remedies, he says: "It is probable that these attempts on the part of trained experts to improve their own testimony and increase the respect in which it was held would have the indirect effect of discounting the testimony of those who are less well qualified.

"It is as absurd for a surgeon, however considerable his experience, to assume to pass judgment on a difficult question of neurology or psychiatry as it would be for the neurologist to give a critical opinion on the merits of different incisions for laparotomy; and the fact that this absurdity is not generally recognized is

but another illustration of the low respect in which medical testimony is held."

Should such advice as this be conscientiously followed, we might at least flatter ourselves that a first step had been taken towards an ultimate reform, such as Van Gieson and Sidis so forcibly bring before our attention.

THE INFLUENCE UPON NERVOUS AFFECTIONS OF OPERATIONS UPON THE FEMALE PELVIC ORGANS.¹

THE general trend of medical opinion of late years has been pretty steadily against the efficacy of operations upon the pelvic organs, especially oöphorectomy, as a cure for nervous or mental affections, always excepting those cases where disease of those organs demands such operation, independently of the nervous condition. At a meeting of the Association of American Physicians, in 1891, Dr. Wharton Sinkler, of Philadelphia, took the ground that it was unjustifiable to remove healthy ovaries in cases of nervous disease, and the late Dr. Lusk, of New York, said that he was tempted to regard such a proceeding as malpractice. A recent inquiry conducted by Drs. Angelucci and Pieraccini of the provincial asylum at Macerata, Italy, has afforded considerable information in the way of the accumulation of statistics of cases in sufficient number to warrant certain definite conclusions.

The data which they present are based upon reports made to them by the heads of public and private asylums and psychiatric clinics in various countries, embracing a total of 115 cases in which surgical operations were performed upon the female sexual organs, either healthy or diseased, to combat some nervous disorder or to remove diseased organs. One hundred and thirty-seven of the asylums and clinics interrogated had had no cases of the sort. Out of 76 alienists, directors of asylums or clinics, 56 more or less strongly disapproved of such operations, twelve had not had sufficient experience to warrant a personal opinion, five were uncertain, and only three favored such operations in the treatment of hysterical conditions.

Of the 115 cases six were subjected to a simulated operation for the relief of hysterical conditions. Of the remaining 109 cases 65 had healthy organs removed for the cure of nervous conditions, eighteen nervous patients had diseased organs removed, and 26 women neither insane nor hysterical had diseased organs removed. Forty-one cases of hysteria had healthy organs removed on account of the nervous trouble; of these 17 became insane, 10 grew worse, 11 were unaffected and three cured. Eighteen cases of hysteria had diseased organs removed; three became insane, six were unaffected and nine were cured. Twenty-four women neither hysterical nor insane became insane after diseased organs were removed, and two others became neuropathic. Twenty-four insane women had healthy organs removed for the cure of their insanity; 19 grew worse or were unaf-

fectured, five improved or were cured. In only 17 cases, therefore, were the results favorable, and of these only three were cured of hysteria or other nervous disturbances by the removal of healthy organs. Inasmuch as six cases of hysteria were apparently cured by simulated operations the investigators naturally inquire how far, in these cases where actual operation was done, the influence of suggestion may have been felt.

As a result of their inquiry Drs. Angelucci and Pieraccini conclude that the removal of the uterus or its adnexa, if in a healthy state, is to be proscribed as a means of treatment of hysteria or insanity, and that the existence of hysteria is almost a contraindication for any serious gynecological operation. If any such operations are undertaken the indications must depend upon the gravity of the uterine or ovarian disease, and not upon any hope of a favorable influence upon the nervous conditions; the only favorable influence upon these latter conditions is in the way of suggestion. If all other means have failed in combating hysteria, a simple incision, simulating a laparotomy, may sometimes be admissible by way of suggestion.

Taking the statistics, as the present writers have done, from reports furnished by asylums and psychiatric clinics, it is possible that the proportion of cases injuriously affected by such operations is unduly large, since the physicians in charge of such institutions might have less opportunity for observing the cases which were entirely cured of any nervous or mental trouble after the operation. Nevertheless, any serious cases of nervous or mental trouble which were cured by operation would naturally have come under the observation of these men during the time when they were suffering from such trouble, so that the proportion is really nearer the truth than it might at first seem. Furthermore, as is well known, the statistics of cases from surgical reports only are too often based upon the immediate results of operation, without waiting to note the later developments in regard to any nervous troubles. It is therefore safe to accept the conclusions of Drs. Angelucci and Pieraccini, as endorsing the belief that the removal of healthy organs for the relief of nervous or mental troubles is wholly unjustifiable.

MEDICAL NOTES.

PRESIDENT FAURE'S GIFT TO A MOSCOW HOSPITAL. — The President of the French Republic has left 5,000 roubles for the French hospital at Moscow, and 6,000 for different charitable societies in Russia succoring French people.

THE UNIVERSITY OF CALIFORNIA REJECTS THE PETITION OF THE HAHNEMANN HOSPITAL COLLEGE. — At the last meeting of the Regents of the University of California fourteen members of the Board voted against the admission of the Hahnemann Hospital College to affiliation with the University, and only four in favor of such admission. The position of the Hahnemann Hospital was therefore rejected,

¹ Rivista Sperimentale di Freniatria, xxiii, 290, June, 1897.

and the vote is regarded as one of absolute confidence in the present Medical Faculty.

YELLOW FEVER IN THE SOUTH.—The cases of yellow fever in New Orleans have shown generally a very mild form of the disease. On September 21st there were nine new cases and no deaths in that city. The board of health has had no difficulty in placing each case in efficient quarantine, and local alarm is diminishing. Various towns in the surrounding country have withdrawn restrictions against the receipt of freight from New Orleans. At Edwards, Miss., on September 21st, five or six new cases were reported. The report of the occurrence of a case at St. Louis has proved to be erroneous. The situation, as a whole, may be said to have markedly improved since last week. The season of the year and the low temperature are against the active propagation and spread of this disease, and against its assuming a virulent form.

NEW ENGLAND.

THE BOARD OF LUNACY AND CHARITY EXONERATES ITS EMPLOYEES.—The Massachusetts Board of Lunacy and Charity have voted that their employees were not engaged in improper lobbying during the session of the last legislature. Notwithstanding this vote of exoneration, the general feeling seems to be that the employees are likely to be more circumspect in the future.

NEW YORK.

INSUFFICIENT SCHOOL ROOM.—The public schools were opened for the season on September 13th, and, notwithstanding the fact that three new school-houses and thirty-five thousand seats have been added to the school accommodations during the past summer, there were still more than eight thousand children who applied for admission turned away on account of lack of room. There are, however, thirty-two school-houses now in course of erection, and when they are all completed it is believed that every child of school age will be given a seat, unless the population makes an unprecedented advance. For a number of years the city has been unpardonably behindhand in providing sufficient accommodations for the public-school children, and it has taken a long time and a very large expenditure of money to adequately meet the demand upon it in this department.

MIDWIVES IN NEW YORK.—The recent developments indicating that the midwife Augusta Nack, who, with Martin Thorn, has been indicted for the murder of Guldensuppe, the Turkish bath employee, was also a professional abortionist has directed renewed attention to the existing abuses in regard to midwives in New York. The records of the Bureau of Vital Statistics show that out of the 55,000 births reported in the city last year, more than 25,000 were reported as attended by women of this class. There is good reason to suppose that at least half as many more were attended by midwives which were never reported at all. The hopelessness of even securing a conviction for failure to report a birth leaves these women almost unlimited

freedom. As to how many of them there are in New York there is no means of knowing, though it is believed that two thousand would be a low estimate. At the Health Department, where they are supposed to register, 950 have signed within the past three years.

The County Medical Society has made several attempts to have a law passed requiring midwives to pass an examination before a properly constituted medical board, but always without success. There can be no doubt that such a law would decrease the death-rate of mothers and infants, prevent much of the disease and deformity common among children of the tenements, and also diminish the number of criminal abortions. There are several so-called schools of midwifery in different parts of the city which derive a profitable trade from the sale of "diplomas" to midwives who are supposed to have pursued a course of study in them; yet there is no law to prevent them from issuing their certificates. Such "diplomas" have no value whatever, and could be given out by any one who chose to do so.

In speaking of this matter, Dr. George B. Fowler, Commissioner of the Board of Health, said recently: "A woman does not require a diploma to become a midwife. Any woman can practise who wants to, whether she knows anything about midwifery or not. All the law requires is that she be registered and that she report all births at which she is in attendance. We are constantly receiving complaints from reputable physicians regarding the evil work of these midwives. . . . A great many lives are lost in this way every year. Sometimes it is the mother and sometimes it is the infant who dies. Sometimes it is both. What we should have is a law to be general throughout the State, which would require all persons practising midwifery to pass an examination before a medical board appointed by the State Board of Health or some other such body. There are five counties in the State now which regulate midwifery by statute. A law such as is contemplated would sift out the incompetent and ignorant, and substantially decrease disease, deformity and the death-rate. There is great need for this law, and it should have been passed years ago."

One of the saddest features of the malpractice of ignorant midwives is met with in the large number of children who become wholly or partially blind through their neglect. At the New York Eye and Ear Infirmary recently one of the physicians had three such cases in a single afternoon, and at the Manhattan Eye and Ear Hospital more than fifty cases of the kind come under observation every year.

DEATH AT AN ADVANCED AGE.—Sarah Elmen-dorf, a negress and a former slave, died at the reputed age of one hundred and ten years at Kingston, Ulster County, on September 15th.

DEATH OF A PROMINENT PHARMACIST.—David Hays, for many years one of the most prominent druggists in New York, died on September 16th, at the age of seventy-eight. He was especially devoted

to the interests of the College of Pharmacy, and for a long time was treasurer of that institution.

DEATH OF DR. RENDELL.—Dr. John Rendell, of Bedford Avenue, Brooklyn, died at St. John's Hospital in that city on September 16th, from injuries received in a runaway accident the day previous. He was fifty-seven years old and a graduate of the Long Island College Hospital. The cause of death was fracture of the skull.

Miscellany.

MONEY ROULEAUX.

THE Vienna correspondent of the *Medical News* is responsible for the following story:

Not long ago one of the distinguished clinical professors was summoned to the house of the Austrian member of the famous banking family of Rothschild. He was accompanied by a younger member of the profession who, while his chief was making the general clinical examination, proceeded to examine the baron's blood. The banker was extremely interested in the procedure, and when the examination was concluded asked what he had found. The assistant replied that he had found everything perfectly normal and healthy; that there was the usual number of red blood-corpuscles, showing no marked differences in size or shape, and there was a very normal tendency to the formation of money rouleaux. The distinguished patient, who is well acquainted with the hereditary failing of his family in the matter of successfully forming money rouleaux, but who did not realize that this tendency was so outspoken that it could be discovered on microscopic examination of his blood, was very much amused. He was at first inclined to consider the expression as not quite serious and as meant to stave off questions on the part of an inquisitive patient. When assured, however, that the description was eminently scientific, his admiration for the "new medicine" was correspondingly increased. "What is bred in the bone will out in the blood," I suppose received a striking exemplification for him. When the visit was over and the doctors were leaving the fee the younger man found in the envelope handed him by the baron's secretary was not smaller for his chance excursion all unwittingly into the atavistic peculiarities of the Rothschild family in his perfectly commonplace description of the results of a blood examination.

Correspondence.

OYSTERS AND TYPHOID FEVER.

Boston, September 17, 1897.

MR EDITOR: Comment has often been made upon the increase of typhoid fever in our cities in the autumn months, and this has been charged to several sources: first, the return of visitors from summer resorts where the sanitary conditions may have been defective; second, low water in wells in the rural districts and such parts of the more sparsely populated parts of the cities as are not furnished with public water supplies; third, milk, a very common cause, especially when the milk is supplied in cans, or bottles which have been washed in filthy water.

There is, however, another possible cause, which, in the light of recent investigations, is worthy of more careful attention, and that is the use of shell-fish obtained from waters known to be seriously polluted. September is the month in which typhoid fever begins to prevail with greater frequency. It is also the month in which, accord-

ing to popular opinion, it is safe and proper to eat oysters, and to continue their use until the following spring.

The recent report of the Local Government Board of England upon Oyster Culture and Disease shows that serious illness followed the eating of oysters procured upon the sea-coast near the outlet of the sewers of the town of Grimsby, and reports of Professor Conn and Dr. Foote, of Connecticut, give similar testimony in regard to oysters grown upon the shores of Long Island Sound. Still later, a physician of Bastia, in the Island of Corsica, reports an epidemic of typhoid which was traced to the eating of snails and limpets which were obtained near the mouths of the sewers of that city.

But the oysters of Grimsby are subjected to a mere fraction of the pollution which occurs in some of our own American oyster beds. The Narragansett Bay and Providence River have for many years been favorite fields for the oyster-gatherers, but these waters, having a moderate tidal flow, with sluggish currents, receive the entire sewage of Providence, Pawtucket, Worcester and other places having a population of nearly 300,000 inhabitants.

May not this fact account for some of the mysterious cases of typhoid, the source of which has been unrecognized? And in view of the fact that such oysters appear upon the bills of fare of most hotels and restaurants, is it not desirable that their sale should either be forbidden altogether, or that each sale should be accompanied with a printed caution, advising the consumer not to eat them uncooked?

Very truly yours,

BIVALVE.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 11, 1897.

Cities.	Estimated population.	Reported deaths In each.		Percentage of deaths from					
				Deaths under five years.	Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.
New York . . .	1,868,000	746	341	21.19	12.74	12.22	.91	1.56	
Chicago . . .	1,619,226	456	191	25.28	9.90	19.36	2.64	2.42	
Philadelphia . . .	1,214,256	389	139	17.42	10.92	8.96	1.56	5.60	
Brooklyn . . .	1,160,000	440	146	19.78	7.36	14.03	1.38	3.22	
St. Louis . . .	570,000	152	54	11.88	9.24	1.32	1.98	1.98	
Baltimore . . .	650,000	188	82	28.03	9.54	14.31	7.42	7.42	
Boston . . .	517,732	217	96	23.92	11.04	14.46	4.60	1.38	
Cincinnati . . .	405,000	108	—	8.28	17.48	3.68	1.82	1.82	
Cleveland . . .	350,000	91	43	18.63	6.54	17.44	—	1.09	
Pittsburg . . .	285,000	101	42	32.00	16.00	16.00	4.00	—	
Washington . . .	277,000	126	62	20.54	12.64	12.64	—	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	106,050	35	—	34.19	21.04	10.52	13.15	—	
Worcester . . .	105,050	33	20	24.24	15.15	18.18	—	—	
Fall River . . .	96,919	41	29	31.72	—	21.96	7.32	—	
Lowell . . .	87,183	39	22	28.16	12.80	28.16	—	—	
Cambridge . . .	86,812	26	13	30.80	11.55	26.95	—	—	
Lynn . . .	65,220	36	14	16.62	5.54	5.54	—	11.08	
Charleston . . .	65,165	32	8	9.39	16.65	6.76	3.13	—	
New Bedford . . .	62,416	27	16	29.60	3.70	22.20	7.40	—	
Lawrence . . .	55,510	25	16	20.00	6.00	15.00	—	—	
Springfield . . .	54,790	17	8	17.66	11.76	11.76	—	—	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	14	5	21.42	—	21.42	—	—	
Brookton . . .	36,853	—	—	—	—	—	—	—	
Malden . . .	32,894	11	6	36.36	—	18.18	—	9.09	
Chelsea . . .	32,716	14	5	21.42	28.56	14.28	—	7.14	
Haverhill . . .	31,406	9	1	22.22	11.11	11.11	11.11	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	8	2	12.50	—	12.50	—	—	
Fitchburg . . .	28,392	8	2	25.00	—	12.50	—	—	
Taunton . . .	27,812	20	10	20.00	20.00	15.00	—	—	
Quincy . . .	22,662	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	5	2	20.00	20.00	20.00	—	—	
Everett . . .	21,575	7	6	14.28	28.56	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	3	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,511: under five years of age 1,418; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 746, consumption 375, acute lung diseases 257, diarrheal diseases 477, typhoid fever 86, diphtheria and croup

78, whooping-cough 33, cerebro-spinal meningitis 26, scarlet fever 21, malarial fever 17, measles 6.

From whooping-cough Chicago 9, Pittsburg 6, Brooklyn and Washington 3 each, New York, St. Louis, Baltimore, Boston, Providence, Fitchburg and Everett 1 each. From scarlet fever New York 7, Boston 3, Philadelphia and Lawrence 2 each, Chicago, Baltimore, Cincinnati, Providence, Fall River, Cambridge and Taunton 1 each. From cerebro-spinal meningitis New York 8, Boston and Lynn 4 each, Washington and Worcester 2 each, St. Louis, Nashville, Springfield and Malden 1 each. From malarial fever St. Louis 8, Philadelphia 4, Nashville 3, Chicago 2. From measles New York 3, Philadelphia, Pittsburg and Providence 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending September 4th, the death-rate was 20.7. Deaths reported 4,362, diarrhea 1,001, measles 83, whooping-cough 62, diphtheria 57, fever 38, scarlet fever 31.

The death-rates ranged from 10.4 in Swansea to 37.5 in Hull; Birmingham 24.1, Bolton 22.8, Gateshead 25.3, Leeds 19.2, Leicester 23.8, Liverpool 28.1, London 17.1, Manchester 25.6, Newcastle-on-Tyne 26.6, Nottingham 21.0, Sheffield 25.1, Sunderland 27.2, West Ham 20.8.

METEOROLOGICAL RECORD

For the week ending September 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer.	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		W'e'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...5	30.21	70	83	56	56	82	69	W.	S.W.	8	11	C. C.
M...6	30.14	76	89	62	60	65	62	W.	N.W.	8	6	C. C.
T...7	30.36	68	74	62	62	69	66	N.E.	S.E.	15	5	F. C.
W...8	30.19	68	76	60	55	85	70	S.	S.W.	7	14	C. C.
T...9	30.06	78	90	65	66	74	70	W.	W.	11	8	C. C.
F...10	30.04	83	94	72	66	69	68	W.	W.	10	10	C. F.
S...11	30.16	72	87	58	66	87	76	N.W.	N.W.	8	6	C. C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 11, 1897, TO SEPTEMBER 17, 1897.

Leave of absence for one month, to take effect on or about the 20th inst., with permission to apply for an extension of one month, is granted **LIEUT.-COL. J. V. D. MIDDLETON**, deputy surgeon-general, chief surgeon, Dept. of California.

The leave of absence granted **CAPTAIN OGDEN RAFFERTY**, assistant surgeon, is extended one month.

A board of officers to consist of **MAJOR ALFRED C. GIRARD**, surgeon, **MAJOR JOSEPH K. CORSON**, surgeon, **MAJOR CURTIS E. M. MUNN**, surgeon, is appointed to meet at Denver, Col., on Wednesday, September 22, 1897, at 10 o'clock, A. M., for the examination of such officers of the medical department as may be ordered before it to determine their fitness for promotion.

CAPTAIN JUNIUS L. POWELL, assistant surgeon, Fort Riley, Kan., ordered to report to the president of the examining board, Denver, Col., for examination as to his fitness for promotion.

FIRST-LIEUT. JAMES M. KENNEDY, assistant surgeon, will be relieved from duty at Fort Missoula, Mon., and is ordered to Fort Washington, Md., for duty at that post.

Leave of absence for one month, to take effect about September 15, 1897, is granted **CAPTAIN ASHTON B. HEYL**, assistant surgeon, Fort Riley, Kan.

The leave of absence granted **CAPTAIN HENRY A. SHAW**, assistant surgeon, is extended one month.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWO WEEKS ENDING SEPTEMBER 11, 1897.

MURRAY, R. D., surgeon. To assume command of operations at Ocean Springs, Miss. September 7, 1897.

SAWTELLE, H. W., surgeon. Leave of absence granted by department letter of August 10, 1897, revoked, and directed to report at Bureau for special duty. September 8, 1897.

AUSTIN, H. W., surgeon. To report at Bureau for special duty. September 9, 1897.

CARTER, H. R., surgeon. To proceed to Ocean Springs, Miss., for special duty. September 6, 1897.

CARMICHAEL, D. A., surgeon. Leave of absence granted by department letter of August 6, 1897, revoked. September 7, 1897.

GLENNAN, A. H., passed assistant surgeon. To proceed to Grand Bay, Ala., for special duty. September 9, 1897.

WHITE, J. H., passed assistant surgeon. To report at Bureau. September 7, 1897. To proceed to Ocean Springs, Miss., for special duty. September 9, 1897.

CARRINGTON, P. M., passed assistant surgeon. On being relieved by Assistant Surgeon **TABB**, to report at Bureau for duty. September 10, 1897.

STONER, J. B., passed assistant surgeon. Directed to proceed to Chicago, Ill., and assume temporary command of Service. September 7, 1897.

GUIERAS, G. M., passed assistant surgeon. On being relieved by Assistant Surgeon **J. B. GREENE**, to proceed to New Orleans, La., for special duty. September 7, 1897.

GEDDINGS, H. D., passed assistant surgeon. To assume charge of Hygienic Laboratory during the absence of Passed Assistant Surgeon **J. J. KINYOUN**. September 9, 1897.

GREENE, J. B., assistant surgeon. To proceed to Key West, Fla., for temporary duty. September 7, 1897.

TABB, S. R., assistant surgeon. To proceed to Evansville, Ind., and assume temporary command of Service. September 10, 1897.

MATHEWSON, H. S., assistant surgeon. To rejoin station at San Francisco, Cal. September 8, 1897.

BOARD CONVENED.

Board convened to meet at Washington, D. C., September 10, 1897, for the physical examination of candidates for appointment as second assistant engineer in the U. S. Revenue Cutter Service. Surgeon **C. E. BANKS**, Chairman, and Passed Assistant Surgeon **G. T. VAUGHAN**, Recorder.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 18, 1897.

H. LA MOTTE, assistant surgeon, was placed on the retired list September 15th for physical disability.

SOCIETY NOTICES.

NEW YORK STATE ASSOCIATION OF RAILWAY SURGEONS.—The seventh annual meeting will be held at the Academy of Medicine, New York City, on Tuesday, November 16, 1897, under the presidency of **Dr. J. Frank Valentine**, Chief Surgeon of the Long Island Railway.

C. B. HERRICK, Secretary.

THE TRI-STATE MEDICAL SOCIETY.—The ninth annual meeting of the Tri State Medical Society of Alabama, Georgia and Tennessee will be held in Nashville, Tenn., Tuesday, Wednesday and Thursday, October 12, 13 and 14, 1897.

FRANK T. SMITH, M.D., Secretary, Chattanooga, Tenn.

RECENT DEATHS.

CHARLES HENRY DAVIS, M.D., M.M.S.S., died in Worcester, September 16, 1897, aged fifty-one years.

JOHN BRAXTON HICKS, M.D., London, F.R.C.P., F.R.S., the eminent obstetrician and gynecologist, died on August 28th, at his residence in Lynton, Eng., aged seventy-two years. He was for many years connected with Guy's Hospital, having been appointed assistant obstetric physician in 1855, obstetric physician in 1870, and consulting obstetric physician in 1882. He retired from active practice about three years ago. Braxton Hicks played a prominent part in the history of obstetrics and gynecology in Great Britain, and his writings on these subjects are of great importance and value. He was an Honorary Fellow of the Royal Society, of the Obstetric Societies of Edinburgh, Berlin and Philadelphia, and of the American Gynecological Society.

BOOKS AND PAMPHLETS RECEIVED.

Albinism. By **W. H. Dalpe, B.A.**, Montreal. Reprint. 1897.
Appendicitis. By **William B. Van Lennep, A.M., M.D.**, Philadelphia. Reprint. 1897.

Transactions of the Medical Society of the State of West Virginia, held at Charleston, May 19, 20 and 21, 1897.

The American Academy of Railway Surgeons. Report of the Third Annual Meeting, held at Chicago, Ill., September 23, 24 and 25, 1896. Edited by **R. Harvey Reed, M.D.**, Columbus, O. Chicago: American Medical Association Press. 1897.

Original Articles.

AN EXAMINATION OF HUMAN GAIT.¹

BY E. H. BRADFORD, M.D., BOSTON.

If the gait of pedestrians be watched, it will be noticed that there are variations, not only according to age, size and strength, but also in different individuals. These variations are at first so confusing that any classification seems impossible; but on further examination it will be seen that certain types can be determined.

If any one walking is seen from the side, it will be noticed that the body is kept erect, if the gait is a leisurely one. The thigh is advanced by the action of the *psoas* and *iliacus*, the *rectus* and *tensor vaginæ femoris* muscles; the weight is first thrown upon the heel of the projecting leg, and the body brought forward by the push of the foot of the rear leg, which is bent at the knee. The projecting leg as it strikes the ground is usually straight, that is, not bent at the knee. This may be termed the erect gait, or straight-leg gait.



In faster walking, or in a slow gait in feeble persons, and in children, the weight of the body is frequently used as a means of propulsion. The individual leans forward, his body weight falling forward propelling him, being kept from falling to the ground by the interposition of the front leg, which is usually bent at the knee as the heel strikes the ground. The gait differs from a run, in that it is a true heel-and-toe gait, and not upon the front of the feet alone, as is the case in a run. This may be classed as the forward or bent-knee gait.

In strong and rapid walking both of these types are combined, the front leg is protruded as far as possible, and held straight, that is, not bent at the knee as the weight strikes the ground. The foot of the rear leg is used to propel with a vigorous push; the knee of the rear leg is straight, but slightly bent at the final strong push of the foot, the weight of the body falls forward, the trunk is inclined forward acting by its weight as an additional propelling force.

The angle the foot forms with the ground when the heel first strikes it, looked at from the side, varies in individuals. It is necessarily greater in long strides

than in short strides, and in the erect and the bent-knee gaits. It has been stated that, in normal gait, the projecting foot strikes the ground with the whole of the sole rather than with the heel alone. Instantaneous photography has disproved this except in an artificial gait, the parade step in the German army.

If those who are walking are looked at in front as they approach, it will be seen, from a little distance, that a noticable angle will be made by the axes of the feet. This angle of divergence varies in different individuals, some feet being nearly parallel, others with a wide divergence. This varies at different portions of the gait. It is widest as the rear foot is first moved forward, and when the heel of the front foot is placed upon the ground.

The divergence of the feet varies according to the rapidity of the gait, and whether the gait is the erect or the forward gait, and also varies in different parts of the step. When the heel of the projecting foot strikes the ground, the foot is turned out somewhat, the degree varying in individuals. When the front of the foot is brought to the ground, the foot will be seen

to turn slightly to the inside, as the weight is thrown farther forward on the sole. It may be noticed that individuals sometimes toe-out slightly with one foot, and toe-in with the other, toeing-in being accentuated as the front of the foot is brought to the ground. Individuals who have never worn shoes walk much straighter than those the front of whose feet have been confined by shoes. The moccasin and sandal-wearing races are trained to walk using the front of the foot a great deal, and they either toe-in or walk straight; but in a leisurely gait, even among barefooted people, a certain amount of toeing-out can be seen, though this is not the case in rapid walking.

The toeing-in is partly due to the inward divergence of the first metatarsal, separating itself from the second metatarsal when the front of the foot is strongly used. This inward mobility is perhaps a vestige of earlier arboreal traits existing to a larger degree in monkeys and the anthropoid apes, where the prehensile foot is adapted to arboreal activity. It is determined in man by the shape of the articulation of the first metatarsal with the first cuneiform, as compared with that of the second cuneiform and second metatarsal, which is universal in man, and is found in the prehistoric skeleton found in the cave of the South of France

¹ Read before the American Orthopedic Association, Washington, D. C., June, 1897.

(Museum of Comparative Anatomy, Jardin des Plantes, Paris) as well as the skeleton of an African pigmy (South Kensington Museum).

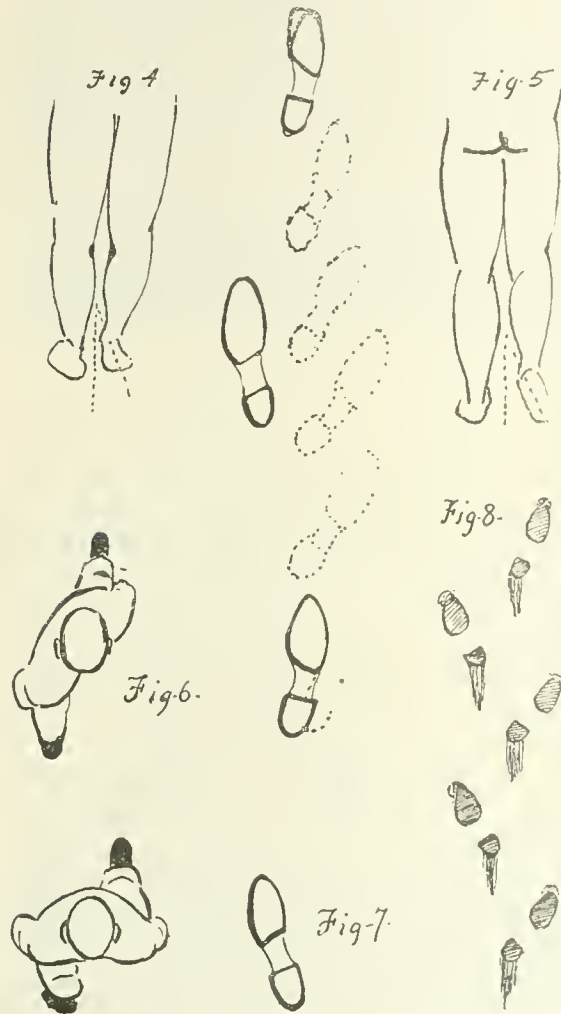
An examination of photographs of bare-footed mocasin-wearing people (Turks, Dalmatians, Egyptians, Somalis, Congo negroes, Soudanese, Zulus, Dahomeys, Druses, Hindoos, Hill-country Indians, Chinese, Japanese, Javanese, natives of Australia, Patagonians, Chili-

ing-out in leisurely and erect gait is seen. In North American Indians, a slight inversion of the front of the foot is not uncommon in an active walk.

In shoe-wearing people, an angle of divergence is the rule, both in standing and walking, except in young children, where parallelism in walking and in standing is not uncommon, and perhaps normal. It is difficult to determine what degree of divergence in standing is to be regarded in shoe-wearing people as normal and what pathological. A series of observations made it clear that the angle of divergence in London (a city where a large portion of the inhabitants are of urban birth, and rarely walk actively except upon pavements) is much greater than in Holland, where the towns are small, and even the urban residents not unused to walking on rougher ground, and where, in childhood, the feet were either bare, or not compressed except by sabots, which confine the foot but little.

It would appear that the proper standing angle of divergence of shoe-wearing people is much less than is usually supposed to be the standard, regarding forty-five degrees in standing to be normal in strong-footed people, who are properly shod, and the angle of divergence in walking as much less, not greater than thirty degrees in a leisure gait, and ten degrees in a fast walk. In young children this angle is much less. In rapidly growing children, just before the age of puberty, the angle of divergence may be great, but this is to be regarded as pathological. The divergence is chiefly due to an external rotation at the hip-joint, the thigh being advanced by the psoas and iliacus muscles, which have a mechanical advantage over the internal rotators, and would turn the limb out, unless the counteracting muscles are active. This external rotation is increased, if the rear foot is used in pushing or pulling a load. I am unable to determine to what a degree there is an outward twist at the mid-tarsal joint in a normal foot. Some outward eversion of the front of the foot is not uncommon in shoe-wearing people.²

If pedestrians are watched from behind, extreme divergence of the foot will, if present, be readily seen. In a majority of cases, however, the divergence is not marked when seen from behind. The angle, however, which the sole of the foot makes (with the vertical line), as the heel is raised from the ground at the end of each step, varies with the vigor of the push and the previous divergence of the foot. If the foot has been very divergent, as the heel is raised for the final push, the heel is moved to the outside, so that the foot becomes more nearly vertical to increase the mechanical advantage of the push. Individual variations are so great, that it is difficult to form a generalization as to the normal amount of the rotation of the foot, especially as in the normal gait, or straight gait, the rotating movement of the heel is not noticeable to the eye, and usually escapes the photograph focused upon other parts of the body than the foot. In a strong,



ans, North American Indians), as well as the inspection of the gait and footprints in a camp of Somalis, Soudanese and Dahomeys, appears to warrant the generalization that the divergence, both in standing and in walking, is less in individuals where the muscles of the front of the foot have been developed by active use of the free unrestricted foot, than in a people who have worn shoes since early childhood. Many individuals of these races stand with the axes of the feet parallel, the muscles of the foot and leg being sufficiently strong to enable them to dispense with the broader base afforded by divergent feet. A slight angle of divergence (which can be roughly placed at thirty degrees) is apparently not uncommon in bare-footed adults, when standing at ease. In bare-footed young children, however, this is not the case, the parallelism of the feet appears to be the rule. In walking, parallelism of the feet is the rule in bare-footed people, old and young, though occasional toe-

² Pedestrians have been carefully watched in Chicago (at the World's Fair), in London, in New York and Boston, as well as in the smaller towns of Holland (Delit, Middleburg, Lieuwarden), and in England at Oxford, Cambridge and York; and the observations seem to indicate that the angle of divergence, as has already been said, was greater in London than elsewhere. But these observations were made only by inspection, though made with care. The apparent angle of divergence was noted on paper as pedestrians approached, counting those who were seen at a sufficient distance for an accurate observation, and only those who walked directly towards the observer. They were also watched from the top of an omnibus. The points in London where observations were made, were at Ludgate Circus, London Bridge, Regent Circus and Trafalgar Square. Great accuracy, however, cannot be claimed for this method of inspection.

rapid gait the axis of the raised sole is vertical. Individuals with hallux valgus push in a divergent angle.

The twisting of the heel and toe is best studied in extreme cases, and is very noticeable in the run of weak-legged women with a wide angle of divergence. As the rear foot is lifted from the ground, and after the final push of the front of the foot in a leisurely gait, when the muscles are relaxed, in some instances dropping of the heel to the inside is seen. This is not seen, however, in rapid gait.

If a number of individuals are watched, looking down upon them from a height, it will be noticed that the axis of the shoulder is kept, in walking, in the same plane as the axis of the pelvis, the swing of the arm giving a slight rotation forward and back of this axis. The axis of the pelvis is at right angles with the direction in which the individual is walking.

There are exceptions, however. Individuals will occasionally be seen to walk with one shoulder thrust forward of the plane of the pelvis; and in fast walking, it is sometimes seen that persons will change the axis of the pelvis in such a way as to lengthen the stride, swinging around the rear foot as the axis. This is done intentionally in fast walking, the individual rotating apparently from the neck down.

An inspection of human gait from below is not practicable, except to a limited extent, when individuals who walk across a thick glass plate are watched from below. Where this is done it will be noticed that the angle of divergence is less than would be supposed. This is due to the fact that the angle of divergence in walking apparent to the eye is that as the foot spreads in the spring forward, and not the angles of the feet in actual contact with the ground.

A more accurate observation of this contact of the sole with the ground is taken from footprints in sand, mud, dust and snow.

If a preparation of moulding clay or moist sand be made, and the individual stand upon the clay with one or both feet, and a cast be taken of the impression, an opportunity is afforded by which the amount of pressure exerted by the different portions of the foot can be judged. That portion of the foot transmitting the greatest pressure sinks the deepest. When the feet are together and the individual is standing still, without leaning forward or backwards or to the side, it will be found that the weight falls chiefly upon the heel, and the heel sinks deeper than the front of the foot in the clay. If the individual leans forward, the pressure comes upon the front of the foot, and if to either side, the foot rotates at the medio-tarsal joint, and makes greater pressure on the outer or the inner edge respectively. If a step be taken, the weight comes upon the sole, and finally upon the toes. In the step the outer edge strikes first, and then the transverse arch, heads of metatarsal, and finally the great toe itself, in a full stride. The order is as follows: the os calcis; the fifth metatarsal; heads of the fifth, fourth, third, second and first metatarsal; and, finally, the phalanges of the great toe. In normal feet, as the weight falls upon the ball of the great toe, there is a separation of the great toe from the second. This can be seen in flexible-footed people when the foot is bare, and is demonstrated in mud and clay impressions.

The footprints in mud are of value in indicating the angle of divergence in gait. They are most readily observed if the footprints are watched on an unused pathway of frozen ground, where the sun has softened

the upper surface to the depth of an inch. It will be noticed that the divergence of the feet varies considerably in gait. If a careful observation be taken, it will be seen that the angle of divergence in an individual standing should not be greater than forty-five degrees. If the individual steps from this position in a leisurely gait, the angle of divergence of the footprints will drop to thirty or twenty degrees. In a fast walk, the divergence will drop to ten or to five degrees, or even be parallel in an active walker. In a run, the foot falls to the ground with the front of the feet parallel, and in some cases there is a slight toeing in.

A similar investigation can be made on a smooth, sandy beach which the approaching waves slightly moisten. In a fast walk, it will be indicated that the

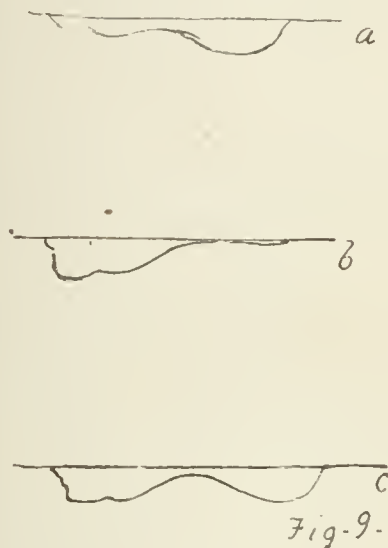


Fig-9.

front of the foot exerts even more pressure than the heel. If a frozen beach, slightly moistened by the incoming tide, be walked upon, a curious effect can be noticed. The sand will be found too hard for deep footprints, but the pressure of the step squeezes out, and leaves the white imprints for a few seconds, as the frost is forced upwards by the pressure. It will be shown in this way that in fast walking, the front of the foot exerts more pressure than the heel, and in slow walking the reverse is seen.

Footsteps in the dust are not as instructive as those in mud or sand, for the reason that the material is lighter; but the angle of divergence can be noted in these as well as in mud impressions.

In walking in light snow which has freshly fallen to the depth of an inch, the imprints of the feet upon a hard smooth surface is indicative of the angle with which the foot approaches the ground. It will be noticed that before the imprint is reached, the snow is disturbed in an irregular line in the direction of motion. This is longer the less deep the snow, and the greater the slant by which the heel approaches the ground, provided the individual walks naturally and does not wade through deep snow. It will be seen that the axis of the footprints forms an angle with this line, indicating the amount of divergence. In the footprints in moist snow to the depth of half a foot, the turn of the front of the foot can be traced as it passes through the snow. It will be seen that the foot cuts the upper surface of the snow at a greater divergent angle out-

ward than when it strikes the ground with the final push, the toe cutting-in under the snow.

An amount of side oscillation of the trunk seen as the weight is born alternately on one leg or the other varies greatly in different individuals, some swaying a great deal, and others but little, influenced either by habit or muscular strength and weakness. This inclination may be more noticeable at the hip or at the ankle in different individuals. Variations may be seen in the rise and fall of the head in walking, as the weight is alternately thrown upon the heel, or borne upon the front of the foot, and also according to the amount of spring at the knees. The swinging of the arms also varies with individuals, and the rapidity of the gait.

No examination here is reported as to a running gait. It is, however, well known that in running, the front of the foot, and not the heel, is used; and in strong runners there is no outward divergence, though in weaker runners a certain amount is noticed.

The facts alluded to in the present paper are easily observed, but frequently forgotten. They are of value to the drill-master, suggesting the question whether or not soldiers should be trained in the forward as well as the erect gait; to the gymnastic teacher, suggesting the need of training the muscles of the front of the foot; to the physician, in seeing that the front of the foot is not crowded by the shoes. They are often overlooked by the sculptor, who neglects to depict the proper angle of divergence, either in standing or walking. This was particularly common in sculptors of the early part of this century, and may be seen in many of the statues at Westminster Abbey and at St. Paul's Cathedral. This error was never committed by the Greeks.

The proper angle of divergence is not always regarded by the drill-master. At the Guard Mount in London at St. James's Palace, a few officers were noticed walking with an angle of divergence of ninety degrees. Several privates were seen standing at rest, at an angle of divergence of over one hundred degrees; and the file leader marched at an angle of divergence of over ninety degrees. This is not ordinarily seen in marching troops, and it is probably the result of over-zeal on the part of the drill-master, in a regiment not trained for campaign, but for parade service. It would be of interest to see the effect of such a step after a twenty-mile march.

This same exaggerated angle of divergence is seen in gymnastic classes. A large angle of standing divergence, namely, ninety degrees, is taught by many gymnastic teachers. It has its value in steadying a line, affording a broad base of support, the average individual being weak-ankled. While this is beneficial for the appearance of the class, it is not beneficial to individuals, and if used in weak-ankled children it may be injurious.

The differences in gait are also not thoroughly borne in mind. In the St. Gaudens Shaw Monument the relations between the front foot and rear foot are not properly preserved, as is readily seen by a comparison with an instantaneous photograph and the groups of marching men. This was undoubtedly done, however, for artistic effect, and contributes to the sense of motion in the figures, and may be regarded as artistically correct though physiologically faulty.

Parents are frequently anxious that children should be trained to walk with an exaggerated angle of di-

vergence, under the impression that it is graceful and correct; but the fact is that footprints in a normal, active walk are parallel, and the stronger the gait the straighter the walking.

DESCRIPTION OF CUTS.

FIG. 1. Erect gait.

FIG. 2. Forward gait.

FIG. 3. Rapid gait, the front of the rear foot used in propulsion, as well as the weight of the trunk falling forward.

FIG. 4. Front view, showing angle of divergence of the rear foot.

FIG. 5. Rear view, showing angle of inclination of the raised sole of rear foot.

FIG. 6. Diagram representing gait as seen from above, with square (a) and twisting (b) shoulders.

FIG. 7. Diagram representing gait as seen from below, with the rotation of the moving foot.

FIG. 8. Diagram representing footprints from a largely divergent gait in a thin layer of fresh snow.

FIG. 9. Profile of casts of foot taken from clay impressions: (a) standing at rest; (b) pressure with the front of the rear foot at the end of the step; (c) impression of the step, with pressure at heel and toes.

ENTEROPTOSIS AS A CLINICAL FACTOR IN THE DISEASES OF WOMEN.¹

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THE number of women presenting themselves at any large out-patient clinic to whom it is difficult to assign any definite diagnosis is very great. In thinking of the more than 8,000 cases, and the result of the past four summer services at the Woman's Room at the Massachusetts General Hospital, which combines general medicine together with a very large gynecological clinic, no one thing strikes me more than the comparatively small number of cases to which a distinct etiological cause can be given. Compared with the whole, the number of cases of tuberculosis, heart lesions, asthma and bronchitis, malaria, leucemia, and even the frequently occurring essential chlorosis in young women are small; and in the Gynecological Room, the cases having acute gonorrhea, tumors or lesions resulting from childbirth or abortion, which can be relieved by any single operation, as well as troublesome displacements of the womb, are few and far between compared with the number who are simply "sick inwardly."

Almost innumerable cases where constipation is the most important symptom of course present themselves. Dyspepsias of different forms are only slightly behind in point of numbers and a large proportion of the women have neurasthenic symptoms of greater or less degree.

Constipation is so prevalent that one is tempted as a time-saving operation to begin the clinic each morning by delivering a lecture to the new patients upon the care of the bowels.

Of all those who are constipated or dyspeptic, a certain number are set right by general directions, as to the care of the bowels, proper food and sufficient exercise. And also many of the neurasthenics, when talked to and the whole condition discussed, are helped by directions for a more hygienic life. In the dyspeptics, tendencies to dilatation, diminution and increase of secretions, etc., must all be considered in the diagnosis and treatment. But in spite of what you may do, there will always remain a large proportion who do not respond to simple directions, in whom con-

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, April 28, 1897.

stipation or dyspeptic symptoms, or both, will continue and the neurasthenic symptoms persist without abatement.

In the region of the pelvis much the same state of things exists. Malpositions are found and some of the worse are relieved by the introduction of a pessary of almost any kind, provided it is large enough to take the place of the weakened pelvic diaphragm and form a practically solid bottom to the abdominal cavity, the patients remaining relieved even though the uterus may be left in any position, while others experience relief only if the uterus is practically in the so-called normal position. Some patients have been helped by operation and others have not been at all relieved, though having undergone many operations. The chance of seeing post-operative cases is exceptionally good at this clinic, and the number of unrelieved cases that have been operated upon is so great that one is tempted to exclaim, "What can I do to check the rapacity of the operators?" This feeling is intensified still more from the number of cases that are sent for operation, who have somehow or other received the idea from their physicians that if they have an operation, they will be well, when it only needs a superficial examination to see that an operation can either accomplish nothing at all, or be but one step in the process of cure. The rest of several weeks in bed, being often a most desirable starting-point to enable the physician to get control of the patient.

How little stress can be placed on malpositions of the uterus as an active cause of discomfort needs only continued observation on a large number of cases. Women well along in years continually report themselves at the clinic for examination in regard to sterility, presenting extreme backward displacements, who have had no discomfort during their lives or, at most, slight disturbances during the menstrual period. And their one cry of disconsolation is "I am so well: why don't I have children?" Other patients whose uterine symptoms are relieved for the time being by supports or treatment or operation, until their back, belly and thigh muscles are in good order, and their general health improved, may then go about with the fundus uteri in the pelvis without discomfort. Later on, however, if they get overtired, the manifestations of discomfort instead of being referred to the pelvis may take the form of mastodynia, intercostal neuralgia or indigestion.

All this is, of course, old and is to be found in the writings of every teacher, and one must really apologize for presenting it at such length, but it is not the side that is insisted upon at the clinics, and not the idea that many students or practitioners get hold of for a long time. The enthusiasm for surgery and the consequent great number of operators at the present time tends also to increase the disproportionate value set upon the presence of single lesions as productive of symptoms. Almost any one can operate and many can operate well, but, to my mind, it is most difficult to operate judiciously, to know when an operation is needed, and when other measures will yield equally good or better results.

Having said so much in the way of preliminary observation, I want to call your attention to the condition of splanchnoptosis and to the special division of it, enteroptosis or Glénard's disease, so called from the writer, who, about 1885-7, recognizing the condition and the distinct set of symptoms accompanying the

condition, began to write upon the subject. Glénard's work has received proper recognition from some of the recent text-books, as Ewald, last edition Osler, Wood and Fitz, Da Costa and Musser all contain the essentials of the subject, but, on the other hand, neither Pepper in the "American Text-Book," nor Tyson mention the subject. Many of the clinicians devote to it a proper time in their instructions. Yet it is not dealt with for the most part so fully and carefully, nor its importance and frequency held up to the student in such a way that he appreciates that it is anything to which it is worth his while to devote his attention. Indeed, it is not at all infrequent to find a man who will talk well about gangrene of the lung, or the methods of recognizing a lesion in one sail of the tricuspid valve, or the proper nomenclature for the leucocytes, who has no idea that in general practice he will be called to diagnose between dilated stomach and enteroptosis many times, or that *ren mobilis* is more apt than otherwise to be but a part of a general condition.

A consideration of the terms used in describing the conditions involving ptosis of the abdominal viscera may not be out of place before consideration of the clinical picture. The general term, including all the varieties which will be mentioned, is splanchnoptosis, or prolapse of all abdominal viscera. Such a condition is rare, and it is quite justifiable to use it when there is prolapse of several unassociated organs, as intestines, spleen and kidney. Prolapse of single organs gives rise to the various names gastropptosis, prolapse of the stomach, hepatoptosis of the liver, nephropptosis of the kidney, spleenoptosis of the spleen, metropptosis of the uterus, or prolapsus uteri, and enteroptosis, falling of the intestines, usually including with it the whole intestinal tract and sometimes used as a general word to express the whole condition, though if we hold to the Greek meaning of the words such a use is improper. The symptoms connected with intestinal prolapse are so important that the condition which I specially wish you to consider is that of enteroptosis, to which the name of the Lyons clinician first calling attention to the condition has been given, by calling it Glénard's Disease.

In enteroptosis, the intestines, both large and small, are always prolapsed, usually also the stomach and one kidney, this being the typical condition as described by Glénard; very much more rare are some of the other viscera involved in combination with the intestine.

According to my observation, however, a large number of cases are found where the intestines alone seem to be prolapsed, no movable kidney or misplaced stomach being found, but in the space between the costal borders, flatness on percussion and a pulsating aorta, while the intestines are found massed in the lower portion of the belly.

The result of the prolapse of the intestines is the destruction of equilibrium existing in the abdominal cavity and an impairment of the functional condition of the organs involved and resulting in a mechanical dyspepsia.

As the dragging of the intestine increases, both from its own weight and the pressure exerted by corsets and clothes hung from the waist, the mesenteric attachment yields, allowing of still greater displacement and drag upon the duodenum, flattening it against the vertebræ in such a manner as to hinder the pas-

sage of food from the stomach, and thus causing delay, and subsequent fermentation of the food in the stomach. The most frequent and earliest place where the intestine gives way is the unsupported right end of the transverse colon. The colon, which is in health distended, becomes collapsed unless it be filled with feces; and instead of crossing the abdominal cavity just above the level of the navel, the collapsed cord of intestine more or less M or S shaped, crosses the lower part of the abdominal cavity. The absolutely empty condition of the intestine may be made out by a rectal examination, where it is found practically impossible to introduce the finger above the ampulla of the rectum, so closely are the walls glued together. Glénard has stated that the transverse colon can be felt as a thick cord lying across the bodies of the vertebræ. This, Ewald has denied, pointing out that the mass so felt is probably the pancreas. However, this is an unessential matter, the fact being that the colon becomes collapsed, exposing a portion of the abdominal aorta which should be covered by the bowel, and either lies across the spinal column or is prolapsed so as to allow the pancreas to be palpated. The pulsating aorta is the more important symptom, and when a woman complains of a pulsating tumor in the abdomen it means enteroptosis much more often than it does aneurism of the abdominal aorta.

When the stomach is involved, as is usually the case, the lower border being found so far down often gives rise to the idea that the stomach is dilated and that the symptoms are simply due to this condition; but inflation or attempt at lavage will demonstrate that the stomach is not at all or but little dilated. Though, as has been shown, when the case is one of long standing, the twist at the pylorus brought about by the sagging pouch of the stomach and the flattening of the duodenum and consequent difficulty with which food passes through it, a dilated stomach is sure to result. Bouchard, who has been so prominent in presenting the necessity of the early recognition and treatment of dilated stomach, is inclined to resent the emphasis which Glénard has laid upon the enteroptosis, but the weight of evidence from my own observation is that in the majority of cases the prolapse is the primary condition.

Leven, who refers nearly all intra-abdominal disorders to the solar plexus, acknowledges the frequency of the intestinal displacement, but considers that the functional conditions resulting are due to the continued pressure exerted upon the solar plexus by the drag of the intestines upon the mesentery. This is interesting as offering an explanation for the results, but it is certainly not important to decide whether the functional disturbances are the result of simple mechanical conditions, or reflex in their origin from disturbances in the nerve centres. Possibly both explanations are partly true.

The causes leading to the prolapse of the internal organs are numerous, and a great deal has been written upon the subject. A few cases are probably due to congenital conditions, increased by bad hygienic measures of dress in early life. A few are distinctly traumatic, and the symptoms begin to develop from a time when there was noticed a distinct feeling as of something giving way in the abdomen, although not necessarily accompanied by any considerable pain. Lifting, picture-hanging and bicycle falls, we shall have to add, are among the most frequent causes of

this entastic form, and it has been known to occur while persons have been dancing and from attacks of vomiting. By far, however, the greatest number are of slow development, and due to relaxation of the muscular walls, occurring from any cause whatsoever. First and foremost in the case of married women is pregnancy, when the abdominal muscles become so stretched that they no longer give any support to the intestines. In unmarried persons there is usually a combination of causes whose resultant is the enteroptosis. Indeed it is very hard often to say what is the cause and what the effect so intimately are they related to each other. Anything which tends to weaken the abdominal muscles and the internal attachments makes the condition possible. Examples of this are tubercular, chlorotic conditions or a weakened state, induced by typhoid or other acute infections and also the result of improper food and overwork. Such conditions are further intensified by unhygienic dress and lack of exercise.

Because less is heard at present about livers cut in two as the result of tight lacing, and because the wasp waist is no longer fashionable, and as so much is written about lacing, most of us are possessed of the idea that women of the present time do not lace. Some of us also remember Rosina Vokes and her singing "But 'is 'eart was true to Poll," which required the most violent gymnastic dancing, and at the same time the dancer was dressed with a long court train and a perfect fitting waist which distinctly showed that the fit depended on the corsets beneath; and we have said to ourselves, "If the modern corsets allow of such free movements, then surely they do no harm." But if the present corset is not drawn so tightly as to interfere with the breathing, there is a constant temptation to keep the waist small, and so enough pressure is exerted to press upon the belly and spinal muscles to such an extent that they are much weakened and relaxed. The pressure too is all exerted in the wrong direction, and the abdominal contents are forced down towards the pelvis. The majority of women also hang their skirts by bands about their waists, and thus add to the pressure in the wrong direction.

Overeating and consequent infiltration of the abdominal walls with fat is another cause which may lead to the relaxation of the walls whose tone is so necessary to the maintenance of the proper position of the intestines.

Subjective neurasthenic symptoms almost always develop sooner or later and add much to the difficulty both of making the diagnosis and having the proper treatment carried out.

The diagnosis in the cases that are not advanced is often difficult, and practically comes down to making an empirical test of the means used for the relief of the condition. The points to note in making any full examination are, first, the condition of the abdominal walls as to laxity. And right here one is frequently led into serious error, for at any examination many patients are so frightened or embarrassed that the recti are found so firmly contracted that you are tempted to take it for granted that the belly walls are in good shape, when in reality they possess little supporting power. Pulsation of the aorta, which is not normally felt on light palpation, should direct the attention of the physician to the possibility of the enteroptosis being an important factor in the condition. (Let me add an aside here that one of the first symp-

toms which attracted my attention in the study of my cases was, that a woman with a pulsating aorta was practically always neurasthenic. The converse of this statement, however, is not true.) If there are lax abdominal walls and a pulsating aorta, the outlines of the stomach should be determined, even inflating it if necessary, and the pancreas palpated. Next the condition of the kidneys should be examined in order to determine whether they are movable, always remembering that in floating kidney the right is the more liable to be free. In my experience it is rare to find cases of *ren mobilis*, accompanied by symptoms which are dependent solely upon the malposition of the kidney. Many movable kidneys give rise to no especial symptoms of discomfort. A considerable number form a part in the condition that we are considering, and in a very few cases the symptoms are referable to the displacement of the organ alone. This accounts for the frequency of successful operations not giving the relief expected.

On the pelvic examination, the laxity of the pelvic floor is often of as much or more importance to determine as to the exact position of the uterus and ovaries; while the collapsed rectum, partly filled with nubs of inspissated feces, lends completeness to the picture.

Dyspepsia, constipation, tired and dragging sensations are the symptoms most complained of. In many cases the patient will be found to be anemic, and in the majority of cases more or less neurasthenic.

Glénard has stated that a valuable diagnostic sign is to be found by standing behind a patient and holding the thumbs firmly against the sacrum, while the under part of the hands are pressed as deeply as possible behind the symphysis and ilium, and if by thus supporting the intestines the patient experiences a sense of relief from the dragging sensations, it may be concluded that the case will be relieved by appropriate treatment for enteroptosis. Too much dependence, however, cannot be placed upon this procedure, either from a positive or negative standpoint.

Treatment for enteroptosis consists in the first place, of an attempt to hold the prolapsed organs in their normal position by means of an abdominal band which shall counteract the downward pressure of the clothes and take the place of the relaxed abdominal walls.

Next, proper exercise should be introduced in order to restore, so far as is possible, the abdominal muscles to their normal condition so that the abdominal support shall be discontinued as soon as possible.

Secondary treatment is just as important and is directed to counteracting the other prominent symptoms, as dyspepsia, constipation and general debility. Pelvic symptoms are by no means to be neglected and care must be taken that the abdominal support does not aggravate the symptoms caused by moderate uterine displacements. Operation, in many cases, will add to the efficiency of the treatment. The kidney may give trouble even to the point of requiring suture or if hydronephrosis has developed, removal. The physician must try to bring himself to look upon the condition as extensive and requiring attention, to minor details in a number of organs apparently remote.

The best and simplest form of bandage for the majority of cases I have not settled as yet to my own satisfaction. Neither have I determined what is the best course of gymnastics to follow. A bandage with a certain amount of elasticity in it is probably the best.

Also, I think that there must be some sort of a perineal support to hold it in place.

To sum up the results of my observation and reading, I would say that though enteroptosis may exist without giving rise to any noteworthy symptoms, there are a large number of conditions marked by dyspepsia, constipation and pelvic disorders, into which it enters and consequently this is to be borne in mind in all cases not yielding to the ordinary treatment of diet and hygiene.

MOVABLE KIDNEY AND ENTEROPTOSIS.¹

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ONE of the results of the erect position in man, which has been adduced as the cause of so many ills from which he alone of the vertebrates is the sufferer, is that the larger solid viscera, namely, the liver, spleen and kidneys, are brought into the upper part of the abdominal cavity, where their weight is supported in part by the ligaments of connective tissue and peritoneum which hold them to the diaphragm and abdominal walls, and partly by the hollow viscera (intestines) below them, which supported by the abdominal walls, and filled with gas and semi-solid contents, form a kind of elastic cushion, upon which a large part of their weight is borne. Any relaxation of the pressure of the abdominal walls will necessarily decrease the pressure upon the intestines lying underneath these organs, and cause greater strain to be thrown upon the peritoneal and other supports of these organs. The stomach and intestines, especially if filled with solid or fluid material, will, unless supported by the elastic pressure of a normally tense abdominal wall, tend to drag down and stretch their supports; and we can easily imagine that such a condition of things might tend to cause a gradual stretching of the peritoneal ligaments, and a descent of the viscera to an abnormally low position in the abdominal cavity.

Observations of the pressure in the upper and lower portions of the abdomen, as recorded by a manometer bulb introduced into the stomach and rectum, show in an interesting manner the amount of the actual pressure exerted upon the viscera in the lower portion of the abdominal cavity by those situated in the upper portion. The pressure in the stomach, as measured by a manometer² in the upright position of the body, has been found to be 11 cm. of water, and in the rectum 39 cm. The pressure in the stomach, which has no overlying viscera to impinge upon it, represents the elastic pressure of the abdominal walls; that in the rectum this pressure *plus* the amount of the weight of the viscera which was not borne by their ligaments, which amounts therefore to $39 - 11 = 28$ cm. of water.

When the subject was placed on an inclined plane at an angle of 50° , with the head downward, the manometer in the rectum measured 11 cm. of water, and that in the stomach 27 cm., thus showing that 11 cm. of water might be taken as a fair index of the intra-abdominal pressure, in so far as due to the tension of the abdominal walls, when a man is standing quietly at rest. The constant variation in abdominal pressure when the body is in active motion is shown

¹ Read before the Boston Society for Medical Improvement, April 26, 1897.

² Schwerdt: Deutsche Med. Woch., 1896, Nos. 4-6.

by the fact that holding a weight of 10 kilogrammes out at arm's length increased the pressure in the stomach to 59 cm., and in the rectum to 78 cm. Strong voluntary contraction of the abdominal muscles caused a pressure in the stomach of 66 cm., and in the rectum of 84 cm. These figures are sufficient to show the great variations of abdominal pressure under normal conditions, and the constant variations in the strain to which the supporting ligaments of the viscera are subjected. When the intra-abdominal pressure is greatest, the tension in the ligaments will be least, and *vice versa*. There is doubtless a compensatory mechanism by which intra-abdominal pressure is kept most of the time at about normal. When the pressure of the abdominal walls relaxes, the blood flows more rapidly into the vessels contained in the abdomen,

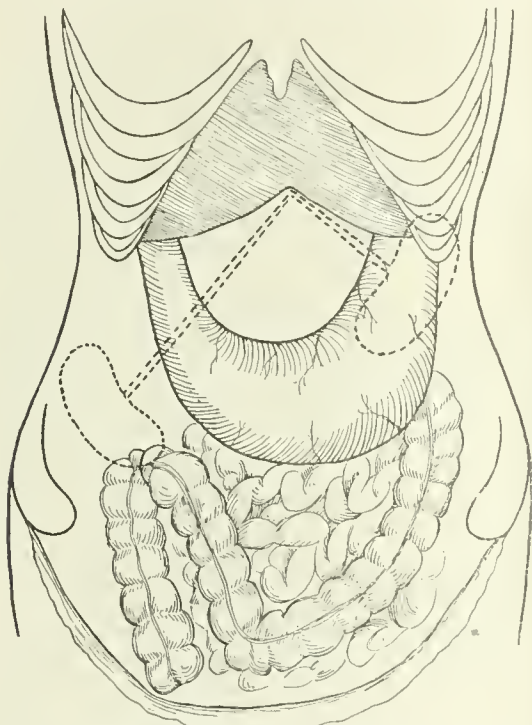


FIG. 1. Drawing from Dissecting-room Subject. Female. Laced thorax, ptosis of colon and stomach. Double movable kidney.

and the veins are emptied more slowly, so that blood is, as it were, sucked in and brings the pressure more nearly to normal. But the regulation of the pressure by this mechanism takes time, and cannot follow instantly upon the sudden contractions and relaxations of the abdominal walls, so that these sudden movements may throw at least a temporary strain upon the ligaments.

The contractions of the diaphragm and abdominal muscles in respiration cause a certain variation in pressure; the filling and emptying of the intestinal canal with gas and feces is another cause of variation, and the changes in the blood-supply of the abdominal organs another. There can be no doubt that by emptying the bowel by free catharsis intra-abdominal pressure is lowered, as is shown by the failure of the bowel to protrude when a laparotomy incision is made on a patient properly prepared for operation. The collapsed bowels lie quietly in the cavity, and the surgeon has no trouble from the protrusion of distended

coils; whereas, in operating on patients whose bowels contain the normal amount of food and flatus, the opposite conditions prevail, and the bowels are forced out in such a manner that there is often great difficulty in replacing them.

A permanent condition of emptiness of the bowel, such as is caused by a low diet or a chronic diarrhea, will therefore tend to cause a decrease of intra-abdominal pressure. Relaxation of the abdominal wall from overstretching, as from repeated pregnancies, will certainly decrease intra-abdominal pressure, since the outstretched muscles may never regain their normal power of contraction, and a condition even of pendulous belly, the *Hängebauch* of the Germans, may result. Relaxation of the perineal supports from rupture attended with uterine prolapse, etc., will also tend in marked degree to lessen intra-abdominal pressure.

The large amounts of adipose tissue, subperitoneal, omental, etc., which often in fat persons so distends the abdominal cavity, and fills in the interspaces between the organs, may be absorbed under the influence of wasting disease, so that a marked decrease in intra-abdominal pressure may result.

Now, to the influence of a diminution of pressure tending to stretching of the supporting ligaments of the viscera, there may be added a pressure calculated to directly displace the viscera downward. I refer to the effects of tight lacing, which, by crowding the viscera, especially the stomach when distended with food, into the lower portion of the abdomen, may stretch the supporting ligaments, and cause a definite ptosis of the stomach and transverse colon, which is dependent from its greater curvature (see figure). Not only the stomach may be caused to descend, but the right kidney may be actually caught between the liver and the posterior abdominal wall, by the pressure of the thorax, and squeezed downward and out below the ribs, a condition actually present in the case represented in Fig. 1, which is a drawing from a subject in the dissecting-room of the Harvard Medical School. The right kidney lay in the false pelvis, and could be easily moved upwards into its place, a distance of $3\frac{1}{2}$ inches. The chest showed in a marked degree the narrowing of the lower outlet by lacing, as will be seen from the figure. When the kidney was pushed back into place it remained there, but placing the body in the erect position, or very slight lateral pressure upon the thoracic walls with the hands, immediately forced it downward into the false pelvis. The accompanying ptosis of the stomach, which was flat and entirely empty when the drawing was made, may be seen in the figure.

Of all the abdominal organs which may descend to lower positions than normal in obedience to the law of gravitation or of external pressure upon insufficient supports, the kidneys have attracted most attention. The kidneys are not held in place by ligaments, but by connective tissue, covered in front by a layer of parietal peritoneum. They are usually surrounded by a layer of fat, the absorption of which from wasting diseases cannot fail to leave them loose in their retroperitoneal pockets. The right kidney has in front of it the right lobe of the liver, and the peritoneum on its anterior surface is reflected upward to form the ascending and beginning of the transverse mesocolon and running along its internal border is the descending portion of the duodenum. The left kidney has in

front of it the descending colon with its splenic flexure, which is attached more tightly and higher up than the hepatic, so that the relations are less complicated and the liability to loosening of supports is less.

If now the peritoneal covering of the right kidney be loosened, from absorption of fat or other cause, it is apparent that the traction of a colon and hepatic flexure filled with feces might drag upon and loosen it still further, allowing the kidney to descend into the false pelvis. In descending, the kidney will move in the arc of a circle of which the junction of the right renal artery with the aorta is the centre. The kidney will move downward with the relaxed peritoneum, and will also glide underneath it. The renal artery is usually lengthened by the dragging down of the kidney upon it.

When the kidneys lie loosely in their capsule, any increase of abdominal pressure may cause them to descend, such as coughing, straining at stool, lifting, and the like, and any jolt or jar from an external cause may have the same effect.

Relaxation of the abdominal walls and perineal supports, due to conditions associated with pregnancy and the puerperal state, renders women peculiarly liable to ptosis of the viscera; so that movable kidney is, as one would naturally expect, much commoner in women.

As to the actual frequency of the disease itself, we have no accurate data, and of such data as we have the clinical vary greatly from the pathological. Skorzewsky found that 32 females out of 1,030, and 3 out of 392 males, suffered from movable kidney, while in a table given by Newman⁸ movable kidney is shown to have been recorded only 11 times in 11,258 autopsies. Several reasons may be adduced to account for this, one of which is that patients rarely die of the disease, and another, that with the body in the horizontal position the kidneys return to their normal situation, and unless the pathologist examines with the idea of seeing whether the kidneys glide under the peritoneum, he may not note the fact of their mobility. Newman's examinations in the inspection room of the Glasgow Royal Infirmary, gave a percentage of 1.8 cases in which the kidneys were movable through an area of over three inches.

Mobility of the spleen is very much rarer than movable kidney, and seldom comes under the observation even of experienced clinicians. When it exists, however, the loose attachments of this organ allow it to move about much more freely than does a movable kidney. Its mobility is also usually associated with dilatation of the stomach and ptosis of other viscera. Splenectomy for wandering spleen has been performed 12 times without a death, and Rydygier has devised an ingenious operation for splenopexy.

Mobility of the liver is very rare indeed, a fact which is probably due to the intimate connection between the liver and the diaphragm by the coronary ligaments. A stretching of these ligaments, particularly of the right, and of the falciform, when dragged on by the weight of the right lobe in conditions of lowered intra-abdominal pressure, does however take place, allowing the liver to descend, rotate to the right, and move about much more freely than normal.

Mobility of the liver, spleen and kidneys, with ptosis of all the viscera, is a condition rarely observed at autopsies; and the observation of a case of this condition in the dissecting-room of the Harvard Medical

School first attracted my attention to the subject. During the winter of 1896-97 I have examined in the dissecting-room 46 adult subjects (37 males and nine females), and in five subjects (three males and two females), I have found one or both kidneys movable, so that when the bodies were inclined at a very moderate angle with the horizontal (about 20 degrees), they descended so that their lower ends reached the crest of the ilium. It is not fair to say that such mobility is what one would naturally find from the emaciation due to death from wasting disease, for a large proportion of subjects in the dissecting-room are emaciated, and in most of them the kidneys are firmly in position, showing that in those in which the kidney was found movable, the condition must have been present during life.

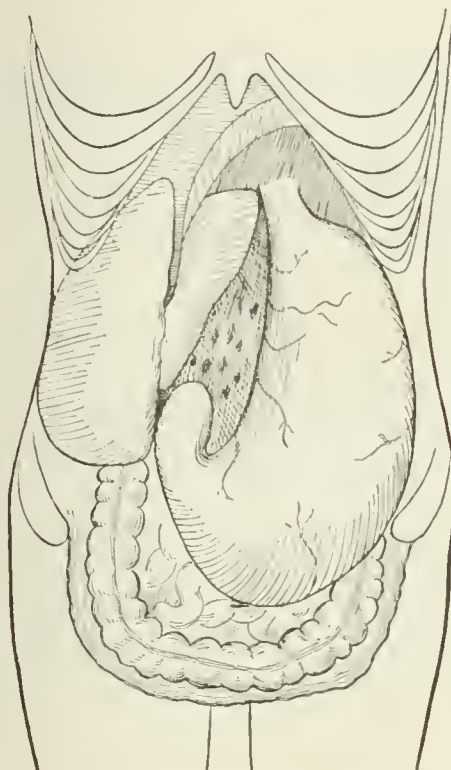


FIG. 2. Dissecting-room Subject. Female, age eighty-three years. Ptosis and dilatation of stomach. Ptosis of colon and liver. Movable spleen and double movable kidney not shown in cut. Lower border of stomach reaches level of pubes.

In one of these subjects, that of a woman, the following interesting condition of relaxation of the abdominal supports was present, a partial idea of which may be obtained from Fig. 2. Suffice it to say, in the way of description, that the right kidney lay in the right iliac fossa, and was easily movable upward three and one-half inches into its normal position, and over to the median line. The position of the stomach and liver is interesting: the lower border of the liver is seen to lie in the iliac fossa at the level of the anterior superior spine of the ilium, and the stomach is seen to be enormously dilated, and elongated (ptosis) so that the greater curvature reaches the pubes, and the vertical lesser curvature the umbilicus. The hepatic flexure of the colon, very loosely attached, lies in the right iliac fossa, and the transverse colon itself lies in the bottom of the pelvis, and when brought outside

⁸ Surgical Diseases of the Kidney, p. 20.

the abdomen crosses the thighs four or five inches below the pubes. The spleen lies so that its lower border is two inches below the thoracic wall, and it could easily be drawn entirely outside the thorax, and moved freely about. The falciform ligament of the liver is very wide, and the coronary ligaments were slightly stretched, so that the liver fell away from the diaphragm more than normal and was rather freely movable. The abdomen of this woman, which was flaccid though not pendulous, showed lineæ albicantes. The pelvic organs were normal except for the atrophy due to her years, and the pelvic supports were in normal condition.

This striking instance of the association of movable kidney with general relaxation of the supporting ligaments of the viscera suggested several interesting questions: whether movable kidney was not often only one manifestation of a general relaxation of peritoneal supports, with ptosis of the stomach and other viscera; how far the symptoms, on the part of the kidneys, gastro-intestinal tract and nervous system, might be due, not to movable kidney alone, but to the accompanying ptosis of the other viscera; and how far these symptoms would be relieved by the commonly performed operation of nephrorrhaphy for movable kidney, and how much benefit might be expected from abdominal supports, bandages, etc.

The earlier writers on movable kidney noted the frequent coincidence of movable right kidney with dilatation of the stomach and gastro-intestinal catarrh, and Landau explained this by the dragging and kinking of the limbs of the duodenum by the descent of the right kidney carrying with it its peritoneal covering. This kinking, he thought, obstructed the outflow of the stomach contents and accounted for the gastric dilatation. No satisfactory description, however, of the disease enteroptosis was given until 1885, when Glénard, a physician practising at Lyons and Vichy, published in the *Lyon Médicale* his monograph entitled "Application de la Méthode Naturelle à l'Analyse de la Dyspepsie Nerveuse—Détermination d'une Espèce." His views were at first received with suspicion, but in a year or two his work received the sanction of the French Academy of Medicine; such leaders in French medical thought as Dujardin-Beaumetz, Hayem and others accepted his results in whole or in part, and Glénard's disease, or enteroptosis, took its place in medical literature. In 1890, Ewald and Kuttner made a careful study of the relation of movable kidney to enteroptosis, and since that time enteroptosis has, as a disease, been more accurately understood.

To Glénard, although his conception of the etiology and his remarkably dogmatic and detailed account of the symptoms and physical signs have not entirely stood the test of time, belongs the credit of having recognized the disease and established it as a clinical entity.

Glénard argued that a large class of the cases which were classed as nervous dyspepsia, or dyspepsia without known cause, attended by general neurasthenic symptoms, were due to a definite and easily appreciable condition of the abdominal organs, namely, ptosis with relaxation of the ligaments. He distinguished as due to this cause those dyspepsias classed as the intestinal, rather than the purely gastric type, namely, those in which the symptoms came on some time after eating, and were somewhat as follows: anorexia, or false feeling of hunger, a feeling of fulness in the epigastric

region, pyrosis, sour taste or dryness of the mouth, burning or dragging pain in the upper part of the abdomen after eating, etc. The intestinal symptom was constipation, often interrupted by attacks of diarrhea; the constipation often very obstinate, so that very hard dry scybala were passed, and often, as a result of cathartics or enemata, large pieces of membrane appeared in the stools, giving a true membranous enteritis. There was frequent putrefaction of the intestinal contents with distention of the abdomen and the passage of much fetid flatus. The general symptoms were weakness, irritability, headache, cold hands and feet, palpitation, sleeplessness, and so on through the whole neurasthenic catalogue. Loss of weight, sallowness of the skin, and often loss of the hair followed in due course; and the patient might come ultimately to look like a victim of cancer. The various common methods of treatment—massage, electricity, baths, etc.—proved of no avail.

As physical signs, Glénard found palpable pulsation of the abdominal aorta in the epigastric region and a transverse cord which he took to be the prolapsed and contracted hepatic flexure and transverse colon to be felt running from the lower right to the upper left lumbar region. The prolapse began, according to his theory, with a descent of the hepatic flexure and first part of the transverse colon, which are loosely attached by mesentery to the front of the right kidney, and were dragged down by the weight of the fecal contents accumulated there by reason of constipation. This prolapse resulted in a sharp angle at the splenic flexure, with interruption of the fecal current, and consequent further accumulation of contents and dragging down. The weight of the colon dragged upon the greater curvature of the stomach, especially the pyloric portion, and caused obstruction at the first flexure of the duodenum, and gastric dilatation as well as ptosis. Finally, there was stretching of the entire mesentery of the small intestine, dragging down of the liver by the gastro-hepatic ligament, and ptosis of the kidneys, due to sagging and loosening of their peritoneal coverings, or, in other words, a prolapse of all the abdominal viscera. Glénard believed that nephroptosis was always a part of a general enteroptosis, or, in other words, that movable kidney without enteroptosis never existed. The general intra-abdominal pressure is diminished in enteroptosis, because the intestines do not contain the normal amount of gas and feces, and as they hang down in their empty condition, simply drag on their supporting ligaments without properly filling the abdomen and supporting each other.

Out of 1,310 cases of disease of the gastro-intestinal tract, Glénard made the diagnosis of enteroptosis in 404 cases. Ewald calls attention to the fact that in the entire literature of the subject there were only three or four autopsies in which this condition was found. Glénard, however, rests his diagnosis finally on what he calls *l'épreuve du sangle*, that is, the relief which he found was given his patients by the application of an abdominal support, and the fitting of such a support he regarded as the first and fundamental step in the treatment of these cases.

Ewald, in the paper referred to in 1890, affirmed the existence of enteroptosis as a definite disease, first recognized by Glénard, but disputed the value of certain of his symptoms. The *corde colique transverse* alluded to above, and so definitely described by Glénard as the prolapsed and contracted transverse colon, Ewald

holds to be nothing more or less than the pancreas, which in cases of gastro-ptosis can be felt as a transverse ridge above the descended lower curvature of the stomach. Ewald held that the only way to definitely recognize enteroptosis by physical signs was to blow up the stomach with gas, preferably by means of the stomach-tube, and mark out its outlines by percussion upon the abdominal wall. If the greater curvature reached to or below the umbilicus, in the absence of known cause for dilatation, we have gastro-ptosis; and distention of the colon with gas by the rectal tube may establish the low position of the transverse colon. If now we can establish by palpation a movable right kidney, we have a definite diagnosis of general ptosis of the viscera.

The occurrence of obstruction of the intestine from kinking at the flexures, due to the acute angles formed by the descending loops, Ewald denied, and held to the view that the functional disturbance of the stomach and intestines and of the general nervous system in this disease was due to the stretching of the ligaments with the sensitive filaments and plexuses of the sympathetic nervous system therein contained. He admitted, however, that dragging down of the stomach by the prolapsed colon might cause obstruction of the outflow of gastric contents and consequent dilatation, due to the sharp angle produced between the movable first part and the fixed second part of the duodenum.

Ewald found that the extreme condition of enteroptosis, in which the liver and spleen were dragged down and movable, as in the case shown in Fig. 2, were very infrequent. The infrequency of mobile liver is undoubtedly due to the anatomical causes alluded to earlier in this paper.

The majority of the cases of enteroptosis coming under his experience were not the subjects of typical abdomen pendens, which we sometimes see in old women as a result of repeated pregnancies, but of a relaxed though not actually pendulous condition of the abdominal walls. Ewald and other later observers have found movable kidney and enteroptosis perhaps as frequent in women who have not borne children as in multiparæ; and Meinert has established a definite relation between movable kidney with enteroptosis in young girls and compression of the thorax by tight lacing.

Of especial interest in connection with the subject of this paper, the relation between movable kidney and enteroptosis, are the observations of Ewald and Kuttner on 100 cases of movable kidney observed by them at the Augusta Hospital in Berlin during eight months. In 89 of these 100 cases they were able to distend the stomach with air, and in 79 of these they found the greater curvature of the stomach three or four centimetres below the umbilicus, or at a still lower level. The cases comprised 47 of right movable kidney, 25 in whom both kidneys were movable, and 7 in which the left alone was prolapsed.

The symptoms of these cases were not those of gastric dilatation, but chiefly of the kind usually described as nervous dyspepsia. In only 15 of these 79 cases, however, were they able to diagnose by the low position of the lesser curvature an actual ptosis, so that Ewald was unable to subscribe to the opinion of Glénard, that movable kidney is always a part of a general enteroptosis. The fact, however, that in only 10 of these 89 cases the greater curvature of the stomach was in the normal position, shows that in nearly 90

per cent. of the cases either beginning dilatation or ptosis of the stomach was present.

The absolute frequency of enteroptosis, or as Ewald calls it, splanchnoptosis, will probably never be accurately determined, for the reason that the necessary physical examination is generally not carried out in patients who complain of the symptoms of nervous dyspepsia. A marked degree of enteroptosis may exist without much effect on the general health, as shown by the fact that the case shown in Fig. 2, as I was able to ascertain, was not thought to have much the matter with her during life and lived to the age of eighty-three years. In the majority of cases in which the condition is at all marked, it is probable that the subjects of it will consult physicians for dyspepsia or neurasthenia. The fact that enteroptosis



FIG. 3. Enteroptosis. Female, age forty. Greater curvature of distended stomach at level of pubes. Lesser curvature below umbilicus. Percussion outlines shown in continuous lines. Dotted line shows position of right kidney, which was more freely movable than left.

is more frequent in patients with thin, relaxed abdomens than with the typical pendulous belly, is brought out by the fact that in Ewald and Kuttner's 15 cases only two presented the typical abdomen pendens.

From these investigations we are able to diminish the class of functional nervous dyspepsias by subtracting a class of cases in which we find general relaxation of the abdominal ligaments with stretching and pulling upon the nerve filaments going to the intestine, and consequent secretory or motor derangement of the same. A symptom in some degree peculiar to these cases which clinical observation has brought out in the last five years is the passage from the bowels, during the attacks of diarrhea which characterize them, of shreds of membrane—a membranous enteritis. These severe recurrent attacks of enteritis have been a marked symptom in all the cases which have come under my observation. The case shown in Fig. 3, which was a beautiful case of double movable kid-

ney, with dilatation and marked ptosis of the stomach, which entered the Boston City Hospital in the service of Dr. Withington, who kindly allowed me to blow up the stomach and have her photographed, entered the hospital for an acute attack of enteritis. The position of the right kidney and of the greater or lesser curvature of the stomach are shown in the photograph. The lesser curvature lay at the level of the umbilicus and the greater hung down to the pubes. The woman from whom the drawing of Fig. 2 was made died during an acute attack of diarrhea, and in two other cases which I have seen this diarrhea was the symptom for which they came under the physician's treatment.

A very important etiological factor in the production of enteroptosis, which has been alluded to but not given the prominence it deserves, at the beginning of

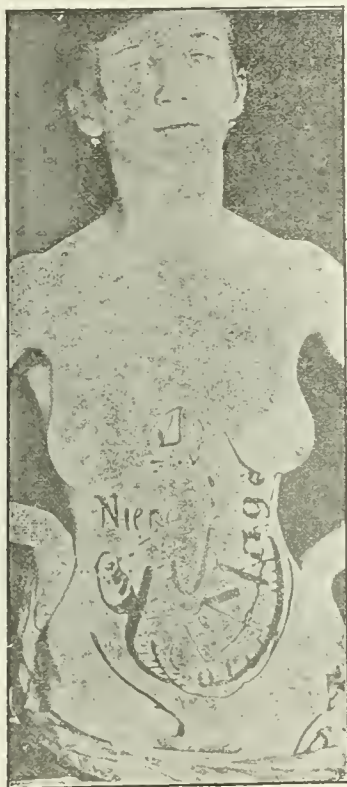


FIG. 4. Enteroptosis (from Meinert), showing dilated stomach, prolapsed colon and right kidney. Laced thorax.

this paper, is the effect of tight lacing on young girls. Meinert, of Dresden,⁴ in 1894, published a paper in which he ascribed almost all cases of chlorosis in young girls to enteroptosis, and the enteroptosis to the effects of tight lacing. In the former contention he has not been generally upheld by subsequent observers, in the latter he has. He publishes a large number of excellent photographs of young women, showing the coexistence of "Schnürthorax" gastropnoia, and mobility of the kidney. His method of distending the stomach for the purpose of marking out its percussive outline is the administration of bicarbonate of soda and tartaric acid in separate powders. Subsequent writers⁵ have advocated the use of the gastro-diaphane in the diagnosis of this condition.

⁴ Zur Etiologie der Chlorose, Wiesbaden, 1894.

⁵ Einhorn: Enteroptosis, Medical News, September 19, 1896.

The crowding down of the stomach by lacing has been demonstrated by Dickinson⁶ and by Wenke.⁷

The accompanying photograph from Meinert (Fig. 4), may be compared with Fig. 1. It must be remembered that the sketch was taken with the stomach absolutely empty and the subject on the back. With the stomach full and the body in the erect position, the prolapse would undoubtedly have been much more marked.

There can be no question that in tight lacing there is brought to bear a strong force tending to the displacement downward of the stomach, small intestines and right kidney, and to an outstretching of their peritoneal supports. The liver may be either driven upward or downward, elongated, deformed, or nearly cut in two by these same forces, according to the level at which the constricting force is applied. Whatever result it may produce, the fashion receives no support from the basis of either clinical or pathologico-anatomical study.

Other causes of enteroptosis which might be classed as internal or local causes, in contradistinction to general causes, such as laxness of the abdominal walls and the like, have been recorded. The case of Treves⁸ is an instance in point. He had to treat a case presenting abdominal and gastro-intestinal symptoms, worse on movement and in the erect position, in a young woman of twenty-two, whose symptoms had begun six years before with an attack of acute abdominal disturbance. The patient was only comfortable when lying down. The right kidney had been found to be movable, and been sewn in position three years before. Every form of dietetic and hygienic treatment had been tried, and numerous health resorts visited. A heavy and complicated abdominal support had to be worn. The liver was found to descend two inches in the erect position, and the stomach and whole mass of intestines appeared to fall downward. Owing to the pitiable condition of the patient, who was bedridden, and whose condition was really serious, Treves performed a median laparotomy, and found the liver low down and freely movable. On attempting to get a good look at the stomach he found that it was impossible to get it up into the wound. On looking for the cause of this condition, he found the great omentum rolled into a hard, rigid cord, attached to a mass of stony hardness in the right iliac region. This mass, which was found to consist of calcified tuberculous mesenteric glands, was enucleated through a second incision. The omentum was now cut away, and the stomach was then found to be freely movable. The spleen was very mobile, and the transverse colon lay below the umbilicus. The operator sutured the liver up against the parietes close to the xiphoid cartilage, passing his sutures through the round and falciform ligaments, and the patient was restored to health.

I will call attention to one more dissecting-room observation, Fig. 5, which irresistibly suggests a local cause of enteroptosis. The subject was a middle-aged male, with marked ptosis and dilatation of the stomach, the lesser curvature of which was vertical, while the greater curvature lay half-way between the umbilicus and the pubes. The lower border of the right lobe of the liver lay in the iliac fossa, and the liver was movable and rotated to the left. The right kidney lay

⁶ New York Medical Journal, November 5, 1887.

⁷ Arch. für Anat. und Phys., Anat. Abt., Jahrg. 1891, S. 89.

⁸ British Medical Journal, January 1, 1896.

entirely without the lower border of the thorax and could be easily pushed up into place. The cecum was long, and had a mesentery; it was very freely movable and hung down so as to rest on the bottom of the pelvis. The gall-bladder contained gall-stones; and there were strong adhesions binding the lower surface of the right lobe of the liver, the hepatic flexure of the colon, the gall-bladder and the first flexure of the duodenum together. The dilated and movable cecum and the ascending colon were filled with feces. The presence of the firm adhesions of the liver to the hepatic flexure, evidently due to the inflammation around the gall-bladder, caused by the presence of the stones, irresistibly suggested, that after these adhesions had been produced the weight of the cecum and ascending colon with its contents had dragged down the liver and hepatic flexure, loosened the peritoneum over the front of the kidney, and allowed the latter to descend. As seen in the figure, when lifted out of the abdomen, the cecum hung down well below the pubes. The history of this man was unfortunately not obtained.

An extended consideration of the treatment of enteroptosis is not within the scope of this paper. Suffice it to say that it consists chiefly in supporting the viscera, increasing the abdominal pressure by the application of suitable abdominal supports, and by exercises to increase the strength of the abdominal walls; in the treatment of the gastro-intestinal symptoms by careful regulation of the diet, etc.; and, finally, in a course of rest, massage and exercises to combat the neurasthenia, and improve the general condition. As a first measure to increase the abdominal pressure, I have found an elastic abdominal bandage to give marked relief.

A more general realization of the importance of enteroptosis as a factor in many conditions which are presented to physicians for treatment may, it seems fair to expect, lead to certain not unimportant results.

First, a rational system of therapeutics may be more generally applied to a large class of cases of "nervous dyspepsia."

Second, the same treatment will probably relieve a large number of patients who are subjected to local gynecological treatment, with the view of benefiting general and gastro-intestinal symptoms supposed to be "reflex" to various local troubles.

Third, a more rational means of prognosis in cases of movable kidney, and of decision as to mechanical or operative treatment may be possible. For instance, in the very large class of cases where movable kidney is complicated with enteroptosis, although by suturing the kidney in position we may relieve the symptoms due to torsion of the renal vessels or ureter, and the like, we will probably find, as we all know from our own experience to be sometimes the case, that the general neurasthenic and gastro-intestinal symptoms may not be benefited by the operation. It is hardly fair to expect that suturing the kidney in position will cure dilatation of the stomach or ptosis of the other viscera. The propriety of following a nephrorraphy by measures calculated to increase and maintain increased abdominal pressure can hardly be questioned. Cases of movable kidney which are found on examination to be uncomplicated by enteroptosis, will naturally stand more chance of benefit from nephrorraphy.

Nephrorraphy, then, will relieve such symptoms as arise directly from the descent of the kidneys, and are due to torsion of the renal vein or twisting of the ureter, but it cannot be expected to cure the symptoms

due to ptosis of the stomach and other viscera. I do not mean to imply that nephrorraphy is not indicated in cases where nephroptosis is associated with enteroptosis, as I believe the fixation of the kidneys if freely movable and causing symptoms, to be one of the most important steps in the treatment of these cases, but that such an operation must be both preceded and followed by treatment of the general condition.

Although we have no absolute data of the proportion of cases of movable kidney which are complicated with enteroptosis, the observations which I have made, although few in number have led me to the belief that ptosis of the kidneys is almost always associated with more or less ptosis of the other abdominal viscera, and that slipping down of the kidney behind the peritoneum, without more or less general relaxation of the

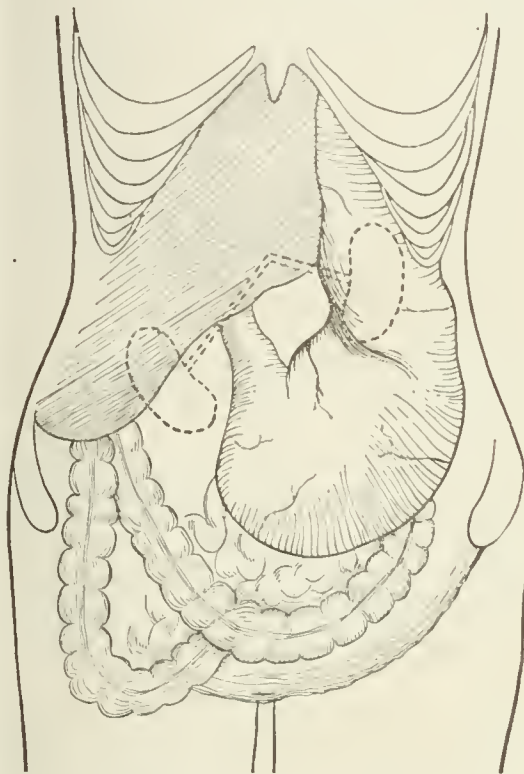


FIG. 5. Drawing from Dissecting-room Subject. Male. Ptosis of colon and ptosis with dilatation of stomach. Adhesions of hepatic flexure to liver and gall-bladder. Movable right kidney.

latter, and of the supporting ligaments of the viscera, is the exception rather than the rule.

Careful attention to the subject in post-mortem rooms can alone determine the absolute frequency of relation of enteroptosis to movable kidney, and I cannot help thinking that attention to the subject will show that the condition is more frequent than has been heretofore believed.

It is probable, also, that a routine physical examination for mobility of the kidneys and dilatation of the stomach in medical and gynecological clinics will disclose a more frequent occurrence of this condition than we have heretofore suspected, and will greatly aid us to a rational and efficient treatment of many obscure and hitherto unexplained cases.

MEDICAL JOURNALS OF PARIS. — There are 120 medical journals published in Paris.

ACUTE TUBERCULOSIS IN PUERPERAL WOMEN.¹

BY EMMA L. CALL, M.D., BOSTON.

THE various forms of septic infection play so large a part in the pathology of the puerperium that the influence of the puerperal state upon other diseases has hardly received the attention it deserves. It is true that for a long time it has been known that the zymotic diseases present peculiar symptoms in their course and development during this condition, but outside of these very little seems to have been recorded.

The effect of pregnancy and parturition upon cases of established tuberculosis has been much discussed, and equally good authorities are not agreed upon the subject, but the development of tuberculosis during the puerperium in patients who had no previous history or appearance of the disease is a subject upon which I can find very little information, and I have therefore ventured to think that the following cases are of sufficient interest to justify me in bringing them before this Society.

CASE I. Mrs. M., age twenty-seven, was delivered of her second child in the New England Hospital Maternity, April 12, 1896. The patient is slight and delicate looking. Her condition during pregnancy had not been good. She suffered much from indigestion, for which she was treated in the medical wards of the hospital in March.

Her first labor was tedious. Breech presentation. Child still-born.

The second labor, also a breech, was equally slow; delivery manual. The child proved to be an acephalous monster. Moderate laceration of the perineum, immediate suture.

During the first nine days after labor the patient was nervous and apprehensive; but the temperature was practically normal, reaching her highest temperature, 99.5°, at night a few times. On the tenth day the temperature rose suddenly to 104°.

Upon examination the perineum was found to be well united. Lochia normal. Nothing noticeable in pelvic organs except a slight sensitiveness in the ovarian region.

From April 22d to May 1st the average morning temperature was from 99° to 100°, the maximum (sometimes at noon, sometimes at 5 P. M.) ranged from 101° to 103°. She was removed to the medical wards of the hospital the 1st of May. At this time she felt fairly well, had neither chills nor sweats, and no apparent consciousness of fever. Her only tangible discomfort was a tendency to intestinal indigestion. Her appetite was fair. She lost flesh steadily, but not very rapidly.

An examination made at this time is recorded. Heart and lungs normal. Abdomen apparently normal; no dulness, distention nor sensitiveness in any part.

Pelvic examination: uterus in good position, involution fairly well advanced. No sensitiveness anywhere. The uterus, however, was not freely movable, and there was an ill-defined thickening in the region of the appendages, though no distinct mass could be felt.

Examination of blood: hemoglobin 60 per cent. Red corpuscles much diminished. Marked leucocytosis. No plasmodia.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, April 28, 1897.

Her general condition and temperature remained about the same during May. She was able to be up and to sit out of doors on pleasant days, and was usually very cheerful and hopeful.

On May 31st a decided increase in the maximum temperature was noted, with some pain in the abdomen, referred chiefly to the region of the ascending colon.

On June 4th an irregular mass was discovered in the right inguinal region, extending upwards to level of anterior spine, and downwards to pelvic brim.

No positive diagnosis had been made in this case, although abdominal tuberculosis had been suspected. Upon the appearance of this mass, a consultation was held with the attending surgeon, Dr. Culbertson, and an exploratory incision advised, which was consented to by the patient and her husband.

The operation was performed by Dr. Culbertson, June 6th. The report of the condition found was as follows:

"Uterus small, normal in position. Both sides of the pelvis filled by a neoplastic mass, apparently tuberculous, which on the right side reached the level of the liver, involving the ascending colon and some folds of the small intestine. The mesentery was also studded with tubercles. No ascites."

The abdomen was flushed with salt solution and closed.

The patient's temperature never rose above 101° and soon descended to normal. She left the hospital August 17th, having regained strength, flesh and color, and all traces of the mass had disappeared.

I saw her April 3, 1897. She looked in fine condition, and called herself perfectly well. Menstruation was regular and painless, and she had no discomfort in pelvis or abdomen.

CASE II. Mrs. D., age twenty-four, was delivered of her third child at the New England Hospital Maternity, May 14, 1896. Labor normal, no laceration. Child healthy. Family history negative. Physical condition during pregnancy good. General appearance healthy.

On the third day after labor, the temperature rose to 104°. She complained of headache. No cause could be assigned for the temperature. During the next two days the temperature ranged lower, then rose again, and on May 22d (eighth day) reached 103.4°.

A very careful pelvic examination was made; and although there was no tenderness, and the lochia appeared normal, the uterus was curetted, with negative result. An examination of the thoracic and abdominal organs was also negative.

From May 22d to 29th, the lowest temperature was 101°, the highest 104.4°. The temperature curve was very irregular, the maximum being often in the morning. The pulse ratio to temperature was slow. The patient complained of no pain, but was depressed and anxious, and perspired profusely.

During the week from May 29th to June 4th the average temperature was decidedly lower, the highest being 102°, the lowest 99°.

On June 4th the temperature rose to 105.6°, and for several days it touched 105° at some part of each day. She grew stupid, slept most of the time, her pulse was quick, often irregular, and, in short, she presented the appearance of one overwhelmed with some poison.

From the 9th to the 13th of June, the temperature again averaged lower, the maximum being 102°. She

took food well and seemed brighter, and the pulse was stronger and slower.

On June 16th a slight cough was noticed. No physical signs in chest.

On June 17th she had a chill, and temperature rose to 105.5°, followed by moderate phlebitis in right calf and thigh. On June 19th she complained of tenderness in right inguinal region, and the abdomen became distended. Internally there was some sensitiveness in right adnexa, but nothing definite could be felt. The lochia had ceased. The sensitiveness also disappeared in a few days.

During this time, although quite rational, she answered questions very slowly, as if it took a long time for the ideas to penetrate the sensorium.

On June 21st the cough became more troublesome, and a few sibilant râles were heard in the right lung posteriorly. The sputum was examined, with negative result.

June 23d. She complained of sharp pain in the region of the diaphragm, on the right side.

June 26th. She had severe pain in the right side of thorax below the scapula, and some friction sounds and fine râles were heard there.

From this time the signs of effusion (as manifested by dulness merging into flatness, distant respiration and diminished vocal resonance) successively presented themselves in the right side. There were also apparently patches of consolidation, presumably lobular pneumonia, above the level of the effusion.

In spite of the fact that no local focus of sepsis could be pointed out, this case had been considered as septicemia for lack of any other explanation. The phlebitis, the symptoms of peritoneal irritation, the local pleurites and pneumonia were regarded as secondary manifestations of the infection. Following this idea, the signs of effusion into the pleural cavity were supposed to indicate empyema, and aspiration was decided upon, with the idea of making a permanent opening in case pus was reached. On July 9th, aspiration was performed by Dr. Alexander and myself; but we only succeeded in drawing out about half an ounce of absolutely clear serum. It was therefore concluded that the physical signs were caused by a thick layer of plastic lymph between the chest wall and the lung. An examination of the serum by an assistant pathologist, Dr. Harriet Lothrop, disclosed the presence of the tubercle bacilli. Another examination of the sputum showed the bacilli there also, but not so abundantly as in the serum.

The diagnosis of tuberculosis having thus been established, the patient was permitted to sit up, and was carried out of doors on suitable days. She went home the last of July. At that time her evening temperature was still 102° to 103°, and we expected a rapidly fatal termination.

During August, I saw her once a week at her home in South Boston, where, in spite of poor surroundings, she improved decidedly. Her cough diminished, and she gained flesh and strength; the physical signs in the lung improved slowly but steadily.

In September she went to the Channing Home, where she gained ten pounds in six weeks; and soon after she left there I examined her chest and could find very little difference in the breathing between the two sides. This opinion was confirmed by Dr. V. Y. Bowditch, who saw her about this time. She had absolutely no cough, so that no sputum could be obtained.

I saw her last in January, and she seemed very well. I have since heard through friends that she continues so, although she has worked very hard all winter tending in a bake-shop from 5 A. M. to 9 P. M.

My interest in these two cases, which occurred within a month of each other, during my service, was further increased by Dr. Alexander, who kindly referred me to another case, which occurred in 1894; and I report this from the hospital records and the private notes of Dr. Alexander, who was at that time resident physician of the hospital.

Mrs. J. T., age twenty-four, American, primipara. Family history good. Health had been good till within the past two years, during which time she had suffered from a pain in left ovarian region, brought on, as she believed, by running a heavy sewing machine. This pain had been quite troublesome during pregnancy, and she was reported to have had a profuse and fetid leucorrhea.

Delivery occurred February 28, 1894, and was perfectly normal. No perineal rupture. Child healthy.

On the fifth day, March 4th, the temperature rose to 103°. No cause for temperature found in thoracic, abdominal nor pelvic organs. On March 7th she had a chill, and temperature rose to 106.8°. Another chill occurred on March 9th.

The patient was etherized, and the uterus curetted and washed out. Some shreds of decidua and placental debris were removed, but they were absolutely fresh in odor and appearance. The lochia had never been fetid. The patient's temperature continued high; there were occasional chills; later, vomiting, involuntary urination and defecation, and low muttering delirium.

Death occurred on March 20th, the twenty-first day after delivery.

The case was considered during life to be one of septicemia, with auto-infection from an old pus-tube (indicated by the persistent pain in the side and fetid leucorrhea). A post-mortem examination by Dr. Mallory revealed no pelvic lesion, but both lungs were completely riddled with miliary tubercles.

(The temperature charts of these patients were here shown.)

We have here three cases of tuberculosis, apparently developing during the puerperium, running a very acute course, two ending in recovery, the third in death.

I cannot find reports of similar cases in any of the text-books and journals which I have consulted. One reason for this may be, that until a comparatively recent period the diagnosis of these cases could not have been with certainty made during life. The diagnosis of Case I was decided by the exploratory incision, a method which in former times would have been considered inadmissible. The diagnosis of Case II could not have been made at all without the bacteriological examination of the secretions. Case III would undoubtedly have been called septicemia if no autopsy had been held. Since comparatively few fatal puerperal cases are allowed an autopsy, other similar cases may have passed unrecognized.

The first question naturally is, did these women present any evidence of tuberculosis before labor. The family history of all three is negative. The physical condition of Case I during pregnancy is reported as poor. She suffered much from indigestion. This might suggest that the tubercular deposit had already

begun in the abdomen. But she was for ten days under observation in the medical wards of the hospital about a month previous to her confinement, and during that time her temperature was normal, and there was nothing recorded to suggest the presence of serious disease. Moreover, there was no marked rise of temperature until ten days after labor.

I know that Osler, in his valuable article on "Tubercular Peritonitis," published in the "Johns Hopkins Hospital Reports," states that some cases run their whole course with a normal or even subnormal temperature, nevertheless, the usual rule certainly is, that fever is one of the earliest and most persistent symptoms of this disease.

The condition of Case II during pregnancy is reported as good, and her appearance confirmed the statement.

Case III had a history of pelvic pain extending through two years, but seems otherwise to have been in fair health.

While, therefore, it is impossible to prove the absence of previous tuberculosis in these women, there is no decided evidence in the affirmative.

What was the primary source of infection? Cases I and II had no contact with tuberculous patients during pregnancy, so far as can be ascertained, and no hereditary tendency toward the disease. Neither had any enlarged glands. Both were in humble but not destitute circumstances. I have no knowledge of the outside conditions of Case III. The suddenness and violence of the outbreak would seem to argue that some focus of infection must have existed which the conditions of the puerperium served to disseminate rapidly.

This question derives peculiar interest from the fact that the Fallopian tubes are now known to be comparatively often the seat of tuberculosis, and though this is in many cases secondary to deposits elsewhere in the body, there is evidence that in a certain number they may be the primary focus of disease. The conditions of the circulation during the puerperal period would be especially favorable to the diffusion of any infection having its seat in the genital canal.

Dr. J. Whittredge Williams, in his article on "Tuberculosis of the Female Generative Organs," read before the American Gynecological Society in 1892, says: "Genital tuberculosis is usually secondary to deposits elsewhere in the body, but in a considerable number of cases is primary in the genitals. Its frequency is much greater than is usually supposed. Only about 25 per cent. of tubercular tubes and ovaries are recognized as such by macroscopical examination. The symptoms are not characteristic: they may be entirely absent or vary from those of a simple catarrhal salpingitis, to the most severe form of pelvic abscess."

In regard to tubercular peritonitis, especially that which is usually complicated with more or less invasion of the pelvic peritoneum, the question whether the infection spread from the tubes upward to the abdomen, or *vice versa*, is of great interest.

In Case I the uterine appendages were apparently buried in the mass of tubercular inflammation. It will be remembered that some time before any evidence of the tubercular mass appeared in the abdomen there was an ill-defined thickening in the region of the appendages. I questioned this patient carefully in regard to any previous symptoms of uterine, or tubal

disease. The only one she gave was a bearing-down pain in the right inguinal region, from which she suffered very much during the whole pregnancy, and which in the early months was so constant as to make her fear a miscarriage.

In Case II the course of the symptoms suggested a diffusion of some poison in the right side of the pelvis, causing pain and tenderness there, then irritation of the peritoneum, diaphragmatic pleurisy, then costal pleurisy and penetration into the substance of the right lung. Here there was no evidence of any previous trouble in any part of the body.

Case III had a history of pelvic trouble and a fetid discharge, and a previous salpingitis was diagnosed from it, but at the autopsy nothing of note was found in the pelvis. At the same time, since the condition of the lungs amply accounted for the fatal result, it is quite possible that a minor degree of salpingitis might have been unrecorded, and as no macroscopical examination of the tubes was made, tubal bacilli cannot be absolutely excluded as a source of infection.

I do not wish to be understood as considering that I have any real evidence to offer as to the mode of infection in any of these cases. I have only endeavored to trace out the slightest clue, hoping it might lead to further investigation on these points in any similar cases.

How do these cases differ from those of ordinary so-called acute tuberculosis? These cases certainly present types of very acute tubercular infection, and two of them at least show a suddenness of invasion and a violence of constitutional symptoms seldom seen in this disease. On the other hand, the favorable termination of two out of three of these cases is very unusual. The time of invasion, the temperature curve and the absence for so long a time of any discoverable lesion makes them liable to be regarded as septic in spite of the absence of appreciable focus in the genitals, since repeatedly septic infection is known to have been diffused from a centre so small that it is not recognizable by ordinary examination.

It is possible that some of the obscure cases of fever in the puerperal woman now and then reported may have been of tubercular origin.

This paper is intended to call the attention of physicians to the peculiarities of the tubercular disease as here displayed, and in the hope that it may bring out reports of similar cases, rather than with any idea of drawing deductions on the subject, since the cases presented are too few to justify this. It seems to me reasonable, however, to feel that there is evidence that some women at least are peculiarly susceptible to the infection during pregnancy and the puerperium, and that special pains should be taken to guard them while in this condition from known sources of infection, such as the contact with tuberculous patients, either in their homes or lying-in hospitals.

THE RECORD BROKEN.—What appears to be an authentic case of a woman who has given birth to four pairs of twins has been reported in St. Louis, Mo. The woman in question, who is only eighteen years of age, has lived in East St. Louis during the past five years and recently applied to Dr. Woods, Supervisor of the Poor, for food for herself and children, of whom all but three are dead. Dr. Woods carefully investigated her statements and found them correct.

ENTEROPTOSIS.¹

BY MARY P. DOLE, M.D., GREENFIELD, MASS.

Mrs. A. Was first seen in July, 1893. Was confined one year previous; labor difficult, forceps delivery. Has not been well since. Feels tired. Pain in iliac regions and in soles of feet. Backache. Appetite good, sleeps well, bowels fairly regular.

The cervix and perineum were found badly lacerated, and an operation for their repair was advised, with the expectation that the patient would be wholly relieved.

She was next seen two years later. The lacerations had been repaired, but the patient had gradually grown worse. Has much pain in right lumbar region, especially after standing or walking; the pain extends down the leg and up into shoulder. The backache has increased. Has lost some in weight. Gets tired easily. Is constipated and very nervous. Examination of the abdomen showed: epigastric region depressed, slight distention below umbilicus; stomach reaches one inch below umbilicus; whole of right kidney and two-thirds of left easily felt; lower border of liver one finger's breadth below ribs.

Miss B. First seen in 1892. Has always been delicate. Has much backache. Considerable flatulence and acidity of stomach; occasional nausea and vomiting, but vomits only small amount. Is inclined to be constipated. Menses regular, considerable dysmenorrhea.

Pelvic examination: Uterus retroposed. The displacement was corrected, but with no relief to the patient. The various digestive ferments, antiseptics and tonics, and, by the advice of a New York specialist, lavage of the stomach, were tried with equally bad results. The patient was seen again a year ago. Condition about the same.

Abdominal examination: Epigastric region depressed, slight distention below umbilicus, whole of right kidney easily felt, lower border of liver one inch below ribs, stomach reaches a little below umbilicus.

I have given a brief outline of these cases, not because there is anything striking or unusual about them, but rather because they are everyday cases with all of us, and also because they belong to a very large group of cases to which we formerly gave the names of dilated stomach, floating kidney, neurasthenia, chronic dyspepsia, nervous dyspepsia, or nervous something, but now are looking at them more and more as cases of enteroptosis.

The word enteroptosis, strictly speaking, means a falling of the intestine, but as used at present, it has a more general significance, being applied to a downward displacement of some or all of the abdominal organs. A displacement of portions of the intestine and of the other abdominal organs has long been recognized as an anatomical fact, but its importance as a pathological condition has only within the last ten or twelve years begun to be appreciated. It was in 1886, I think, that Glénard presented his paper on this subject before the Medical Society of Paris, and this marks the beginning of our present conception of this extremely common condition.

The organs most often affected are: first, the right kidney, then the stomach, transverse colon, liver, left kidney and spleen. The displacement may be congenital or acquired.

The causes of the acquired form are, first, those which produce a relaxed condition of the abdominal walls, and, second, those causing downward pressure on the abdomen. In the first group the most important are, child-bearing, diseases producing much general debility, for example, tuberculosis, typhoid fever, anemia and neurasthenia, and malnutrition from insufficient or improper food.

In many cases of anemia and neurasthenia, however, the enteroptosis is probably the cause rather than the effect.

In the second group are: lacing, letting the skirts drag down on the abdomen, overwork, lifting heavy weights, etc.

In considering cases of enteroptosis, we have to take into account the fact that nearly always there is associated with the displacement a myasthenic or atonic condition of the stomach and bowels, and often it is to this more than to the displacement that the subjective symptoms are due. It is also true that a considerable degree of enteroptosis may exist without producing any symptoms. Such cases, however, are exceptional.

In the diagnosis we have to consider the subjective symptoms, objective signs, and the course of the disease.

The most common symptoms are a feeling of fullness and pressure in the epigastrium, flatulence, cardialgia, variable appetite.

The stomach symptoms differ from those found in most other diseases of the stomach by being more irregular. They do not depend upon the kind of food taken nor upon the stage of digestion; that is, they are just as apt to occur after taking liquid as after solid food, or when the stomach is empty as when full, and *vice versa*. An almost constant symptom is habitual constipation, in some cases alternating with diarrhea. The constipation is due partly to the atony of the muscular coat of the intestine, and partly to the abnormal flexing or doubling up of the intestine by its prolapse, which interferes with the peristaltic motion.

In many cases the nervous symptoms are the most prominent. There is often headache; almost always more or less backache, frequently pain in the abdomen which wanders about from one place to another.

Patients with enteroptosis are, as a rule, thin, spare people, and, therefore, it is comparatively easy to make out the position of the different organs. The stomach is found reaching to or below the umbilicus. The whole or part of one or both kidneys is to be felt. The transverse colon is descended; also in many cases the liver and sometimes the spleen.

Examination of the stomach contents shows that digestion in the stomach is normal, or perhaps retarded. In the morning the stomach is empty or contains simply a small quantity of gastric juice, with perhaps some bile, but no food.

The disease runs a chronic course, with many remissions and exacerbations. In the more marked cases nutrition is much interfered with. The patient loses in flesh and strength. Is easily fatigued. Of some diagnostic value is the favorable effect of physical and mental rest, and the opposite. The patient feels fairly well if she does but little.

The only disease which I shall consider in the differential diagnosis is dilatation of the stomach, or more correctly termed, mechanical insufficiency. Until recently every stomach that reached to or below the umbilicus was considered dilated. Further careful

¹ Read before the Massachusetts Medical Society, June 8, 1897, and recommended for publication by the Society.

study has proved that a great majority of these are simply descended, and that cases of mechanical insufficiency are comparatively rare.

A very characteristic symptom of mechanical insufficiency is the vomiting at intervals of large quantities of food and liquid, which, on standing, separates into three layers. The lowest consists of food, the middle of a grayish, turbid fluid, the upper of a brownish froth. The vomited material may contain food that was eaten two or three days before.

In enteroptosis the amount vomited is small and does not contain food eaten the previous day.

In mechanical insufficiency thirst is much increased, the amount of urine passed in twenty-four hours is lessened and the skin becomes dry—symptoms which are not usually present in enteroptosis. In mechanical insufficiency the emaciation is more marked, the stomach symptoms are more regular and their intensity is more dependent upon the kind of food taken.

In cases of doubt, very conclusive evidence can be gained by giving the patient a test supper, consisting of cold meat, bread and tea, and then the next morning examine the stomach contents.

If there is mechanical insufficiency a considerable quantity of food and liquid will be present, having a characteristic sour odor, and, on standing, separating into three layers. Under the microscope one finds yeast fungi and sarcinae, whereas if it is a case of gastropnoia the stomach is either empty or contains only a small amount of gastric juice. No food is present, and the yeast fungi and sarcinae are wanting.

Prognosis: The disease carries with it no serious danger to life, but, in most cases, it does reduce one's power to do either physical or mental work, and often the patient is more or less of an invalid all her life.

Treatment: Remove as much pressure and weight from the abdomen as possible. Corsets should not be worn. The patient should wear few skirts and light ones, and these should be supported from the shoulders. Give a very nourishing diet,—one rich in carbohydrates and fats, plenty of good milk, cream and butter.

Tone up the muscles of the abdominal wall, stomach and bowels by cold bathing and rubbing, and, best of all, by abdominal massage and the Faradic current. In some cases an elastic abdominal binder gives much relief to the patient.

The medicinal part of the treatment is very secondary. Strychnia probably does good, and, where there is much flatulence, resorcin or beta-naphthol may be of service.

In regard to the misplaced kidneys, the question of nephrorrhaphy will often come up. In many, probably in most, of the cases, the symptoms are due more to the displacement of the other organs, so that until a way is found of stitching up all the abdominal organs the patient cannot be wholly relieved by surgical treatment. However, there are cases in which the chief suffering is due to the nephroptosis, and in these cases nephrorrhaphy is of benefit to the patient.

I wish to acknowledge my indebtedness to Professor Litten and Dr. Boas of Berlin, in whose clinics it was my privilege to study for a time, and to whom I owe the few thoughts which may be of interest in this paper.

TYPHOID fever is reported to be epidemic at Dawson City; several miners have died of the disease.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday April 26, 1897, Dr. A. L. MASON in the chair.

DR. WILLIAM T. PORTER, by invitation, read a paper on

THE PHYSIOLOGY OF THE SYMPATHETIC NERVE.

DR. F. B. LUND read a paper on

ENTEROPTOSIS AND MOVABLE KIDNEY.¹

DR. THOMAS DWIGHT: The paper is a very interesting one in many respects, and opens many questions that I only wish I had felt properly prepared to discuss. The first point that naturally occurs is as to the general principle of the fixation of the abdominal viscera, and that is no single elementary principle. One of the most important factors beyond question is the strength and tonicity of the abdominal walls. Then we have to consider the support of the viscera by ligaments and otherwise. The liver is the organ apparently which moves the least, in spite of its weight. The ultimate cause of that is to be found in the fact that the liver and diaphragm develop as one; so much so, that some, though I cannot agree with them, hardly like to talk of a posterior surface of the liver, looking at it as practically one with the diaphragm. The union there is very firm by areolar tissue, much denser than that which usually connects other organs to the walls. Thus the intestines originally develop in a median loop, and after going through a number of twists and curves certain parts of them get stuck to the abdominal wall, and the peritoneum which covers the abdominal wall, and the loop which has come to lie against it is changed into areolar tissue. We do not find in this place the same strength of adhesion as between the posterior wall of the liver and the diaphragm.

In the intestine there are one or two tolerably fixed points: one, of course, is the beginning of the stomach where the esophagus goes through the diaphragm. That is held up in a variety of ways. We may assume that that is practically fixed. Again, there is the first part of the duodenum, not its very beginning, where it is caught up against the liver, and near which passes the bile-duct which runs into the second part. Finally, there is the termination of the duodenum, which is held up to the second lumbar vertebra and the under side of the celiac axis by a band of fibrous tissue which originally was muscular fibre. Those are pretty fixed points; and if you look at this diagram, you will see first that in all these cases of prolapsed viscera the stomach is very much enlarged. In the second place, it stands to reason that the upper part of the stomach, where it goes through, cannot fall down; consequently, if the stomach is to fall, there must be a general enlargement of that organ; and this seems to be the case. Though the pylorus undoubtedly does fall, it does not fall so very much.

As to the so-called ligaments, simple bands and folds of peritoneum which pass from the wall on to a viscus hardly deserve the name of ligaments. I think it is misleading, and do not believe they have a restrain-

¹ See page 343 of the Journal.

ing power that will resist any very great tension; they will gradually give. You see that shown in a great many cases.

Then, again, with regard to tight lacing, that is one of those things so evidently wrong that people are apt to attribute to it much for which it is hardly responsible. I can hardly understand how it can drive a stomach downwards. It is said so generally that it does, that I hesitate to deny it; but I fail to see the mechanism by which it acts. I should think it would rather tend to make an hour-glass stomach or to crush it together or shove it up. How it can be driven down is to me, at all events, not clear. As to the treatment, speaking merely theoretically, it seems to me that what Dr. Lund suggests of the support and of the efforts to strengthen the abdominal walls is the most efficient part.

DR. F. S. WATSON: I must approach this subject from the clinical side, and will confine my remarks to movable kidney. I am much interested in what Drs. Lund and Dwight have said. The subject of movable kidney has occupied me a good deal in the last four years.

Glénard's views are so well known and at the first glance are so extreme, that it was not surprising to find them in some part contradicted by the experience of others. That movable kidney occurs independent of general or partial ptosis of other abdominal viscera, is attested by the following facts. Clinically, surgeons note in a certain number of cases the absence of any evidence of enteroptosis, which Glénard claims to be the *sine qua non* of movable kidney.

In the published post-mortem observations a considerable proportion of movable kidneys are noted in the absence of ptosis of the other viscera.

What degree of mobility constitutes a movable kidney? In my observation the ordinary excursion of the kidney following the movements of respiration with the patient lying upon the back or side (these observations during operations) is from one to one and a half inches, never more than two. Probably an excursion that exceeds three inches may safely be called an abnormal mobility. At the very least we may say that, when during physical examination pressure upon the kidney in the loin forces it forward so that its outline can be clearly felt below the ribs by the fingers of the other hand through the anterior abdominal wall, or when during the forced inspiration the upper end of the kidney descends so far that it can be grasped below the ribs, between the thumb and fingers and held in this position, the organ has *certainly* an abnormal degree of mobility.

I hear physicians from time to time speak of detecting the kidney when of normal size and condition by bimanual examination. I confess my inability to do this except in a very thin patient and with relaxed abdominal wall. When a kidney is easily palpated under any other conditions than the above, it is pretty safe to infer that it is enlarged or mobile.

Next, as to the dependence of certain symptoms upon movable kidney *per se*, I believe that the majority of cases of the latter condition do not give rise to symptoms of any importance; but I am equally sure that a certain number of well-defined and sometimes serious symptoms are produced directly by movable kidney alone; for I have watched their gradual evolution in three cases at least, from the beginning and seen their complete disappearance follow nephorrhaphy.

The examples of cures from the latter, and from many sources are too numerous to be disregarded. It must be confessed that it is often very difficult, however, to separate cause and effect, especially in those cases in which neurasthenic symptoms predominate.

Another matter upon which I wish to touch is the mechanism by which one of the most important symptoms of mobile kidney is produced. I refer to the crisis of pain. In two out of five post-mortem examinations which I have had the opportunity to make within the past year, and two of which I owe to the kindness of Dr. Lund, I noted in the peritoneal covering of the kidney the relaxation of which permitted its descent, the presence of a number of strong transverse fibrous bands crossing the peritoneum in front of the kidney at intervals of from one to two and a half inches, which effectually prevented rotation of the kidney either on its long or short axis, whether upon changing position of the body or by actual manipulation. In the three remaining cases these bands were absent and the peritoneal covering of the kidney was so generally relaxed that these rotations took place upon change of position.

Now, the crises of pain are probably almost always due to the sudden enlargement of the kidney following upon torsion of the renal vessels perhaps, but especially upon twists or kinks of the ureter so marked as to produce complete obstruction to the flow of urine through it. Simple descent of the kidney, unless the ureter be abnormally fixed at some point in its course, will not produce these. Rotation upon one or the other axis of the organ, or descent of the kidney—the ureter being abnormally fixed at some point—are necessary before they can occur, and furthermore a diminution of perinephritic fat, and a relaxation of the peritoneal covering uninterrupted by such bands as I have described, are also requisite conditions. When all these conditions favoring rotation are present, it may occur at any time upon appropriate and sufficiently forcible movements of the body. Albarran has recently shown that the enlargement of the kidney when the ureter is suddenly obstructed—as by ligature—is due almost entirely to congestion and not to distention by retained urine. Clinical evidence confirms his experimental conclusions in this respect, and the relative rarity of hydronephrosis in connection with movable kidney is thus plausibly explained.

DR. LUND: The point to which Dr. Dwight has alluded in regard to the catching up of the pylorus underneath the liver is certainly brought out in the drawings in a very striking manner.

I should like to ask Dr. Watson what measures he took to ascertain whether or not enteroptosis was present in the cases of movable kidney which came under his observation.

DR. WATSON: These cases were during life. There have been cases in which there had been distinct absence of symptoms referable to the digestive apparatus. These cases have been percussed by me with reference to the question of dilatation of the stomach. I have never blown up the stomach. In a patient who has no symptoms referable to the digestive tract, it is fair to assume that the enteroptosis has not gone to great degree. There is no means of confirmation if the case does not come to autopsy.

DR. LUND: While I must agree with Dr. Watson's views to the extent of admitting that movable kidney

may occur without a marked degree of general enteroptosis, and while Glénard's contention that movable kidney is always a manifestation of a general enteroptosis is probably too extreme, I cannot help being led by my observations and study to believe that movable kidney will be found to be combined with enteroptosis in a very large majority of the cases. The kidney cannot move without a relaxation of its peritoneal covering, and the causes which lead to such relaxation, namely, weakness of the abdominal walls, absorption of fat, stasis of fecal current, with ptosis of the stomach and intestines, etc., also lead to a general relaxation of the peritoneal supports of the other abdominal viscera.

Or, from another point of view, supposing the mobility of the kidney to be the primary lesion, so to speak, the kidney gliding downward loosens its peritoneal covering; this relaxes the support of the hepatic flexure of the colon, which falls and drags down upon the duodenum, and dilatation of the stomach and gastro-ptosis ensues.

I believe that ptosis of the kidney cannot occur without more or less associated enteroptosis, and that in our treatment of these cases, we must take into account the fact that we have to deal, not only with ptosis of the kidney, but with a greater or less degree of associated ptosis of the other viscera.

The argument that enteroptosis has not generally been found associated with movable kidney in the practice of the majority of physicians falls to the ground, for the reason that attention has not been directed to it, and no means, such as artificial distention of the stomach, etc., have been taken to ascertain whether it was present or not.

On the other hand, we can all of us recall cases of movable kidney which have been operated upon; and while they have been perhaps relieved of crises of pain from twisting of the renal vein, from intermittent hydronephrosis, etc., have continued to lead a miserable existence as the victims of intestinal indigestion and general neurasthenia. These cases, I believe, are almost always the subjects of general enteroptosis, in the treatment of which nephrorrhaphy is only one step.

I do not wish to state that nephrorrhaphy is not indicated in movable kidney associated with enteroptosis, for I believe that the kidney is the only one of the abdominal organs except the uterus which can, as a rule, be satisfactorily fixed and held in place by suture, and I believe that it is impossible to fix and hold it satisfactorily by padded abdominal bandages, but I feel very strongly that nephrorrhaphy, if it is to be therapeutically successful, must be supplemented by a course of treatment directed to measure the muscular tone of the abdominal muscles, to maintain intra-abdominal pressure, and regulate the disordered digestive system.

In regard to Dr. Dwight's statement of the difficulty of understanding how compression of the lower thorax by tight lacing could cause ptosis of the stomach, I would say that the mechanism is believed to be somewhat as follows: The lateral area of the thorax being compressed, the distention of the stomach which takes place when it is filled with food must expand it in a downward direction, and this downward expansion must both elongate the stomach and drag upon the gastro-hepatic omentum, not only with the weight of the contained food but also with the force of the lateral pressure.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, April 28, 1897,
DR. E. W. CUSHING in the chair.

DR. C. G. CUMSTON: The first specimen I would like to show is an instrument for examining human milk. It is very simple. Place a drop of milk on the centre of this glass and put it against the black and hold it so that the light comes on it and you can tell whether the milk is poor, rich, normal, very rich, contains cream, etc. It is a practical instrument for rapid examination of any suspected female milk.

I have a photograph of a case I saw at the Dispensary of secondary syphilis and I made the diagnosis of precocious tertiary syphilis of the genital organs. The roseola was fading. She had sore throat and alopecia to a certain extent. Around the anus were a large number of round ulcerations and a condition I have seen once before, — enormous hypertrophy of the labia with ulcerations extending all along the borders, and if this photograph had been taken properly a large number of ulcerations would have been seen around the external orifice of the vulva and the small lips.

The next specimen is a pretty case of dermoid cyst of the ovary, and this illustrates the fact that a patient may become pregnant even with both ovaries involved, as in this case. Upon section I removed this cyst and finding the other ovary was undergoing sclero-cystic degeneration, I removed that. The patient was thirty-nine, had had eleven children and four miscarriages. The photograph shows the cyst as it developed. You can see a large amount of ovarian tissue and the cyst cut open simply contained the cheesy matter usually found in these cysts and on one side of it a small area of skin growing with a few hairs in it. This case would have been more properly treated by vaginal hysterectomy, but as I thought only one ovary would have to be removed the abdomen was opened instead.

DR. A. K. STONE read a paper on

ENTEROPTOSIS AS A CLINICAL FACTOR IN THE DISEASES OF WOMEN.¹

DR. TWOMBLY: I have been very much interested in listening to this paper. In our specialties we often forget the general side of the subject, though we shall consider all the environments in treating disease, and all the factors that may conduce to that disease. For instance, in women's troubles we should not feel that they are all found in the pelvis, but that they may be due to other conditions arising perhaps from malnutrition, from tight lacing, or depressing circumstances and influences, and this paper has called forth another factor in showing us that there may be prolapse of the abdominal organs, which is very seldom considered in the case. We would put our patients on the road to recovery more frequently if we bore all these factors in mind. Dr. Stone has said, in certain cases the treatment is clear. Where we have a loss of the perineum, we naturally must furnish that support by operation, and operative procedures furnish the cure, but in other cases, where we do not see that a special pelvic treatment is the thing to restore the general health, we must look further, and we find it in just

¹ See page 332 of the Journal.

such conditions as he has pointed out to us to-night. I believe one of the ways of treatment in such a prolapse of the viscera is that of the knee-chest position, but I am surprised to see how unwilling the patients are to help themselves. You will instruct your patients very carefully how to take this position after all clothing has been removed; the best possible time being when they are ready for bed. You show them how to take that position; not on the elbows, and yet invariably when they come back and tell you what they have done, they have kneeled down and put their elbows thus, and turned the head and looked around, but have not got way down. Of course the result is not so good as if we had the proper angle allowing all the viscera to fall forward toward the ribs. I hardly think after this position has been assumed and they turn on their side to lie down and go to sleep that it makes much difference on which side they turn. If they lie on the right side we would suppose the transverse colon, which is prolapsed, would be drawn more into its proper place. Whether that is the result I do not know. If they have a dilated stomach and get in this position and lie on the left side we would suppose that it would allow the walls of the stomach to contract a little and go up towards its natural position. How far that succeeds I have yet to learn, but where a patient practises faithfully this knee-chest position I find that in a great number of cases they cease to complain of this tremendous dragging backache and pain, and say they are greatly relieved and that is without especial reference to the position of the uterus. Of course, where we have retroversion, we often use that position, the force of gravity helping to replace the uterus. Another thing is the abdominal support which has been mentioned. In a case I have in mind, after the removal of pustules by the abdominal incision where an abdominal support was necessary, I have known it to be so adjusted after the patient left the hospital that when she came back six months afterward complaining of terrible pressure and dragging in the lower part of the abdomen, on examination it was found she wore the belt about the umbilicus. The perineal straps bothered her, and she took them off and had a belt which pressed the whole viscera down into the pelvic cavity as much as it could. No wonder she complained of lack of support and the old feeling coming back. When it was explained to her how the abdominal supporter should be used, and it was replaced in its normal position, the comfort she experienced was remarkable. We cannot impress too strongly on our patients the importance of the right ways in carrying out treatment and the proper support.

DR. C. J. ENEBUSE: I am very much interested in the subject because it has happened several times that women have been sent to me for gymnastic training who have complained of symptoms referable to the neurasthenic type without any probable organic cause. I recall one young woman who was under my training three months and improved very much. For some time it was a question whether to send her to a gynecologist for examination under the supposition that possibly there existed a prolapse or sagging down of the uterus, because some of the symptoms she complained of — backache, shooting pains down the thighs — pointed somewhat in that direction, but no such examination was made, and in my direction of the exercises she received I took into consideration the possibility

of such sagging existing. Among the exercises which I gave in this case were also the exercise which has been referred to by the previous speaker, the knee-chest position, and while it is not possible for me to conclude anything from such a case as that, and while it is not possible for me to conclude whether that particular position, is better than other positions we practise, still I think there are reasons to think that position may be of advantage in relieving the symptoms of ptosis in any of the organs in the abdominal cavity. At present I have under training a case of enteroptosis. She has been under training about six weeks and the neurasthenic symptoms are very much relieved. There is in her case a sagging down of the right kidney. I have not examined lately the position of the kidney. The plan of treatment in her case has been in the beginning passive massage. She was sensitive in the beginning. An attempt to give massage seemed to have an exciting effect upon her, so I proceeded in a gentle fashion, but I succeeded in overcoming those difficulties and at present I direct all her training to fortification of the abdominal wall. She can now take comparatively vigorous exercises of such character that the greater part of the work is localized upon the abdominal muscles, and these last few weeks she has felt very much relieved of all the symptoms of which she has formerly complained. That is all the experience I have had in this direction, and of course it is entirely insufficient for me to base any conclusion upon.

DR. CUMSTON: I have taken a great deal of interest in the paper, particularly because the subject of enteroptosis was being worked out by Glénard when I was a student and there was a great deal of enthusiasm shown over it and the clinics were quite full of typical cases which were demonstrated before us and I had the opportunity of observing quite a large number of them as a student with Glénard at Lyons. Since I have been in practice I have seen one or two typical cases, both of them in the better class of society, women who did not do much of anything but amuse themselves, and I would like to report one of these cases, particularly because it is an extreme one. I would also like to make one or two suggestions that occurred to me while the paper was being read. In the first place, regarding the examination of these patients. It seems to me the only proper way to arrive at an exact diagnosis of the condition of the abdominal viscera is to see your patient in bed and entirely undressed. By this means you will be able to see the typical shape of the abdomen which is characteristic of enteroptosis, that is to say, without corsets it is very much larger in the pelvis than above. Another point I think the essayist did not mention, are those cases in which enteroptosis occurred simply from loss of flesh. When I was studying, the theory was that a great many cases of floating kidney and enteroptosis and ptosis of the stomach and all the organs were due to a loss of flesh especially over the kidney, where the cushion which usually holds them became absorbed and the kidney lost its anchoring and floated. The patients I have seen have been extremely thin.

Regarding the treatment, I have no experience with the gymnastics advised nor the positions advised. I have not followed the literature of this trouble very closely. The treatment I have tried in my own cases has always been trying to produce as much fat as possible, and that has been accomplished by the Weir

Mitchell cure combined with overfeeding when they would submit, and if they would not go to bed and stay a number of weeks I have ordered rectal injections of olive oil every morning, stopping every six days and resuming three days later, and in addition giving glycerine by the mouth. The patient under consideration has been under treatment about three weeks and is receiving per rectum about three tablespoonfuls of olive oil with one grain of pancreatin every morning and 6 or 7 grains of glycerine by the mouth. The history of this patient is as follows: about six years ago she complained of some obscure pelvic pains and consulted one of our prominent gynecologists who advised curettement, which was done. There was some complication after the operation which kept the patient in the hospital five or six weeks. She felt worse after the operation. She consulted a number of gentlemen, all of whom told her about the same thing, — that there was some trouble in the adnexa, but gave no definite conclusion as to what it was. Then she consulted her family physician and he told her there was inflammation of the uterus, and used tampons. I saw her about six months ago. I could not make out much of anything, perhaps slight enlargement of the ovary on the right side, and I advised her to do nothing. She said later that she had ceased all local treatment, she had not had so much pain in the abdomen, but that the digestion was very bad. I treated her on *nux vomica* and *gentian* and the appetite improved, and I did not see anything of her until about two and a half months ago when I was sent for in the afternoon by telephone, saying she was very sick. I found she had been suddenly seized with very severe pain in the right lumbar region, which to all appearances I should have taken to be either a renal or a biliary colic, and, as the abdomen was extremely tender in all points, I could not make a thorough examination. Two or three days later when the pain had subsided, I had her remain in bed and examined her carefully, with the result that I found both kidneys so floating that I could push them about like billiard balls and the stomach might have been four fingers' breadth below the umbilicus. I took her to Dr. Green, of Leach & Green, and he has made a suitable belt. Since that time all symptoms have subsided and she is making flesh, 750 grains in two weeks. I think that case would represent a very typical one of general ptosis of the abdominal organs, particularly from loss of flesh, which this patient has been steadily doing four or five years. She weighed about 130 and now weighs 108 or 109, and also shows how gynecologists should be on the look-out for ptosis of the abdominal viscera.

DR. CUSHING: In a number of cases, in which operation has been performed for abdominal fixation for obscure and severe symptoms, where there was retroversion, and the uterus has been fastened to the abdominal wall, I have observed during the operation that the stomach and the large intestine would be low down, sometimes strikingly so, so that as you opened the abdomen the stomach would be apparent even through a rather low incision. I never happened to think of it until this moment, but I have noticed it. It is curious how the symptoms attributed to enteroposis fit in with many cases where we have laid the blame to the retroversion of the uterus, or to a commencing prolapse, which is probably only part of the general condition, and I have often wondered why

even a slight operation, like curetting in endometritis where there was subinvolution of the uterus, would be of such importance in re-establishing the health of the patient and have concluded that the rest and careful diet had fully as much to do with it as the operation. I have thought sometimes that if we could take these wretched worn-out women and feed and nurse them a month or six weeks it would do as well as any operation. They are not willing to do that without operation. If you try to put them to bed and keep them without operation they think they cannot afford the time. I think Dr. Stone will have done a great service if he can show the gynecologist how a great many of these cases can be cured without operation, because there is a tendency abroad to think some operations are performed which are not really necessary and, at any rate, it is well for gynecologists to think of some other way of curing patients except by operating on them. *Non semper arcum tendit Apollo.*

DR. CALL read a paper on

ACUTE TUBERCULOSIS IN PUERPERAL WOMEN.²

DR. CALL: The special interest in the cases which I have spoken of was that they were cases where apparently there was nothing of the kind before the labor, and yet in looking up the question of miliary tuberculosis it is stated that a case of miliary tuberculosis invariably ends in death. In these cases one followed that course in twenty-one days. Case I was not very violent. In Case II the temperature and the symptoms were as violent as in Case I, and yet she has entirely recovered.

THE BRITISH MEDICAL ASSOCIATION AT MONTREAL.

SECTION OF GENERAL MEDICINE.

(Concluded from No. 11, p. 271.)

THIRD DAY.

THE morning session was opened by a paper by DR. WILLIAM HUNTER, of London, Ontario, on

CHOLELITHIASIS.

He dwelt particularly on the causation of this very frequent disease, from which seven per cent. of mankind suffer more or less. With respect to the ordinary (predisposing) causes there has been little advance for 150 years. Our predecessors knew that stagnation and inspissation of bile and those agencies which produce this (sedentary habits, elderly life, tight lacing, etc.) had a large part in the causation, and that women are five times more subject to the disease than males.

The reader regarded cholelithiasis as rather a local disease of the bile-passages than a constitutional disease. The calculi are composed of a nucleus of bilirubin and calcium salts, surrounded by layers of cholesteroline. Stagnation of bile favors precipitation, but something else is needed. This factor, the essayist thinks, is the agency of micro-organisms. In cholelithiasis an excess of cholesteroline is formed under the influence of catarrhal inflammation of the bile-passages, particularly the gall-bladder. This substance is one of the products of disease of the mucous membranes generally, and is a resultant of the degeneration of epithelial cells. It has been possible to trace its form-

² See page 342 of the Journal.

ation from degenerated mucous cells in the gall-bladder. It is the basis of the viscous masses seen in the gall-bladder in catarrhal inflammation. The cause of the catarrh is stagnation of the bile and invasion from the intestine of micro-organisms; the colon bacillus, the typhoid bacillus, etc. Stagnating bile leads to infection (experiments of Dupré and others). Cholelithiasis is often met with as a sequel to typhoid fever, and the Eberth bacillus has been detected in such cases; in fact, this bacillus has been known to sojourn in the gall-bladder for months after recovery from enteric fever. The microbe readily gains access to the gall-bladder from the intestine.

In some cases gall-stones are formed in the intra-hepatic ducts. This can hardly be from migration. Rather let us suppose that it is due to a catarrh of the intra-hepatic ducts set up by an excretion of irritant products through the bile. His own experiments favor this view. He introduced a substance into the system which excited violent inflammation of the bile-ducts and jaundice.

In the treatment of cholelithiasis the chief indication is to flush the bile-passages with water. The administration of Vichy water, of water with Carlsbad salts is of undoubted efficacy. Salicylate of soda is an active cholagogue. There is no such thing as "lithotriptic" medication. Olive oil dissolves gall-stones *in vitro*, but surely cannot have any direct action on gall-stones in the body.

DR. GRAHAM, of Toronto, followed with an excellent paper on

THE SYMPTOMS AND DIAGNOSIS OF CHOLELITHIASIS.

Sometimes calculi in the gall-bladder are latent for years or for a lifetime, and produce no symptoms, (one-tenth of all cases). Among the obscure symptoms are bilious attacks and pressure over the stomach after food. When microbes get access to the gall-bladder and provoke an inflammation there is pain and tenderness over the gall-bladder or epigastrium, nausea and vomiting. There is apt to be some localized peritonitis, and tension of the rectus muscle; fever of a remittent type. There is bilious colic in less than half of the cases. In the reader's experience 18 cases were sequels of typhoid fever.

The reader gave details of several cases of biliary colic *without calculi*, and several of the subsequent speakers reported similar cases, the absence of calculi being proved by an exploratory operation.

Jaundice is often absent. This is especially the case when the calculus lodges in the cystic duct. Examination of the urine often helps clear the diagnosis. In true cholelithiasis there will be found bile pigment in the urine.

DR. WILLIAM OSLER called attention to two points:

(1) the infective processes in connection with gall-stones; and (2) the relation of typhoid fever. As for the latter, it is known that the typhoid bacillus may exist in the body without causing typhoid fever (like the pneumococcus, which is often a harmless parasite). There is reason to believe that the typhoid bacillus, existing in the gall-bladder as a tenant, may, under the proper conditions, cause gall-stones to be formed.

As to the relation of infection to the attack, in very many cases there is an acute infectious fever, evinced by the usual signs of rigors, high temperature, swollen spleen, etc. He believes it possible that in gall-stone colic we may sometimes have the colic without any

stones being present (nervous phenomena of an inflamed gall-bladder). The physician, however, ought never to assume this in any individual instance.

As for the association of fever with cholelithiasis, there are four groups:

(1) The fever is associated with a chill, and passes away in a few hours — temporary catarrh of the gall-bladder.

(2) The fever is associated with acute cholelithiasis. There are no septic features or suppuration.

(3) The third is what Charcot calls "hepatic intermittent fever," and may exist for a series of weeks or months. There are occasional attacks resembling malaria (severe rigors followed by sweats). Jaundice is sometimes present. The paroxysm is single, rarely repeated with regularity. No fever in the interval. The gall-stone is in the duct, generally in Vater's ampulla.

(4) The fever is associated with suppurative disease of the bile-ducts and abscesses of the liver.

DR. HANDFORD, of Nottingham, said that he had never observed the connection between typhoid fever and cholelithiasis of which mention had been made. Has never seen jaundice complicating typhoid fever. He is inclined to believe that a large proportion of cases of biliary colic are not connected with the passage of gall-stones. The pathology is still unknown. Gall-stones are seldom found. If they really existed what becomes of them? Are they broken up in the alimentary canal?

DR. MACKINNON, of Guelph, has seen two cases of suppurative inflammation of the gall-bladder as a sequel of typhoid fever.

DR. PASTEUR, of London, alluded to the difficulties of diagnosis of gall-stone colic, and of the mistakes which have sometimes been made by both physicians and surgeons, the laparotomy failing to confirm the diagnosis.

DR. ATCHESON, of Galt, asked if drinking hard water predisposed to cholelithiasis, and remarked that this disease is very common in the locality where he lives and where the drinking-water is impregnated with lime.

DR. OSLER paid a well-merited tribute to the contributions of surgeons to the literature of the diseases under discussion. He who knows the subject only from the standpoint of medicine knows only half. The work of Mayo Robson and other surgical writers on diseases of the biliary passages is of the utmost importance to the medical practitioner. The work of the past few years is remarkable for its suggestiveness, if not conclusiveness.

DR. FRANCIS H. WILLIAMS, of Boston, read a paper, with illustrations, on

SOME OF THE MEDICAL USES OF THE RÖNTGEN RAYS.

The substance of this paper has already been communicated to the Massachusetts Medical Society, and printed in this JOURNAL. Dr. Williams's paper was well received by the Section of Medicine, as indicating another valuable means of diagnosis of chest affections; and Dr. Williams was complimented for his original investigations in this new field of study.

DR. MACKINNON, of Guelph, read a paper on the

EMPHYEMA OF PNEUMONIA,

which contained several interesting observations of purulent pleurisy occurring in connection with or as a sequel of pneumonia, and due to the pneumococcus.

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NATURE AND TREATMENT OF MÉNIÈRE'S DISEASE.

In 1844, Flourens proved that section of the semicircular canals in the internal ear produces very marked troubles of equilibration in animals, independent of any lesion or traumatism of the cerebrum or cerebellum. This conclusion has been corroborated by subsequent experimental physiologists.

In June, 1861, B. Ménière made a communication to the Academy of Medicine, Paris, France, in which he gave a description of the disease which now bears his name. He called it "aural vertigo," and located it in the internal ear. His conclusions, as first formulated in the *Gazette Médicale de Paris*, were as follows:

"(1) An auditory apparatus previously perfectly normal may suddenly become the seat of functional disturbances consisting in noises of a variable nature continuous or intermittent, and which may be accompanied sooner or later with a diminution in hearing. (2) These functional troubles having their seat in the internal ear may give rise to cerebral disease, such as intense vertigo, uncertainty of gait, turnings to the right or left, and falling, and these may be attended with nausea and vomiting and syncope. (3) These manifestations, which are often of an intermittent type, are at last followed by deafness, gradually growing worse and often the hearing is at last totally and suddenly lost. (4) All this tends to the belief that the lesion which is the cause of these functional troubles is in the semicircular canals."

Since this publication, numerous important communications have appeared, confirming in the main the theses of Ménière; among the most noteworthy of these are the contributions of Knapp, Burnett, Charcot, and Gilles de La Tourette.

Burnett accepts the view that in every case of ear vertigo the semicircular canals are irritated and cause the vertigo, but the primary lesion may not be there; the seat of the irritation being undue pressure on the drum-head, on the ossicles, and mediately through the

labyrinth fluid upon the ampullæ of the semicircular canals. Ménière's disease, according to Ménière, presupposes a perfectly healthy ear. Such instances of aural vertigo occurring previously in healthy ears are very rare, all cases observed by Dr. Burnett being characterized by symptoms of a previous disease, usually catarrhal, of the middle ear.

Charcot's lectures on this disease, in the second volume of his "Lectures on Diseases of the Nervous System," are especially valuable, though now twenty years old. He had seen ten or twelve well-marked cases; and he describes the main features of the disease in a manner that has never been excelled. He called attention to the great frequency of noises in the ears in connection with this disease, — the disease being necessarily ushered in or accompanied by whizzing, buzzing or roaring sounds; and to the especial character of the vertigo, which was "the sensation of a movement of translation of the entire body, from behind forward, from before backwards, etc.," while very often the subjective movements would speedily find expression in a tumble or a somersault. Almost always nausea and vomiting would mark the end of the crisis. Generally at the onset of the disease, the vertigo appeared under the form of distinct crises of short duration separated by intervals of calm; afterwards the attacks approached each other, became subintractant, and formed "a vertiginous state, permanent so to speak, in the midst of which appeared now and then paroxysms reproducing all the phenomena of the old crises." The subject of Charcot's first lecture was a victim of purulent otitis media.

Passing by an able and original paper by Mettler, of Chicago,¹ who thinks "that we are not justified, in view of the few physiological and pathological data still at hand, in assigning all cases of vertigo with loss of bearing to an unknown and undemonstrable lesion of the internal ear," a brief notice of a recent contribution by Gilles de La Tourette² is in place. He reports a well-marked case; the patient was presented to the class. This man had been a victim of the disease for five years. After having for some time suffered frequent attacks of vertigo, generally ushered in by a fall, he subsequently had chronic vertigo "with frequent acute episodes." In the right ear was a constant whizzing noise; the hearing in this ear was diminished. He had been several times a patient at the Hôpital Hérold, always getting better under a treatment by sulphate of quinine, then relapsing after leaving the hospital and discontinuing the treatment.

This writer sums up the lesions of the ear capable of producing labyrinthine vertigo. Sclerosis of the tympanum is a frequent cause, supervening particularly in the gouty, in the victims of arterio-sclerosis. It begins generally a little past middle life. Producing ankylosis of the ossicles with loss of their elasticity, this sclerosis entails permanent compression of the labyrinthine liquid, for it fixes the base of the stapes

¹ Journal American Medical Association, October 7, 1893.

² Semaine Médicale, August 18, 1897.

in the fenestrum ovale without possibility of yielding in any direction. Atrophy of the stapedius muscle follows arthritis of the ossicles. The fenestra rotunda is itself sclerosed, rigid, and can no longer perform its compensatory functions. Suppurations of the tympanum may lead to a similar result. The pressure on the tympanum may be extrinsic, acting always through the medium of the tympanum (a plug of wax, a foreign body in the auditory meatus), and of the chain of bones and of the fenestra ovalis in lesions of the tympanum.

In other cases the lesion is in the labyrinth itself, but these cases are rare (exudations of blood or serum into the labyrinth, arterio-sclerosis of labyrinthine arteries, etc.). Under the influence of arterio-sclerosis, the tension augments in the arterial glomerules and in the labyrinth. Hence Bonnier thinks that the majority of cases of *vertigo ab aure læso* are due to Bright's disease. Moreover, small miliary aneurisms forming on the arteries of the labyrinth in connection with atheroma are a fruitful cause of hemorrhage and of Ménière's disease.

As for the treatment of this disease, that by large doses of quinine (for which we are indebted to Charcot, who first formulated it from theoretical considerations) is now the most in favor, at least in the French hospitals. It has been a matter of frequent experience since Charcot first published the remarkable results which he had himself obtained from this remedy, that full doses of sulphate of quinine administered every day for two or three weeks produce a positive amelioration of all the symptoms. During the first few days of the treatment the head symptoms (the tinnitus and the vertigo) are worse, and the vertigo is so intense that the patient must be kept in bed to avoid the falls which he otherwise might receive. The medicine, too, is likely to upset the stomach, so that Gilles de La Tourette advises to prepare the patient by a milk diet before commencing the quinine treatment. It should be the aim to give the patient from seventy-five centigrammes to one gramme (ten to fifteen grains) during the twenty-four hours. This may be given in divided doses, or one-third of the daily quantity well diluted in water after each meal. At the end of eight or ten days the vertigo and tinnitus diminish, in many cases to completely disappear after a few days more of treatment.

Naturally many obstinate cases are only benefited, not cured, and in all a frequent return to the remedy after a period of suspension is necessary.

TWO POINTS OF VIEW.

THE striking differences of opinion or conclusions which may result from different points of view are well illustrated by certain points in the recent Opening Address of Dr. Roddick, the President of the British Medical Association, and the comments upon it of the *London Times*.

Dr. Roddick spoke, naturally, of the noble objects

of the Association, its impartial constitution, its accumulating capital, its great numbers of earnest men "pitted against false dogmas and ever battling for the truth." He alluded to the increasing power and usefulness in store for the Association in the future, and its benign and powerful influence for the amelioration and elevation of mankind.

"What must have been the President's feelings," writes the editor of the *Lancet*, "when he opened the *Times* of September 1st, to learn that all his eulogy of the Association and its power was a mistake, the truth being that the absence of such power and influence is one of the most remarkable characteristics of the organization, and one which has occasioned much perplexity to those who have been called upon to consider its proceedings."

The *Times* goes on to say that the Association has done nothing "either for the benefit of the medical profession or for that of mankind at all adequate to the apparent possibilities of the case," and that "probably no statesman was ever influenced by its views with regard to any matter of legislation, whether purely medical or relating to some one of the many social questions upon which medicine is calculated to throw light." The inadequacy of the Association's grants for scientific research is characterized by terming the grants "microscopic." The members at their annual meetings are said to prefer recreation to science, and all the work of the profession, whether scientific, charitable, or administrative, is said to be done by independent societies.

This characterization of the work of the Association, which, as no one adequately informed can deny, has been a potent influence for the benefit of medical and sanitary legislation and for medical science, is an excellent illustration of the effect of the false ideas which are engendered in the public mind by the spectacle of the want of organization and cohesion, the undignified squabbles of sections and coteries, the lack of united action, which, in the words of the *Lancet*, "are the weakness of the profession," and which are too apt to characterize the proceedings of large and complex medical associations. This, the unfortunate side of the work of such associations, is the one which attracts the attention of the public and the press, while the real, effective work quietly takes its place in the march of progress, and does not attract the notice of those who take a superficial view of the profession.

The inaccuracy of the assertions of the *Times* is evident enough to one who is familiar with the history of the Association, and we may refer our readers to an editorial on "The British Medical Association and its Work," in the *British Medical Journal* for September 11th, for a vigorous defence of the Association, and a recital of the numerous instances in which the work of the Association has resulted in great benefit to the British public and profession.

It is unfortunate that so wide a circulation should be given to a false and superficial view of the work of a great medical body, and it is unfortunate that there

should be anything in the proceedings of such a body, even though slight and comparatively unimportant, which should lend color to such statements as those of the *Times*. The British Association and the profession in Great Britain and elsewhere should endeavor to fortify itself against such aspersions by exhibiting no weak side to unfriendly critics, but with unity of purpose, organization and tenacity of effort, should work together for the advancement of the profession and of science.

MEDICAL NOTES.

THE PLAGUE is reported to be increasing in the Bombay presidency. Several Europeans have been attacked at Poonah.

FIRST AWARD OF THE MOSCOW PRIZE.—On the proposal of Professor Virchow the first Moscow prize, established by the municipality of Moscow and to be awarded at each recurring international congress, was bestowed upon Henri Dunant, the founder of the Red Cross Society, in recognition of his inestimable services to humanity.

YELLOW FEVER IN THE SOUTH.—The number of cases of yellow fever reported at New Orleans and along the Gulf Coast continues to slightly increase, but the death-rate is very low. There is no panic in Mobile or New Orleans, and very few are leaving either city. The quarantines continue to seriously affect the business of the railroads.

YELLOW FEVER IN CUBA is notably on the increase. All the fatalities so far have been among the Spanish soldiers. Dr. Caminero, stationed at Santiago, reports (September 4th) that the sick are taken to the hospitals in public conveyances without protest, and that a strange fatuity seems to have seized even the unacclimated. He is to place placards on steamers running between Cuban and American ports warning against these public conveyances.

A BUREAU OF CLINICAL MEDICINE AND SURGERY.—There has been established at the Hall of the College of Physicians of Philadelphia, northeast corner of 13th and Locust Streets, a Bureau of Clinical Medicine and Surgery, having a central office with telephone connection, in charge of a clerk, whose duty it shall be to receive and post notices of the daily work in the various branches of surgery and medicine taking place at the different hospitals in the city. This is accomplished by notice to the bureau by postal card or telephone. By this means the numerous physicians who visit the city may be able to take advantage of the great clinical facilities offered by the hospitals of Philadelphia. A physician calling at the central bureau can thus ascertain what medical or surgical work may be going on during that day in any one of the different hospitals. The officers of the bureau are Roland G. Curtin, M.D., President; Henry R. Wharton, M.D., Secretary; Guy Hinsdale, M.D., Treasurer.

NEW ENGLAND.

THE NEW BUILDING OF THE TUFTS MEDICAL SCHOOL.—The new building of the Medical School of Tufts College was formally opened on September 27th. The exercises were held in the amphitheatre of the building, and consisted of an address of welcome by the President, Elmer H. Capen, of Tufts College, and an address by Dr. E. W. Cushing, Professor of Abdominal Surgery and Gynecology in Tufts Medical School. The new medical school stands on the corner of Shawmut Avenue and Rutland Street. The building was formerly the Free Will Baptist Church, but has been remodelled for its new purpose. It contains an amphitheatre, dissecting-room, bacteriological and chemical laboratories, library, museum, etc., and is provided with an elevator. A Dispensary is also provided for in the building.

NEW YORK.

SMUGGLERS OF PHENACETINE.—Special agents of the United States Treasury Department have recently arrested five or six men on the charge of smuggling phenacetine and trional into the country on steamers landing at Hoboken. The high duties on the drugs and the high prices which they command are given as the special inducements to this evasion of the customs laws.

YELLOW FEVER AT QUARANTINE.—There has been an arrival of yellow fever in the port of New York, but not from Louisiana or Alabama. The steamer *Finance*, which came in from Colon on September 22d had two cases of the disease on board, one of the patients being Patrick Keating (who was first attacked), and the other a passenger, John Endman, a medical student from San Jose, Guatemala. On boarding the vessel Health Officer Doty found both the cases comparatively light, and the patients doing well. They were transferred to the Quarantine Hospital on Swinburne Island, and the rest of the passengers and crew taken to Hoffman Island for observation.

CARBOLIC ACID AS A POISON.—On September 14th three women swallowed carbolie acid for the purpose of terminating their lives, and between August 13th and September 14th no less than fourteen persons, including the three mentioned, attempted suicide in this way in New York. In most of them the attempt was successful, and all but three of the unfortunates were females. The selection of this drug for the purpose, notwithstanding the agonizing suffering to which it gives rise, is supposed to be on account of the readiness with which it can be procured. No prescription is necessary to get it, and the pharmacist is simply required to label the bottle "poison" and preserve the name and address of the purchaser for future reference, should occasion arise.

MIDWIVES.—In regard to the failure of midwives to report their cases, while undoubtedly a large proportion of natural births are never reported, there

can be no question that this is the case with a still larger proportion of still-births. This is clearly shown by the statistics of the Board of Health. Thus, in a given period 24,134 natural births were reported by physicians, and 22,770 by midwives. Yet in the same period, while 2,262 still-births were reported by physicians, only 1,034 were reported by midwives. The incompetence of the midwives is illustrated by the fact that large numbers of women die in New York from the occurrence of abnormal and unusual circumstances attending childbirth. In a large proportion of these the conditions are such that no ignorant attendant can foresee the danger, and there can be little doubt that many of these lives could be saved if midwives were compelled to possess an adequate knowledge of obstetrics.

THE NEW RECREATION PIERS.—On September 25th the second of the new recreation piers for the people was officially opened by Mayor Strong. There were also addresses by other speakers, and a band of music played until ten o'clock. This pier is located on the East River at the foot of Twenty-fourth Street, two blocks below Bellevue Hospital. It is of immense size, being 722 feet in length, and capable of accommodating 12,000 persons. Its completion is, of course, rather late for the present season, but it will be all ready for the beginning of next summer's heat. In the meanwhile it is proposed, if the necessary funds can be secured, to enclose this and the East Third Street recreation pier in glass, and turn them into winter resorts for the poor. In favor of this plan it is urged that the plants required for the adornment of these large winter gardens can be had not only without expense, but as a positive saving to the city. The various exotics which are in the parks during the summer have to be stored in greenhouses in the winter, and as the capacity for this purpose on city property is limited, quite a large amount has to be paid each year for outside storage. If, then, the piers are properly equipped as winter gardens all this storage expense can be saved.

A PHYSICIAN APPOINTED TO THE BOARD OF CHARITIES.—For the first time a physician has been made a member of the Board of Public Charities, and the measure meets with the general approval of the medical profession. On September 21st Mayor Strong appointed Dr. Stephen Smith, the well-known surgeon, a Charities Commissioner, to fill the vacancy made by the resignation of Commissioner Croft. At the time the last two vacancies occurred the mayor expressed the opinion that it was not good policy to give positions on the board to physicians, but he has now evidently seen fit to change his views on the subject. Dr. Smith was graduated from the College of Physicians and Surgeons, New York, in 1850, and afterwards became resident physician at Bellevue Hospital. In 1853 he was made editor of the *New York Journal of Medicine*, and in 1854 attending surgeon to Bellevue Hospital. In the latter capacity he has served ever since, and his surgical writings

have enjoyed a wide popularity. During the late war he published a band-book of surgery for field use, which was officially adopted by the Surgeon-General of the United States Army. When the Metropolitan Board of Health was organized, in 1866, he was, with the late Dr. Willard Parker, on the first Board of Commissioners. Dr. Smith served for a time on the State Commission in Lunacy, and for the past four years has been a member of the State Board of Charities. With his varied attainments and extensive experience he is therefore especially well qualified for the position of Charities Commissioner, and his accession to the management of this important department will no doubt add greatly to the efficiency of the board.

Miscellany.

BACTERIOLOGY RUN MAD.

The following extract is taken from an English paper:

The Berlin correspondent of the *Standard* telegraphs over this great discovery by a German professor: "Professor Marpmann, of Leipsie, has recently examined 67 kinds of ink, such as are used in schools, and has arrived at results which show that it may, under certain circumstances, be dangerous to wound oneself with an inky pen. Most of the inks he examined were made of gall-nuts, and contained a large quantity of micrococci, bacteria and fungi. One sample, made of nigrosine, an aniline pigment, and taken from a newly-opened bottle, also contained quantities of fungi and bacilli. From a red and blue sample the professor cultivated bacilli which killed a mouse in four days; but they were taken from bottles which had been opened for three months."

"Is there any known substance, we wonder," says the *Westminster Gazette*, "in which a German professor could not cultivate a bacillus which would kill a mouse in four days? It seems to us rather creditable to the mouse to have lived four days. The moral is, Don't drink ink, or wipe your pen on your lips. The temptation to do these things is so besetting that these cautions ought to be widely disseminated. By dint of great determination we have ourselves resisted the impulse to take a draught of ink in the early morning."

METEOROLOGICAL RECORD

For the week ending September 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...12	30.28	58	62	53	78	75	76	N.E.	S.	12	10	C. C.
M...13	29.95	66	74	57	90	88	89	S.W.	W.	12	12	O. C.
T...14	30.12	62	70	55	81	76	78	N.W.	N.W.	16	12	O. C.
W...15	30.22	60	70	51	77	64	70	N.	W.	7	5	C. C.
T...16	30.00	62	71	54	79	90	81	N.W.	N.E.	5	5	C. C.
F...17	29.80	62	70	54	96	72	84	N.	N.W.	5	12	O. C.
S...18	29.98	56	64	49	73	71	72	N.W.	S.W.	12	8	C. C.
19												

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 18, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	756	345	19.24	9.75	43.00	.78	2.86	
Chicago	1,619,226	427	170	25.53	8.97	19.78	2.53	2.53	
Philadelphia	1,214,256	—	—	—	—	—	—	—	
Brooklyn	1,160,000	427	188	19.55	6.90	13.34	1.84	2.99	
St. Louis	570,000	188	64	15.37	8.48	9.01	1.59	2.05	
Baltimore	550,000	177	84	24.64	12.32	17.36	3.36	2.24	
Boston	517,732	217	76	16.56	11.50	9.20	3.22	1.84	
Cincinnati	405,000	—	—	—	—	—	—	—	
Cleveland	350,000	104	49	11.64	3.88	8.73	2.91	—	
Pittsburg	285,000	92	45	30.52	9.81	20.71	2.18	—	
Washington	277,000	122	48	16.56	12.50	9.20	3.22	1.84	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	108,050	28	6	17.85	21.42	7.14	10.71	—	
Worcester	105,050	35	11	24.05	14.25	20.00	—	5.70	
Fall River	95,919	49	31	42.84	4.08	36.72	2.04	2.04	
Lowell	87,143	42	22	29.32	10.90	25.56	2.38	—	
Cambridge	86,812	30	19	50.00	10.00	39.99	—	6.66	
Lynn	65,220	14	4	14.28	14.28	7.14	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	23	12	21.75	4.35	4.35	8.70	8.70	
Lawrence	55,510	21	11	—	9.52	—	—	—	
Springfield	54,790	17	4	35.28	5.88	17.64	11.76	5.88	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	11	3	18.18	9.09	18.18	—	—	
Brockton	35,853	—	—	—	—	—	—	—	
Malden	32,894	16	4	18.75	18.75	6.25	—	6.25	
Chelsea	32,716	13	2	15.38	—	15.38	—	—	
Haverhill	31,466	13	6	7.69	15.38	7.69	—	—	
Gloucester	29,175	—	—	—	—	—	—	—	
Newton	28,990	8	3	25.00	12.50	25.00	—	—	
Fitchburg	28,392	8	0	25.00	—	12.50	—	—	
Taunton	27,812	8	1	—	12.50	—	—	—	
Quincy	22,562	7	3	57.12	—	57.12	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	8	3	25.00	12.50	25.00	—	—	
Everett	21,575	2	0	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	1	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,945: under five years of age 1,257; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 625, consumption 279, acute lung diseases 188, diarrheal diseases 430, diphtheria and croup 71, typhoid fever 62, whooping-cough 19, cerebro-spinal meningitis 16, scarlet fever 10, malarial fever 8, measles 8.

From whooping-cough New York 6, Chicago, Pittsburg and Washington 3 each, Brooklyn 2, St. Louis and Boston 1 each. From cerebro-spinal meningitis Washington 5, Boston 4, New York 3, Baltimore, Lynn, Malden and Fitchburg 1 each. From scarlet fever New York 5, Baltimore, Pittsburg, Fall River, Lowell and Cambridge 1 each. From measles Pittsburg and Providence 3 each, New York 2. From malarial fever New York and Brooklyn 4 each. From erysipelas Baltimore 1.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending September 11th, the death-rate was 19.4. Deaths reported 4,089, diarrheal 671, whooping-cough 78, measles 65, fever 52, diphtheria 48, scarlet fever 31.

The death-rates ranged from 8.2 in Halifax to 35.3 in Preston; Birmingham 22.2, Bradford 22.8, Croydon 9.5, Gateshead 22.7, Leeds 23.3, Leicester 23.6, Liverpool 26.9, London 16.3, Manchester 23.6, Newcastle-on-Tyne 23.0, Nottingham 19.9, Portsmouth 14.0, Sheffield 26.1, Sunderland 22.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 18, 1897, TO SEPTEMBER 24, 1897.

The leave of absence granted LIEUT.-COL. JOHNSON V. D. MIDDLETON, deputy surgeon-general, chief surgeon, Department of California, is extended one month.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING SEPTEMBER 25, 1897.

C. E. RIGGS, assistant surgeon, detached from the New York Navy Yard, October 4th, and ordered to the "Newport," October 4th.

J. F. LEYS, passed assistant surgeon, detached from the "Helena," September 20th, and ordered to the "Vesuvius."

N. H. DRAKE, surgeon, ordered to the "Minneapolis," "Columbia" and other vessels in reserve at League Island, Pa.

M. F. GATES, passed assistant surgeon, detached from the "Minneapolis," on relief, and ordered to the Boston Hospital.

G. P. LUMSDEN, surgeon, detached from Port Royal, on relief, and ordered to special duty attending officers at Norfolk, Va.

G. A. LUNG, passed assistant surgeon, detached from the Boston Hospital, on relief, and ordered to Naval Station, Port Royal, S. C.

M. S. GUEST, passed assistant surgeon, detached from the "Vesuvius" and ordered to the "Helena," September 20th.

F. RODGERS, surgeon, when detached from Boston Navy Yard, ordered home and be ready for sea.

H. E. AMES, surgeon, ordered to the Navy Yard, Norfolk, Va., October 2d.

M. S. ELLIOTT, assistant surgeon, detached from the "Indiana" and ordered to the "Porter."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING SEPTEMBER 18, 1897.

SAWTELLE, H. W., surgeon. To proceed to Atlanta, Ga., for special duty. September 15, 1897.

CARTER, H. R., surgeon. To proceed to New Orleans, La., for special duty. September 14, 1897.

BANKS, C. E., surgeon. To proceed to Baltimore, Md., for special duty. September 13, 1897.

GLENNAN, A. H., passed assistant surgeon. To proceed to Mobile, Ala., for special duty. September 15, 1897.

MCINTOSH, W. P., passed assistant surgeon. To represent Service at meeting of Mississippi Medical Society at Louisville, Ky., in October. September 17, 1897. To proceed to Memphis, Tenn., and assume temporary command of Service. September 18, 1897.

GUIERAS, G. M., passed assistant surgeon. To report to Surgeon H. R. CARTER for special duty. September 17, 1897.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Jackson, Miss., for special duty.

RUSSELL, H. C., assistant surgeon. Granted seven days' leave of absence from October 15, 1897. September 16, 1897.

SOCIETY NOTICES.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The next regular meeting will be held at the Medical Library, 19 Boylston Place, on Wednesday, October 6th, at 12 m.

The following papers will be read:

Dr. B. H. Hartwell: "Contre Coup; Its Relation to Injuries of the Head."

Dr. F. J. Canedy: "The Homicide of Mrs. Hattie McCloud at Shelburne Falls on January 8, 1897."

Dr. J. G. Pinkham: "Was it Murder or Accident?"

Members of the medical profession are cordially invited.

JULIAN A. MEAD, M.D., Secretary.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-third annual meeting of the Association will be held at Louisville, Ky., October 5-8, 1897.

THOS. HUNT STUCKY, President, Louisville.

H. W. LOEB, Secretary, St. Louis.

BOOKS AND PAMPHLETS RECEIVED.

A Case of Primary Sarcoma of the Pleura. By F. G. Finley, M.D., and W. I. Bradley, M.D., Montreal. Reprint. 1897.

The Pelvic Viscera in Relation to Micro-Organisms in Health and Disease. By J. C. Webster, M.D., F.R.C.P.E., F.R.S.E., Montreal. Reprint. 1897.

Remarks on Two or Three Points on the Technic of the Operative Treatment of Acute Appendicitis. By George E. Armstrong, M.D., Montreal. Reprint. 1897.

The Nature of the Leucocytosis Produced by Nucleinic Acid; A Preliminary Experimental Study. By Delano Ames, A.B., M.D., and A. A. Huntley, M.D., Baltimore. Reprint. 1897.

Lectures on the Action of Medicines, being the Course of Lectures on Pharmacology and Therapeutics delivered at St. Bartholomew's Hospital during the Summer Session of 1896. By T. Lauder Brunton, M.D., D.Sc. (Edin.), LL.D. (Hon.) (Aberd.), F.R.S., Fellow of the Royal College of Physicians; Associate Fellow of the College of Physicians of Philadelphia; Honorary Member of the Pharmaceutical Society; Physician and Lecturer on Pharmacology and Therapeutics to St. Bartholomew's Hospital. New York: The Macmillan Co. 1897.

Original Articles.

PHYSICAL TRAINING, ITS FUNCTION AND PLACE IN EDUCATION.¹

BY EDWARD MUSSEY HARTWELL, PH.D., M.D.,
Director of Physical Training in the Boston Public Schools.

ABRAHAM LINCOLN once characterized the slavery question as "a durable question." In the history of education the question as to the legitimate place and standing of physical training has assuredly proved itself a durable question, since in a certain sense the history of education may be regarded as the history of a series of attempts on the part of thinkers and teachers to reconcile the claims of bodily and mental training in the up-bringing of children and youth. In times past and in our own time physical training has been exalted, tolerated, neglected or contemned, in varying degrees, according to the character of the conceptions concerning the nature of the human body and of its relations to the human mind, which have exerted a dominant influence upon those charged with the shaping of educational policy and the administration of educational affairs.

Popular education is to all intents and purposes a modern invention, and opinion is still somewhat divided as to its value and efficiency. The difficulties in the way of organizing public education on a thoroughly satisfactory basis have been enhanced and multiplied, — owing to the inexpugnable predilection of the nineteenth-century man for city life. Urbanization has proceeded so rapidly throughout Christendom that elementary education in the near future is likely to relate chiefly to the training of city-bred if not city-born children. Already in our own State more than 60 per cent. of the school population is found in towns having at least 10,000 inhabitants. As a result of urban crowding, not to mention other causes of disquietude in the public mind, the durable question as to the meaning and value of physical education is becoming more insistent and urgent than ever before. I believe that the most convincing answer to this as well as to certain other fundamental educational questions which I will not take time to specify, is to be found in the teachings of modern medical science, and of the biological sciences, which are the offspring of medicine. I believe also that the time is approaching when the medical profession can exercise, if it will, not only a large but a decisive influence towards the improvement of education by defining the limits and relations of mental and bodily training. Because I believe these things I shall direct my remarks this evening mainly to the consideration of the meaning of education in general, and of physical education in particular, in the light of the modern doctrine of the human body.

The doctrine of the human body current among scientific men is one of the most notable and significant achievements of the modern spirit. It has been wrought out and developed during the past two centuries and a half, and owes its characteristics of comprehensiveness, suggestiveness and illuminative power to the improvement and consolidation of the physical sciences, particularly of those which we term the biological sciences. Mr. Huxley has called attention to the essential solidarity and kinship of these sciences,

and to the genetic relation between them and medicine, which, till within very recent times included "what little physical science could be seen to bear directly upon human life."

"It is a peculiarity of the physical sciences," he says, in his address on "The Connection of the Biological Sciences and Medicine," "that they are independent in proportion as they are imperfect; and it is only as they advance that the bonds which really unite them all become apparent."

Through the advance alluded to by Mr. Huxley man's knowledge of himself has been immensely increased, and his conception of nature and of his place in nature radically changed. The human mind has been thereby both uplifted and enlarged. Considered simply as a member of the animal kingdom, man is a much more intelligible and interesting creature than ever before, since so many new and commanding points of view have been established from which his structure and powers and the laws governing the development and use of his powers may be studied profitably.

The individual human being begins as one of the simplest of animal mechanisms. Microscopic in size, its parts are indistinguishable or few at the most; its functions are reduced to lowest terms; its habitat is restricted to a particular seat in a single organ of its mother; and its condition is that of a dependent parasite, without intelligence, responsibility, or recognized legal status. It evolves gradually and surely, by duly ordered and progressive stages, into a bulky organism, goodly in size and symmetry, having parts beyond counting, whose arrangement is bewildering in its marvellous complexity; with functions so varied and specialized and co-ordinated that it is enabled to play the part of an intelligent, self-sufficient, individual member of society, free to range throughout the world as an independent citizen of the same, having legal rights and moral responsibilities as an heir of all the ages, and as such entitled to an indefeasible share in mankind's hopes of immortality. It begins its career at the level of the ameba and the wandering white-blood corpuscle; when it emerges from immaturity at the summit of a long series of spiral changes and enters upon its inheritance and is made free of the world as a matured and perfected human being, it has become man, and well deserves to be characterized in the words which Shakespeare puts into Hamlet's mouth as "the paragon of animals, the wonder of the world."

In general terms the modern doctrine of the human body is based upon two leading ideas, namely, (1) that the organism is an aggregation of matter which, by reason of the arrangement of its parts, and of the qualities of the living substance composing those parts, is capable of transforming and utilizing energy, that is, it is a living machine for doing work; (2) that the adult body is the product of organic evolution to the outworking of whose laws it owes its rank among organisms and its efficiency as an individual organism.

As affirmations of the modern doctrine of the human body, which bear more or less directly on our subject, the following may be cited:

(1) The adult body is the highest term in the series of animal mechanisms found in the world to-day, since in it we find the most elaborate and perfectly co-ordinated subdivision of labor associated with the greatest differentiation of structural parts and the highest specialization of functional powers.

(2) The human body is the highest term in the whole

¹ This paper has been re-written in a measure, since it was read before the Boston Society for Medical Improvement, November 16, 1896.

series of living mechanisms produced by organic evolution in the vast stretch of time since the first and simplest of living things appeared upon the earth.

(3) Every adult human body is the highest term in a long series of orderly, progressive developmental phases, which taken together constitute the period of its immaturity. This period may be divided for convenience into stages, namely, (1) Embryonic, (2) Fetal, (3) Infantile, (4) Childhood, and (5) Adolescence.

(4) At the culmination of each of its developmental stages the body of the human being more or less resembles the highest stage of zoological development attained by certain of its lowlier, less intelligent and responsible animal kindred.

(5) As in the zoological series of developed organisms, each well-marked advance is characterized by greater differentiation of parts, higher specialization of function, and more elaborate subdivision of labor; so in the embryological series of developmental stages through which the body is transformed from a unicellular ovum into a communal mechanism, made up of somatic or general and minor or special mechanisms, each stage of development is signalized by the acquisition of more numerous and more perfectly adapted and co-ordinated parts; by an increased efficiency of general functions and the addition of special aptitudes and powers; and by the attainment of larger and more varied capacity for improvement and training in the exercise of its distinctively human endowments.

(6) In acquiring structural completeness and functional perfection the human body recapitulates in a condensed or schematic way the development of its ancestral forms, first, of its simplest, lowliest and most ancient; last, of its most highly developed, most gifted, and recent. Its period of immaturity, during which it may be moulded and educated, is more prolonged and diversified and therefore more fateful and important than the period of immaturity either of its ancestors or its nearest kindred in the animal series.

The jurisdiction of the laws of evolution over mental as well as bodily development is pretty generally conceded, even in strongholds of orthodoxy so-called. The following extract from Drummoud's "Ascent of Man" which consists of lectures originally delivered before the Lowell Institute in this city, is highly significant, considering its source.

"Mind in man, does not start into being fully ripe. It dawns; it grows; it mellows; it decays. This growing is a gradual growing, an infinitely gentle, never abrupt unfolding, — the kind of growing which in every other department of nature we are taught by nature to associate with an evolution. If the mind of an infant has been evolved, and that not from primeval man, but from some more ancient animal, it could not to more perfection have simulated the appearance of having so come. But this is not all: the mind of a child not only grows, but grows in a certain order. And the astonishing fact about that order is that it is the probable order of evolution of mental faculty as a whole. The mind of a child is to be treated as an unfolding embryo; and just as the embryo of the body recapitulates the lifelong history of all the bodies that lead up to it, so this subtler embryo in running its course through the swift years of early infancy runs up the psychic scale through which mind probably evolved. We have seen also that in the case of the body each step of progress in the embryo has its equivalent, either in the bodies or in the embryos of lower forms of life. Now each phase of mental development in the child is also permanently represented by some species among the lower animals, by idiots, or by the mind of some existing savage."

If we admit the declaration of modern science that the laws which determine the orderly progress of the cells, tissues and organs of the human body from a general and simple to a differentiated and special state also bear sway, *pari passu*, throughout the realm of

the human mind and over all the products of human intelligence and culture, can we avoid the conclusion that education, which avowedly aims at enabling the un-grown human being to make the ultimate utmost of himself, should conform its measures and methods to nature's laws of growth and development?

Pedagogical oratory and literature teem with assertions that education means educating, unfolding — evolution. But no very searching investigation is needed to discover that educationists hold very largely to the very doctrine of evolution that has been discredited and displaced by more modern science.

What we call "cramming" is, as an educational procedure, merely a short-sighted deduction from the principles of what used to be termed "evolution," as opposed to the doctrine of epigenesis. Education by "conveying information" resembles the process by which a gardener develops a small onion into a plump, marketable onion. Both processes are in harmony with the idea that the immature organism is a perfect edition in miniature of the adult, and that evolution consists in the growth of small parts, originally created perfect, into larger and finally full-sized parts through the intussusception of aliment.

This view of evolution, which was dominant till microscopical research showed it to be incorrect, was summed up by Haller, the great authority of the last century in biological science, as follows: "There is no becoming; no part of the body is made from another, all are created at once."

William Harvey's statement in the seventeenth century of the doctrine of epigenesis is as follows: "The first concrement of the future body grows, gradually divides, and is distinguished into parts; not all at once, but some are produced after others, each emerging in its order." This view, which was rejected by the evolutionists of the eighteenth century, has been accepted as a corner headstone by the evolutionists of the nineteenth.

The body as a whole is a communal structure, a sort of federal union of tissues and organs. Among machines it resembles an army or a city, rather than such mechanisms as an eight-day clock or a windmill. "Of this army," says Huxley, "each cell is a soldier, an organ, a brigade, the central nervous system headquarters and field telegraph, the alimentary and circulatory system the commissariat."

In general terms, it may be said that the principal minor mechanisms found in the human body largely subserve the interests of the organs devoted to the performance of voluntary purposive mechanical work, namely, the muscles.

It is the skeletal muscles and the skeleton, then, which constitute the executive working machinery of the body. It is important to remember that a "muscle" is fundamentally a muscle and a nerve besides.

The muscular and nervous tissues have been well termed "the master-tissues." All other tissues, omitting the indifferent and supportive tissues and the reproductive tissues, may be classed under the head of "tissues of digestion," or "tissues of excretion." In other words, the neuro-muscular system has two sets of servants which play the parts of "purveyors" and "scavengers," respectively.

What may be termed the gross-income fund of energy of the bodily community is derived chiefly from the productive activity of its purveyor members. It is pre-eminently the function of the master-tissues to turn

the net-income of the body to the fullest and best account as active energy; which net-income is what remains from the gross-income after the fixed charges for construction, maintenance and repair have been met. To secure a wise expenditure of net-income, therefore, it is needful to prevent the master-tissues from developing aimless, blundering or spendthrift habits of action. Prevention, in this instance, can be only secured through the intelligent and adequate training of the neuro-muscular system. If the development of ability to make intelligent and adequate use of the net-income of man's free energy be the main end of his education, it is clear that neuro-muscular education, or physical training, must constitute a considerable part of the measures directed to that end.

The primary, essential, universal factor in all forms of physical training is neuro-muscular exercise. The ends of exercise may be characterized, in a general way, as, first, the promotion of health, and, second, the formation of proper habits of action. The one is a hygienic end while the other is a distinctively educational end.

The main field of education is the nervous system, and the principle of all forms of education into which motor training enters as a factor are based upon the power of the nervous system to receive impressions and to register them or their effects; in other words, upon its ability to memorize the part it has played in acquired movements, and on occasion to revive and repeat such movements.

The student of nervous disorders notes carefully the peculiarities of his patient's movements in order to determine the seat of his injury or weakness and the nature and extent of his disease. It is equally necessary that the practical teacher should apprehend the significance of the spontaneous and acquired muscular movements of his pupils, be those movements coarse or fine; since those movements constitute an index of the action of the brain which it is the teacher's business to develop and train, and also serve to measure the success and test the character of the teacher's efforts at instruction.

The motor element in education is so large and of such vital importance that we hazard little in predicting that the systematic study of movements is destined to play a much more prominent part than has been accorded it hitherto, in the professional training of all classes of teachers.

As regards their regional relations, our bodily movements may be characterized as central or peripheral.

"By a central movement," says Mercier, in his "The Nervous System and the Mind," "is meant, generally, a movement of the trunk. By a peripheral movement is meant, generally, a movement of the digits, mouth or eyes; and the remaining parts of the body are classed in an intermediate position, and in one which approximates to the central or to the peripheral, according, generally, to the size of the part moved, and the size and individuality of the muscles concerned in the movement. . . . The movements here called central are continuous in duration, vague in limitation, few in number, same in character, and form a general, approximate or coarse adjustment. Progress toward the periphery brings us to movements that are more intermittent in duration, more precisely defined, more numerous, more diversified, and more specially adapted to particular ends; and, when at the eyes, the articulatory apparatus and the digits, we reach the extreme periphery, all these characters reach their highest degree of development."

In the evolution of the race and of the individual, the more general functions and organs are formed and developed earlier than the special functions and their organs; for example, the circulatory and alimentary organs develop earlier than the vocal organs and the hands and feet. The same law obtains likewise in the growth and development of the nervous system, both as to its massive and its minute parts. The nervous mechanisms concerned in central movements are at once older and more lowly placed than the mechanisms concerned in peripheral movements. To those parts of the nervous system, in man, which are formed earliest and are practically completed and fully organized at birth, the late Dr. Ross, a leading English neurologist, gave the name "fundamental," while he designated as "accessory" those parts which are rudimentary at birth and comparatively late in their growth and development. Broadly speaking, central movements are "represented" in low-level, fundamental centres, and peripheral movements in high-level, accessory centres. If, as has been stated, the nervous system is the field of education, education to be natural, safe and effectual should defer the training of the accessory parts of the nervous system until the development of its fundamental portions has been secured by appropriate forms of general training. Is it too much to ask that educationists should recognize, ponder upon, and be guided by the laws of development which determine the health and power of the brain-centres, and the health and efficiency of the servants and ministers of those centres, namely, the skeletal muscles?

The law of the evolution of the nervous system seems to me a sure and serviceable criterion of the worth and propriety of educational procedures of every kind, since it affords a means of comparing our conventional methods of educating the individual with nature's method of educating the race.

Our "earthly pilgrimage" embraces three stages, namely, (1) that of Evolution or Immaturity, which is *par excellence* the period of growth or increase in size, of development or improvement and increase of functional powers, and of storage of energy; (2) that of Maturity or Completed Development, in which growth and development proceed more and more slowly till they cease, — a period of productive activity, of balanced income and expenditures of energy; and (3) that of Dissolution or Decline, marked by excess of expenditure of energy, by weakened and decaying functions, and by wasting and degeneration of organs and tissues.

Growth and development characterize the stage of immaturity, as has been said, but since development waits upon growth, the two processes vary in amount and rate in different parts of that stage, considering the body as a whole. Nor should it be forgotten that the several somatic and special mechanisms of the body differ in respect to the order and rates of their growth and development. If the education of children and youth shall ever become thoroughly natural and rational, it will be because the significance of that order and rate, and their relations to life and death, are recognized and heeded to an extent that is nowhere common as yet.

The stage of evolution or immaturity is of paramount importance, since the formal education of the vast majority of the pupils in our elementary and secondary schools ceases long before maturity is reached.

This stage may be roughly divided into three equal periods of eight years. Both growth and development proceed during each period, but growth preponderates in the first and second, and development in the third period. The salient features of each period may be grouped as follows:

First Period.—From birth till the close of the eighth year. The whole body grows rapidly in the first two years of life, more particularly in the first year, but it is the "immense" growth of the brain—which attains its full weight within a few ounces in the eighth year—that signalizes this period most markedly. In the domain of development the sensory organs take the lead and reach a high degree of perfection, though certain of the most essential neuromuscular mechanisms concerned in the co-ordination of relatively central movements also undergo active development, for example, those concerned in equilibration, locomotion and vocal utterance. The child is imitative, inquisitive and acquisitive; but his perceptive powers and his memory develop faster than his powers of discrimination and expression. During this period sensory education may safely be diversified and somewhat specially emphasized; but motor education should be of a more general and elementary character.

Strenuous and exacting "drill," especially of the intermediate and accessory mechanisms, is contraindicated for the child. Both games and gymnastics yield valuable results if they are intelligently selected and conducted; but the first should be easy and simple, and the second elementary in their character.

Second Period.—From the beginning of the ninth to the end of the sixteenth year. This is distinctively the period of most rapid growth in height and weight. In increase of weight the muscles play the leading part. Motor co-ordinations reach a higher degree of development than was possible during the preceding period, though they are not fully perfected till adolescence is nearly completed. "The process of perfecting motor co-ordinations cannot be said to be complete," says Dr. Clouston, "while the awkward, ungraceful motions of hobbledohoyhood last, and until we reach the grace and poetry of body-motion of the maiden of twenty-three, and the dexterity, force and swiftness of co-ordination of eye, hand and body seen in the male cricketer or lawn-tennis player of five and twenty. As Dr. Clouston has pointed out, one of the most marked features of this period is the co-ordination of motion and emotion.

In this period the individual diverges from the neutral condition of childhood and takes on the distinctive characteristics of youth or maiden. The change in body, mind and character which result from the establishment of puberty are profound and lasting in both sexes, though in this period they transpire more rapidly and proceed further in the gentler sex.

Self-consciousness is awakened, self-confidence is quickened, and new impulses, appetencies and ambitions arise which prompt the adolescent to try all things and everybody. The child yields to authority and accepts dicta with comparatively good grace; but the youth demands reasons and must be convinced, or at least persuaded, by his teachers and governors.—he may be led, but he resists being driven. Educational methods, therefore, particularly during the second-half of this period, should savor more of incitement than compulsion. The formal education of the great major-

ity of public-school pupils terminates in this period, since so soon as they are fairly well grown their services become marketable. Those who are destined to the ruder forms of labor or the humbler crafts and occupations enter the lowest ranks of wage-earners, while as yet the privileged youth selected by their parents or by circumstances to engage in pursuits which demand special aptitudes or technical training are too undeveloped, in most instances, to make rational choice of a vocation, and much less to engage in professional pursuits or the higher crafts.

On the whole, since the period of most active growth appears to be followed by one of comparative exhaustion, when the organism is peculiarly susceptible to disturbing and deterrent influences, the second may be considered, from the hygienic standpoint, as the most critical of our three periods. Exhausting constitutional disease, excessive mental or bodily exertion, under-feeding, ill-judged deprivation of muscular exercise, may readily lead to irremediable stunting or enfeeblement, especially in those who are city-born and city-bred. If physical education be neglected or misdirected during this period, if it be deferred to a more convenient season, it cannot accomplish its perfect work, either as regards the promotion of health or the development of the motive powers of the brain.

The main general department of physical education should be systematically availed of, that is, both gymnastic training and athletic pastimes should be given a prominent place in the school curriculum, and the forms of exercise selected should be more varied, complicated and difficult than those employed in the previous period. But the time for engaging in feats or contests that demand extraordinary strength, endurance, or skill is not yet.

Third Period.—From the beginning of the seventeenth to the close of the twenty-fourth year. This, the period of established adolescence, is distinctively a period of development—of development of character as well as of bodily and mental faculty. The life of the race begins to be reflected in the life of the individual—to whom a higher and wider range of activities is opened through the development and perfecting of his higher fundamental and accessory neuromuscular mechanisms. Emotion is co-ordinated with self-chosen aims and ideals; self-directed actions increase in number and effectiveness; and the individual is prepared by special forms of technical training to enter upon his lifework as an adult, independent member of society.

The muscles, which are to serve as the executive instruments of the brain, do not attain full growth till towards the end of the second period. Then, when both brain and muscles are fully grown, neuromuscular development enters upon its most active and important stage, that is, in the third period. Measures that directly promote growth are mainly hygienic measures, and measures that directly promote development are mainly educative. An intelligent combination of hygienic and educative measures is called for, both in the sensory and motor education of the individual, during each and all of the three periods; but as regards physical education during the whole of the first and the first half of the second period, hygienic forms of exercise should preponderate, while during the last half of the second and the whole of the third period educative forms of exercise should be assigned the leading part,—provided that practically normal

growth and sound health have been secured to start with.

Attempts at *tours de force*, trophy winning, and record breaking, which would be ill-judged at an earlier stage, may now be profitably encouraged — within reasonable limits — in the case of well-developed and well-trained gymnasts and athletes. Doubtless there are valid objections to be urged against rampant athleticism. Nevertheless, the predilection of collegiate youth for athletic sports and contests may be justified as natural and fitting by the teachings of neurology and psychology, if once it be admitted that the development of mind and character, as well as that of the brain and muscles, is subject to the laws of evolution. The average collegian, if a healthy animal, is apter at expressing himself fully in terms of muscularity than in terms of mentality. Intellectual maturity comes later, — unless arrested development supervenes. It can hardly be considered a misfortune that, in the hey-day of youth, the sons of civilized men tend to exhibit in their games something of the hardihood, daring and contentiousness which characterized the principal pursuits of their primitive, beast-hunting, war-making ancestors.

Modern education presents many vestigial features that bear witness to its descent from medieval and ancient origins. Of old, when the learned class was made up chiefly of readers to whom was given the name of clergymen, the church enjoyed a natural monopoly of education in its technical sense. The church's claims to authority were based on written documents. Most of the world's books belonged to churchmen, or had been written by churchmen. Naturally enough the clergy became the recognized teachers of the literary arts of expression and interpretation, and were inclined unduly to exalt those arts at the expense of the painful, objective study of Nature and of Man.

Though the control and conduct of educational affairs has been secularized in a large measure, the inner purpose and guiding principles of elementary and secondary education are still strongly tinged by antiquated conceptions and scholastic dogmas regarding human nature and the means of influencing and developing it. The unwillingness of many educationists to accord science a co-ordinate place in the scheme of liberal education, and the general indifference, not to say aversion, of the responsible managers of popular education to the just claims of bodily training, are forcible reminders of the strength and vitality of traditional views and conventional methods.

The medical profession, by its revolt against the tyranny of speculative philosophy and theological dogmatism, has succeeded in securing freedom of thought and teaching within its own domain. It has thereby rendered important service to the cause of superior education. It would seem that the opportunity for the medical profession to exercise a wise and helpful influence upon popular and secondary education — particularly in respect to school hygiene and physical training — grows constantly larger and more inviting. Educationists as a class apprehend but feebly the teachings of modern science with regard to the interdependence of mind and body. To whom should they more appropriately turn for light and leading than to the leaders in medicine, who have done so much for the enlightenment and improvement of mankind?

Among the medical sciences neurology, by reason of

its teachings concerning the nature and functions of the neural and neuro-muscular mechanisms, bears most directly upon educational theory and practice. Laurie, a well-known Scotch writer on education, has put forth a serviceable statement of the modern ideal of education. "By education," he says, "we mean the training of a man with a view to make him all that he can become. . . . The education of a child is the bringing of him up in such a way as to secure that when he is a man he will fulfil his true life, — not merely his life as an industrial worker, not merely his life as a citizen, but his own personal life as a citizen through his work and his citizenship." And he goes on to say that the attainment of the ethical end of education must be considered "from the point of view not only of the growth of mind, but of the growth of body; for we have not to train up a soul, says Montaigne, nor yet a body, but a man, and we cannot divide him."

How inadequate and ill-adapted the old neurology was to serve as a rational basis for the modern civic ideal of education may be guessed from the following extract from Prochaska's "*De Functionibus Systematis Nervosi*," written more than a century ago:

"We have disputed strictly enough whether the soul be matter or brain; whether thought to be an electric fire or a movement of the vital spirits; whether souls form their bodies; whether they are diffused through them, or dwell only in the head; whether souls and bodies exercise a real or ideal influence on each other; whether an instinctive impulse or a passion belongs to the body or the soul; or whether the vital spirits be elastic or inflexible, electrical or ethereal, etc. All these inquiries will remain forever inscrutable mysteries, and do not belong to our subject; they can remain altogether uninvestigated without any disadvantage to the real usefulness of theoretical medicine, but we have pursued them with profitless diligence, and have done our best to confuse them more and more. How much have we effected in resolving questions useful to our art, as, for example, in determining by what laws the mind moves the machinery of the animal organism? Under what circumstances the nerves excite sensation? Under what the sensation becomes an animal, moving force, so as to move this or that limb in such a manner and not otherwise? After what laws the imaginations, the conceptions of the understanding, pleasure, pain, the instincts, the passions and the will impel various portions of the animal to perform the actions intended by the Creator in uniting the machine with a thinking force?"

Contrast with the above the following statements of modern neurological doctrine taken by way of illustration and almost at random:

While the physical function of the nervous system is the redistribution of force, mainly by the production and regulation of muscular *action*, the psychological function of this system is mainly the production of muscular *movements*. . . . Briefly, the study of the psychological functions of the nervous system is the study of conduct. [Mercier — *The Nervous System and the Mind*.]

The "nerve-centre" of mammalia and of man is a collection of nerve centres, — variously organized through past excitations, yet still variously organizable by excitations, to come. To-day the state and disposition of organs and of the organism are the product of the past immediate and remote, individual and ancestral. To-morrow and in the distant future they will become what they may be made to become by training, by education, and by new conditions of life. [Waller's *Physiology*.]

The order of the development of the nervous system in the race has been from the fundamental to the accessory portions; and no one can reverse this process with impunity in that further development of the individual which consti-

tutes education in its widest sense. [Ross — *Diseases of the Nervous System*.

A special part of the nervous system, that which we know as the central nervous system, the brain and spinal cord, is supreme among the nervous tissues and is master of the skeletal muscles as well as of the rest of the body. . . . The word "training" suggests the reflection that the physiological interpretation of becoming easy by practice is that new paths are made, or the material of old paths made more mobile by effort and use. . . . We must suppose that training promotes the growth and molecular ability of the motor area and of all its connections. [Foster — *Text-Book of Physiology*.

All human education aims at the control of inherited and acquired reflexes through intelligent and reasonable motives. [Kussmaul — *Störungen der Sprache*.

Education consists in modifications of the central nervous system. . . . In the development of the central system it is found that an anatomical framework is first formed. In this framework are represented in outline the nerve structures whose functions are most fundamental. These with later growth are locally strengthened and organized, and by the establishment of associative paths gain both a wider influence and a greater complexity of reaction. . . . Education must fail to produce fundamental changes in the nervous organization, but to some extent it can strengthen formed structure by exercise, and in part waken into activity the unorganized remnant of the dormant cells. No amount of cultivation will give good growth where the nerve cells are few and ill-nourished, but careful culture can do much where there are those with strong inherent impulses towards development. [Donaldson — *The Growth of the Brain*.

It were idle to assert that the modern doctrine of the human body admits of final and complete statement. It is equally idle to deny that the salient teachings which are embodied in that doctrine are too little heeded in the nurture and admonition of the rising generation. The teachings and implications of modern neurology are, I submit, sufficiently clear and definite to warrant the claim that physical training, by reason of its neuromuscular element, lies at the basis of human education, and of necessity enters into and interlocks with what for convenience is customarily termed mental and moral training. By physical training I mean the more or less regulated practice of some form of "muscular exercise," under such conditions as serve to promote the health of the organism or to develop and discipline its motor functions, either in a general or a special way.

Viewed in the light of the modern doctrine of the human body, the office of the teacher of youth, be he a teacher of morals, of literature, or of gymnastics, possesses a new and heightened significance. Though education as at present organized is largely traditional in its aims and mechanical in its methods, there is increasing reason to hope that it will be transformed by the modern spirit till it shall become a science based upon the science of human nature, and shall cease to be an empiric art, mainly shaped and ruled to accord with the dreams of speculative thinkers, the precepts and priestcraft, and the maximum of the market and the caucus.

The problems of education are mainly problems of evolution, problems concerning growth and development. The new education will be conceived and ordered as a biological science,—as the quintessential of the biological sciences. Then will the teacher strive to play the part of an intelligent, loyal, efficient coworker with nature in so shaping and ordering nurture that the child shall develop naturally and fully

into a healthy, vigorous, intelligent, active, God-fearing citizen of the world.

Lord Bacon closes the announcement of his "Instauratio Magna" with the following invocation:—"When Thou hadst surveyed the works which Thy hands had wrought, all seemed good in Thy sight, and Thou restedst. But when man turned to the works of his hands, he found all vanity and vexation of spirit, and experienced no rest. If, however, we labor in Thy works, Thou wilt make us to partake of Thy vision and Sabbath; we therefore humbly beseech Thee to strengthen our purpose, that Thou mayest be willing to endow Thy family of mankind with new gifts through our hands and the hands of those in whom Thou shalt implant the same spirit."

What higher privilege or reward can the student or teacher seek than to be enabled "to endow the family of mankind with new gifts?"

WHAT INFERENCES MAY BE DRAWN FROM CASES OF PULMONARY TUBERCULOSIS REPORTED TO HAVE ORIGINATED IN COLORADO.¹

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In the consideration of this question it is desired to propound a reasonable inquiry as to the practical relation of the existing conditions in Colorado to the development therein of pulmonary tuberculosis.

During the past few years the attention of the profession, and the laity as well, has been drawn to the increasing number of reported cases of this disease developing within the State.

Certain physicians of recognized scientific attainments have already considered the evidence sufficient in its authenticity and in its scope to justify the promulgation of immediate conclusions. The interpretation made has been positive and unequivocal to the effect—

(1) That the obvious source of infection has been largely referable to direct contagion, owing to the large assemblage of pulmonary individuals.

(2) That the attraction of our climatic conditions is becoming for our present resident population an embarrassing, if not undesirable, feature.

(3) That as a logical result of further importation, tuberculosis is likely to become an important indigenous disease in Colorado.

(4) That the very means, therefore, of past preservation to a large proportion of our inhabitants is becoming an increasing source of future danger; the inference being implied of the possible ruinous effect upon our communities in generations to come.

(5) That, apropos of the alleged alarming dissemination of tuberculosis in Colorado, there should be enacted and rigidly enforced more stringent regulations pertaining to the control or prevention of the disease.

(6) That, in addition to the prophylactic measures already employed by the conscientious physician, registration and the segregation of tuberculous patients, with perhaps other still more radical measures, be insisted upon.

The assumption through the foregoing conclusions

¹ Read before the Colorado State Medical Society at its Annual Meeting in Denver, June 15, 1897.

is evidently to the effect that with the enactment of measures looking to the progressive destruction of the tubercle bacillus the disease may eventually be eradicated from the world.

Before proceeding further, I wish to define my position with emphasis in hearty support and commendation of the admirable efforts of our State, county and municipal health authorities along the lines of preventive medicine. I desire to accord them a keen appreciation of the value to society of the noble work already accomplished. I have no sympathy for the ignorance of those who refuse to accept the logic of facts, or the indifference of those who do not co-operate in the energetic and capable enforcement of the health regulations.

I am impressed, however, that we have gone quite far enough in the way of legislative measures relative to tuberculosis, and seriously question, lest in the midst of the present agitation, professional enthusiasm coupled with an immoderate popular sentiment is leading us a step too far, although admittedly in the right direction.

I am convinced that as yet the data introduced upon this subject are entirely too meagre to warrant positive conclusions as to the supposed evidences of contagion in our community. On the contrary, I submit that the accumulated evidence of numerous observers in this country and abroad is such as to modify, if not controvert, some of the conclusions quoted as being untrue to the established facts of scientific investigation and clinical experience. I protest, therefore, against an undue agitation at this time on the ground of insufficient testimony, and because a popular verdict prematurely rendered is attended with unfortunate results of a practical nature to be mentioned subsequently.

In support of my position I will call attention to—

I. Sources of error in the compilation of official statistics.

II. Clinical testimony concerning the extent of non-imported cases.

III. Absence of proof that cases reported as developing in Colorado were actually contracted here.

IV. Recent scientific observations as to the practical contagiousness of tuberculosis.

1. A review of the material offered as evidence to establish the large proportion of cases developed in Colorado to those contracted elsewhere indicates that the chief source of information is found in the records of the Denver Health Department. The health commissioner, in his annual report for 1896, states that the number of deaths during the past year from tuberculosis developed in Colorado "is a little more than one-sixth of the total tubercular death-rate." He also notes that the percentage of deaths from tuberculosis contracted in this State has been progressively increasing during the past four years. In 1893 the proportion is stated to be 11.25 per cent.; in 1894, 13.7 per cent.; in 1895, 15 per cent.; in 1896, 18.4 per cent. The impressive deduction is then made that primary cases of tuberculosis are increasing at such a rate as to carry conviction concerning the communicability of the disease in the midst of our resident population.

In forced recognition of the unfortunate influence exerted, I cannot allow such statements to go unchallenged. Disavowing any desire to reflect unpleasantly upon our local health department, or to impair in the

slightest degree its influence for good, I am, nevertheless, compelled to refute both the premises offered and conclusions reached from the evidence presented.

I assume that an effort has been made to secure as perfect accuracy as possible in the preparation of the statistical tables and charts presented by the Health Department. It is to be regretted, however, that the portion of the annual report of our health commissioner bearing upon this highly important subject is found to be replete with errors of varying description and to such an extent as to practically nullify the usefulness of the work. Numerous mathematical discrepancies are to be found by a comparison of the various tables and statistical data, where uniformity of results should be expected. It is hardly profitable at this time to attempt to record all the individual inconsistencies. Accepting, however, for the sake of argument a portion of the report, and assuming that the number of cases reported to have originated in Colorado to be strictly authentic for scientific purposes, although I am informed the only source of information has been the returns upon the death-certificates, are the ultimate conclusions logical or tenable?

I must insist at once that the percentage of *deaths* is by no means a fair criterion of the proportion in Denver of cases said to have developed in Colorado to those contracted elsewhere. Those who have developed the disease in Colorado are, in the vast majority of instances, residents of the State who have either established homes of their own or are inmates of our charitable institutions, and, therefore, subsequently become recorded as dying in Colorado. On the other hand, it is well known that the pulmonary invalid from a distance, with hopeless prognosis, is usually, for humanitarian reasons, advised to return to his home. Comparatively few of such cases, fortunately, are permitted to die in Denver, removed from family and friends.

The proportion, then, of one to six does not for this reason alone properly apply, as might be inferred, to the existing cases of tuberculosis in Colorado, of whatever origin.

Furthermore it is easy to demonstrate the fallacy of the alleged rapid increase in the percentage of deaths from tuberculosis contracted here. The records of the Health Department show upon their face that in four years the percentage has progressively increased from 11.25 per cent. to 18.4 per cent. An analysis, however, of the data upon which these figures are based discloses mathematical inconsistencies and misinterpretations sufficient to qualify the results and to invalidate the conclusions therefrom.

It is, of course, apparent that a change may be effected in a given ratio by a change in *either* of its terms. In other words, the percentage of deaths from primary tuberculosis developed in Colorado may be increased from year to year by reason of an increase in the number of such deaths, the total tubercular death-rate remaining unchanged. Likewise the proportion is increased if the number developed in Colorado is constant, provided the entire death-rate from tuberculosis is diminished.

While the figures of the Health Department show the *percentage* to have very rapidly increased, the actual number of cases originating in Colorado is but slightly larger for the four years, while the total number is considerably less; thus, of course, affecting an increase in the proportion, but possessed of no further

significance. Thus in 1893 the total number of deaths from tuberculosis is reported as 435, of which 49 are specified as contracted in Colorado, establishing the percentage of 11.25. The next year the total number was 377, a diminution of 58, while the number contracted in Colorado was 51, an increase of but two cases for the entire year. It is obvious at once that the increase is entirely insignificant, yet the proportion is published as being 13.7, a gain of over 2.5 per cent. in the deaths originating in Colorado in one year. The number of deaths in 1896 is but two more than for 1895 and but 17 more than for 1893, in spite of an increase of 25,000 in our population. Yet the laity are being educated to believe that tuberculosis originating here is advancing with alarming rapidity, even to the point that one in every six consumptives residing in Denver has developed the disease in Colorado.

Again, it is interesting to note that there is a striking lack of uniformity in the methods employed for the computation of official percentages which are presented for scientific comparison between succeeding years. Thus in 1896 the percentage is obtained by dividing the number specified as having originated in Colorado by this number *plus* those not contracted in Colorado, ignoring those concerning which no specific mention is made upon the death certificates as to where contracted. In the three preceding years, however, this latter rather considerable class was included in the total number, and of course materially influenced the resulting percentage.

Without entering upon a discussion as to the individual merits of the two different methods of computation, I will simply contend that for the establishment of reliable comparisons the same mathematical process should be observed in each instance. Otherwise, "as well might we attempt to add pears to apples and express the sum in plums." If the method employed in 1896 giving a percentage of 18.4 is correct, and the same rules of computation be applied in 1893, the percentage for the latter is found to be 15 per cent. instead of 11.25 per cent., or an increase of but three per cent. for the four years, rather than an increase of seven per cent. as we would be led to believe.

I am convinced, however, for reasons previously stated, that reference to the proportion, no matter how obtained, of deaths from cases developed here to the total death-rate of tuberculosis in Colorado, is of but slight, if any, practical value in determining the actual relation.

While no method of forming an estimate upon this matter is without its objections and possibilities of error, I can suggest none more satisfactory than the proportion of such cases according to the population. I am well aware of the deficiencies of this method, particularly in a city of this character. The fact remains, however, that the floating element of our population is a constant factor from year to year, that the city is steadily increasing in size, and that the pulmonary invalids who have secured improvement are remaining to form a portion of our population.

Accepting the figures of the Health Department for 1895 and 1896 concerning the number of deaths from primary tuberculosis and the population of Denver, it is found that the percentage of deaths from tuberculosis developed in Colorado per one thousand inhabitants, is less in 1896 than in 1895, being .044 in 1895 and .043 in 1896, in face of the fact that the per-

centage per one thousand of the total deaths from tuberculosis chances to be precisely the same for the two years. The recent official estimate, however, based upon careful investigation shows a population in the beginning of 1897 of about 163,000. If this is correct, the proportion per one thousand for 1896 would be .040 as against .039+ in 1893. It does not appear therefore from a fair and reasonable interpretation of the corrected data registered at the Health Office that consumption developed in Colorado is actually increasing to any extent. If so, it remains to be demonstrated by logical process of reasoning and accurate statistical observation not as yet introduced.

It may be mentioned in this connection that it is somewhat remarkable that tuberculosis has not developed with greater frequency in Colorado and in Denver particularly. It is generally recognized that no race is immune and that no locality is entirely exempt from the disease which has prevailed the more extensively the world over as people have congregated to a greater degree. It is but natural then, for general reasons, that tuberculosis should originate in Colorado to some extent in spite of our climatic conditions.

An especially predisposing factor of considerable importance is the changing character of our infant and youthful population. Physicians with some experience in obstetrical and pediatric work are beginning to note the relatively increasing number of children born in Colorado of tuberculous parents, and added to this the greater frequency of meningeal manifestation, and general tubercular infection in the very young. This is, I believe, a legitimate result of the predisposing influence of inheritance, namely, the increased vulnerability of the tissues and the weakened individual resistance, rather than an expression of the increasing dangers of infection.

While the presence of the bacilli is an essential factor in the development of the disease, likewise is the character of the soil, else "the seed has fallen in stony places." The wide distribution of the bacillus and the innumerable opportunities for exposure in everyday life, without subsequent evidence of infection, emphasizes to my mind the paramount practical significance of the predisposing influences. The strong inherited susceptibility of a considerable portion of our younger population is an important component factor in the problem under consideration in Denver, not applicable in like degree to any other locality. It is manifestly unfair, in view of the special predisposition, to represent without qualifying explanations such infant cases as instances pure and simple of infection contracted in Colorado, yet an investigation of the records of the Health Department shows that of 66 cases reported for 1896, about one-fourth are in children classed as being under from seven to fifteen years of age and over one-sixth under four or five. Also that of a total of 230 cases in the past four years, nearly one-third of all varieties of tuberculosis are under seven to fifteen years, and in round numbers one-fourth under four or five years.

Of greater importance still is the fact that a very considerable portion of these are found to be cases of tubercular meningitis, the development of which results as little perhaps from direct external contagion as that of any variety of tuberculosis. All authorities are unanimous, that in nearly all instances this manifestation of a general infection is a secondary process, "An auto-infection resulting from a pre-existing tuber-

cular focus, which may be latent or unsuspected." In children the primary source of contagion is found to be chiefly tubercular bronchial glands. I submit that such cases do not belong in the category of "consumption contracted in Colorado," although strictly speaking it would appear at first thought that observations with reference to children born here should be particularly conclusive.

II. Clinical testimony concerning the extent of non-imported cases.

It seems highly proper to consider the evidence adduced from the experience and reported observations of medical men in Colorado. I have not considered it necessary to institute a personal inquiry among the physicians of the State. As this work has been previously done and considerable interest awakened in the subject, it may be fairly assumed that the results of investigations have now been mostly reported and that sufficient material has been contributed to warrant at least a provisional estimate of the frequency of the disease in the experience of our practising physicians.

I will refer briefly to the data introduced, as far as I have been able to learn. In 1886 Dr. Lee, of Fort Collins, in answer to 110 personal letters to the physicians of Colorado received a total report of 14 cases that had been observed during a period of two years. In 1891 Mays² reported the substance of a communication from Dr. Adams, of Colorado Springs, who stated that after a painstaking investigation he could only discover seven cases of consumption which had originated there during an entire period of seventeen years; not one of these cases could be attributed to direct contagion. At about the same time Dr. Solly is quoted in "Hare's Therapeutics," as follows: "Living as I have done for the past sixteen years among a people of whom perhaps 30 per cent. come to the country with tuberculosis, and not a few of whom live under hygienic conditions in crowded lodgings and where free expectoration is carelessly practised, I know of only four cases of phthisis which could be fairly assumed to have originated in Colorado." In 1892 Dr. Gardiner,³ of Colorado Springs, reported a total of 10 cases observed by the different physicians of that city during the previous fifteen years. This comparatively insignificant number is in face of the fact that the character of the population and the immediate conditions were such as to favor the development of tuberculosis. He states, "that the well ones are frequently closely confined with the sick, with the attendant anxiety, work and worry, and there are many houses in which numbers of people have died from the disease." He adds, "With one exception not one of the 10 cases was exposed to phthisical contagion, nor as far as can be ascertained lived near one with phthisis or had lived with or nursed any one with phthisis for a long time before developing the disease; not one had an occupation that brought him in contact with the sick."

Dr. Solly has been recently quoted by Dr. E. O. Otis,⁴ of Boston, as follows: "The dangers of contagion from the consumptive are so easily controlled that it is by no means necessary to separate consumptive from healthy persons. At least one-third of our population are consumptives; the town which contains some 15,000 people has been established

twenty years. An inquiry made by interested physicians into the number of cases known to have originated in the town resulted in a report of 20 in all. Although it is probable that our brilliant sunshine and dry air more quickly destroys the vitality of the bacilli than an Eastern atmosphere, yet in the poorer lodgings of the town there are many illy-ventilated rooms, inside or on the north side of the buildings inhabited by consumptives and their families, where recklessness of expectoration and carelessness of ordinary cleanliness are marked features of their domestic menage. Yet cases of contagion do not average more than one a year."

Dr. P. V. Carlin of this city, whose opportunities for clinical observation upon this subject are perhaps not surpassed by any physician in Colorado, informs me that during the past fifteen years in active practice in Denver he has not witnessed over an average of one case a year that could be properly classed as originating in Colorado.

In marked contrast to the evidence thus far presented is the experience of Dr. Henry Sewall. Two years ago he submitted a series of 21 cases observed by himself in four years;⁵ 14, however, were hospital patients belonging to a class who from their environments and surroundings, hygienic and financial conditions are more especially predisposed and possibly subjected the more to direct contagion, and should not, therefore, be considered as average patients. No mention is made of nationality, which is somewhat important as regards racial predisposition and prognosis; neither does he state the existence or absence of family taint, admittedly of some significance relative to the individual susceptibility. His cases, however, are very carefully and ably analyzed. Fifteen of his 21 cases were of pulmonary tuberculosis; of the remainder one was simple tubercular meningitis, one with pulmonary and meningeal tuberculosis. Another he stated to have probably been infected from infancy. Two were miners living at high altitude. It is pertinent to state, as suggested by Dr. Jayne, that such cases should not be included in a list of cases developing in Colorado, although the bacilli may chance to be present in the sputum. The condition is usually one of chronic bronchitis with emphysema, associated with cardiac disturbance. Such influences and the character of the occupation certainly render the soil favorable for infection, but the evidence is more than presumptive to the effect that the presence of bacilli is not the essential factor in the pathology of such cases. Five other cases were ranchmen and laborers with the possibility of contagion presumably very slight. In but six of the 21 cases could a definite possible source of contagion be ascertained. While Dr. Sewall's paper is of decided value in throwing another light upon the aspect of the question, I am not as yet prepared to accept in full measure the conclusions drawn from his single experience. I cannot subscribe to the spirit which is suggested by his words, "that consumption contracted here is making its way to the front as a scourge to us"; an appeal "that we take up arms against this common enemy." In a later communication⁶ reference is made to those of the medical profession, "who look upon the facts presented with a coolness amounting to indifference." While I have the most profound respect for the

² Boston Medical and Surgical Journal, June 4, 1891.

³ American Journal Medical Science, July, 1892.

⁴ Boston Medical and Surgical Journal, April 1, 1897.

⁵ Colorado Climatologist, July, 1895.

⁶ Denver Medical Times, March, 1897.

opinions of the writer, I must confess that in this instance I am not as yet convinced and am still waiting for the facts.

Dr. J. N. Hall has recently reported 13 cases from his own experience in Colorado. He states, "that seven of the cases were seen at an altitude of 4,000 feet in Logan County, a sparsely settled farming and grazing region, where theoretically the influences favoring the origin of the disease should be at a minimum." But he adds, "In almost every case there were, either because of heredity or because of the presence of some well-known predisposing cause or of special exposure, sufficient ground for the development of the trouble." Of the six cases reported from Denver, five presented well-marked family predisposition.

The report of Dr. Hall is very much in accord with my own experience. I have collected a record of 16 cases observed in private practice during a period of five years in Denver. A direct family predisposition could be traced in nearly one-half the cases. Three were miners and strictly speaking should be excluded for reasons previously stated. With four, the occupations and habits of life were such as to markedly favor contagion, although no source could be definitely ascribed. In two of these the nationality also predisposed to some extent. One developed the disease shortly after pneumonia with empyema. The presumption is here strong that the tubercular infection had long preceded the pneumonia and had remained latent, rather than to have originated subsequently. I may add in this connection that in several of my cases, on account of the comparatively short period of residence in Colorado, I am unable to assert that the disease actually developed here.

III. Absence of proof that cases reported to have developed in Colorado were actually contracted here.

It is somewhat noteworthy that the source, namely, the Denver Health Department, from which emanates chiefly the statistical information, with its direct and implied inferences, contains no data whatever as to the period of residence in Colorado at the time of the recognized development of the disease. This, I contend to be a consideration of the utmost importance which cannot be ignored in the compilation of official statistics, without seriously impairing the value for scientific purposes. The fact that an individual is taken ill with tuberculosis even one or two years after arrival is no evidence that the disease was originally contracted in Colorado. As a matter of fact, I have in numerous instances discovered signs of unsuspected infection in some member of a family other than the patient for whose sake the change of climate was made. I have no doubt that many similar cases might subsequently be reported as having developed here. It is not, however, to such palpable cases alone that I especially refer, but rather to the considerable class with latent infection.

The tubercle bacillus is known to be ubiquitous to such a degree that complete escape from its presence in well-populated communities is practically impossible; exposure is almost constant, infection frequent. The degree and results of the infection are dependent upon the character of the soil. If not upon good ground, even a considerable infection may present no immediate evidence of its presence. It may result unknown in ultimate arrestment, or years later under changed conditions may become an active process according as the individual resistance is lessened. Moreover,

a single exposure is not sufficient to induce the disease. The contagion is slow and incremental in character. The extremely slow growth of the tubercle bacilli has been generally recognized.

About one out of every seven individuals is estimated to die of tuberculosis. A large class are known to have been infected, but die of other diseases with the tubercular involvement unrecognized. Attempts have been made from post-mortem observations to approximate the relative number of such cases.

Osler refers to the experience of Coats in London as reported by Fowler in 1892. He concludes, "that about 23 of the persons who die of disease unconnected with tuberculosis have been at a former period of life affected with some form of internal tuberculosis." Allusion is further made to the investigations of Brouardel,⁷ "who found evidence of cured tubercle in the apex of the lung in 60 per cent. of those over thirty years of age whom he examined after death from violence." The statements of Osler upon this subject are impressive. He says:⁸ "The frequency with which foci are met with in the lungs and in the bronchial glands is extraordinary, and the statistics of the Paris morgue show that a considerable portion of all persons dying suddenly or by suicide, present evidence of disease in these parts. Biggs reports that more than 60 per cent. of his post-mortems show lesions of pulmonary tuberculosis. In 125 post-mortems at the Foundling Hospital in New York the bronchial glands were tubercular in every case. In adults the bronchial glands may be affected while the individual is in good health. H. P. Loomis found in eight of 30 cases in which there were no signs of old or recent tubercular lesions, that the bronchial glands were infective to rabbits." The experience of Loomis is also referred to by Ingalls,⁹ as showing that "40 per cent. of the bodies of persons dying suddenly in general good health, apparently perfectly free from tuberculosis, have the bacilli in the bronchial glands." Osler's¹⁰ own experience has been less striking. He reports that out of 1,000 autopsies between one-quarter and one-fifth were found to have died of tuberculosis, and of the remainder $7\frac{1}{2}$ per cent. showed evidence of previous tubercular infection in the lungs alone, excluding, however, cases with simple fibroid induration.

He states, moreover, "that various observations have been made of late in which the percentage ranges from 27 (Bollinger) to 39 (Massini). In 200 autopsies in which this point was specially examined, Harris found 38.8 per cent. in which there were relics of former active tuberculosis. The statement is made by Bouchard that in post-mortems at the Paris morgue, generally upon persons dying suddenly, the percentage found with some evidence of tubercular lesions, active or obsolete, is as high as seventy-five.

Additional testimony could be cited if necessary, to demonstrate the extraordinary frequency of unsuspected tubercular infection. Corroborative evidence is found in the not uncommon rapid development of the disease, previously latent, following measles and whooping-cough and in the occasional initial hemorrhages of tubercular origin preceding the existence of either signs or symptoms. It is justly assumed that one in every three or four persons is tuberculous

⁷ Boston Medical and Surgical Journal, October 5, 1893.

⁸ Osler: Practice of Medicine, 1892, p. 130.

⁹ Ingalls: Diseases of Chest, Throat and Nasal Cavities, p. 159.

¹⁰ Osler: Practice of Medicine, p. 250.

in some way. The average duration of life for a consumptive after the recognized development of the disease is variously estimated at from three to seven and one half years according to the peculiar class of patients in the experience of the observer.

In view of these facts, is it not somewhat extravagant to record all cases as instances of primary infection in Colorado without recourse to a diligent and painstaking investigation concerning their history and period of residence in the State before the development of the tubercular manifestations? Is it not highly probable that a considerable proportion of such cases are but instances of a latent infection brought into subsequent activity?

If lessened individual resistance is the essential factor in transforming a previously latent infection into an active process, why should not this diminution of the resisting power occur in Colorado as in any other place; and if so, why should not we meet with cases developed here but originally contracted elsewhere? What evidence can be adduced to show that these cases actually originated in Colorado and are not a part of the large class with existing but previously unrecognized infection? Also, as has been wisely suggested by Dr. Crouch, why should not the longer time of residence in Colorado show a corresponding increase in the number of such cases on account of the greater likelihood of periods of lessened resistance in the extended lapse of time? Dr. Crouch further defines his position, which is in accord with my own, to the effect that while direct contagion is an accepted possibility under certain conditions in Colorado as elsewhere, sufficient evidence has not as yet been adduced to demonstrate its results to the extent that is claimed, or to show that the infection in many cases reported was actually acquired in Colorado. On account of the several considerations previously presented, I do not feel that dogmatic inferences relative to contagion in Colorado are in any way justified at the present time.

IV. Recent scientific observations as to the practical contagiousness of tuberculosis.

While the communicability of the disease has been abundantly demonstrated and the means of contagion directly referred to the improper disposal of the sputum, together with a certain degree of susceptibility in the individual thus constantly exposed, it has also been clearly proven that with reasonable precautions concerning the sputum, the danger of the infection is practically nil; this is even true of an indoor life. It is safe to add, that without regard to special methods for the destruction of the sputum, the danger of infection in the open air is exceedingly slight. This would be particularly true in Colorado, with our large, open spaces and constantly changing air. The same may be applied with emphasis to Denver as a whole, although admittedly with less force in certain limited sections of the city. With our broad, clean streets, our expansive area, our brilliant sunshine and our varying atmosphere, it is difficult to conceive the necessary degree of concentration of the bacilli in any given area to render exposure in the open air a substantial possibility. A further important consideration is the influence of the sunlight in destroying the virulence of the bacilli. That the bacilli become inert after exposure to the sun's rays is generally agreed upon by those who have thus far conducted investigations, but the more exact period necessary to accomplish this has not as yet been accurately determined.

Dr. I. H. Hance states that as a result of his researches he is convinced that it is something over two hours, but can go no further than that at present. He says in his paper "Upon the Infectiousness of Dust in the Adirondack Cottages,"¹¹ "That the most powerful and at the same time freely obtainable agents are the sun's rays and diffused daylight; they can be used by everybody and have proven to be the most efficient disinfectants known." The observations of Ransome and Delepine, recently referred to by Dr. Bowditch and Dr. Otis, are to the same effect, namely, that exposure of dried sputum to sunshine for a few hours is sufficient to destroy all power for evil.

From the various experiments conducted, it appears that the danger of infection is dependent solely upon the drying and powdering of the sputum and the dissemination of the bacilli in the air before sufficient exposure to sunlight has taken place to render them inert. It would thus seem that the essence of the matter is largely contained in the relation of the direct intensity of the sun's rays at a given locality to the meteorological conditions favoring a rapid drying of the sputum and its subsequent dissemination as virulent dust.

It is evident that while the influence of our surpassing sunlight is certainly a factor of considerable value in the natural disinfection of the sputum, at the same time the attending dryness of the air with its constant motion would be expected to hasten the drying process and permit the wider dissemination of the bacilli, possibly before their virulence had been destroyed.

The only experiments that have been conducted in Colorado, as far as I am aware, having a possible bearing upon the subject, are those of Dr. Gardiner,¹² who inoculated guinea-pigs with sputum that had been exposed to the sunlight at an altitude of 6,000 feet during a period of one and three-fourth hours to twelve hours. The results of the inoculation differed in no material respect from the investigations conducted at sea-level. An exceedingly important observation is reported, however, by him, to the effect that a firm crust speedily made its appearance upon a mass of sputum thus exposed, which was usually broken only after considerable pressure. The important thought to me from this is, that while our atmospheric conditions conduce to the more rapid drying of the sputum, the powdering process is somewhat inhibited, and without the latter the bacilli are less capable of distribution as dust with virulent properties. In addition to this the constant, varying air movement, although setting the bacilli in motion to some extent, must be regarded for obvious reasons as a favorable influence.

As regards indoor life, the investigations of Flick have shown the danger of indoor infection under certain conditions. The oft-quoted researches of Cornet and others have demonstrated the infectiousness of dust from hospital wards, public places and rooms occupied by consumptives. Positive results from inoculation were obtained in one-fifth of Flick's experiments, but in no case where proper attention had been given to the reception of the sputum. The investigations of Hance along similar lines resulted in negative results in dust from sixteen out of seventeen Adirondack cottages, the exception being due to clearly as-

¹¹ Medical Record, December 28, 1895.

¹² Dangers of Tubercular Infection and their Partial Arrests by Climatic Influences, read before American Climatological Association, May 5, 1897.

signable causes. Gardiner inoculated the dust taken from different rooms in the largest hotel at Colorado Springs, occupied by consumptives for considerable periods, and obtained negative results in all of his eight cases.

Further observations of like character could be introduced were it necessary to establish the absence of infectious material in the air or dust wherever proper care is taken of the sputum. It is well to remember also that the development of tuberculosis following direct inoculation into the circulation from selected samples of dust from a given area in an animal especially susceptible is no conclusive evidence of the practical danger of contagion through the respiratory system of an individual. Added emphasis is given by the fact that bacilli have been repeatedly found in the nostrils of nurses and medical attendants, and have been capable of producing tuberculosis by inoculation in lower animals.

Clinical testimony as to the contagion in health resorts and institutions is of perhaps still greater interest. Cornet has reported the great mortality-rate from tuberculosis among inmates of convents and prisons. It must be recognized, however, that the manner of life in the religious institutions of Europe has been such as to specially predispose in the process of years to the development of the disease. With reference to prisons, Baer has shown that the highest mortality is exhibited not in those institutions where the ill are allowed to mingle with the well, but where the cell system is in force with the attendant depressing influence of confinement, but with no especial opportunity for direct contagion. This in spite of the fact as reported by Ziemssen that, "The volume of air is much larger than in the collective system; that the atmosphere is better and the floor and walls much cleaner."

The statistics from the Brompton Hospital in London have been quoted many times and variously interpreted. Williams reports the number of cases developed by the attendants, who come in very close contact with those affected, to be extremely insignificant. Bowditch¹⁸ in commenting upon the increased death-rate from consumption among the natives of Nice and Mentone as reported by Knopf, aptly questions "Whether this increase of consumption is due to the lack of strict hygienic rules among the hotels and boarding-houses, or because the native population have changed their former outdoor occupation to the more confining life of hotel attendants." No attendant has ever developed tuberculosis at Dr. Trudeau's sanitarium in the Adirondacks. In the well-known sanitariums of Göbersdorf and Falkenstein during a period of many years, the number of cases originating in the institutions or in the neighboring communities have been very small indeed, owing to the strict precautions insisted upon with reference to the sputum. To present other equally familiar observations would be scarcely profitable.

I have endeavored to show that the full extent of the present crusade in Colorado is not entirely justified by the established facts of clinical experience nor by the generally accepted results of scientific investigation. Such being the case, it is certainly not in accord with those broad humanitarian principles which should have predominant influence in the solution of problems involving so much to a considerable portion of our fellow beings. As practical and natural results of the

existing agitation, I am compelled from my personal observations in Denver to recognize —

First, a growing feeling of apprehension in the midst of our community with reference to this somewhat mysterious, but ever-present danger of contagion.

Second, embarrassing difficulties in the way of securing proper accommodations for the consumptive.

Third, unnecessary humiliation, and lack of moral support with encouragement, to those entitled to every sympathetic consideration.

Fourth, a beginning disinclination elsewhere, upon the part of the profession and the laity alike, to have recourse to the Colorado climate on account of the reported conditions of contagion.

Were it necessary I could cite numerous instances from my own experience in corroboration of each one of the preceding statements.

Have the actual exigencies of the situation been sufficient to justify in the interests of the Society the development of an immoderate professional attitude and a somewhat intolerant popular sentiment?

Should these existing elements born of undue enthusiasm, although originally conceived in truth and science, be permitted to attain sufficient growth to overcome the beneficent possibilities from a judicious restraining nurture?

Is not an appeal to the intelligence with a view to securing earnest co-operation likely to be productive of better general results than an arbitrary enforcement of radical measures? The expediency of the latter, to the extent recently suggested, is not as yet recognized by the medical profession, and if carried out would not be correctly appreciated by the laity. Is it necessary in order to sufficiently educate, to create undue alarm? To what extent should the liberty of the consumptive, his relations to his family and to the community be disturbed?

These are questions to be answered in the calm judgment of the future, but concerning which a decision should not be hastily rendered.

Recognition is made of the benefits to society accruing from the present measures of prophylaxis and of the necessity perhaps for further instruction, but a protest is entered against an unwarranted legislative interference.

This paper is presented as a plea for conservatism in our thought and action at the present time.

Clinical Department.

PISTOL-SHOT WOUNDS OF THE ABDOMEN.

BY H. H. A. BEACH, M.D., BOSTON.

CASE I. Half an hour before entering the Massachusetts General Hospital the patient, a man of twenty-seven years, was shot from a point only a few feet away. The ball, of 38-calibre, entered by a slit-like wound $1\frac{1}{2}$ inches below and on a vertical line with the right anterior superior spinous process of the ilium, and made its exit above the external abdominal ring of the same side, leaving a ragged discolored perforation in a thin subject — traversing the abdominal wall in a nearly horizontal line for about five inches, without perforating the peritoneal cavity or producing a fracture of the pelvis. The wound was sterilized. Some abdominal tenderness followed, and there was a line of

¹⁸ Boston Medical and Surgical Journal, June 25, 1896.

ecchymosis marking the track of the bullet. Discharged well in 18 days.

CASE II. A boy, fifteen years old, was shot one and one-half hours before entrance, from a point four feet distant; the weapon was a revolver of 22-calibre. Pulse 100, respiration 24, temperature 100.4°. A circular wound, 3½ inches above the pubes and slightly to the left of the median line. Although the peritoneal cavity had been perforated, there was no gaseous or fecal extravasation nor hemorrhage. Laparotomy. Inspection of the intestine revealed two double perforations of the *ilium*, which were closed with fine silk sutures. At another point the peritoneal covering of the intestine had been lacerated by the forcible embedding of a small piece of cloth and metal. These were cautiously removed without disclosing an opening into the gut, and the wound was closed by Lembert stitches of fine silk. There had been no hemorrhage or extravasation of intestinal contents into the peritoneal cavity. The bullet was not found. Recovery uneventful. The bowels moved from the third day. There was no wound of exit, but the x-ray showed the location of the bullet deeply imbedded at the right of the sacrum, proving that it had crossed the pelvis.

CASE III. A boy, sixteen years old, entered the hospital on the following day, one hour after accidentally discharging a pistol of 32-calibre while withdrawing it with his right hand from an abdominal belt. Pulse 100, temperature 100°, respiration 16. A circular wound, with blackened edges that would admit the end of a lead-pencil, was found on the left side of the abdomen, two inches from and a little above the anterior superior spinous process of the *ilium*. The clothing over the wound was blackened and charred.

After sterilizing the wound, a probe was entered and passed obliquely downward for two inches to the *ilium*. This track was laid open, and found to reach the peritoneum without perforating it. The direction of the bullet continued through a perforation of the bone, and was lost in the muscular structures outside of the hip. A counter-opening was made and the wound dressed. Bowels moved after the third day. The bullet was subsequently discovered by the x-ray at the inner side of the great trochanter about an inch below the surface, whence it was removed, its course having described nearly a half-circle. Recovery and discharge from the hospital at the end of five weeks.

TWO CASES OF CHOLECYSTOTOMY.

BY EDWARD H. KIDDER, A.M., M.D., FALL RIVER, MASS.

CASE I. Mrs. D., age forty-seven, had been a patient of mine for over a year preceeding her first attack of biliary colic, February 7, 1896. Her symptoms from the first had suggested cholelithiasis; but as jaundice had never appeared, no positive diagnosis had been made. This first attack of colic, however, left no doubt as to the nature of her malady. The pain was intense, and the fever and pulse charts showed a high degree of inflammation of the biliary passages—even to the extent of suppuration, it was feared at the time. For five days the temperature ranged from 100° to 104°, and the pulse from 100 to 130. After three weeks' prostration she was able to be about again, but an exquisitely tender spot in the right hypochondriac region continued to harass her from this time forth. No jaundice occurred at any time.

On May 24th she had another attack, similar in character, and confining her to her bed for a month. Through the summer she lived in constant dread of another prostration, and constantly embarrassed in her work by the sharp stabbing pain in the right side that ensued upon any active exertion. As there was no improvement in her condition, and as she was almost incapacitated from attending to her duties as housewife, she readily consented to undergoing the operation of cholecystotomy, preferring its risks to her constant suffering.

September 12th was finally agreed upon, and after two days' preparation of the patient the operation was begun upon an improvised table set up in the "front room" of the farmhouse where she lived. She was etherized; her shoulders were raised upon an inclined plane of about 35°, and attached by straps passing under the arms. A vertical incision, four inches long, was made in the right linea semilunaris, just under the ribs, through one and a half inches of subcutaneous fat. The enlarged left lobe of the liver and the interlobar notch were revealed. The hand was then introduced in search of the gall-bladder, and a hard mass, the size of an egg, was found eight inches below and to the right of the wound. Adhesions were many, but were gradually separated by the fingers, and the mass was drawn up to the incision. It proved to be the gall-bladder, with apparently but one large stone enclosed. After careful walling off with gauze about the gall-bladder, it was incised. The walls were vascular and one-eighth of an inch in thickness, but healthy appearing. The stone was revealed; it was the size of a pigeon's egg, symmetrically ovoid, with two facets (weight 260 grains). The gall-bladder was almost entirely filled by it. The ducts were then palpated, and other stones located in the cystic duct. These were firmly imbedded and enveloped, about the size of chestnuts. Gradually these were loosened by deep manipulation, "milking" them back into the gall-bladder, and with considerable difficulty, owing to the fat abdominal wall and large liver. The first stone was crushed, the second extracted entire (weight 26 grains). A sound was then passed without obstruction the full length of the cystic and common ducts. Hepatic duct seemed clear. Nothing further made out. The bile now began to well up freely into the gall-bladder, but was restrained by gauze packing until a continuous catgut suture was placed through the muscular coat of the viscus, finally closing in the whole gall-bladder incision. Then a close continuous suture of fine silk was taken through the peritoneal coat, folding in and burying the catgut suture. The gall-bladder gradually became distended with bile, and as no leakage was observed and the seam appeared to be tight and safe, the whole was dropped back into the abdomen. A wick of iodoform gauze and a rubber drainage-tube were then carried down to the proximity of the gall-bladder, and the abdominal wound was closed, leaving only the small opening at the lower angle for the exit of the tube and wick. Large absorbent dressing applied. Patient in good condition. Pulse 112 and irregular; dropped to 100 and regular in two hours after enema of hot coffee and brandy.

September 13th. Temperature 100.8°, pulse 96. Passed a good night; slept six hours. The dressing was soaked with bloody serum. No trace of bile. Fresh dressing and pad.

September 14th. Temperature 100.6°, pulse 96. Has been very comfortable. Dressing showed very slight discharge on innermost layer.

September 15th. Temperature 100.6°, pulse 100. Dressing showed very slight discharge. The drainage-tube and gauze wick were then removed, and no evidence of bile leakage discovered. The small opening was then closed and held by a collodion dressing. One grain of calomel and, later, an enema of magnes. sulph. solution were given, and resulted in a good movement of the bowels.

After this the recovery was uneventful. The abdominal wound healed by first intention, and the patient sat up in bed on the fourteenth day. Sat up in a chair three days after, and was up and about on her feet on the twenty-fifth day. There was some tenderness in the region of the gall-bladder, but this has gradually decreased. One uncomfortable sequel was a partial paralysis of the arm, — precisely similar to crutch-paralysis — as a result of the strap supporting her upon the inclined plane. With more care this might have been avoided, but the "reversed Trendelenburg" position — if I may be allowed the term — was of the greatest advantage during the operation.

The patient has been doing a considerable amount of hard work since the latter part of October, and seems to be in perfect health.

CASE II. Mrs. R., thirty-two years old, a seamstress, in good health before her marriage, except for obstinate constipation. Soon after the birth of her first child, five years ago, she began to have pain in the region of the gall-bladder at times, attacks resembling biliary colic. Since the birth of the second child, about three years ago, she has had attacks every two months on the average. Frequently there has been deep jaundice, associated with the pain and soreness, and nearly complete anorexia and general prostration.

In June, 1896, she was treated medically in a Boston hospital, but with little relief. During the summer she was better for a time, but in November became worse again; and when I first saw her, in January, 1897, she had been in misery for nearly two months, requiring constant opiates, confined to her bed, and unable to take scarcely any nourishment. I found her somewhat emaciated, not jaundiced, evidently suffering from some acute inflammation. Pain referred to region of gall-bladder and liver, and considerable tenderness in that region; but nothing suggesting a tumor to be made out.

The history left little doubt as to the diagnosis, even leaving out the overwhelming evidence, as she considered it, of discharges of green concretions per rectum after the ingestion of quarts of olive oil. After a week's observation in the hospital, during which the acute inflammatory symptoms subsided, the operation was undertaken January 22d.

The patient was etherized and placed on a Trendelenburg operating table, in the reversed position, and the body raised to an angle of 40°. A vertical incision was made, four inches long, in the right semilunar line. The liver was not appreciably enlarged, and the gall-bladder easily found — size of a large hen's egg, hard, evidently much thickened, and firmly bound down to the liver by strong bands. This explains why it was not recognized as gall-bladder at the examination, for through the abdominal wall it had all the effect of a part of the liver itself. The adhesions were so dense that the attempts to loosen or draw out

the viscus were given up. After walling off around with gauze, an incision one and a quarter inches long was made in the gall-bladder disclosing a thickness of the walls of one-third of an inch. The contents were then scooped out — consisting of gall-stones of the size of a marble to the head of a pin — 28 larger ones in number, mingled with muco-purulent secretion. One stone was tightly held within the cystic duct, and was dislodged with great difficulty. A sharp spoon curette was finally employed, and the stone was fairly cut out of the enveloping pocket. It was then possible to draw it out of the duct. A probe was then easily passed along the duct, and the other gall-ducts were palpated as far as possible, without discovering anything more.

The incision in the gall-bladder was then closed with catgut sutures through the muscular coat; but the walls were so thick that it was found impossible to turn them in and bring the peritoneal surfaces together, as in my former case, therefore only a few silk sutures were introduced in addition to the others and in the same relations. Perfect and tight apposition seemed to be secured. An iodoform gauze wick was carried down to the gall-bladder through the abdominal wound, which was closed except for the lower inch.

There was a profuse discharge from the wound, during the first twenty-four hours; then very little; but as the temperature and pulse showed considerable inflammatory reaction, it was not deemed prudent to close the wound completely. Bowels moved by enema on the second day. The tract of the gauze drainage suppurated freely after a few days; and on the twelfth day a fragment of a calculus appeared with a little bright-yellow mucus. This happened again later, and the sinus slowly granulated and healed. The patient was out of bed on the thirty-fifth day. She has since been in excellent health such as she has not known since girlhood, and has no tenderness in the region of the wound. She uses Carlsbad salts freely now.

In this case the "ideal" immediate closure of the abdominal wound was not realized, yet events showed that no better procedure could have been followed than was carried out here. It would have been impossible, without adding much to the danger by an extensive separation of adhesions, to have drawn the gall-bladder up to the abdominal wound and have there fixed it for drainage. The plan of loosening the peritoneum from the abdominal wall and depressing it so as to attach its edges to those of the gall-bladder incision, and allowing free drainage thus, seems to have many disadvantages. Here was an opportunity to sew the thickened walls of the gall-bladder firmly together so that no fluid could escape seemingly, and then to provide for later suppuration if it should occur by the gauze drain. In view of the recent acute symptoms, suppuration should have been expected probably, although there seemed to be opportunity for drainage down through the gall-ducts.

COMMERCIAL WISDOM. — The following is from a daily paper: A "new" father in a Missouri town found a twenty-dollar gold piece tucked into the lining of a baby carriage he bought there, and in twenty-four hours there wasn't a baby carriage left on sale in the place. The dealers were the ones who laughed last.

New Instruments.

A NEW CUTTING-FORCEPS.

BY J. L. GOODALE, A.M., M.D.,

Assistant Physician for Diseases of the Throat in the Massachusetts General Hospital and in the Boston Children's Hospital.

THE instrument shown in the accompanying cut has been devised by the writer and employed with satisfaction for the excision of tissue in the nose, which cannot be advantageously removed by the snare or by the galvano-cautery.

It consists essentially of two slender parallel shafts, the lower five inches long, bearing anteriorly a Y-spring, each branch of which terminates anteriorly in a sharp-edged ring in a manner similar to that in Sexton's forceps, the upper shaft ending anteriorly in an eye in which the branches of the Y lie. Thus a forward movement of the upper shaft upon the lower brings the Y branches together and causes one of the cutting rings to pass within the other. The lower shaft posteriorly and inferiorly bears two large rings, one directly below the other, admitting the fore and middle fingers respectively, while the upper shaft is decurved for a vertical distance of an inch at its posterior extremity, which bears a revolving ring for the thumb. The shafts are held in apposition by two sheaths through which the upper travels upon the lower. In action, therefore, the fore and middle fingers are the fixed point, while closure of the cutting rings is effected by a forward movement of the thumb.

Two pairs of oval cutting rings are provided, which are interchangeable upon the lower shaft, one with its long diameter antero-posterior, thus permitting work in a narrow space, the other with the long diameter of its oval lying transverse and affording a broader cutting surface.

The instrument cuts readily both soft tissues and the bony structure of the middle turbinate.

In the removal of hypertrophied tissue along the lower turbinate, it is to be noted that the area of denudation should be narrow, not generally above one-fourth of an inch in width, although it may be over an inch in length and may penetrate deeply to the bone. The walls of the trench-like deficiency thus formed come together during the process of healing and give finally a linear, often scarcely perceptible, cicatrix. (Removal of the mucous membrane over a wide area, on the other hand, may result in extensive scar-formation and scabbing.) The hemorrhage following the operation is sometimes considerable, unless a packing of the nostril is maintained for several hours.

In about twenty cases of hypertrophy of the lower turbinate the writer has employed this method of reduction of the hypertrophy on one side, using on the other side, for comparison, chromic acid or the galvano-

cautery. Examination after an interval of several months has shown in all cases, on the side of the excision, a more complete removal of the hypertrophy, without a greater amount of scar formation than on the cauterized side.

In three cases of ethmoiditis the instrument has readily removed the anterior end of the middle turbinate, and has been especially serviceable where a narrow configuration of the parts prevented the use of curved scissors, or of Hartmann's conchotome.

It has also been of great service in the removal of small portions of tissue for histological examination, in clearing away stumps of polypi, and in excising large pharyngeal follicles.

The instrument was made under the writer's direction by Messrs. Leach & Green of this city.



Reports of Societies.

NEW HAMPSHIRE MEDICAL SOCIETY.

ONE HUNDRED AND SIXTH ANNUAL MEETING, CONCORD, N. H., MAY 24, 25, 1897.

THE Society convened in Pilgrim Hall, and was called to order by the President, DR. A. P. RICHARDSON, of Walpole, at 11 A. M.

Prayer was offered by REV. ROLAND GRANT, D.D.

After the presentation of the reports of the several committees, the reading of papers was taken up, the first in order being an essay on

THE DEGENERATION OF EYES,

by DR. THOMAS HILAND, Concord, N. H.

He said that degeneration of eyes may be caused not only by excessive labor and confinement, and by intoxicants, but by astigmatism, also by weak extrinsic muscles. Very weak internal recti muscles are associated with weak ciliary muscles, which well-fitted glasses correcting error of refraction will help but not wholly relieve.

In inflamed cataractous eyes the lenses generally become obscured much more rapidly than in the quiescent ones. This degeneration of lenses is far more common in elderly people than is generally supposed, for failure of sight is so gradual that great surprise is manifested when the patient is told that it is the eyes that are in fault and not the lenses. The milky, rapidly forming cataracts from diabetes mellitus belong to a distinct class, and have none of the appearances of senile degenerations; neither do traumatic cataracts.

The modern treatment for cataracts varies very little from that of seventy-five years ago. In uncomplicated cases extraction without iridectomy is more and more the fashion, certainly much easier for the operator; and results as good as the Graeffe operation of ten years ago are obtained. The first symptoms of degeneration are loss of transparency, and the observer sees points at which light is absorbed or broken, that is, one finds dots and lines and smoke where nothing should be seen. Many a cataract operation is performed with the vitreous body so broken and muddy that good vision cannot be obtained, and in these cases some of the vitreous may be lost. This vitreous barometer foretells the well-being or the failure of the eyes. Degeneration of the vitreous can be stopped

when the cause is syphilis, slight hemorrhages, measles, or any other acute disease that does not prostrate too much, but not when the cause is debility of old age, optic nerve atrophy, ordinary hemorrhages, injuries from foreign bodies, suppurations in pyemia, detachments from malignant growths. If there be inflammatory action, try bromides and iodides internally, and if mostly in the ciliary region, atropia will be of great service put in the eye. Alkaline laxatives are indicated when constipation is present with portal congestion. Anemia, amenorrhea, great insufficiency of mitral or aortic valves may be the disease needing treatment, the faulty vitreous proclaiming disease somewhere which the surgeon should search out and have relieved if possible.

DR. H. DEW. CARVELLE, of Manchester, read a paper entitled

GLAUCOMA.

The symptoms of glaucoma may resemble rheumatism and neuralgia of the head and face, including the teeth and ear, sick headache, as well as some common forms of inflammation of the eyes, and it is sometimes attended with fever and vomiting. Atropine is especially harmful in glaucoma, and should never be used except with a full understanding of its action in the disease for which it is employed. The physician should make himself acquainted with the resistance of tension of healthy eyes when palpated, and remember that in glaucoma this tension is greater than normal. The disease is of more frequent occurrence in hypermetropic than in myopic eyes, the sclera in the latter condition being thin and yielding, and may be hereditary. Of the varieties of glaucoma, we have the primary and the secondary. In the acute form, the cornea is steamy and anesthetic, the pupil large, and does not react to light, the iris has lost its lustre and markings from edema, the aqueous humor is turbid, the anterior chamber shallow, there is circumcorneal venous injection, and fulness of the anterior scleral veins, and a dull purplish discoloration around the margin of the cornea. All these conditions are caused by an increase in the intraocular pressure.

In the simple or non-inflammatory form of glaucoma, the disease may come on very slowly in one eye, and there will be only slight, if any increased tension, excavation and atrophic changes of the optic nerve. In the acute, inflammatory form, the attack is often preceded by occasional obscurations of vision, rainbows around lights, and weakness of accommodation, requiring frequent changes of glasses. The inflammatory symptoms manifest themselves by intense hyperemia of the ciliary vessels, and the conjunctival vessels are congested to such an extent that the disease might be mistaken for a severe case of conjunctivitis or iritis. There may also be chemosis and even edema of the lids: there is marked photophobia and lachrymation. The eyeball during these attacks becomes almost stony-hard, and very sensitive to the touch. Iridectomy is the best method of treatment. The patient should be under general anesthetic, as the high tension of the eyeball prevents the action of cocaine. An incision is made with a cataract knife, in the sclera, close to the sclero-corneal junction, occupying its upper one fifth, and the corresponding segment of iris is to be excised close to its ciliary attachment. Great care should be exercised in making the scleral incision not to allow the aqueous humor to escape too

suddenly, thus lowering the tension too quickly and running the risk of intraocular hemorrhage, and in making the iridectomy, be careful to avoid leaving portions of the iris in the angles of the wound. The strictest antiseptic precautions are to be observed before, during, and after the operation. An operation to be successful must be done before there is much contraction of the field of vision, or degenerative change in the iris. The only successful treatment for blind glaucomatous eyes is enucleation.

DR. N. W. MCMURPHY, of Concord, read a paper on

TREATMENT OF UTERINE DISPLACEMENTS.

The most prominent surgical method looking to the permanent cure of uterine displacements is the Alexander. Ventral fixation has also been advocated and largely practised by many operators, but this is not to be compared with or substituted for the Alexander operation. The indications for this operation are as follows: (1) Uncomplicated retroversion or retroflexion, where the patient wishes to get rid of wearing a pessary, or where a prolapsed ovary or ovaries render the presence of a pessary so painful as not to be tolerated. (2) Retroversion or retroflexion, with prolapse, and if necessary, restoring the perineum at the same time. (3) Retroversion or retroflexion with slight adhesions, first breaking up the adhesions through an opening in the anterior or posterior fornix. Dr. McMurphy gave a very clear and complete description of the technique of the operation.

DR. HAVEN PALMER, of Plymouth, read a paper on

MUCOUS COLITIS.

The disease is generally found in women during the childbearing period, and frequently accompanying uterine disease. The symptoms which first attract attention are the mucous discharges and abdominal pains. There may be constipation or looseness of the bowels, the latter being the more frequent condition. There are present many of the ordinary symptoms of dyspepsia. The mucus appears in shreds and strips, and in the form of tubular casts of the intestine. The pain varies in character, from a dull ache to the most severe colic. In treatment, the first indication is for the relief of the abdominal symptoms. This is best accomplished in case of constipation by first giving a saline cathartic, or simply repeating a dose of calomel until the bowels act freely. Then irrigation once a day of the colon, the object being to unload the intestine of fecal matter and then wash away the mucus. Drugs should be avoided as much as possible, the essential points in the treatment being rest, irrigation of the intestine, and nutrition.

DR. M. S. WOODMAN, of West Lebanon, read a paper on

FOREIGN BODIES IN THE ALIMENTARY CANAL IN CHILDREN.

It frequently happens that smooth, insoluble bodies remain in the stomach or some part of the intestines a long time without either causing irritation or any considerable irritation. The first symptoms are usually general malaise with signs of indigestion, frequently vomiting, a quick, jerky pulse, great nervous disturbances, taking either the form of stupor or excitability, intense thirst, a foul breath, a tongue covered with a thick, brown coating which is apt to come off in patches,

and a peculiar aspect that can be learned only by experience. If the case is a severe one and the bowels move at all, patches of mucus and streaks of blood will soon appear in the stools. If the foreign substance is not removed and the other symptoms relieved, delirium, coma, or convulsions frequently ensue. The principal dangers in such a case are ulceration and perforation of the stomach or bowels, hemorrhage, gastritis, enteritis or peritonitis and meningitis. In most cases a simple laxative will dislodge the offending substance, but occasionally some object will become lodged at some point and resist all effort to expel it. In such a case if we can be sure of our diagnosis, the only way is to operate as early as possible. No remedy is so likely to give good results as the free use of castor oil.

DR. STILLINGS, of Concord, was glad to hear a good word spoken for castor oil, and said: This recalls an interesting case to my mind. I was called to a child about five years old, suffering from acute mania. The child was thrashing about the bed, and presented all the symptoms of violent mania. I concluded it must have some intestinal trouble, and gave it a very large dose of castor oil, instructing the mother to watch everything that came from the child. The first thing she got was two tablespoonfuls of black, hard tar that is used for roofing. I went back in about four hours, and she had four feet of woolen yarn. The child was a little quieter. I went back later in the evening, and she had a ball of yarn about the size of an English walnut. The child was perfectly well next morning, and I think it was the castor oil that did the business.

DR. G. H. GREELEY, of Thornton's Ferry, read a paper on

ACUTE CEREBRAL MENINGITIS.

The treatment of meningitis is embraced in the word "antiphlogistic." Bloodletting, cold applications, purgatives, counter-irritants, are then in order. Venesection ought always to be preferred to local bleeding, even in the youngest child. When venesection cannot be, for any reason, employed, blood should be freely drawn by means of leeches or cups. The head should be closely shaved, and the rubber coil or ice cup used constantly. The patient should be in a large, airy room, remote from all noise, completely darkened, and attended by a single nurse. Iodide of potassium, opium and ergot have operated more satisfactorily in my hands than anything else. Animal broths, the liquid peptonoids, and milk constitute the most satisfactory diet, and should be given to the limit of the patient's assimilating powers. Alcohol should be carefully avoided, except in the last stage of the disease. Early recognition and prompt treatment are of the greatest importance in all cases of meningitis.

DR. JAMES A. LEET, of Enfield, read a paper on

PHLEBOTOMY.

The doctor cited several cases of apoplexy in which he had used venesection, thereby greatly relieving the labored breathing and other distressing symptoms. In a very severe case of varicose veins and hemorrhoids a complete cure followed repeated phlebotomizing, which extended over a period of several months. The general health of the patient was also improved, insomnia and other nervous troubles gradually disappearing. In pneumonia he had never seen ill results from phlebotomy, but had known lives to be sacrificed in this disease by the use of opiates, which in his judg-

ment might have been saved by using a lancet and a mustard paste instead of opium. An unfortunate prejudice exists among the younger physicians of today in regard to phlebotomy. It was the abuse of a good and tried remedy a century ago that led to its practical disuse in modern times. We may well consider the reasonableness of this agent and its applicability in the various acute inflammations where it will relieve pain, reduce temperature, quiet delirium and shorten disease, provided always the physician uses judgment and does not attempt to treat all cases in the same manner.

DR. STACKPOLE, of Dover, believed phlebotomy beneficial in all diseases attended by congestion. In pneumonia he had used it with excellent results.

DR. C. S. ABBOTT, of Lacodia, read a paper on

SOME OBSTINATE FORMS OF ECZEMA.

Eczema is really an inflammation of the skin, and is characterized by the same phenomena as inflammations elsewhere. There is no specific for eczema. The remedies which will give the best results are the saline cathartics, mineral waters, alkaline diuretics, calomel, etc. When there is some existing systemic disorder, the remedies of the greatest efficacy are iron, cod-liver oil, salicylates, colchicum, etc. Some cases will recover with local treatment alone. The most useful ointments are the zinc ointment, unguent diachylon, and those containing some form of mercury. Of all the remedies used for chronic eczema some form of tar is usually the best. This should not be used over a moist patch, but it is the remedy *par excellence* over a dry, scaling surface. The causes of eczema are as varied as its appearance, and are probably both constitutional and local. One of the most difficult forms to relieve is a chronic erythematous eczema of the face, because of its abundant nerve- and blood-supply, and of our inability to protect it from irritation. For remedies the more soothing applications, such as the zinc and lime-water wash, are indicated. Eczema is one of the most troublesome diseases of children, it being almost impossible to prevent the incessant rubbing and scratching. The method introduced by Dr. White, of Boston, is excellent. A skull-cap and mask, with holes for eyes, nose, mouth and ears, is made from old cotton cloth, and securely fastened behind. The child's hands must also be fastened to the sides, either by pinning the sleeves to the underclothing, or by passing an old pillowcase over the child's head. The inside of the mask must be smeared with a diluted zinc ointment. The course of the disease will often be much shortened by applying black wash as an evaporating lotion for fifteen minutes twice or three times a day. When the child is very irritable, bromide of soda may be necessary for a few days, until the itching, which always subsides with the disease, is of less intensity.

DR. A. S. WALLACE, of Nashua, read a paper entitled,

SUITS FOR MALPRACTICE.

It is said that there is no country in the world in which physicians and surgeons are embarrassed with suits for malpractice to such an extent as England and the United States. There are many cases of injured reputation, financial embarrassment, and even mental wreck resulting from such suits. Quacks or inferior, mischief-making physicians, jealous of those they cannot imitate, often condemn where they dare not per-

form. It is easy for them to suggest that the operation or fracture or whatever the case in hand might be, should have had a far more perfect result. A suit for malpractice is the only satisfactory remedy, which is aided and abetted by some unscrupulous lawyer. Our own State has just done the right thing in that line. Too much cannot be said in the way of thanks and appreciation of the step taken in this direction a year ago by this Society, of the hearty good-will and support of our governor, the work of the legislature, and the untiring efforts of our own local society in the passage of the New Hampshire Medical Law. One cause of suits, perhaps, is the fact that the physician frequently claims too much, declares that he can do things that he is by no means sure that he can do. For that reason we cannot be too cautious in expressing what we expect or hope for the case at the beginning. There are two ways of preventing these suits, first, no matter how simple the fracture is, we should not fail to have witnesses. Second, a perfect record of the case should be kept as to details of examination, conditions found, names of witnesses, etc., as they might prove invaluable in case of suit.

DR. I. L. CARPENTER, of Manchester, read a paper on

AUTOPSIES.

The first point emphasized in this paper was the fact that the ordinary physician should have a thorough understanding of the proper manner in which to perform a post-mortem examination. Great care should be exercised to note every detail concerning the body, its position, the condition of the limbs, the look upon the face; also note the appearance of the room, its furniture, marks of disorder, and whether any violence has been used,—a complete mental or diagraphical picture should be taken, better the latter if the physician happens to be an artist, for it is of great service in medico-legal cases. A record should be made, signed and sworn to by those present, who should be physicians, if possible. The external examination of the body should be very complete, nothing being omitted which might lead to identification or determination of the cause of death. A detailed account of the methods of examination of the internal organs was given.

SECOND DAY.

The usual reports were read, after which the election of officers took place.

The first paper read was an essay by DR. JOHN D. QUACKENBOS, of New London, entitled,

CAUSES AND RECENT TREATMENT OF NEURASTHENIA.

Although not an American affection in its origin, neurasthenia is peculiarly American in its distribution, owing to over-work, emotional excitement, and the continuous nerve strain incident to American fashionable life. There is a distinct line of demarcation between nervous exhaustion and insanity, in that the latter is amenable to corrective treatment. Neurasthenia is a depraved state of the nervous system, caused by the mal-nutrition of the nerve elements, through the abnormal disassimilation of the complex phosphorus-bearing nerve substances. The cause of neurasthenia is the intemperate exercise of the intellectual faculties, and the excessive indulgence of the emotions and passions. Emotional unrest is a far more prolific

cause of neurasthenia than is generally understood. Health and happiness depend upon well-nourished and under-worked cells. When over-worked the reparative processes are distanced by destructive metamorphosis; nutritive regeneration is unable fully to restore the wasted substance of the nerve-organs, which rapidly lose the power of regeneration and become incapacitated for the fulfilment of their functions. Hence the morbid impulse to ingest more food than can be oxidized; hence the phosphaturia and uric-acidemia, the indigestion and the neurasthenic liver. These are the effects of nerve starvation, not the origin of it. These results react as causes to perpetuate the nerve exhaustion. Treatment on the theory of cell-exhaustion and the practicability of cell feeding has been the most successful. If the rest be made long enough, the food stimulating enough, the sleep regular, the change of employment judicious, and all worry removed, most cases of neurasthenia may be really improved if not entirely cured.

In connection with feeding, the elimination of waste products and toxins is accelerated through the several channels of exit. The drinking of plenty of water, hot and cold, between meals is insisted on, to keep the kidneys flushed. Stimulate the skin with a daily bath and rub-down, and where the patient can endure the shock, the cold douche to the spine on rising. Keep the mind interested in something. Physicians are finding out that the occupation cure is preferable to the rest cure. Where insomnia persists, sleep must be induced by artificial means, but the best means to this end are exercise within the limits of fatigue, fresh air, and a nutritious and easily-digested diet.

DR. GEORGE W. GAY, of Boston, read a paper entitled,

WHEN TO CALL A SURGEON IN ACUTE ABDOMINAL AFFECTIONS.

This paper was followed by the Annual Address of the President, DR. ABEL P. RICHARDSON, of Walpole, his subject being

OLD AGE.

Several papers were read by title and referred to the Committee on Publication.

The following officers were elected for the ensuing year: President, Dr. Moses C. Lathrop, Dover; Vice-President, Dr. Geo. H. Saltmarsh, Lakeport; Treasurer, Dr. M. H. Felt, Hillsborough Bridge; Secretary, Dr. G. P. Conn, Concord.

Following the introduction of the new officers the Society adjourned to the New Eagle Hotel for the Anniversary Dinner.

AMERICAN NEUROLOGICAL ASSOCIATION.

TWENTY-THIRD ANNUAL MEETING, WASHINGTON, D. C., MAY 4, 5 AND 6, 1897.

(Concluded from No. 13, p. 321.)

SECOND DAY. — WEDNESDAY.

ENCEPHALITIS WITH CHANGES IN THE PIA.

DR. ALFRED WIENER, of New York, read a paper on this subject and reported the case of a child three years of age, who, after meeting with an accident, suffered from an attack of acute (non-suppurative) meningo-encephalitis. The child recovered after six months of illness. It remained perfectly well, and after an

interval of three years, just subsequent to an attendance of three months at school, had a second attack, which proved fatal. The autopsy and microscopical examination showed an involvement of the pia as well as the brain and the characteristic picture of acute non-suppurative hemorrhagic encephalitis. He believed the first attack due to traumatic influences. The second attack was due either to influenza on account of the suspicious catarrhal symptoms present at the beginning of the attack, or as a result of mental strain in a child predisposed to such an attack. Special attention was called to the involvement of the pia, which represented a pathological condition often found in simple fibrinous pleurisy.

DR. COLLINS spoke of a young man with encephalitis. Speech was lost. Mental condition deteriorated and he ultimately became helpless. The left side of the body was spastic and parietic. There was no cranial nerve palsy. The autopsy revealed cerebral edema, some localized softening and acute non-purulent encephalitis.

DR. W. G. SPILLER, of Philadelphia, said that the spinal form is similar to acute polio-myelitis and acute poliomyelitis. He referred to a case with symptoms of typhoid fever, which subsequently developed eye-symptoms and proved to be encephalitis. In another case with choked discs, etc., and supposed to be due to tumor, encephalitis was found post-mortem.

DR. F. X. DERCUM, of Philadelphia, asked if evidence of general infection was discovered or if the kidneys were involved?

DR. WIENER replied that there was only acute congestion of the kidneys.

DR. PATRICK presented some specimens from a similar case in which there was external ophthalmoplegia.

DR. SACHS called attention to the practical difficulty of differentiating between encephalitis and meningitis. The greatest difficulty seemed to be in substantiating the early diagnosis of encephalitis. Not only the pathology should be made clearer, but also the diagnosis. In the majority of cases both forms may be combined.

DR. J. J. PUTNAM spoke of the importance of a toxic cause. In view of the favorable prognosis in the majority of cases, he thought that this element should be considered in the etiology.

DR. HERTER mentioned the case of a child with convulsive seizures, which seemed like infantile cerebral palsy, but microscopical examination showed encephalitis.

DR. ANGELL believed the differential diagnosis could be made if we bore in mind the symptoms of inflammation. Where the membranes are affected there is rigidity of the cervical muscles.

DR. WIENER in closing the discussion thought with Dr. Putnam, that the violence of the symptoms was very likely due to toxic conditions.

LITTLE'S DISEASE. SHALL WE RETAIN THE NAME?

This was the title of a paper read by DR. B. SACHS, of New York.

He said that the use of the term "Little's disease" has led to great confusion. German and French authors have criticized English and American writers for not recognizing the disease as a distinct clinical entity. The name has not been adopted by the latter for the simple reason that Little's disease cannot be

considered as anything more than a mere etiological group comprising those cases of early infantile spastic palsies which are due to difficulties during labor resulting in asphyxia neonatorum. It cannot even comprise all spastic palsies that are in evidence from the time of birth, for many of them are not due to asphyxia, but to developmental defects, more particularly of the cortical or cortico-spinal division of the pyramidal tract. Some authors would make a distinction between general rigidity and cerebral diplegias and would call the cases of the former Little's disease, but he is of the opinion that there is no rigidity without paralysis, and the difference is simply one of degree and not of kind. The division which the reader made into pre-natal and birth palsies which has been endorsed by Freud should be continued and the name Little's disease should be dismissed since it represents no distinct clinical group, and since a number of different morbid conditions are responsible for the infantile spastic palsies, or the cases of general rigidity appearing at the time of birth or shortly thereafter.

DR. FREDERICK PETERSON, of New York, differed from Dr. Sachs, as he had found that the greater the extent of the paralysis the more the mental defect and epilepsy. At times he had found extensive paralysis without mental defect or epilepsy. He referred to 130 cases as having been reported in which there were 30 with hemorrhage into the spinal canal.

DR. J. W. PUTNAM, of Buffalo, said that cases varied in the symptoms according to their etiology. He spoke of two children in one family in whom there was extensive paralysis. One had marked mental defect and the other very little. Both pregnancies were attended with prolonged periods of vomiting.

DR. SACHS, in his closing remarks, said he had not entered into the pathology of the subject, but agreed with Dr. Peterson. There is often an association of cerebral and spinal lesions, but he was not ready to believe that the majority of these cases are due to spinal defect.

THE NATURE AND TREATMENT OF SPASMODIC TORTICOLLIS.

DR. G. L. WALTON, of Boston, read this paper.

He considered spasmodic torticollis as an affection of the cortical centres for rotation of the head. The pathology is not settled. The fact that it is sometimes easily inhibited does not establish a mental origin. Gross organic lesion is not present. Long continued habit may merge into spasm, as seen in certain occupations. Eye-strain sometimes plays a part through causing faulty position (oblique astigmatism, muscular insufficiencies). In one case it followed the wearing of a glass which increased instead of relieving an oblique astigmatism. The course of the disease is progressive. The principal muscles affected are the sterno-mastoid, splenius capitis, complexus, trachelo-mastoid, and the inferior oblique. The commonest form implicates the sterno-mastoid of one side and the posterior rotators of the other, less frequently the spasm is limited to the sterno-mastoid, occasionally to the posterior rotators of both sides (retrocollis) and rarely to the sterno-mastoid and posterior rotators of the same side. Treatment other than operative is ineffectual in well-established cases. Simple nerve stretching is unavailing. The only operations to be considered are resection of nerves and section of muscles. Operations are generally too limited rather

than too extensive. In most cases it will be necessary to resect the spinal accessory and the first three posterior branches of the cervical nerves. It will generally be wise to cut also the affected muscles. Muscle section alone has given good results (Kocher) but there is no reason to abandon nerve resection.

Absolute cure cannot be expected in over half the cases, improvement in a greater proportion, and failure in a certain proportion.

DR. DERGUM thought we should be conservative as to our view of the pathology. He did not regard it as limited to the cortex. In some cases the torticollis seems to simulate the occupation neuroses and is often cortico-spinal. He did not know of a case of absolute cure following operation. He referred to a case in which the spasm recurred after extensive operation. Some were benefited by rest and the use of gelsemium in increasing doses. His habit was to advise surgical operation at once in the majority of cases. He had never seen much benefit from resection of the spinal accessory nerve.

DR. C. L. DANA, of New York, said there were three different types or phases of the disease. One occurring in early life, associated with neurasthenic or hysterical manifestations. Another more serious type in middle life, which he looked upon as a degenerative neurosis. The third occurred in children at about the age of fifteen years, and was gradually progressive and incurable. The type must be considered in the treatment. He agreed with Dr. Walton as to the pathology. In a patient with the progressive type, the autopsy showed a degenerative process and chronic leptomeningitis of the convexity. He thought that many cases were primarily a cortical degeneration. The best treatment was prolonged rest and careful massage. Some cases are cured and others relieved. He did not believe drugs did permanent good. Surgical treatment was irrational in theory, and not of practical value in his experience, but he had never had the combined operation performed.

DR. C. K. MILLS had seen many cases. The only successful one recovered under the use of the actual cautery frequently applied and the administration of iodide and bromide of potassium. Gelsemium was the best drug. He had had various operations done but has never seen good results. Nerve stretching was of value. He laid great stress on absolute rest. He did not believe all were of cortical origin. At times may be of nuclear and degenerative origin and partly irritative.

DR. RICHARDSON, of Boston, discussed the subject from the surgical standpoint. He operated only under the advice of the neurologist. There had been a sufficient number of cures to justify the operation. He referred to a patient treated by a helmet with benefit, but such a method is generally intolerable. Surgical methods should only be undertaken after all other measures have failed.

DR. W. W. KEEN, of Philadelphia, also spoke from the surgical point of view. His experience was the same as that of others. In one patient, after the usual operation, he proposed operation on the cortex, which was refused. However, improvement subsequently occurred. Before surgical interference we must be certain that medical treatment, particularly absolute rest, has been properly and faithfully but ineffectually carried out. In his experience, operation had failed as to absolute cure. In a considerable pro-

portion relief was obtained. These operations are not dangerous to life. He was disappointed with resection of the spinal accessory nerve.

DR. V. P. GIBNEY, of New York, continued the discussion from the view-point of the orthopedic surgeon. His experience had been largely in torticollis in young children and adolescents from injury to the sterno mastoid. These are easily relieved. In the class of cases under discussion he knew of no form of apparatus that would take the place of operation. Apparatus might supplement operation. Had obtained no benefit from gelsemium.

DR. J. J. PUTNAM believed that the essential thing in the treatment was methodical education of the muscles. He knew of one patient who cured himself by voluntary efforts. These methods required many months.

DR. LANGDON mentioned the case of a young man who recovered. The treatment was absolute rest and stupefying doses of chloral and bromide for three weeks.

DR. W. M. LESZYNSKY, of New York, after briefly referring to his successful use of increasing doses of atropine injected into the spasmodic muscles, mentioned the case of a lady thirty-five years of age who had been under constant observation for the last eighteen months. The clonic spasm had previously existed for six months and involved the sterno-mastoid, trapezius and complexus. The sterno-mastoid was hypertrophied to about four times its natural size. Atropine treatment could not be carried out, owing to idiosyncrasy. Conium and gelsemium failed. After prolonged rest and tonic treatment, together with local massage, passive movements and educational gymnastics faithfully carried out, the clonic spasm was absolutely cured, having been absent for nearly ten months. This has however been replaced by a mild form of tonic spasm which is remittent. A peculiar feature in the case was the high specific gravity of the urine, which was due to urates. Whenever the gravity rose to 1.030 to 1.034 the spasm increased, seemingly indicating an autotoxic irritative element in the case. He believed that if these cases were treated early by the foregoing method very little would be left for the surgeon.

DR. PRINCE had tried atropine without benefit. The only case treated by massage and rest recovered. Some patients improve with apparatus. He thought this condition analogous to the occupation neuroses, and recommended education of the muscles.

DR. WHARTON SINKLER, of Philadelphia, considered this disease under three types: (1) Hysterical. (2) Disease or irritation of nerves. (3) Cortical. The hysterical closely simulated the organic form. In the second type he advised rest and massage, gelsemium or conium. If these measures fail he concluded they are cortical. Therefore operation on muscles or nerves is useless.

REPORT OF COMMITTEE ON AFTER-CARE OF THE INSANE.

This report was presented by Dr. H. R. STEDMAN, of Boston.

THIRD DAY. — THURSDAY.

SOME INTERESTING CASES OF BRAIN TUMOR.

This was the title of a paper read by Dr. PHILIP ZENNER, of Cincinnati. Three cases were reported.

(1) Male. Age thirty-four. Severe headache left

parietal region. Double optic neuritis. Only one convulsion. Complete relief of symptoms followed trephining of the left parietal region. Seven months later headache returned and left eye blind and muscles paralyzed. Eye was enucleated and orbital tumor removed. Relief of all symptoms for nine months. Growth is returning.

(2) Male, age thirty-three. Chief symptoms: Jacksonian attacks in left side of face, paresis of left arm and leg, left facial paralysis. Tenderness to percussion over left side of skull. Post-mortem, large tumor in left hemisphere pressing upon left central convolutions. The symptoms were on the left side of the body. Sections of the medulla revealed an absence of the crossing of the pyramids.

(3) Tumor in right arm centre. Chief symptoms were Jacksonian attacks and slowly progressing paralysis of the left arm and leg. Operation. Middle part of the central convolutions exposed, but the tumor could not be seen or felt. Autopsy revealed a deep-seated tumor (glioma) in the anterior central, encroaching slightly upon the first and second frontal and the posterior central convolutions. The incision in the brain had barely missed the tumor. There was at no time optic neuritis, and no manifestations of increased intracranial pressure. No vomiting, headache not intense and intellect clear. There was no impairment of sensation before the operation, but hemianesthesia immediately following it. It would seem that very slow destruction of the cortical motor area causes no sensory disturbance, while sudden lesions produce anesthesia. Such facts seem to indicate that the central convolutions have sensory functions, but are only a part of the sensory area. The Jacksonian attacks in this case were of a tonic character only. This was of importance in connection with the fact that the tumor was subcortical, such attacks occurring chiefly when the tumor does not involve the cortex.

SARCOMA OF MID BRAIN IN A CHILD, ASSOCIATED WITH ASYMMETRICAL HYDROCEPHALUS.

This was the report of a case by DR. C. A. HERTER, of New York.

The last two papers were discussed together.

DR. ANGELL had seen a similar case but the asymmetrical hydrocephalus was secondary to a cerebellar tumor. The child is still living and the disease is quiescent. Circumference of head was 22 inches.

DR. E. D. FISHER, of New York, cited cases in which the usual symptoms of brain tumor were absent. No paralysis, and no optic neuritis. He had frequently seen relief of symptoms from operation without removal of tumor. Localization of tumor by percussion of skull he thought was unreliable. In slowly growing tumors the displacement of fibre tracts is so slow that paralysis did not take place.

DR. PERSHING related the history of a middle-aged man. General convulsions, loss of consciousness, defective vision. Quadrantic hemianopsia. No headache. No optic neuritis. All symptoms increased. Paraphasia, word-deafness. Coma. Death. At the autopsy, tumor of left sphenoidal lobe, and infiltrating growth in pulvinar.

DR. LANGDON referred to a case with many symptoms of tumor. Nothing was found at operation. All symptoms improved. He had seen a tumor of pons and cyst of cerebellum with absence of decussation of motor tracts.

DR. FRY mentioned an instance of asymmetrical hydrocephalus where the diagnosis of cerebellar tumor was made. There was decided difference in the percussion note on the two sides. At the autopsy there was ventricular distention.

In tumor of cerebellum with ventricular distention, the peculiar cracked-pot resonance is probably due to vibration of bone separated at the sutures.

DR. PATRICK said that the majority of cases of brain tumor were of irregular type. General convulsions usually precede focal convulsions in deep-seated tumors. In operating it is proper to continue and go below, after the surface of the brain is reached. Careful examination of the visual field and speech defects are of much value in diagnosis.

The PRESIDENT reported four cases recently operated upon. Three came to autopsy. Percussion note was altered in three.

(1) Infiltrating sarcoma in temporal fossa. Progressive motor aphasia, right hemiplegia. Aphasia was the first symptom. Headache and optic neuritis. At operation nothing was found.

(2) Woman under observation two months. All general symptoms. Unilateral and general convulsions. Operation. Very large infiltrating glioma-sarcoma over entire motor area. Removal followed by extensive hemorrhage. Death on third day.

(3) Man. General symptoms and diagnosis of cerebellar tumor. At operation cerebellum well exposed and seemed perfectly normal. Opening enlarged upward to occipital lobe, and then lateral ventricle tapped and large amount of fluid withdrawn. All general symptoms relieved for two weeks. At autopsy, tumor found in cerebellum below surface of normal tissue.

(4) Child, with all symptoms of cerebellar tumor, blindness, etc. At operation occipital bone was found eroded and softened. Operation discontinued on account of extensive venous hemorrhage.

General symptoms are often due to effusion in the lateral ventricles. The percussion note is not a reliable sign, and affords no differentiation between cortical and subcortical tumors. He had seen two cases of operation on the post-central convolution, in which ataxia of the right hand developed but gradually disappeared. He had not seen ataxia as a permanent symptom of tumor, nor had he seen asymmetrical hydrocephalus.

DR. HERTER did not regard a marked degree of asymmetrical hydrocephalus as indicative of tumor in all cases.

EPILEPSY FOLLOWING INFANTILE CEREBRAL PALSY. IMPROVEMENT AFTER CRANIOTOMY AND EVACUATION OF SUBCORTICAL CYST.

DR. W. M. LESZYNSKY, of New York, read a paper on this subject and reported a case.

Boy, fourteen years of age. At second year left hemiplegia preceded by convulsions and unconsciousness. Epilepsy developed at twelfth year. At first attacks of conjugate deviation of eyes and head toward the paralyzed side, with transient loss of consciousness, increasing in frequency. Later, attacks accompanied by rigidity of left arm, then of arm and leg, and ultimately general convulsions and increasing mental enfeeblement. No clonic spasm at any time. After ineffectual medicinal treatment, exploratory operation. A large subcortical cyst was found under

the Rolandic area. The cortex was extremely atrophied. The cyst was evacuated. Absence of all epileptic attacks for three and one-half months. Then had seven general convulsions within eighteen hours. Cyst was again emptied, and attacks disappeared over three months. The cyst was again evacuated. Since then he has occasional mild attacks despite the use of bromide. He considered the advisability of permanent drainage.

DR. J. W. PUTNAM spoke of a boy in whom convulsions followed traumatism, sixty to eighty attacks daily. Fluid evacuated from cyst, and bandages were frequently soaked by the discharge for a week. Wound healed. No attack for several weeks. More fluid withdrawn, and continued drainage allowed. Convulsions ceased. Has had no attack in two years.

DR. ANGELL referred to a case of hemorrhagic meningeal cyst in a child having fifteen attacks daily. Cyst evacuated and no attack since operation three years ago.

DR. PERSHING spoke of a man with epileptic attacks following a blow on the head. A cyst was found over the face centre and drained. No attack in a year.

DR. WORCESTER had made seven autopsies in cases of infantile cerebral palsy. In six there was great asymmetry of the hemispheres. In one the lateral ventricle was greatly dilated.

The PRESIDENT had no experience with permanent drainage. Had always seen symptoms return after evacuation of cyst.

UNCOMMON NASAL PARESTHETIC NEUROSIS.

This was the title of a paper read by DR. SAMUEL AYRES, of Pittsburg, who reported the case of a lady twenty-three years of age, recently married and of a neurotic temperament. The nasal disturbance began eight years ago, and was characterized by periodic flushings over the end of the nose. The attacks have increased in frequency and now consist in a sense of burning in the integument of the end of the nose, or over the entire cartilaginous portion. At the same time, there is general restlessness and considerable mental depression. No cause could be discovered. Various remedies had been used, such as local applications and the internal administration of bromides, cannabis indica, ergotine, etc., with only temporary benefit.

STEPS TOWARD INSANITY.

A paper with this title was read by DR. SMITH BAKER, of Utica. He said that the biological doctrine that structure determines function is as applicable to the neuron as to other basal elements. Applied to insanity, psychiatry properly becomes an important branch of it. The primary presupposition of every instance of true insanity is, that it is based upon arrest of development and a nurture too faulty to correct this. The step which initiates the degenerative tendency is unphysiological marriage and the perverse tensions and reactions which grow out of this. Another step is where two healthy people vitiate themselves by over-stress or nutritional perversions during the child-bearing periods. With the individual, defective homing plays a most prominent part in fixating degenerative tendencies. Frequently the ordinary educational course, the universal leaning on proxies and various kinds of stimulants, are but ways of confirming all that is degenerative. Diseases and accidents are im-

portant because of the emotional stress involved. Arrest of development at puberty is serious always. The immediate causation of the structural change seems to come through exhaustion and auto-intoxication; this must interfere with the characteristic activity of the neurons, which activity seems to be on the point of discovery as an ameboid movement of the cell or its processes. Dissociation, confusion, systemization may thus come to be founded in actual structural defect itself, the result primarily of emotional stress in ancestry.

Papers read by Title.—"Microcephalus," by Dr. Frederick Peterson, of New York; "A Case of Syringomyelia," by Dr. Theodore Diller, of Pittsburg; "Studies in Scleroderma," by Dr. F. X. Dercum, of Philadelphia; "The Pathological Anatomy of Huntington's Chorea," by Dr. Joseph Collins and Dr. B. Onuf, of New York; "Two Cases of Basedow's Disease, with Autopsies," by Dr. C. L. Dana, of New York; "Two Cases of Acute Ascending Paralysis with Autopsies," by Dr. John Jenks Thomas, of Boston; "Report of Two Cases of Tumor of the Brain," by Dr. J. Arthur Booth, of New York; Exhibition of a Brain Receptacle, by Dr. Wm. C. Krauss, of Buffalo; "Report of a Case of Jacksonian Epilepsy," by Dr. Graeme M. Hammond, of New York; "Contribution to the Study of Vertigo," by Dr. Frank K. Hallock, of Cromwell; "Five Defective Brains," by Dr. Edw. Wyllys Taylor, of Boston.

New Members.—The following named gentlemen were elected to membership: Dr. Wm. G. Spiller, of Philadelphia; Dr. H. M. Thomas, of Baltimore, and Dr. Wm. Hirsch, of New York.

Honorary Member.—Dr. E. C. Seguin, of New York, was elected to honorary membership.

Election of Officers.—The following officers were elected for the ensuing year: President, Dr. Graeme M. Hammond, of New York; Vice-Presidents, Dr. Philip Zenner, of Cincinnati, and Dr. J. J. Putnam, of Boston; Secretary and Treasurer, Dr. F. X. Dercum, of Philadelphia; Council, Dr. H. T. Patrick, of Chicago, and Dr. Chas. K. Mills, of Philadelphia.

Recent Literature.

Congenital Dislocation of the Femur. By DR. ED. DELANGLADE. Paris: Sternheil. 1896.

It is a pleasure to welcome as complete a monograph as this, treating of a subject which has interested Continental surgeons greatly in the last decade.

Delanglade, beside giving a careful account of the remarkable work of Hoffa and Lorenz, describes also the methods and cases of Broca, less known here, and gives an excellent *résumé* of those treated by himself as well.

When French medical writers are at their best, there is always the merit of clearness and of excellence of style, which, after German and some English medical literature, gives to the reader the pleasure of wheeling on a smooth roadway. Delanglade's monograph is a good illustration of excellent French medical literature.

Any surgeon who wishes to inform himself on this interesting subject will find this work of great value.

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THE REDUCTION OF OLD DISLOCATIONS OF
THE SHOULDER.

J. FINCKH, of Tübingen, has published¹ an analysis of 100 cases of old dislocations of the shoulder treated at the clinic in that city. The periods during which the dislocations had remained unreduced varied from three weeks to seven years. In 73 of these 100 cases attempts at reduction were made which were successful in all but 25 cases.

A point of especial interest brought out by this paper is the influence of the length of time the dislocation has persisted upon the prognosis with respect to reduction. Only two dislocations under four weeks proved irreducible; and as these were complicated with fracture, they ought not to be included in the statistics. Of 20 dislocations from two to three weeks old, 19, or 95 per cent., were reduced. Of dislocations three to six weeks old, 24 were attempted, and 20 reduced, or 83 per cent. Between six and nine weeks, 11 dislocations were attempted, and seven, or 64 per cent., were reduced, giving an average in all under nine weeks of 84 per cent. The oldest dislocations which were reduced were twelve and a half and fourteen weeks respectively.

Finckh concludes from these cases that the prognosis of dislocations of less than four weeks' duration is good, as all, in the absence of complications, can be reduced. Up to nine weeks the prognosis is fairly good, as four-fifths are reducible. Beyond that period reduction, except by open incision, will be rarely effected.

A comparison of these conclusions with those reached by Lund² on the basis of an analysis of 27 cases from the Boston City Hospital, is of interest as showing a general coincidence in regard to prognosis.

Of the 27 cases published by Lund, 12 were under five weeks' duration, and all were reduced; 15 were under six weeks, and there was only one failure. There were no cases between six and nine weeks, and

only one at nine weeks, which failed of reduction; so that with regard to the prognosis between six and nine weeks there are not enough cases to be of value. Very probably the collection of a larger number of cases would raise the period in which successful reduction could be looked for to a time somewhat higher than six, though less than nine weeks. All the cases over nine weeks, however, failed of reduction except one, corresponding closely with Finckh's cases, in which only two over nine weeks were successful.

It would appear, therefore, to be apparently settled by the correspondence of these two analyses, that after nine weeks successful bloodless reduction will be the exception.

Of Finckh's hundred cases, only three were subjected to open incision. In one primary, and in two secondary resection of the head of the humerus was performed. The functional results after resection were fairly good.

HAS THE CELLULAR NUCLEUS INDEPENDENT EXISTENCE?

A VERY interesting paper was contributed to the Moscow Congress by Professor Loukiauoff, director of the Institute of Experimental Medicine in St. Petersburg, on "Inaution of the Cellular Nucleus." Notwithstanding the great advances made recently in the science of cellular morphology, he called attention to the fact that there still remain important problems awaiting solution, such, for instance, as the conditions of life surrounding the cellular nucleus.

The nucleus is undoubtedly the most important element of the cell, but we know but very little as to its functions of nutrition and growth. To investigate certain vital functions of the nucleus, he had made experiments touching upon the changes produced in the nucleus when the organism is placed in a condition of inanition. The results of these experiments tend to prove beyond doubt that the nucleus is endowed with an independent existence.

Dr. Loudon had investigated the influence of starvation of bacteria (an analogous problem). He found that bacteria subjected to starvation diminish rapidly to fifty per cent. of their former mass. After this period of diminution, a condition of equilibrium is established, when the bacteria show no changes. In this they differ from the multicellular organism. Along with these experiments, others were conducted on the cellular nucleus itself. Whilst investigating the changes produced in the pancreas of the guinea-pigs subjected to starvation, Brunner observed, that while the cell loses ten per cent. of its substance, the loss of the nucleus amounts only to three per cent. We are therefore justified in thinking, that the nucleus suffers less from lack of nutrition than the cellular substance, and although a part of the cell, it does not lose its autonomy. The cell again consists of various elements, the most important of which is the nucleolus.

Madame Dovranovitch, experimenting on changes produced in a starving organism, found, that while the

¹ Beiträge zur klinischen Chirurgie, Band xvii, Heft 3.

² Boston City Hospital Reports, Eighth Series, 1897, p. 370; Boston Medical and Surgical Journal, April 29, 1897.

cellular tissue lost forty per cent. of its mass, the nucleus lost twenty-five and four-tenths per cent., and the nucleolus forty-three and five-tenths per cent.

Dr. Laraveitch, experimenting in Loukianoff's laboratory on guinea-pigs, found, that while the body in general loses thirty-five per cent., the loss of the nucleus of the hepatic cell is only twenty-five per cent. of its mass. All these experiments go to prove the fact, that while the cell, the nucleus and the nucleolus lead an existence in common, it is nevertheless variable in each.

Loukianoff described his own experiments concerning the change produced in the cell and its nucleus by various forms of starvation. Twenty animals (white mice, as they seem the least influenced by change in food) were subdivided into six groups; some were deprived of both food and drink, three were fed on tallow, three on egg-albumin, three on peptones and three on oats; thus some animals were subjected to absolute starvation, some fed exclusively on fat, others on nitrogenous food, and others on albumin. The experimentation investigated the changes in the longitudinal and transverse diameters of the hepatic cell. The number of these measurements (about 2,000) are sufficient to draw more or less definite conclusions from. The cellular nucleus diminishes from fasting, but this diminution is not related directly to the changes which take place in the organism.

While suffering as much as the organism from complete starvation, the nucleus presents changes different from those found in the organism in cases of partial starvation, as expressed in the predominance of nitrogenous, albuminous or fatty food. The biological autonomy of the nucleus is also evidenced from another fact: the one or the other kind of inanition influences the formation of double nuclei, but this division of the nucleus into two parts does not run parallel with the changes of nutrition, as experienced by the nucleus, nor does it have anything in common with the alteration observed in the organism.

All these facts point to an independent existence of the nucleus. Of this existence we know but little, and there is here a desirable field for careful study and research.

MEDICAL NOTES.

CIGARETTE SMOKING IN JAPAN is reported to be on the increase. Every month 13,000,000 imported and 52,000,000 native cigarettes are being consumed. Women and children smoke almost as much as men.

A MONUMENT TO MALPIGHI.—On September 8th the inauguration of a monument to Francesco Malpighi took place at Crevalcore, a small town near Bologna, where the great anatomist was born in the year 1628.

"DOUGLASITIS."—Fresh barbarisms in medical nomenclature are coined almost daily. One of the new ones is "Douglasitis," put forward in the French form of "Douglasite" by Hussenstein (*Gazette hebdomadaire de médecine et de chirurgie*, 1896, No. 92) and translated into German—as a *reductio ad absurdum*, let us hope—by Dr. Rech, of Cologne (*Centralblatt für Gynäkologie*, August 14, 1897), as "Entzündung des Douglas" (inflammation of the Douglas).—*New York Medical Journal*.

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THE X-RAYS ON WAR SERVICE.—An x-ray apparatus was recently sent to Malakand. This is, according to the *British Medical Journal*, possibly the first time the apparatus has been used on field service with British troops.

THE ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA for 1897 has been awarded to Dr. Joseph Collins, of New York City, for an essay entitled "Aphasia: A Contribution and Critical Study."

HOSPITAL SHIPS.—The Red Cross Society of Japan has given orders, it is said, for the construction of two thoroughly appointed floating hospitals, of twenty-six hundred tons each, for the treatment of the wounded in time of war.

LEPROSY IN NORTH DAKOTA.—The Surgeon-General of the Marine-Hospital Service in Washington has been informed of the existence of two cases of leprosy in Walsh County, N. D. The disease is said to be well developed. Both of the patients are Scandinavians.

YELLOW FEVER IN THE SOUTH.—There has recently been an increase in the number of new cases of yellow fever reported at New Orleans, which in the opinion of the members of the Board of Health is due to the enforcement of the law requiring prompt report of cases. The work of the Board is so thoroughly carried out that there is very little danger of any cases escaping their notice, and there is no apprehension of an epidemic. The yellow fever bulletin issued by the Marine-Hospital Service on October 5th gives the following report for October 4th: New Orleans, 24 new cases, no deaths; Biloxi, 11 new cases, no deaths; Nittayuma, Miss., 2 new cases, no deaths; Edwards, 18 new cases, 2 deaths; Ocean Springs, Miss., no new cases and no deaths; Mobile, report delayed. At Scranton on the 1st, 2d and 3d there were 30 new cases, and on the 3d 2 deaths. Twenty-four refugees were admitted to the camp at Fontainebleau yesterday and 60 discharged. Reports from Mobile, dated October 5th, stated that the authorities were successfully coping with the disease. At Cairo, Ill., there have been no further cases reported. Dr. Guiteras has been ordered to Galveston, Tex., by the Marine-Hospital Service, and whilst proceeding thither from New Orleans, via St. Louis, was at last accounts detained by quarantine officers at Houston, Tex. Such action seems at this distance grotesque, and more calculated to do harm than good; it is probably inspired by hereditary State Rights and that sense of routine duty which causes the sentry to challenge the commander-in-chief.

THE TYPHOID EPIDEMIC AT MAIDSTONE, ENGLAND.—It is reported that an alarming outbreak of typhoid fever has occurred at Maidstone, in England.

The epidemic is attributed to pollution of the water-supply by drainage from an encampment of hop-pickers, among whom several had been sick with typhoid. The medical officer of health of Maidstone reported on September 22d to his sanitary authority that 306 cases of typhoid fever had been recently notified in the borough.

DIPPING CATTLE FOR TEXAS FEVER. — It has recently been discovered that ticks were the agents by which the contagion of Texas fever is spread, and that by dipping the cattle in antiseptic solutions these pests can be gotten rid of. At the Agricultural Experiment Station of the Missouri State University at Columbia, Mo., Mr. Kleberg, Superintendent of the Santa Gertrude Ranch, constructed a vat large enough to allow the immersion of a full-grown animal. The cattle are dipped in a mixture of oils containing a little carbolic acid. The Department of Animal Industry is conducting similar experiments at Fort Worth, Texas, where the cattle are being dipped in chloro-naphthol.

THE TRANSPOSITION OF THE VISCERA DEMONSTRATED BY THE RÖNTGEN RAYS. — Burghardt¹ publishes an account of the case of a woman nineteen years old, in whose case he made a diagnosis of *situs viscerum transversus*, which was confirmed by a skiagram reproduced in the article. The skiagram shows distinctly the liver on the left and the heart and fundus of the stomach on the right. An interesting point about the case is that Burghardt and his colleagues ausculted the heart on the left side, supposing it to be in its normal position, and the sounds were so well transmitted by the chest wall, that no abnormality was noted. Burghardt at the second examination noted the apex beat could not be felt in its normal position, and discerned it in the right mamillary line. Further investigation established transposition of the abdominal organs.

DEVOTION OF A DOCTOR. — The *Times of India*, in an interesting account of the attack on the Malakand, speaking of the fight on July 28th, gives the following description of the devotion of a medical officer: "The casualties in the 31st Punjab Infantry were very heavy, two killed and twenty-one wounded, including Lieutenant Ford and Lieutenant Swinley, the former very severely. In fact it was entirely due to Surgeon-Lieutenant Hugo's perseverance that Ford's life was saved; with the greatest difficulty the bleeding was stopped, Hugo holding on to the arteries with his fingers for some hours." Surgeon-Lieutenant James Henry Hugo, we learn from the *British Medical Journal*, of the Indian Medical Service, who is M.D. of London University, had a distinguished career both at St. Bartholomew's and at Netley, where he won the second Montefiore Medal in Military Surgery. How in the face of such instances as this, and they are not rare, the officers of the British Army can persist in their unfair and contemptuous treatment of the medical service it is difficult to understand. A more astonishing fact, however, is that under the conditions

men of the Hugo type are found willing to undertake the labors and risks of the Army Medical Service.

THE MEDICAL DEPARTMENT OF THE BRITISH ARMY. — The *Practitioner* voices the sentiment of the of the British profession with regard to army medical service as follows: "The complaint about the boycotting of the Army by the doctors, which have recently been made in Parliament and in certain newspapers, are to the last degree disingenuous. The Army, as represented by its combatant officers, seems to take a special pleasure in boycotting the doctors, and it is surely not to be wondered at that doctors who have any regard for their own dignity should not care to expose themselves to such treatment. As things are, the Army for the most part gets the mere refuse of the profession, and it will never get anything else while the present system of official snubbing of medical officers on every possible occasion, and of treating them as in a military sense "camp followers," and socially as unfit to come between the wind and the combatant's nobility, is allowed to continue. Till the Army doctor is given military rank with its full privileges, and is recognized not merely *de jure*, but *de facto*, as an officer and a gentleman, and treated as such, it is the duty of the teachers in the medical schools and of every member of the profession who is in a position of influence to recommend young medical men not to enter the Army Medical Department. Why one of the leading medical journals should be so vehement in denying that this is an 'Army medical boycott' is not clear. The name given to the process, however, matters nothing. Let us call it 'abstention' if that sounds better. The important thing is to get youngsters to 'abstain' from putting on the livery of degrading servitude into which the War Office has transformed the Queen's uniform as far as doctors are concerned."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, October 6, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 47, scarlet fever 23, measles 5, typhoid fever 34.

AMERICAN DERMATOLOGY. — Dr. J. C. White, of Boston, was appointed to make the report to the International Congress of Leprology, on Leprosy in North America. The Congress will be opened in Berlin next week, October 11th. Mr. Malcolm Morris, President of the Dermatological Section of the British Medical Association, in his opening address before the Section, alluded to Dr. White's relation to dermatology in America in very handsome and well-deserved terms of appreciation. In regard to leprosy, Dr. White has long been regarded as the leading authority in this country.

THE NEW BUILDING FOR THE EYE AND EAR INFIRMARY. — Plans for the new building to be erected in Charles Street, West End, for the use of the Massa-

¹ Deutschr. med. Woch., 1899, No. 38.

chusetts Eye and Ear Infirmary, have been filed by Messrs. Shaw & Hunnewell. The plans are for a building of fireproof construction throughout, four stories high, with a frontage of 124 feet and a depth of 172 feet. The building will be thoroughly equipped in every respect.

NEW YORK.

CONTINUED LOW MORTALITY.—The low mortality still continues in the city, although there was some increase last week over the preceding week. During the week ending September 25th there were reported 664 deaths. Of these 2 were from measles, 3 from scarlet fever, 20 from diphtheria, 7 from whooping-cough, 9 from typhoid fever, 4 from cerebro-spinal meningitis, 2 from croup, 30 from Bright's disease, 50 from pneumonia, and 82 from pulmonary tuberculosis. There were 67 from diarrheal diseases, of which 59 were of children under five years of age. In the week ending October 2d, the deaths numbered 710. Of these, 5 were from scarlet fever, 17 from diphtheria, 1 from measles, 5 from whooping-cough, 4 from typhoid fever, 1 from cerebro-spinal meningitis, 47 from Bright's disease, 2 from croup, 57 from pneumonia, and 107 from pulmonary tuberculosis. Of 54 deaths from diarrheal diseases, 53 were of children under five years of age. The increase in the number of deaths will thus be seen to be largely due to the increased mortality from consumption and pneumonia.

A WOMAN BECOMES A VETERINARY SURGEON.—When the New York College of Veterinary Surgeons commenced its autumn and winter session during the past week, one of the matriculants was Miss Susan J. Brayton, of Easton, N. Y., whose father is the owner of a large stock farm. She is said to be the first woman to adopt the profession of veterinary surgeon, not only on this continent, but in the world.

CITIES AND THEIR MILK-SUPPLY.—Among the papers read before the national conference of Mayors and Councilmen held at Columbus, O., during the last week of September, was one on "The Influence of a Pure Milk-supply on the Death-rate of Children," by Nathan Strauss, of New York, the founder of the depots for the supply of sterilized milk to the poor. In the course of it, he said: "There is practically no milk delivered for general consumption in cities that is fit to be fed in its natural state to young children." After having given a large number of mortality statistics and outlined the work done by him in establishing pure-milk stations in the city of New York, he went on to say: "I think I have fairly demonstrated the proposition that many thousands of infant lives are annually sacrificed by the neglect to supply for the nutriment of children milk which has been sterilized. I hold that neglect to be criminal, and I leave it to you to fix the responsibility for it. We punish murder with the penalty of death, and yet we allow murder to be committed by the wholesale in every populous community of this land, with no thought of its punishment and little thought of its prevention."

Miscellany.

DUCHENNE.

UNDER the editorship of Dr. Geo. Gautier there have just been published¹ the orations delivered at the inauguration of the monument recently erected at the Salpêtrière to the memory of Duchenne, of Boulogne. The ceremony took place on Sunday, June 27th, under the presidency of the Minister of the Interior. It was claimed for Duchenne that in the domain of neuro-muscular pathology, of the physiology of movement, and of the therapeutic applications of electricity he had literally evolved order out of chaos. To him we owe the axiom that the nutrition of the muscle depends on the cells, or on certain cells, of the anterior cornua of the cord. His classic investigations on the nature of "the atrophic paralysis of infancy," of atrophic spinal paralysis in the adult, of progressive muscular atrophy, and of locomotor ataxy were eloquently referred to. His life had been that of a modest man of science; he had known neither honors nor rewards; he was not a member of the Institute or of the Academy of Medicine. The presence of delegates from these learned bodies on that day seemed like an expression of regret that they could not claim him as one of them. That monument and that day's celebration were not only an act of justice, but also an act of reparation.

THE ADULTERATION OF FOOD AND DRUGS.

By direction of Congress, the Department of Agriculture is investigating the character and extent of the adulteration of foods and drugs. It is generally believed that adulteration, sophistication, imitation, and misbranding of foods, drugs, and liquors exist to a very great extent. Many of the States have enacted laws to prevent such practices, and it is very desirable to know how these laws have been enforced, and with what results.

As the general public is largely interested in this matter, as it affects health, morals and legitimate trade, it is thought proper to ask the co-operation of the press in securing accurate information on the subject.

In accordance with these ideas the following letter has been put in circulation:

WASHINGTON, D. C., September 17, 1897.

DEAR SIR:—Under authority of Congress, the Department of Agriculture is investigating the extent and character of food and drug adulterations, and is desirous of securing all the information possible on the subject. Having been appointed special agent to inquire into and report upon this matter, the undersigned writes to request that you kindly furnish the Department (under the inclosed franks) all the information you have in regard to adulterations, together with any suggestions as to the best remedy for the evil.

(1) Do you know of any new adulterant? If yes, state what, and how used.

(2) Would a national food and drug law assist in preventing adulteration?

(3) Would uniform food, drug and pharmaceutical laws tend to promote efficiency and purity?

(4) Please suggest what would best promote the interests of consumers and legitimate manufacturers and dealers.

(5) What is your opinion as to the extent of damage done legitimate business by imitation of brands, packages, etc.?

¹ The Lancet, London.

(6) To what extent do sophistication, misbranding and injurious adulteration exist?

(7) Have State laws aided in preventing adulteration? To what extent?

(8) Would a national law assist State officials in properly executing the local laws?

(9) Have adulteration, sophistication and misbranding increased or decreased?

Prompt replies to the above, together with any other information or suggestions, will be highly appreciated.

Yours respectfully,

A. J. WEDDERBURN, *Special Agent.*

It is understood that the Department simply desires a concise statement of facts, which can be fully substantiated, if necessary, and not theories.

Correspondence.

A CASE OF MOON-BLINDNESS.

61 DARTMOUTH STREET, BOSTON,
September 28, 1897.

MR. EDITOR:—In the *New York Medical Journal* of the 18th inst. I noticed a report of a case of moon-blindness, which had come under the observation of a Norwegian physician. This led me to make inquiries, and finding that the disease is of rare occurrence, I thought that the following account of my brother's case might be of interest:

The first week of May, 1895, my brother (then a sailor, seventeen years of age) sailed from the Argentine Republic, bound for Norway. In the night those of the watch who were not on the lookout or at the wheel were in the habit of sleeping on the fore-hatch, being careful to protect their eyes from the rays of the moon. One night in the first week of June, between the equator and 5° N. Lat., my brother had been asleep for some time between 2 and 4 A. M., and in his sleep had uncovered his face. He noticed nothing out of the common until between 7 and 8 o'clock in the evening, when he had difficulty in finding his way about on the deck, even walking into other members of the crew who happened to come in his way. On remarking to one of the crew what a dark evening it was, he was surprised to be told that the moon and stars were shining bright. When he came on deck again at midnight, his sight was somewhat better, but the following evening he could distinguish nothing after sunset. For about a week he went about his duties as best he could, being able to see perfectly well between sunrise and sunset, and experiencing no difficulty then, except that sometimes shadows and flashes seemed to pass in front of his eyes. After sunset, however, he was unable to locate any object, although he was able to see it, that is, he could see nothing straight ahead, but could make out objects at the side of his line of vision, although he did not know just where they were. He was then ordered to tie something around his eyes and to remain in the fore-castle (none too light at best), bathing his eyes with sea-water at frequent intervals. In this fashion he spent about ten days, but with no apparent improvement. The ship was then off the Azores, and from that time until they reached Norway, about July 15th, he used to work all day, and sleep at night. In Norway the crew left the ship, my brother going by steamer to his home in southern Sweden. His impairment of vision was still so pronounced that he could not find his way about on board the steamer, or distinguish anything in the evening. Shortly after reaching home he noticed that an improvement had set in, and about five weeks later, when he left Sweden to come to Boston, he was not conscious of any defect of vision.

His eyes are now in very good condition, as far as can be made out without special examination. The pupils respond readily to light, but they seem rather large, and when he looks at distant objects there is a certain "Je ne

sais quoi," as though he tried to open his eyes more than usual.


I have thought that ophthalmologists might be looking up cases of moon-blindness, and would be glad to learn of this case.

Yours truly,

IVAN A. CENTERVALL.

METEOROLOGICAL RECORD

For the week ending September 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Thermom-		Relative		Direction		Velocity		We'thr.		Rainfall in inches.		
	meter.	eter.		humidity.		of wind.		of wind.		*.				
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S..19	29.98	62	71	52	68	74	71	S.	S.	17	12	C.	C.	.74
M..20	29.90	60	70	50	98	93	96	N.E.	N.W.	3	14	O.	O.	
T..21	30.08	54	62	47	60	58	59	N.W.	W.	20	10	C.	C.	
W..22	30.31	52	57	46	69	81	75	N.E.	N.E.	10	11	F.	O.	.61
T..23	30.23	54	58	49	76	97	86	N.E.	N.E.	20	16	O.	R.	
F..24	29.97	62	69	55	99	84	92	N.E.	W.	15	9	R.	C.	
S..25	30.06	67	78	56	73	60	66	N.W.	W.	11	8	C.	C.	1.35
														

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, SEPTEMBER 25, 1897.

Cities.	Estimated popu-lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,060	664	292	17.55	12.30	10.05	1.35	3.30	
Chicago	1,619,256	—	—	—	—	—	—	—	
Philadelphia	1,214,256	361	162	16.80	11.48	7.28	1.96	5.60	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	166	59	12.00	7.80	3.00	2.40	2.40	
Baltimore	550,000	170	69	14.16	14.16	5.90	3.54	1.13	
Boston	517,732	208	81	17.28	9.60	9.12	2.88	2.40	
Cincinnati	405,000	98	—	6.00	9.00	2.00	1.00	3.00	
Cleveland	350,000	84	31	4.76	1.19	2.38	1.19	1.19	
Pittsburg	285,000	—	—	—	—	—	—	—	
Washington	277,000	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	36	13	13.50	1.90	2.70	—	—	
Worcester	105,050	31	12	22.61	9.69	6.46	3.23	9.69	
Fall River	95,919	44	20	24.97	6.81	18.16	6.81	—	
Lowell	87,133	40	17	27.50	15.00	17.50	5.00	—	
Cambridge	86,812	36	16	27.70	16.62	22.16	2.77	2.77	
Lynn	65,220	—	—	—	—	—	—	—	
Charleston	65,165	25	10	10.00	5.00	7.50	—	—	
New Bedford	62,416	18	10	33.33	5.55	16.66	5.55	11.11	
Lawrence	55,510	20	10	20.00	10.00	15.00	5.00	—	
Springfield	54,790	19	6	21.04	10.52	15.78	—	5.26	
Holyoke	42,564	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	11	6	36.36	—	36.36	—	—	
Brookton	35,853	—	—	—	—	—	—	—	
Malden	32,894	9	4	44.44	22.22	33.33	—	11.11	
Chelsea	32,716	12	5	8.33	8.33	8.33	—	—	
Haverhill	31,466	5	0	—	20.00	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	10	5	10.00	—	10.00	—	—	
Fitchburg	28,392	—	4	—	—	—	—	—	
Taunton	27,812	11	6	27.27	—	27.17	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	2	20.00	—	20.00	—	—	
Everett	21,575	—	—	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	—	—	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,165; under five years of age 837; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 356, consumption 241, acute lung diseases 142, diarrheal diseases 187, diphtheria and croup 73, typhoid fever

47, whooping-cough 18, cerebro-spinal meningitis 15, scarlet fever 5, measles and malarial fever 4 each.

From whooping-cough New York 7, Philadelphia 6, Lowell 2, St. Louis, Baltimore and Chelsea 1 each. From cerebro-spinal meningitis Boston 6, St. Louis and New York 4 each, Worcester 1. From scarlet fever New York 3, Philadelphia and St. Louis 1 each. From measles New York and Providence 2 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending September 18th, the death-rate was 18.5. Deaths reported 3,909, diarrhea 454, whooping-cough 64, fever 54, measles 53, diphtheria 49, scarlet fever 47.

The death-rates ranged from 10.7 in Cardiff to 29.8 in Salford; Birmingham 22.3, Bradford 17.6, Bristol 13.2, Gateshead 20.1, Huddersfield 14.9, Leeds 20.5, Leicester 20.0, Liverpool 24.1, London 16.1, Manchester 22.8, Newcastle-on-Tyne 20.9, Nottingham 16.6, Portsmouth 15.7, Sheffield 22.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPTEMBER 25, 1897, TO OCTOBER 1, 1897.

COLONEL CHARLES R. GREENLEAF, assistant surgeon-general, will, in addition to his present duties in charge of the Medical Supply Depot in San Francisco, Cal., take charge of the office of the chief surgeon, Dept. of Cal., during the absence on leave of the chief surgeon.

CAPTAIN ROBERT J. GIBSON, assistant surgeon, Fort Thomas, Ky., is ordered to report to the president of the examining board at Surgeon-General's Office, Washington, D. C., October 4, 1897, for examination for promotion.

FIRST-LIEUT. HENRY R. STILES, assistant surgeon, Fort Preble, Me., ordered to report to the president of examining board at Washington, D. C., October 18, 1897, for examination for promotion.

CAPTAINS CHARLES RICHARD and GEORGE MCCREERY, assistant surgeons, ordered to report October 4, 1897, to the president of the examining board, appointed to meet at the Surgeon-General's Office, Washington, D. C., for examination for promotion.

MAJOR CHARLES B. BYRNE, surgeon, is relieved from duty at Fort Snelling, Minn., and ordered to Plattsburg Barracks, N. Y., for duty.

MAJOR PHILIP F. HARVEY, surgeon, on being relieved from duty at Plattsburg Barracks, N. Y., is ordered to Fort Snelling, Minn., for duty.

CAPTAIN JEFFERSON D. POINDEXTER, assistant surgeon, now at Willets Point, is ordered to temporary duty as attending surgeon and examiner of recruits in New York City, relieving CAPTAIN CHARLES RICHARD, assistant surgeon, who is ordered to Fort Monroe, Va., for duty.

A board of officers to consist of COLONEL CHARLES R. GREENLEAF, assistant surgeon-general, MAJOR EDWARD B. MOSELY, surgeon, CAPTAIN EUCLID B. FRICK, assistant surgeon, is appointed to meet at Hdqrs., Dept. of California, San Francisco, Cal., on Monday, October 25, 1897, for examination for promotion of officers of the medical department.

CAPTAIN PAUL F. STRAUB, assistant surgeon, Angel Island, Cal., ordered to report to the president of the examining board, San Francisco, Cal., October 25, 1897, for examination for promotion.

A board of officers to consist of LIEUT.-COL. ALFRED A. WOODHULL, deputy surgeon-general, MAJOR CURTIS E. MUNN, surgeon, CAPTAIN WILLIAM F. LIPPITT, JR., assistant surgeon, is appointed to meet at Hdqrs., Department of the Colorado, Denver, Col., Monday, October 18, 1897, for the examination of medical officers for promotion.

FIRST-LIEUT. HARRY M. HALLOCK, assistant surgeon, will report to the president of the examining board at Denver, Col., October 18, 1897, for examination for promotion.

A board of officers to consist of LIEUT.-COL. HENRY R. TILTON, deputy surgeon-general, CAPTAIN WILLIAM C. BORDEN, assistant surgeon, CAPTAIN HENRY A. SHAW, assistant surgeon, is appointed to meet at Hdqrs., Department of Dakota, St. Paul, Minn., on Monday, October 18, 1897, for examination of medical officers for promotion.

FIRST-LIEUT. GEORGE J. NEWGARDEN, assistant surgeon, ordered to report to the president of examining board, St. Paul, Minn., October 18, 1897, for examination for promotion.

The order directing FIRST-LIEUT. WILLIAM F. LEWIS, assistant surgeon, to report for duty at Fort McPherson, Ga., is amended so as to direct him to report for duty at the new post on Sullivan's Island, S. C.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE WEEK ENDING SEPTEMBER 25, 1897.

WHEELER, W. A., surgeon. To proceed to St. Louis, Mo., and assume temporary command of Service. September 20, 1897.

BRATTON, W. D., passed assistant surgeon. Relieved from waiting orders and directed to proceed to Sabine Pass, Tex., for special duty. September 20, 1897.

MAGRUDER, G. M., passed assistant surgeon. When relieved by Passed Assistant Surgeon W. D. BRATTON, to proceed to Galveston, Tex., and await orders. September 20, 1897.

CORB, J. O., passed assistant surgeon. To proceed to Cairo, Ill., for special duty. September 20, 1897.

RECENT DEATHS.

IRA LORISTON MOORE, M.D., M.M.S.S., died in Boston, October 2, 1897, aged seventy-two years.

ALARIC FRITHIOF HOLMGREN, M.D., professor of physiology in the University of Upsala, and founder of the first Physiological Institute in Sweden, has recently died at the age of sixty-six years. He studied at Upsala and later practised as a physician, and represented his Government in connection with various International Cholera Commissions. He graduated as M.D. in Upsala in 1861, and in the same year he was appointed assistant in theoretical and practical medicine in that University. About this time there was a marked awakening as to the need for the foundation of better laboratories in Sweden, so that in 1862 Holmgren was commissioned to spend some years abroad to study physiology as it is taught by the great European masters. At Vienna in 1862 he studied under Ludwig. The outcome of these studies was one of the earliest of that long series of papers on respiratory exchanges, a theme which Ludwig pursued incessantly through his pupils. It was entitled "Mechanismus des Gasaustausches bei der Respiration" (*Wiener Akademie*, 1862). Until 1864 he studied under Brücke, du Bois Reymond, and Helmholtz; while he also visited the schools of Paris, London and Italy. In 1864 he was elected professor of physiology in Upsala, and built there the first physiological institute in Sweden.

His scientific work ranges over a wide field, including his researches on "The Negative Variation of the Muscle Current" (1862), a similar condition in the active heart (1864); the action of poisons, calabar bean, chloroform and atropine; the use of the ophthalmometer, and studies in color sensation. Perhaps his best known works are those on "Retinal Currents" (*Centralblatt*, 1865, and Heidelberg, 1873). In 1878 he published his well-known work on "Color Blindness in Relation to Railways and the Navy," thus bringing to a practical issue the work long before begun by George Wilson, of Edinburgh (1855). This led him to the invention of his now well-known "worsted test" for color vision.

In 1889 he founded and became the editor of the *Skandinavisches Archiv für Physiologie*, as he says in the preface "not only to unite our scattered forces under one flag," but to gain a powerful impulse for the advancement of the science in the north of Europe.

At the Liège and Berne meetings of the Physiological Congress by universal consent he was perennial President. Holmgren amongst his compatriots had other claims to fame. His literary talents were great, and he was well known as a gifted poet. His speeches always had something of the poetic vein in them, thus lending a particular charm to his utterances on public occasions.

BOOKS AND PAMPHLETS RECEIVED.

The Diagnosis of the Morphin Disease. By J. B. Mattison, M.D., Brooklyn, N. Y. Reprint. 1896.

The Post-Active Treatment of Narcotic Habitues. By J. B. Mattison, M.D., Brooklyn, N. Y. Reprint. 1895.

Transactions of the American Climatological Association for the year 1897. Volume XIII. Philadelphia: Printed for the Association. 1897.

Lectures on the Malarial Fevers. By William Sydney Thayer, M.D., Associate Professor of Medicine in the Johns Hopkins University. New York: D. Appleton & Co. 1897.

Morphinism: Morphinism in the Young — A Tale of the Poppy and its Moral — Morphinism in the Old; Cases at Threescore and Ten; Recovery — Morphinism in Women. By J. B. Mattison, M.D., Brooklyn, N. Y. Reprint. 1896.

Traumatic Injuries of the Brain and its Membranes, with a Special Study of Pistol-shot Wounds of the Head in their Medico-Legal and Surgical Relations. By Charles Phelps, M.D., Surgeon to Bellevue and St. Vincent's Hospitals. With 49 illustrations. New York: D. Appleton & Co. 1897.

Original Articles.

TWO CASES OF HOMICIDAL, AMNESIC, TRANSITORY FRENZY.¹

BY CHARLES F. BANCROFT, M.D.,
Superintendent New Hampshire Asylum for the Insane.

No cases are more puzzling to the medico-legal specialist than those homicidal individuals who steadfastly persist that they have no recollection of the acts of violence with which they are charged. The man who has committed a homicide and then insists that the period in which the act was done was all a blank to him, and positively refuses to admit anything concerning the occurrence of the deed both at the time and for a longer or shorter period subsequently — such a man places himself in a position from which it is difficult to dislodge him. Savage has very pertinently called attention to the difficulty of proving sanity where the individual consistently and persistently asserts utter lack of knowledge of the acts which he is known to have committed.

The fact remains that cases of homicidal and suicidal violence do occur in which the individual does in all probability commit the act automatically, retaining no subsequent recollection of the fearful crime he has perpetrated. Fortunately, such cases are rare. They are psychologically intensely interesting and deserve most careful study. Not unfrequently the perpetrator of some precipitate homicide pleads amnesia. When, as is often the case, aggravating circumstances coexist and seem to furnish an incentive for the crime, then it becomes very important to present a clear analysis of the person's psychic state at the time the crime was committed with a view to determine whether he is malingering, or whether his rash act was the outgrowth of some psychic explosion over which he had no control and of which he may have been wholly unconscious.

All these cases of amnesic homicidal frenzy lead into that extremely interesting and ever-broadening domain of consciousness, personality and memory which has been studied so carefully during the past few years. Before discussing any possible explanations of these strange psychological states, I desire, as briefly as possible, to call attention to two cases of homicidal frenzy that have come under the writer's observation — one of whom is still under his care in the New Hampshire Asylum. There seems no reason for doubting the amnesia which succeeded the homicidal explosion.

CASE I. G. W., male, forty-seven years of age, married. Patient's ancestry decidedly nenretic. His father was insane and a patient at the New Hampshire Asylum. A paternal uncle and aunt and one sister have also been insane. Patient himself has always been of a suspicious, jealous disposition, rather inclined to be solitary and unsocial. When quite a young man was at one time very intemperate, but soon renounced this habit and for over twenty years has never been known to indulge in liquor, and has strenuously opposed its indulgence in others. Was always an industrious man working steadily on the railroad as a section-hand or in a lumber-yard. Contracted a most unfortunate marriage with a woman wholly incompatible with him. For years they quarrelled with each

other, mutually agreeing to separate, but always coming together again and renewing their promises to live without enmity, but invariably coming to mutual re- crimination. Five daughters were the result of this unhappy union. The patient's wife cared as little for her home as for her husband, and in the course of time began to be intimate with another man. When the oldest daughter had reached the age of seventeen years the mother deliberately encouraged her entering a road-house which she hired and which she finally lived in — separating herself entirely from her husband and the other children, who lived with their father in the original homestead. The next oldest daughter when about fifteen years of age gradually began to visit the mother and her elder sister in their new location, which was in an adjoining town.

The knowledge of these facts goaded W. to desperation. He pleaded with his oldest daughter and with his wife, who in her most unnatural course seemed to take delight in tormenting him. For over a year the patient seemed to be growing more and more depressed and gloomy. He became excessively religious — reading the Bible a great deal, although he attended no church regularly.

Gradually it was noticed that he was out very late nights; quite frequently he would visit the adjoining town and remain several hours outside the house where his wife and eldest daughter lived, carefully watching the place, but never making any attempt to enter. Oftentimes he would be met as late as one or two o'clock in the morning returning home. On these occasions it was noticed that he would skulk behind trees, casting furtive glances over his shoulder, as though he feared he was pursued. He became irregular at his work, and the owner of the mill where he was employed did not expect him more than one or two days out of the week.

Finally, his wife procured counsel and sought to get a divorce from the court. This seemed to inspire W. with a new dread. He feared his wife would get a separation from him and procure the custody of the children and then plunge them all in a life of prostitution.

It was while in the midst of these horrible dreads, which were unfortunately only too real, that he met one morning at the railway station his wife with one of the youngest girls, about five years of age, on her way to the court. Several people were awaiting the train and noticed his strange actions. For several moments he tried to secure an interview with his wife, who dodged about the station, passing out of one door, while he entered another, thus trying to avoid him in every possible way. At last he came up with her on the platform. The people noticed him pleading earnestly with her and the child, finally drawing them both off from the platform and out in the street. Both were talking earnestly but in subdued tones. Suddenly to the horror of the spectators W. was seen to draw out a dirk knife from his breast-pocket and nearly sever his wife's head from her body. Again and again he plunged the bloody blade in her breast. The bystanders surrounded him. He fell on his knees, pale and trembling, with his eyes wild and staring. He made no remarks and no opposition toward being led away. He was hurried off to jail.

In the course of a few weeks I was summoned, with Dr. G. F. Jelly, to examine him while in the jail with reference to his insanity. His hands were cold and

¹ Read before the Boston Medico-Psychological Society April 15, 1897.

clammy. Pulse rather weak and rapid. His face pinched and haggard. His eyes wild and staring. The mucus would run from his nose without much attention from him. He would stand first on one foot, then on the other, always picking at his coat, which he had worn away for several inches by this constant unravelling of the threads with his fingers. He was not inclined to talk, but would moan and ask for his daughters. He always referred to his wife as though she were living with another man. The way in which he spoke of his wife impressed one with the idea that he honestly thought she was living.

When finally charged with the murder openly, he appeared surprised, and said it was impossible. He recalled the events of the morning of the homicide, saying he remembered that he went to the station to plead with his wife not to get a divorce and take away his daughters. He remembered being distracted with a flood of conflicting emotions, fear for his own life, dread and horror for the fate of his daughters, anguish over the course his wife was pursuing. Suddenly, he said, all turned dark; he seemed to be in a whirl of confusion, and all he could recall was a struggle and a crowd of men pressing upon him.

In whatever way he was cross-questioned he always persisted, and to this day still persists in telling the above story in the same way. When asked why he was armed as he was with knife and revolver, he always replied that for a year he had feared some one was going to jump on him from behind and murder him. He thought this foe was the man with whom his wife was intimate, and that failing in getting a divorce it was their intention to kill him. This idea he had at different times, during the year previous, confidentially told friends of his. There is little doubt that he honestly believed it, and always went armed in self-defence on account of this delusion. This idea also explains his hurried gait, anxious glances over his shoulder, and the dodging behind trees at night. It also furnishes a reason for his being armed on the morning of the homicide — that fact not necessarily, therefore, implying premeditation.

It is a significant fact, and one to which we shall allude later, that he made no remark after the homicide, or ever alluded to it in any way. As far as any expression of knowledge of the homicidal act itself he never manifested anything either by word or look. That occurrence to all appearances was a blank. For many months he strenuously denied its possibility, insisting that he believed his wife was living with another man. Finally and at the present time, he admits, that as every one declares that he did kill his wife, it must be true, although he has not the faintest recollection of having done such a thing.

After careful examination, Dr. Jelly and myself both concluded that the man was insane and that there was no reasonable doubt that his psychic state was such at the moment of the homicide that he had no conception, no realization in consciousness of his homicidal act, and consequently no recollection afterward of what he had done. Upon our statement the grand jury refused to indict him and he was ordered to the New Hampshire Asylum by the Supreme Court.

A singular occurrence took place while he was in the jail. As shown by a photograph of the prisoner, he wore a long, heavy beard. One morning the guard at about seven o'clock passed in his breakfast to him. At that time W. appeared as usual with his blank stare,

his long beard somewhat disheveled. About two or three hours later the guard returned to his cell for his empty breakfast dishes. To his surprise W's beard had disappeared and lay scattered about his cell. It was evident that in the interim between the serving of his breakfast and the removal of the dishes he had entirely plucked it out. W. professed entire ignorance of the fact, and to this day insists that he has no recollection whatever of having done such a thing. The query suggests itself whether this sudden depilation was not a frenzy attended with amnesia similarly as was the homicide.

W. was admitted into the asylum on the 4th of October, 1892. About two weeks after admission the case-book says: "He either sits or lies on a settee from morning until night, picking his clothing. Looks pretty thoroughly demented. Never speaks or looks up except when spoken to, and then pays no attention to what is said to him, but begs to know if his children are still living." Nearly a year afterwards, August 23, 1893, the case-book says: "Mental and physical condition unchanged. He is still very restless, picking his clothing or pulling at his beard, or walking the floor. He often asks if we know whether or not his children are alive and where they are. He seems to think of nothing else but his children." He always picked his clothing in one place and it was necessary to renew his coat often because he wore it out. The picking has become in fact an automatic habit, so characteristic of many demented and chronic insane patients.

From this date, August, 1893, W. gradually improved mentally and physically. He lost the blank, vacant stare, ceased the automatic picking at his clothing, and the nervous walking the floor. He gained in flesh and color. He would write long letters to his children; and in these spoke of the violent death of his wife as though he did it in a frenzy without knowing what he was doing. He has undoubtedly reached the best possible mental condition that can be expected in his case. He admits that he must have killed his wife, not because he recollects it, but simply because others say he did.

CASE II. S. P., French-Canadian, age seventy-nine years. Admitted to the New Hampshire Asylum, May 14, 1890. In earlier life the patient had been a very hard drinker, but for some years had not taken any liquor to excess. For some months past has had delusions of suspicion and fear, attended by hallucinations of hearing. He has two sons, and he has thought that one of them was going to kill him. These sons both lived in different towns and the one that he feared was the one with whom he lived. There was no reason whatever for his suspicion, the son in question doing all that he could for his father, and trying in every way to disarm him of his fears, but without avail. Finally, it was thought best for him to go and live with his other son, who was a farmer and against whom he entertained no fear whatever.

He did not, after his removal, change in his attitude toward the first son. He would say that he knew he would come up and kill him. The family often noticed him out in the orchard looking behind trees and over his shoulder, as though he thought some one was approaching him from behind. He desired the family to keep the gun loaded, and the doors and windows securely fastened. It may be said that he was very deaf and this fact served to increase the fear induced by his

hallucinations. A slight touch, as of any one accidentally brushing against him from behind, always startled him and intensified the fear that he seemed to be continually laboring under.

One day he was sitting in the kitchen. His grandchildren, a little boy about six years of age, and a girl about thirteen years of whom he was very fond and proud, were sitting on the floor bounding a ball between them. They would throw the ball on the floor making it bound up to the ceiling and back again to one another. The old man sat in a chair with his back toward them, apparently having no thought of the children. The ball with which they were playing was a very light one. Suddenly it glanced back from the ceiling striking the patient on the head. Instantly he started up in a frenzy of fear and excitement, seized a small hatchet that happened to be near and rushing furiously toward the little boy struck him on the head fracturing his skull and killing him instantly. The little girl ran for the door screaming, but her grandfather reached her, made two or three slashes on her neck, shoulder and her scalp behind the ear. Fortunately the wounds were not deep enough to kill her and she eventually recovered. After inflicting these wounds on the girl he rushed out wildly into the road. The cries of the girl had attracted the attention of the neighbors who lived opposite and who ran out to ascertain the trouble. They found S. P. panting with fear and excitement, talking disconnectedly and apparently much dazed. He had not been drinking, and apparently, so the neighbors said, had no realization nor recollection of what he had done. It is to be noted here that he did not at the time make any allusion to the homicidal act, nor ever afterward has he ever alluded to it. The entire occurrence was a blank to him.

A few weeks afterwards I saw him in jail. He protested that he remembered nothing of the fact of having killed his grandchild. He said he loved him too dearly to have done such a thing. He evidently was deeply deluded and disturbed by the same fears and hallucinations as when at home. Once when in jail he attempted suicide by hanging and was barely cut down in time by the jailer to save his life.

Two examinations made at different times in the jail convinced me that the man had been for a long time, and was then insane, and that he committed the homicide in a frenzy of fear and excitement—his psychic state being such that he had no realization of what he was doing at the time, and no subsequent recollection of anything that occurred during the period he was in that state of mind. He was ordered to the New Hampshire Asylum, where he has remained ever since.

His condition at the asylum is one of chronic delusional insanity, attended with ideas of fear and depression. At one time he attempted suicide by hanging but was rescued in time to save his life. He has always protested his innocence but, like the previous case, admits that it must be so as every one tells him that he killed the child.

Several times while in the asylum he has started up suddenly in a state of mingled fear and anger when some other patient has accidentally touched him from behind before being seen by him. He is so deaf that it often happens that some one gets near him without being noticed by him. Then a mere accidental touch of a coat sleeve is sufficient to excite him to quite a degree.

It only remains to add to the history of these cases

that in neither of them was there ever any record of epilepsy in any of its forms.

In analyzing the mental condition of these cases it is evident that in each we have a fulminating psychosis engrafted on a permanently more or less deranged state of mind. Both individuals belonged to the melancholia type. They were filled with delusions of fear and suspicion, and were both depressed as a result of their forebodings.

In the case of the old man, S. P., the fears were entirely groundless and based on his insane imagination. In the case of G. W. a most unfortunate and deplorable state of affairs really existed and undoubtedly induced a condition of permanent morbid suspicion and fear in a mind hereditarily predisposed to alienation.

The psychological interest and medico-legal importance attaching to such cases lead us to query as to their pathology. How is absence of consciousness to be accounted for? Does the fact of absence of consciousness necessarily imply epilepsy? Is there a condition of mind that can be called transitory frenzy, in which the individual acts automatically, performing the most desperate homicidal acts without once realizing what he is doing, and instantly losing all recollection of everything that transpired during this period?

Concerning this matter of consciousness in connection with homicidal acts there has been among writers a difference of opinion. W. Bevan Lewis says: "In the genuine impulsive forms of insanity consciousness is never so far impaired as to issue in forgetfulness of the details of the homicidal act. When such is the case—when any marked obscuration of memory is apparent—we may presume the impulse to have been of epileptic origin, or to be the outcome of alcoholic delirium."²

Dr. Echeverria³ declares there is no such thing as transitory mania. All attacks of this sort on close examination "prove to be unsuspected epilepsy or epileptic insanity."⁴ An investigation into these cases he thinks will reveal "epileptic disease in its hidden varieties, such as nocturnal fits or simple vertigo."

Maudsley, while recognizing the epileptic origin of most cases of homicidal frenzy, still thinks we must admit that "there are some cases in which there is no evidence of epilepsy in any of its forms to be found"; adding, "but it may well be doubted whether a distinct insane neurosis is not always present in these cases."⁵

Griesinger believes that attacks of homicidal fury may suddenly declare themselves in the midst of a mild melancholia, in which there may be an obscuring of consciousness, and a "determination to massacre and slay all who come in his way." He regards the mental condition as very analogous to "those sudden fits of profound anxiety and severe mental suffering which have sometimes been witnessed as precursors of epileptic attacks."⁶

Clouston believes it is possible for the normal inhibitory power to be so weakened by disease that the individual may be irresistibly impelled to the commitment of murder and other criminal acts. He says, "It is our duty as medical men to examine carefully

² W. Bevan Lewis: *Text-Book of Mental Diseases*, p. 184.

³ *American Journal of Insanity* for July, 1873.

⁴ *Loc. cit.*, vol. xxx, p. 18.

⁵ *Responsibility in Mental Disease*, by H. Maudsley, p. 247.

⁶ Griesinger: *Mental Diseases*, pp. 263, 264.

the evidence in every case where a homicidal-impulse theory is set up to explain crime, to look on any such case suspiciously perhaps, to search for other symptoms and causes of mental or nervous disease accompanying it, but we must not be frightened by the lawyers into blinking at real facts and real disease." Clouston believes there is such a condition as *epileptiform impulse* in which there are sudden impulsive acts attended by unconsciousness, which are exactly the same in character as those we are familiar with in epileptics, and yet the patients are not subject to ordinary epilepsy.⁷

Spitzka gives perhaps the clearest account of transitory frenzy. He frankly admits that such a condition may occur in persons to all appearances perfectly sane, although it is usually induced by worry, vexation, prolonged insomnia, and violent emotional and intellectual strain. He calls attention to the suspension of consciousness and subsequent amnesia that always characterize these attacks. He does not regard them as epilepsy; on the other hand, he considers that it is more reasonable to believe that these homicidal and suicidal explosions attended with unconsciousness and amnesia may be attacks of extremely acute mania or melancholia, although he thinks that such transitory frenzy may occur in persons who just previous to and subsequent after the attack are sane.

Spitzka concludes by saying: "Those factors which lead to disturbance in the cerebral circulation of a probably congestive character are the ones active in the production of transitory frenzy. In not a few of the recorded cases the fury of the patient and his amnesia for the furious period remind one of the rage of the bull or the male elephant, conditions which are looked upon as transitory nervous disturbances in those animals, and which, like the transitory frenzy of man are, as a rule, isolated explosions in the individual's career."⁸

The amok of the Malays is a state of mind very analogous to that of the two cases just reported as well as to the impulsive psychoses the various explanations of which by different authors we have just considered. Dr. W. Gilmore Ellis⁹ regards the amok as a sort of national disease, the outgrowth of an idiosyncrasy of mind characteristic of the Malay race. This mental peculiarity is called "heart-sickness," and is itself based on a gloomy, morbid cast of mind characteristic of the race. In this condition the man broods over real or fancied wrongs, loses energy and ambition, is very despondent and forgetful. It is while in this state of mind that the amok develops suddenly, without warning. Clouding of consciousness and amnesia characterize these psychic explosions. The mental state of the amokers, both before and after the act, is quite similar to that of our cases, and it seems not unlikely that the pathology is the same in both.

In neither of the cases reported is there any record of epilepsy. For some years during their asylum residence they have been under night supervision and there has never been any evidence pointing to nocturnal epilepsy.

What, then, can be the nature of these homicidal explosions? Two factors seem to exist, namely, *unconsciousness* and *amnesia*. And in speaking of un-

consciousness it may be well to preface what we have to say by admitting at the onset the possibility of more consciousnesses than one. Subconscious states, a plurality of subconscious existences,— will receive brief consideration later. At present in speaking of loss of consciousness we will consider that we refer to the loss of that empirical consciousness which is ordinarily identified with the individual's daily existence, and, in so doing, do not by any means exclude the possibility of other less familiar but none the less possible consciousnesses.

Under what circumstances other than sleep, the toxic effects of certain drugs, epilepsy, traumatism or gross structural change can consciousness be lost? Is it possible for a man in his waking moments to suddenly lose the thread of his conscious existence and execute the most appalling crime without being aware of his acts and consequently having no subsequent recollection of what he did? What must be the physiological condition of the individual that will admit of the perpetration of such fearful deeds and yet allow so slight an impression of their occurrence to be made as to be followed by immediate amnesia?

In the somnambulistic state there are authentic cases of acts of homicidal violence, in which the individual has committed murder and retained either no recollection whatever of the deed, or a most confused and indistinct remembrance resembling some horrid nightmare rather than an actual occurrence.¹⁰

Occasionally, too, there is a *bona fide* case of sudden disappearance and dual personality in which an individual apparently sane and as well as usual, while in the midst of customary duties, without warning, enters a state of hypnotic trance and drops out of existence.

Weeks or months later he regains his normal consciousness in some distant portion of the country. The period of his disappearance is a blank to him. He ate, slept, worked and moved about among people a sort of subconscious automaton.¹¹

All such cases present a partial analogy with those referred to in this paper. It seems quite probable that the condition of the nervous mechanism in these three classes of cases—*somnomania*, *hypnotic trance* and *transitory amnesic frenzy*—is the same. They all possess in common the features of unconsciousness or subconsciousness, automatism and amnesia. While any statement concerning the physiological conditions underlying these phenomena must be largely speculative, still there seems good reasons for referring them all to reflex activities occurring in limited cortical areas.

The disparity between the spheres of mind and matter is so great that we continually forget that there is a most intimate connection between the two. This connection is, however, so subtle and elusive as to confuse and perplex our studies. It is only when we are confronted with some strange and very unusual psychosis, such as hypnotic trance, transitory amnesic frenzy and the like, that we realize the close relationship between functional activity of the material mechanism and psychic phenomena.

And first as to the matter of consciousness, the obscuring of which plays so prominent a part in these psychoses. Recent physiological research localizes "Conscious processes in the cerebral cortex, within

⁷ Clouston: Mental Diseases, p. 329.

⁸ Spitzka: Manual of Insanity, p. 158.

⁹ Journal of Mental Science for July, 1893.

¹⁰ See Journal of Mental Science, vol. xxiv, p. 451; also cases reported by D. Hack Tuke in his Sleep Walking and Hypnotism.

¹¹ See case reported by William James, Principles of Psychology, vol. I, p. 391.

which the sensory tracts end and the motor begin." ¹² Dr. Jakob also says in this same connection: "Above the reflex arc which is constituted from the two peripheral neurons, there is as it were a second arc, which is made up of the central motor and sensory neurons together with their connecting pathways in the cerebral cortex. The latter serves for the conduction from a conscious sensation to a voluntarily innervated movement, that is, for the act of the will." ¹³ Unquestionably the "cortex is the sole organ of consciousness in man." ¹⁴

This being the anatomical substratum of consciousness, what are the physiological conditions that underlie its manifestations? Full, complete consciousness presupposes functional integrity of the cerebral cortex. If this continuity and integrity of functions be interfered with there is very likely to result what Janet has called "a contraction of the field of consciousness." This may amount to almost complete obscuration, or even lead to alteration of the personality. In this way Binet has said that hysterical anesthesia is really anesthesia from "lack of consciousness."

It is even possible for normal consciousness to be submerged and dominated, as it were, by a subconscious condition. This subconscious condition with its power to initiate motor processes evidently has an existence and a memory of its own, for it has been successfully recalled by hypnotic suggestion, and thus demonstrated to have had an existence when the normal consciousness was suspended. Integrity of action within the cerebral cortex is thus extremely essential to normal consciousness. This is in accordance with the teaching of psychology. Professor James says: "We see that the mind is at every stage a theatre of simultaneous possibilities. Consciousness consists in the comparison of these with each other, the selection of some, and the suppression of the rest by the reinforcing and inhibiting agency of attention." ¹⁵ Such comparison, selection, reinforcing and inhibition must have their organic substratum in the countless connecting neural pathways of the cerebral cortex. Normal consciousness depends upon an associative action of these various neural pathways. Consciousness will be obscured when there is defective associative action.

Closely allied to consciousness is memory. Full normal consciousness should be followed by the power to recall whatever may have transpired during its manifestation. Memory, like consciousness, depends upon integrity of action in the cortex. Like consciousness, it depends upon intensity and duration of cell activity within certain portions of the cortex. As Professor James says: "Memory being thus altogether conditioned on brain paths, its excellence in a given individual will depend partly on the number and partly on the persistence of these paths." ¹⁶ Consequently dissociation of neural paths may mean interrupted and disjointed memory, just as with consciousness. Not only this, there may be memories corresponding with consciousnesses. Subconscious states may have their own special memories, which can only be recalled when by hypnotic suggestion these states themselves are reproduced. Professor James, in commenting on Janet's "theory that anesthetics carry amnesias with them," says: "In certain cases this is evidently so, the throw-

ing of certain functional brain-tracts out of gear with others, so as to dissociate their consciousness from that of the remaining brain, throws them out for both sensorial and ideational service." ¹⁷

Closely related to subconscious and amnesic states is the hypnotic trance condition. Dr. Bramwell ¹⁷ has written a very interesting article on the "Evolution of Hypnotic Theory," in which he briefly describes the various theories that have been advanced to account for the phenomena of hypnotism. These theories resolve themselves into two classes: one physical, the other psychical. Braid thought at one time that the hypnotic state was due to exhaustion of certain nerve centres with "resulting decrease in the functional activity of the central nervous system." Haidenhain thought "the phenomena of hypnotism owe their origin to arrested activity of the ganglion cells of the cerebral cortex." The higher cortical centres being inhibited, sensory impressions that usually pass to them, thereby arousing consciousness are in this state "short circuited" as it were through lower centres. The individual becomes an automaton, not being aware of what he is doing. At a later period Braid undertook to explain the hypnotic condition psychically, saying that it "was essentially one of mental concentration or monoidism, in which the mind was so engrossed with a single idea as to render it dead to all other influences." Bennett likewise advanced a physiological and a psychic explanation of these phenomena. Physiologically he thought that the nerve tubes of the white matter of the cerebral lobes became paralyzed through continued monotonous stimulation; while the action of others became exalted. Psychically, Bennett thought that certain ideas became prominent and controlled the individual outside his will and consciousness because that "portion of the brain with which they were associated had its action temporarily suspended, that is, the connection between the ganglion cells was broken, owing to the interrupted connection between the fibres of association."

Bernheim considers that "every one possesses a certain definite amount of nervous force or cerebral activity." In health and in our waking moments this nervous force "is concentrated in the higher nervous centres — the reasoning part of the brain — while in hypnosis it is concentrated in the lower centres — the imaginative or automatic part."

The latest theory that has been proposed for the solution of these problematic mental states is a more purely psychical one. "Instead of attempting to explain hypnotism by the arrested action of some of the brain centres which subserve normal life," this later theory frankly admits the existence of subconscious states and powers over which the individual normally possesses little or no control. Dr. Bramwell paraphrases Myers's idea thus: "The stream of consciousness in which we habitually live is not our only one. Possibly our habitual consciousness may be a mere selection from a multitude of thoughts and sensations, — some at least equally conscious with those we empirically know. No primacy is granted by this theory to the ordinary waking self, except that among potential selves it appears the fittest to meet the needs of common life. As a rule, the waking life is remembered in hypnosis, and the hypnotic life is forgotten in the waking state; this destroys any claim of the primary memory to be the

¹² Atlas of the Normal and Pathological Nervous Systems, p. 65.

¹³ Loc. cit., pp. 64, 65.

¹⁴ William James: Principles of Psychology, vol i, p. 66.

¹⁵ Loc. cit., p. 288.

¹⁶ Loc. cit., p. 659.

¹⁷ Loc. cit., p. 682.

¹⁸ Brain, vol. xix, part iv.

sole memory. The self below the threshold of ordinary consciousness Myers terms the 'subliminal consciousness,' and the empirical self of common experience the 'supraliminal.' If this theory be true, then every individual possesses a spectral self vastly larger and more important than his normal empirical self. It may indeed dominate the man, and Stevenson's weird conception of Jekyll and Hyde contains more truth than fiction. However this may be, it is still quite likely that the physical and psychical elements both take part in the production of the hypnotic trance or subconscious states. That the latter play a much more prominent part in psycho-pathological conditions than was formerly supposed must be admitted. It is not inconceivable that in certain pathological states where there is functional activity of a very limited area the subliminal may entirely supplant the supraliminal self, although instances where such substitution occurs must be extremely rare.

From what has been said it is evident how close is the connection between consciousness and memory and their organic substratum in the neural pathways of the cortex. The least failure of the latter to act in conjunction with one another may lead to grave lapses in the continuity of consciousness and memory.

So much for theory. In conclusion a few words as to whether the clinical facts noted in the two cases are consistent with any of the theoretical views just considered.

In the first place, these two patients at, and previous to the time of the homicide were in a pathological mental condition. G. W. was not considered insane; but subsequent investigation disclosed the fact that he was subject to delusions and, not quite unlikely, to hallucinations. S. P., in addition to his advanced years, was mentally unbalanced — although, as is often the case, the extent of his alienation was not realized by his own family. He had marked delusions and hallucinations. Moreover, G. W. came from a distinctly neurotic family, many members of which had been insane. S. P. in his earlier life had been a hard drinker. There may have been hereditary neurotic history in his case, but this fact could not be ascertained. It is quite likely that the toxic effects of alcoholic indulgence in early life had to a certain extent led to the usual degenerative changes in the brain cells. Certainly his clinical history presented the symptoms ordinarily associated with chronic alcoholic insanity.

Both these individuals, then, presented the unstable brain which is the outgrowth of neurotic antecedents and toxic indulgence. The underlying mental existence was essentially morbid in either case. This is important. It seems very doubtful whether a fulminating psychosis, such as transitory frenzy, can ever occur in a healthy individual. It is quite likely that those cases that suddenly experience such psychic explosions are not mentally as well as they have been considered to be. Close investigation will disclose a pathological mental substratum which is itself the outgrowth of poorly organized or degenerative brain conditions.

Both cases were dominated by a single idea or group of ideas. G. W. dwelt constantly on the thought of his daughters being brought up to a life of prostitution. The fact of divorce only intensified this dread. Then in case divorce failed, the idea that he might be killed seized him, thus rendering it possible for his wife to be remarried, and without his protecting hand the degradation of his daughters would be complete.

In the case of S. P., the one dominant idea was fear for his life. Day and night he was haunted by this one idea, that his son would steal up behind him and slay him.

It is evident that in both cases there existed the most persistent state of monoideism. Presumably, an extremely limited circle of ideas was accompanied by functional associative activities in limited brain areas. Not that the entire brain did not perform the functions essential for ordinary life, but long-continued monoideism favored the functional exercise of certain brain paths more markedly than others. Consequently nervous activity sought these particular channels rather than others.

Both these cases lived in an unspeakable terror, both by day and night, that they were to be killed. In addition to this, in the case of G. W., the most horrible dread that a father could experience dominated and shadowed his daily existence like an awful cloud. He felt that his daughters, in whom his whole heart was bound up—even the littlest one scarcely out of her baby dresses—all were to be made common prostitutes in the course of time.

Both men had sought to arm themselves and prepare for the fatal moment which was likely to come upon them at any time. In the case of S. P. it was death; in that of G. W. it was not only his own personal death but the moral degradation of his daughters.

It is not difficult to see how certain neural brain paths may, in such conditions, be stimulated and rendered more instantly susceptible to the transmission of nerve force through them, rather than through other less used although contiguous channels. It is the old metaphor again of *short circuiting* of nerve currents. The easiest route is the one that will be used.

We can conceive, then, that in both these individuals the mental subsoil and the physical conditions were present and favorable for the exhibition of an explosive psychosis. All that was needed was the final spark—the metaphorical button with which to close the circuit, and uninhibited nature would accomplish the rest. In the case of G. W., the prolonged resistance of his wife at the railway station in her attempt to separate from him his little daughter, her persistence in securing the much-dreaded divorce, in an instant prepared the way for the free and immediate transmission of his entire nervous energy through routes which all unconsciously the unfortunate man had been preparing for many years. Pent-up fear, horror, anxiety all culminated in an act which was a mingled confused attempt at self-defence, anger, revenge, without restraint or reason. The act lacked purpose and intelligence. After all was over, the man stood dazed, trembling and exhausted, like one awakening from a terrible nightmare.

The explosion was, in one sense, analogous to the epileptic attack. Nervous force leaves its customary channels and flows with accumulated intensity through limited areas. *Normal consciousness* ceases because the usual neural pathways, through whose associative action this same normal consciousness is maintained, are, for the time being, cut out as it were—other tracts taking the entire force of the nerve current. *Amnesia* accompanied the explosive psychosis, both because of the suddenness, brevity and intensity of action in a very limited brain area, as well as the absence of that proper associative action in cortical brain paths so essential to normal consciousness and mem-

ory, and also because the subliminal self was supremely dominant, and, as is usually the case, no recollection is left of whatever happens during this condition. It would be interesting to know whether, within a few days of the explosion, hypnotism could have recalled to consciousness the recollection of what transpired by bringing the subliminal self again into the foreground.

In the case of S. P., the blow of the ball on the top of the head was the inciting agent. In an instant confused, aimless self-defence—the mere animal instinct of self-preservation—dominated the man; but so entirely motiveless was its demonstration that only purposeless homicidal violence was the result. For years the nervous mechanism, and particularly the subliminal self, had been led to anticipate this moment. Nervous energy was instantly withdrawn from the brain paths whose associative action is identified with normal consciousness, and transmitted with accumulated intensity through other tracts—the combined action of which eventuated in a motor display having for its object self-preservation and defence.

But the utter uselessness of the violence is worthy of notice and an evidence of the automatic and probably unconscious character of the act. In the case of S. P., the violent homicidal onslaught on the innocent and defenceless grandchildren whom he dearly loved, would seem to confirm the probable unconscious automaticity of the act. In G. W., the cyclonic character of the deed in the presence of many people certainly militates against premeditation, and the speechless, dazed condition of the man affords strong confirmatory evidence of its unconscious character. It is also significant that neither at the time nor after did either ever make any allusion to the homicide. The particular period of time seemed as though it were a blank. In none of the furious acts of the fulminating psychoses does the patient ever allude to what transpires at the time. This period is, to all appearances, as much a complete blank to the individual as are the acts of the epileptic when in the midst of his attack. Neither retains the faintest recollection of what has transpired.

In both cases there was rapid heart action, pallor, physical prostration. In the case of G. W., the patient said that everything turned dark—a struggle with a crowding upon him of men, was all that he could remember. This is very similar to the statement of those Malays who have recovered from an amok. I cannot help feeling that the two conditions are quite analogous.

I am well aware that the explanations herein advanced are rather visionary and insusceptible of actual proof. But that there may be a subliminal consciousness, that certain brain paths may be in active operation to the exclusion of certain other tracts that usually are, through their associative action, identified with the normal empirical consciousness—all this seems plausible and not inconsistent with what we already know of brain physiology and pathology.

THE SURGEON-GENERAL OF THE NAVY.—The President has appointed Dr. Newton C. Bates surgeon-general and chief of the bureau of medicine and surgery of the navy, to succeed Surgeon-General Tryon. Dr. Bates has been Mr. McKinley's family physician since the inauguration.

PHTHISIS AND CHILD-BEARING.¹

BY CHARLES W. TOWNSEND, M.D.

THE influence exerted by pulmonary tuberculosis on the course of pregnancy, labor and the puerperium is of considerable interest, owing to the prevalence of this disease and to its somewhat definite course under these conditions.

The following considerations are based on a study of twenty-four cases, all but two being patients of the Boston Lying-in Hospital:

Pregnancy.—During pregnancy the patient often seems better and the disease appears in abeyance, although in some advanced cases severe dyspnea and exhaustion may occur.

The appearance of improvement may have led to the erroneous view that pregnancy is a prophylactic or curative agent in tuberculosis. The subsequent course of the disease disproves this statement and also shows that the improvement is probably deceptive. It is reasonable to suppose that the diminished strength of the pregnant woman offers a favorable opportunity for the beginning of this disease in those who are predisposed.

All of the ten incipient cases went to full term; two of the four moderately severe cases were taken in labor at the eighth month, while, of the nine advanced cases of phthisis, three of them gave birth prematurely at the seventh and eighth month, and in one, labor was induced at that time owing to the feeble condition of the mother.

Labor.—The effect of the disease on the labor is interesting. In the incipient cases, the average duration of the first stage was sixteen hours, of the second stage, forty-three minutes, which is perhaps about the normal duration of labor, considering that one-half were primiparæ. One labor was instrumental. In the four moderately severe cases, one a primipara, the average duration of the first stage was eleven hours, of the second stage twenty-three minutes. In the nine advanced cases, of which three were primiparæ, the average length of the first stage was seven hours, of the second stage twenty-three minutes. In several of these cases coming under my observation the labor was markedly easy.

Instead, therefore, of the labor being prolonged and difficult, owing to the weakness of the patient in advanced cases of this disease, it is short and easy. The muscular power of the uterus seems to be good, while the resistance from the soft parts is slight.

Puerperium.—Nature seems to put forth a supreme effort to suppress the disease during pregnancy and to make the labor easy and short, but after the child is born the disease advances at a rapid rate. This is well shown in all the cases without exception by an examination of the temperature charts. In the incipient cases the temperature in all fluctuated from 98° to 100° or 101°, and in two, at the end of two weeks, the evening temperature rose to 103° and 104°. Weakness and cough were marked.

In the moderately severe cases of phthisis the temperature in all reached 100° and 101° and went to 103° in two cases at night. In the advanced cases a daily evening rise to 102° to 104° and even to 105° was noted.

Notwithstanding the absence of uterine symptoms it was often difficult to exclude sepsis as a cause of the

¹ Read before the Obstetrical Society of Boston, May 18, 1897.

temperature. In all doubtful cases, therefore, the uterus was explored and the result of this examination, together with the subsequent course of the disease, made the diagnosis certain. It is better to consider a case puerperal sepsis until it is proved to be tuberculosis.

All of the incipient and moderately severe cases passed from observation, but of the nine advanced cases, six were observed until their death, which took place in eight days in one case, in twelve days in one case, in one month in two cases, and in two months in the other two cases. In all of these the advances of the disease in the lung were very rapid.

One case remains to be considered. Here the patient was well up to the time of labor with the exception of a slight cough during the last three weeks of pregnancy. The labor was rather a long one, and on the fourth day the patient had a chill, followed by fever reaching 104° and 105° at night. The pain was referred to the chest and there were no uterine symptoms. The uterus was found to be normal, while signs of disease in the lungs were detected which rapidly increased. Tubercle bacilli appeared in the sputa. There was slight improvement during a stay of two weeks at the Massachusetts General Hospital, to which she was transferred from the Lying-in Hospital; her subsequent history is unknown.

This case is an example of tubercular disease of the lung originating in the weakened state of the woman during the latter part of pregnancy or early in the puerperium.

It is probable that some of the incipient cases began in pregnancy, although it was impossible in many cases to state the exact time of origin.

In this connection the observations of Flint on eighty-seven cases of phthisis in married women under forty years of age is of interest. Ten of these developed during pregnancy and twelve others within a few weeks or months after child-birth.

Pregnancy and the puerperium are dangerous periods, therefore, to those with a tendency to tuberculosis.

The Child.—The effect of the existence of tubercular disease in the mother on the condition of the child at birth is next to be considered. In the cases of incipient phthisis all the infants arrived at full term and all were discharged well at the end of two weeks, and one of these was known to be alive and well at the end of a year. The average birth-weight of these ten babies was six pounds and eleven ounces.

Of the moderately severe cases, two were a month premature, one of these giving birth to twins, both of whom died very soon, weighing only three pounds, and two pounds twelve ounces respectively. The other premature child and the two other children were discharged well in two weeks. The premature child weighed five and a half pounds, the others five and a half, and six pounds six ounces respectively.

In the class of advanced cases of phthisis, excluding the four premature cases, the average weight was six and a half pounds.

With the exception of one still-born child weighing two pounds, and one that died in three weeks, all the children in this class, including the premature, were discharged alive at the end of two weeks.

The average weight¹ of full-term children at the Boston Lying-in Hospital is seven pounds nine ounces

for males, and seven pounds five ounces for females, so that the weight of these babies of tuberculous mothers is only about a pound under the average.

A primipara who had been so long sick that she had not menstruated for thirteen months, or for four months before conception took place, who had cavities in the lungs and advanced tubercular laryngitis and who died eight days after a precipitate delivery, gave birth to an apparently healthy child weighing six pounds.

Another case, a multipara, the only out-patient of the hospital included in the list, had cavities in both lungs and laryngitis, and was so weak that she had been in bed for six months with resulting bed-sores. This patient went to full term and gave birth to an apparently healthy child weighing eight pounds and two ounces. The mother died twelve days later. It is certainly remarkable that these patients conceived, and that they gave birth at full term to such large living children. The subsequent history of these children is not known. It is possible that some of the children discharged apparently well may have been suffering from latent tuberculosis resulting from intra-uterine infection. Inherited tuberculosis in the sense of actual intra-uterine infection, the child being born tuberculous, has been proved to occur in so few instances that this accident must be extremely rare. In the absence of congenital tuberculosis, however, there probably exists in these children of tuberculous mothers an enfeebled constitution, rendering them a prey to this and other diseases. These children are further handicapped by the lack of mother's milk and by the constant exposure to tuberculous infection. For the sake of the child as well as to preserve the mother's strength, nursing is contraindicated. Nature generally enforces this rule by refusing to supply milk.

CONCLUSIONS.

(1) Conception may take place even in advanced pulmonary tuberculosis.

(2) The disease is generally held in abeyance during pregnancy, although it may advance or even originate at this time.

(3) Labor is short and easy in proportion to the severity of the disease.

(4) During the puerperium a rapid advance, leading in some cases to speedy death, occurs; or the disease may originate at this time. In either case the temperature chart suggests puerperal sepsis.

(5) Premature labor is more common the more advanced the disease, although pregnancy often goes on to full term even in advanced cases.

(6) The average weight of the full-term children and their general condition at birth is not markedly below that of children of healthy mothers, except in the rare instances of congenital tuberculosis.

A WELL-EQUIPPED MEDICAL SCHOOL.—Among the million or more medical colleges in this great country there is one with thirty-eight professors, twenty-three assistant professors and instructors, and fifty-one students. This gives one professor, assistant professor, or instructor to each student, with ten left over. It is suggested that a new medical journal be started, to give the idle ten something to do.—*Medical Record.*

¹ See Boston Medical and Surgical Journal, May 14, 1896.

Clinical Department.

A CASE OF EMANSIO MENSIIUM, OR ABSOLUTE AMENORRHEA, IN A MARRIED WOMAN TWENTY-SIX YEARS OLD.¹

BY W. L. BURRAGE, M.D.

THE following case seems to be of sufficient importance from its rarity to warrant being reported:

Mrs. E. H., Irish American, twenty-six years of age and married four years, consulted me for the first time April 2, 1897. She had never menstruated, and had had no menstrual molimen whatever.

She had lost her mother and one brother by phthisis; her father had rheumatism, and another brother had had rheumatic fever three times. Of three sisters, one (older than the patient) had four children, and of the two younger, one (aged twenty-two) had painful catamenia and weak spells, and the other had no uterine symptoms. The patient had varioloid when a baby, and scarlet fever at eighteen years of age. As a girl she had been healthy and of average strength. When seven years old she fell from the second story of a building to the cellar; but from the account of her sisters, received no more serious injuries than a shaking up and bruising. For five or six years Mrs. H. had suffered from periodical headaches coming on about a month apart, but with no definite regularity; and for the last year the headaches had been much more frequent, many times as often as once a week.

The pain was in the top of the head and coursed downward into the ears; and an attack would last, at first, three days every month, and for the last year a day or two nearly every week. The headaches were accompanied by nausea and great tenderness of the scalp, and were generally worse in the middle of the day and in warm weather. She had suffered off and on for four years with pains in the ankles, back and elbows. At times she walked lame because of the pain and swelling of the ankles. Had never had rheumatic fever. Digestion fairly good. Bowels regular. No periodic abdominal pains. No hemorrhages from the mucous surfaces of the body. Hot flashes of moderate severity had annoyed her of late, also sweating of the palms of the hands and axillæ and an evanescent eruption appearing on the arms and legs—papular reddened areas, circular in shape, about two centimetres in diameter and disappearing on pressure. No cough. No vesical symptoms. Coitus normal. Slight white vaginal discharge. No loss of weight. Urine, strongly acid, slightly high in color, 1.027, no albumin.

Physical examination showed a well-developed, fairly nourished woman of average height and weight; black hair and blue eyes and a rather muddy complexion. The hips were well proportioned; the breasts small, with diminutive nipples. Pubic hair and vulva normal in every respect. Vagina normal. Uterus small, symmetrical, retroverted and retroposited in the back of the pelvis, conforming in ante flexion to the curve of the sacrum, along which it lay and to which it was fixed by firm posterior adhesions. Behind the cervix on the left could be felt a knuckle of the left Fallopian tube, about the size of a slate pencil in diameter, thickened and slightly tender; and on the right side it was possible to make out only a small mass of indefinite outline that was sensitive on deep

pressure. The anterior lip of the cervix was somewhat flattened. The external os was patulous, and a probe entered the canal of the uterus a distance of 4.7 centimetres, and after traction on the cervix and using slight force, the point of the probe went by a tight constriction a farther distance of one centimetre, making the total uterine depth 5.7 centimetres, or two and a quarter inches.

The examination would show, then, evidences of an old inflammatory process about the tubes and ovaries, resulting presumably in atrophy of the ovaries, chronic inflammation of the tubes and stenosis of the uterine canal, besides anchoring the uterus in a pathological position in the pelvis.

It would seem that the initial inflammatory process must have taken place early in the patient's life in order so to crush the ovaries out of existence as to do away with menstruation altogether. Whether the varioloid, or the fall that she received, or tuberculosis, should stand in a causative relation to this process, we find it difficult to decide. It is certainly a very common occurrence to meet with an almost exactly similar uterine condition due to inflammation of the adnexa following septic abortion and labor where amenorrhea is not an attendant symptom.

The stenosis in the uterine canal being so near the fundus would point to an atrophied uterine body. It seems to me that this case is in a quite distinct class from those instances of amenorrhea from non-development or anomalous development of the uterus or vagina, for in the latter there is apt to be one or more attempts at menstruation, and an infantile uterus, small vagina, hypertrophy of the clitoris or other abnormality pointing to a primary lack of development.

VENTRO-FIXATION, WITH A REPORT OF TWO OPERATIONS ON THE SAME CASE.¹

BY GEO. W. KAN, M.D.,

Surgeon to Out-Patients, Free Hospital for Women.

THE patient, forty-eight years of age, was seen by me in consultation with Dr. Paine, of Brockton, February 28, 1896. Her previous history and symptoms are not essential for the purposes of this paper. Her uterus was found retroverted, adherent and sensitive.

The operation was March 10, 1896. After curetting, and repairing the lacerated cervix, I opened the abdomen, broke up the adhesions and brought the fundus forward. That there might afterward be some mobility of the uterus, I passed a suture of about No. 5 braided silk through the base of each round ligament. These two sutures were carried through the peritoneum and fascia on the corresponding sides of the incision and there fastened. I closed the abdomen with the full assurance that even should one ligature give way from any cause, the other would keep the uterus forward. Convalescence was uneventful, and the patient returned home relieved of the pressure symptoms caused by the retroverted uterus.

I saw her again in May, two and a half months after the operation, and found the uterus in good position.

In October of the same year she suffered severely from an attack of dysentery, which was epidemic in

¹ Read before the Obstetrical Society of Boston, May 18, 1897.

¹ Read, by invitation, before the Obstetrical Society of Boston, May 18, 1897.

Brockton at that time and the pressure symptoms returned in full force.

I saw her in the early part of this year and greatly to my chagrin found the uterus retroverted. I tried packing the vagina to bring the uterus forward again in the hope that a support could be worn, but I was not successful. The only course was to open the abdomen again, and this I did on March 18, 1897, almost exactly a year after the first operation, the incision being made a very little one side of the old one. On passing my fingers into the abdomen I felt a small cord attached to the abdominal peritoneum close to the line of incision, and extending through the coils of intestines down into the pelvis. Traction upon this cord brought the fundus into view, and showed its attachment to be at the base of the round ligament where the suture had been originally placed. A second cord was found on the other side. The left cord, about half a centimetre in diameter, was ten centimetres long; the right cord, not quite so thick, was eighteen centimetres long. The uterus could be lifted from its retroverted position by either of these cords. The silk sutures could not be found and apparently were absorbed.

This second time I fastened the uterus forward by a single suture of No. 10 braided silk passed first through the fascia and peritoneum of one side of the incision, then through the fundus of the uterus at the level of the round ligaments, taking in a half to three-quarters of an inch and carrying it about an eighth of an inch deep and then through the peritoneum and fascia of the opposite side. I have done a number of cases this way and have not had uterine bleeding of any amount. The stitch when tied brings the fundus to the abdominal wall and the edges of the incision together, and is a buried suture. I have had stitch sinuses in some cases but the uterus has remained in place after the stitch came away. I have tried twisted Chinese silk in my last case thinking it might be better sterilized than the heavy braided silk. I have had no stitch abscess from it.

The first ventro-fixation was by Koeberle in 1869, although Dr. Hunter mentions that about 1867-68 Dr. Sims suggested keeping the uterus forward after it had been replaced, by passing a silver wire through the abdominal wall and into the fundus. This idea was never carried out by him.

Koeberle removed two normal ovaries and fastened the stumps in the abdominal incision.

Tait, in February, 1880, reports two cases where, while closing the abdominal wound, he passed a stitch through the fundus of the uterus and fastened it to the abdominal wall.

Olshausen, one of the pioneers in this operation, made a report in September, 1886, at the Berlin Medical Congress. He wished it distinctly understood that he recommended limiting the operation to those patients whose age or condition makes pregnancy improbable. Only in rare unconquerable cases of adherent retroflexion and prolapsus does he believe the operation justifiable.

His method (Garrigues) is to carry a suture through the round ligament near the edge of the uterus, and the anterior layer of the broad ligament, then through the parietal peritoneum and part of the rectus muscle. Two more sutures are inserted below the first. Three similar sutures are placed on the other side, making six sutures in all.

Leopold fastens the uterus by three sutures through the fundus and abdominal wall and removes the sutures at the end of twelve to fifteen days.

Czerny passes two catgut sutures through fundus and peritoneum muscle and fascia but not integument.

Kelly, to whose writings upon this subject I am much indebted, reaches over the broad ligaments with his sutures and lifts the uterus by three sutures passed through the ovarian ligaments of each side, and through the abdominal parietal peritoneum. He says adhesions form at once but then soon stretch by the simple weight of the uterus, so that within two weeks the corpus uteri sinks to the level of the anterior vaginal wall.

Dorland, from a study of 179 cases of pregnancy following ventro-fixation, says in effect: "The object of the operation is to restore the uterus to its normal position and yet not fix it so firmly as to interfere with gestation and parturition."

In this Dorland goes beyond Olshausen, one of the originators of the operation, who limited its use to cases where pregnancy was improbable.

Dorland further says:

"If properly performed, hysteropexy should not result in a firm adhesion between the anterior uterine wall and the abdominal parietes, but in the formation of a partially elastic band which maintains the anterior position of the uterus, but does not destroy its mobility. To prevent this objectionable firm fixation some employ absorbable sutures and others remove the sutures within two weeks after operation. With fixation properly performed the uterus during gestation will gradually detach itself from the abdominal wall or the adhesions will stretch, and as the uterus undergoes involution it is restored to its original condition before the onset of the disease that rendered the fixation obligatory."

Dr. Penrose mentions having had an opportunity of examining the ligaments resulting from ventro-fixation in four cases. There were no adhesions present; there was a pliable ribbon from one and a half to three inches in length, about one-twelfth or one-eighth of an inch in thickness. In one case the ribbon broke as the uterus was drawn up through the abdominal incision, showing how yielding and fragile the structure is. He continues: "If all operators would endeavor merely to make a single, almost thread-like band, extending from the anterior abdominal wall to the top of the fundus uteri, little, if any, trouble would result from subsequent conception."

Peterson mentions finding these bands in a case where he performed a second celiotomy for intestinal obstruction from another cause.

In all the cases I have seen reported, the uterus has been found, when the abdomen was opened later, connected to the anterior abdominal wall by a band or bands of tissue, varying in length, up to those found in my case, and it is reasonable to suppose that a majority of cases of ventro-fixation have such bands, particularly those cases where the uterus is not firmly fixed. I have been taught and always considered that any band thus extending across the abdomen is a constant source of danger to the individual—the more bands the more danger. That these bands are not all so friable as that of Dr. Penrose is evident from the right one in my case having been stretched to eighteen centimetres, probably by intestinal force, while the left one was but ten centimetres, and yet each band in itself was

strong enough for me to draw the uterus out of Douglas's fossa to the opening in the abdomen. The case further shows that while a thread-like band may not complicate a future pregnancy, it does not always hold the uterus forward.

Dr. Grant's microscopic examination shows the bands to consist of "muscle fibres surrounded by connective tissue and numerous blood-vessels." These bands then would tend to grow firmer with age and so more dangerous. That no cases have been reported of intestinal obstruction due to this cause is no evidence that it has not occurred, nor does it warrant us by operation to add that element of danger to the patient.

In the view of ventro-fixation, as exemplified by this case, it seems to me to follow, that any method which holds the uterus forward by stitches on each side is faulty, in that it results in two bands at least, and that any method that allows of the formation of even a single band is undesirable. The class of cases in which ventro-fixation is indicated is in complicated retro-deviations; here *pregnancy* is always a doubtful matter; it should not be made a test for a successful operation, nor should it be made of paramount importance. Ventro-fixation is done to relieve the patient of symptoms depending upon malposition of the uterus; and this it does do decidedly. If it is found that succeeding pregnancies as a rule have an unfavorable course the rational procedure would seem to be, to always remove the ovaries in a ventro-fixation; and thus bring it in fact to Olshausen's limitation.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

AIROL IN DERMATOLOGICAL PRACTICE.

As substitutes for iodoform, iodol, sozoiodol, aristol, nosophen and dermatol have been introduced, and while all are in varying degree effective, none can compare with iodoform. Dermatol possesses marked astringent powers, but its antiseptic action is insufficient. To obviate this disadvantage iodine was added, and the preparation called aïrol obtained. It is a fine, greenish powder, insoluble in water. Haegler showed that its poisonous action is much less than that of iodoform. It was tried by Löblowitz¹ at Pick's clinic in Prague in a variety of skin affections, and the conclusion reached that healing was accomplished at least as quickly by its use as by iodoform or other antiseptic powders, although the difference was not marked. An especial advantage was the quickness with which it cleaned up suppurating surfaces; in other words, its antiseptic properties are marked. In most instances the ulcers treated presented a clean appearance by the third day. The astringent action was also marked, the secretion usually became less after the preparation had been used for twenty-four hours, and constantly diminished during the following days. This was seen by the color of the powder applied. Aïrol, when brought into contact with warm fluids, is changed into a yellowish-red powder by the breaking up of a part of its iodine. Hence as the amount of secretion diminishes a larger and larger part of the powder applied remains uncolored. Its power of

stimulating granulations in syphilitic ulcers is not great, and a disadvantage was found in a somewhat irritating effect on the mucous membranes in certain places. It was thought, however, that this only occurred when the epithelium had been macerated by a previous process and thus made more susceptible. The writer concludes that aïrol is an antiseptic that is usually quite sufficient; if a more energetic antiseptic action is desired, recourse must be had to iodoform; as an astringent, aïrol holds a high place; it has no odor and is very cheap.

THE BACTERIOLOGY OF SEBORRHEA AND ALOPECIA.

Sabouraud, whose late work on the tinea and on alopecia areata has received so much attention, endeavored to prove that seborrhea taken in its strict etymological sense, as a hypersecretion of the sebaceous glands, is caused by a specific pathogenic microbe.²

The oily seborrhea of the non-hairy parts offers two symptoms, an over-production of normal sebum, and an increase in the normal diameter of the sebaceous outlets which may be seen with the naked eye. On the hairy parts, particularly upon the scalp, a third symptom is added, namely, a diffuse falling of the hair, at first paroxysmal and which finally becomes persistent. Upon the scalp secondary infections may be grafted on a seborrhea, causing desquamative conditions, as pityriasis capitis, while on the face the different forms of acne may appear. The micro-bacillus of oily seborrhea is obtained by staining preparations of sebum by Gram's method, and consists of a small organism much like a coccus, easily stained by all aniline coloring matters. This bacillus is found in the upper third of the follicle, and its colonies are encysted in a mass of horny matter and sebum. This "cocoon" of cornified cells and sebum, containing in its centre the colonies of micro-bacilli, is the cylindrical plug that is expressed from the seborrheic skin. If these "cocones" increase greatly in size, a comedo is the result, which by a secondary infection may be converted into an acne pustule.

The formation of the seborrheic cocoon in the outlet of the hair follicle causes a progressive hypertrophy of the sebaceous gland. There is an invasion of leucocytes about the papilla of the hair, which gradually atrophies and dies. That this is due to a toxin from the bacillus may only be conjectured. Sabouraud energetically opposes the present classification which separates acne from the seborrheas from which it is derived. Unna and Hodara's acne bacillus, and the bacillus described by the former in oily seborrhea of the scalp, he considers identical with his micro-bacillus of seborrhea. Considerable difficulty was found in cultivating the bacillus of seborrhea; and as inoculation experiments proved failures, Sabouraud is forced to admit that he has not been able to clearly prove that it is the cause of seborrhea.

With regard to alopecia areata Sabouraud had previously studied its histology, which he now finds to be precisely similar to that of seborrhea. A differential diagnosis cannot be made by the microscope; and the bacillus which he had previously regarded as probably the cause of alopecia areata is the micro-bacillus of seborrhea. But his courage does not fail, and he reaches the rather startling conclusion that the etiology of alopecia areata and seborrhea is the same,

¹ Löblowitz: Archiv. f. Derm. u. Syph., 1897.

² La seborrhée grasse et la pelade, Annales de l'Institut Pasteur, February, 1897.

both being caused by the bacillus of seborrhea — acute alopecia areata is a local acute seborrhea, chronic extensive alopecia areata is a chronic generalized seborrhea.

In a later article³ Sabouraud seeks to extend his theory to the etiology of common, premature baldness. The sebaceous hypersecretion on the hairy as well as the non-hairy parts is followed by a glandular hypertrophy, and a progressive atrophy of the hair. Histologically, migratory cells, composed of lymphocytes and mastzellen are arranged in linear series around the cocoons at the mouths of the follicle, about the vessels near by, at the angle of the sebaceous gland, and about the base of the follicle and papilla. The papilla loses its functional activity, and the pigment is extravasated from the cells of the rete, so that the pigmentary cells of the hair lose their color. The medullary cells are not reproduced, and the diameter of the hair diminishes progressively. Finally, the complete death of the hair occurs. The vertex is the part which is especially affected by seborrhea and the resulting baldness. Not only is the seborrheic infection indispensable for the production of baldness, but this seborrheic infection remains intense and permanent when the baldness has been definitely established. Common baldness, therefore, is a definite, specific, microbic disease.

[However much admiration and respect we may have for the studies of Sabouraud, that have extended over several years, it seems evident that he has drawn conclusions as yet unwarranted by his facts. He has not been able to show that seborrhea and alopecia are caused by his micro-bacillus, and although his histological discoveries are interesting, it is too early to draw definite etiological conclusions from them.]

THE INFLUENCE OF LIGHT ON THE SKIN.⁴

Bowles, who has spent much time in investigating the effects of sunlight on the human body and especially the penetrating effects of reflected rays from snow and other surfaces, thinks that the Röntgen rays may be only modifications of ordinary light, as he has shown, he thinks, that reflected luminous or photo-chemical rays may penetrate the human skin into the deeper tissues in much the same way as do the x-rays. His previous studies have led him to the conclusion that sunburn is caused by the violet or ultra-violet rays, which are very strong at high altitudes, and that the deeper changes, such as are seen in "hydraa estivale," etc., are produced in the same way. He had predicted at the time of the publication of Röntgen's discovery that the x-rays would have the same effect on the tissues as the violet rays of light; and the various intense forms of dermatitis, with necrosis sometimes, which have been frequently reported, have made his prediction true. He believes, further, that rays that will produce such severe pathological effects on the skin, and which are known to pass through the vital organs must have a therapeutic or toxic action, according to the way they are employed and the amount. He would not be disposed, in the present state of our knowledge, to risk the effects of such a powerful agency on the cells of his own brain. Dr. Hammer had expressed the belief that fluorescent substances would prove the most effective in preventing sunburn, and had experimented by covering the skin with various substances, such as glycerine, vaseline, quinine in

various solutions, etc. Bowles's own experiments had accorded with those of Dr. Hammer, in that no transparent substance except quinine, which is strongly fluorescent, and therefore capable of absorbing the ultra-violet rays, was found to give satisfactory results.

In discussing Dr. Bowles's paper, Dr. Radcliffe Crocker said that with regard to freckles and other pigmentary changes, the influence of light was largely indirect, and influenced the skin through the medium of the nervous system, as pigmentary changes often appeared on parts of the body where light could have no influence. It had been shown that the Röntgen rays often produced a severe dermatitis, and their characteristic effect seemed to be a profound disturbance of the nutrition of the skin, and that the lesions did not heal so quickly as did those of all other forms of irritant dermatitis, but remained in the most indolent form, without any attempt at repair. He was inclined to agree with Dr. Bowles that there was a close relationship between the action of the sun's rays and that of the Röntgen rays. He had found by experiment that there were very strong chemical rays in an incandescent lamp, and that the effect on the eyes might be quite marked.

Dr. Walsh believed that the Röntgen rays were capable of damaging the deep as well as the superficial structures of the body. He instanced cases where demonstrators had been seized with attacks of gastro-enteritis, headache, vomiting, high temperature, etc. He thought that the traumatism might be due to the heat rays. He had seen two instances in which previously unsusceptible people had become susceptible suddenly, the only difference being that the kathodal end of the focus tube had been kept heated during the exposure.

Dr. Payne, the President, said that he had found that small-pox patients who were kept in a dark room to which only red light was admitted got well without any pitting of the skin, and, according to one observer, without any secondary fever. It was a curious fact that this was a revival of an old superstition, as in the Middle Ages physicians wrapped their patients in red cloths and put red hangings around the bed. With regard to the electric light he had had patients complain of its effect on the scalp. One had said that sitting under it for a long time caused a sensation of burning and tingling, and another that it had the effect of turning the hair gray. The latter statement should probably be taken with caution.

A NEW METHOD OF TREATING LUPUS ERYTHEMATOSUS.⁵

Schütz prefaces his communication with a comment on the well-known capriciousness of cases of lupus erythematosus. It is seldom that the same remedy acts equally well in two successive cases, and the present treatment consists in trying and alternating successive methods of treatment, all of which are often impotent. Oftentimes all active remedies must be abandoned and inflammatory appearances treated by simple soothing and protective applications, when an unexpected improvement may occur. He is convinced that every method of treatment that exceeds a certain individual degree of intensity or duration not only does no good but is actually harmful. Hence he does not advocate the use of strong caustics or operative interference.

³ *Annales de Derm. et de Syph.*, March, 1897.

⁴ *British Journal of Dermatology*, July, 1897.

⁵ *Archiv. f. Derm. u. Syph.*, 1897.

Five years previously Schütz had noticed that weak watery solutions of arsenic when painted on the skin, in a variety of cutaneous affections, produced an extraordinary degree of inflammation. A case of lupus erythematosus that had not been treated before, and that was not ulcerated, was converted into an eczema crustosum et madidans within twenty-four hours, by a single painting with Fowler's solution. Ten days later the inflammatory appearances had completely subsided, and the morbid process was strikingly improved. Further experiment proved that weaker solutions of arsenic had a still greater effect on lupus erythematosus. The less the inflammatory reaction the greater the improvement in the disease. Fowler's solution was diluted from four to six times and applied in nine cases. All these cases healed promptly, and no recurrence had been observed. His present method is to apply morning and evening the following mixture:

Sol. Fowleri	.	.	.	.	.	.	.	.	4.0
Aq. dest.	.	.	.	.	.	.	.	.	20.0-30.0
Chloroform	.	.	.	.	.	.	.	.	gtts. ii

This is allowed to dry on the skin, and no effect is noticed until the fourth or sixth day, when a slight swelling and redness is produced. The treatment is then discontinued, and a mild protective powder or paste is employed. When the swelling has subsided (in from four to eight days usually) the painting is resumed, and in six or eight weeks a marked improvement is noticed. As a rule, the lupus erythematosus is healed in this way in from ten to eleven weeks, without causing scars to remain.

He claims for this method its great assurance of success, although he admits that it may not be universal. In one case, that of a nervous woman, who had an extensive plaque on the head, headache was complained of after every fourth painting, which he was not inclined to attribute to hysteria.

According to Binz and Schütz, the action of arsenic is a continual reduction and oxidation, and this occurs wherever arsenic comes into contact with living protoplasm. The cells that are richest in protoplasm are the most affected, as those of the kidney and liver in poisoning, and the cells of malignant growths in injections. He seeks to explain the special action of arsenic on lupus erythematosus by the fact that we have in this affection inflammatory cell infiltrations along the blood-vessels, which are very superficial in their position, and therefore most easily accessible.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, May 18, 1897, the President, DR. FRANCIS H. DAVENPORT, in the chair.

DR. GEO. N. KAAH read, by invitation, on

VENTRO-FIXATION, WITH A REPORT OF TWO OPERATIONS ON THE SAME CASE.¹

DR. G. J. ENGELMANN said that as this operation had given a great deal of trouble in pregnancy it should only be resorted to after the menopause. In earlier cases Alexander's or some other operation should be employed.

DR. BEVERLEY McMONAGLE, of San Francisco,

¹ See Page 393 of the Journal.

said that in the operation of suspension of the uterus, intra-abdominal pressure bears on the uterus in such a way that it is kept in position.

Any operation which is going to interfere with a possible future pregnancy is a bad operation; and any operation will do this which puts a band between the uterus and abdominal wall that is not long enough to allow the uterus to sink down into normal position.

This operation is indicated in women who have passed the menopause, particularly in cases of proidentia.

Alexander's operation is indicated only where there is no disease of the uterus, ovaries, or Fallopian tubes, but there are two chances for hernia after the Alexander where the opening is pushed beyond the peritoneum, and only one in the operation for ventral fixation. The original operation is objectionable in that it makes in some cases a large painful scar as well as an abnormal antifixion.

DR. W. L. BURRAGE said that he thought favorably of ventral suspension in suitable cases, that is, in cases of retroversion with posterior adhesions, and where there is ovarian and tubal disease associated with retroversion, and in proidentia in old women.

Since receiving the notice of the reading of the paper under discussion he had had the curiosity to look over his records of operations, and had found that he had performed the operation forty-six times for one indication or another, and had made use of a large variety of methods, having used silk, silkworm-gut and catgut, and both temporary and permanent buried sutures, attaching the round ligaments to the parietal peritoneum, the ovarian ligaments and the fundus uteri, anterior and posterior faces, and to the same structure by stitches passing through the muscle, fascia and peritoneum, through all the structures of the abdominal wall or only through the peritoneum.

His present method was to suspend the fundus by attaching it to the parietal peritoneum alone by two or three sutures of No. 2 chromicized catgut that pass through the anterior and upper aspect deeply and through a wide margin of peritoneum, the surfaces of the peritoneum and fundus having been first scratched. He preferred to attach the anterior aspect of the fundus rather than the posterior, because in the published reports of dystocia following ventral fixation a large proportion of the cases had had incarceration of the anterior segment above the pubes, the fixation of the posterior fundus not permitting the uterus to rise to a sufficient height as pregnancy advanced.

In contrasting the Alexander operation with suspensio uteri, he much preferred the former where it could be done, namely, in cases devoid of adhesions and ovarian and tubal disease. Where the latter conditions obtained, it was still an open question how reliable and how generally applicable was an Alexander combined with a colpotomy. Certainly opening the abdomen from above made treating the ovaries and tubes, and at the same time suspending them with the uterus, a comparatively simple matter, whereas the Alexander did not always sufficiently raise these organs.

DR. M. STORER referred to a point in the technique of the operation of suspension of the uterus. In earlier cases he had found a lack of success due to the sutures tearing out, especially with a heavy uterus, so he now uses on either side of the uterus provisional silkworm-gut sutures, which are removed in ten days.

DR. C. W. TOWNSEND said he wished to protest against an operation that required the removal of the ovaries, as suggested by the writer in the last sentence of his paper, to prevent trouble from a possible pregnancy. Recent statistics, particularly those of Dr. Noble before the American Gynecological Society, showed the great danger to succeeding pregnancy from suspension or ventro-fixation of the uterus. The operation should therefore be strictly limited to those past the menopause or where the ovaries were removed for diseased conditions.

DR. M. H. RICHARDSON said that in cases of proclitica he had tried every operation even to the extent of removing the uterus. All operations except this one of ventro-fixation are most unsatisfactory, but he has limited it to those past the menopause or in those not likely to become pregnant.

The Alexander operation is not successful in supporting a heavy uterus. The question of intestinal obstruction from these bands is of great interest, but the danger he believes to be extremely slight.

DR. F. H. DAVENPORT said there is no question but that ventral and vaginal fixation have led to bad results in pregnancy, so the tendency is now to limit the operation to those past the menopause. There has been a reaction in favor of the Alexander operation in uncomplicated cases. His practice in the ventro-fixation operation has been to pass the sutures through the anterior instead of the posterior part of the fundus, believing that this brings the uterus into the best position.

DR. EDW. REYNOLDS said that the operation of ventro-fixation was only adapted for cases of prolapse and for those past the child-bearing period. In a number of cases he had operated on causing suspension of the uterus, he had found at the end of a year or more that the uterus was in normal condition, freely movable, and he believed there was nothing left of the cord.

DR. CHARLES W. TOWNSEND read on

PHTHISIS AND CHILD-BEARING.¹

DR. J. B. SWIFT said he had had two cases of phthisis in pregnancy. The first case was far advanced, and died shortly after delivery. The second case originated in the first pregnancy following a pneumonia. She went to full term and gave birth to two children afterwards, but died suddenly soon after the last child. Both of these children were strong and healthy and were wet-nursed.

DR. A. WORCESTER said that these cases open up the question of the physician's duty towards the patient. In one of his cases where the woman had phthisis and became pregnant, he called consultation. It was agreed that the disease would be hastened by allowing the patient to go to full term, and that there was small chance of a healthy child, but the consultants did not think abortion was justifiable.

He objected strongly to the term "tendency to tuberculosis"; and he regretted that the profession were so shy about using tuberculin for diagnostic purposes, when it is shown to be of so great value in cows.

DR. BEVERLEY McMONAGLE referred to a patient with beginning phthisis where he had advised against pregnancy. The advice was not followed, and the patient boasted that far from being injured she was benefited by it. The disease ran a very rapid course,

however, after delivery, and she died in four months. The child is now fifteen months old, well and strong.

DR. C. W. TOWNSEND, in closing, said that his own cases, as well as those spoken of by others, showed very plainly the ill-effects of pregnancy on tuberculosis; but as the child was, in most cases, born in good condition, it might become a serious question whether it was right to consider abortion, as suggested by Dr. Worcester, whose statement, that there was but a small chance of a healthy child, was not borne out by these studies.

As to the term "tendency to tuberculosis," he believed that a child with feeble resisting powers had a tendency to tuberculosis as well as to other diseases.

The number of cases in which the child is actually born with the disease is very small. It is probable that in these cases the actual growth of the tubercles through the placenta is the mode by which the bacilli get into the fetal circulation.

Baumgarten believes that the large number of cases of tuberculous bone and joint disease of early life are in reality cases of congenital tuberculosis, where the bacilli have remained latent, these cases being analogous to late hereditary syphilis, the growing tissues of the child restraining or inhibiting the development of the germs.

DR. W. L. BURAGE reported

A CASE OF EMANSIO MENSIIUM, OR ABSOLUTE AMENORRHEA IN A MARRIED WOMAN TWENTY-SIX YEARS OLD.²

DR. C. W. TOWNSEND said he had seen two or three similar cases at his out-patient clinic at the Massachusetts General Hospital. Two cases he recalled where the uterus was apparently normal or slightly diminished in size. In another case the woman was well formed, and the external genitals were apparently normal, but there was no trace of a vagina or uterus to be felt by the rectum.

DR. EDW. REYNOLDS reported

A CASE OF RENAL STONE,

and showed the specimen.

The patient complained of pain and tenderness under the right rib; and the case appeared to be one of right-sided pyelo-nephritis. By ureteral examination however, he found foul pus free from crystals of any sort coming from the left ureter, and a condition of mild pyelitis on the right side. Later, he cut down on the left kidney, and took out a stone as long as the last joint of the thumb.

Recent Literature.

Syngomyelia. By GUY HINSDALE, A.M., M.D. 8vo; pp. vii, 74, 29 illustrations. Philadelphia: International Medical Magazine Company. 1897.

To this essay, which is reprinted from the *International Medical Magazine*, was awarded the Alvarenga prize of the College of Physicians in Philadelphia in 1895. The essay embraces a careful synopsis of the literature, the report of two unpublished cases without autopsies, and a very complete bibliography. It is appalling to the student of neurology to consider that this bibliography of a comparatively rare affection con-

² See page 391 of the Journal.

³ See page 393 of the Journal.

tains five hundred and fourteen titles, most of which have appeared within the past twenty years. A hundred and eighteen of the reported cases have been thoroughly analyzed in the study of the disease, although, unfortunately, the author has seen fit not to publish the synopsis of these cases originally presented with the essay. The analysis of the enormous mass of literature has been well done, and most of the doubtful points concerning the disease have been fully discussed, the evidence being so presented as to afford as far as possible the opportunity for a final decision. We take pleasure in commending this monograph as affording a valuable, indeed, the best summary of our present knowledge of the subject.

Clinical Lessons on Nervous Diseases. By S. WEIR MITCHELL, M.D., LL.D. Small 8vo; pp. 305, with two plates and 17 illustrations. Philadelphia and New York: Lea Brothers & Co. 1897.

It is curious and not unprofitable to compare the volume before us with the bulky and apparently exhaustive treatises on nervous diseases of Grasset and Raucier or Gowers. Full as they are the present volume contains little in common with them, but, instead, it gleams after them the rare and unrecorded forms of nervous disease or remarkable conditions in the more familiar forms. Drawing thus upon the careful records from a rich experience, and presenting the facts with the well-known charm of Dr. Mitchell's style, the book is not only entertaining reading but it is a necessary appendix to the familiar treatises on nervous diseases. Some of the chapters, of course, deal with more familiar conditions, such as the treatment of sciatica, but even these have something original to present. Among the more interesting subjects considered are types of melancholia recurring at certain seasons of the year: disorders of sleep, including the relation of the præ-dormitum, or period preceding sleep, to insanity, nocturnal paralysis, sensory shocks and sleep-jerks, and respiratory failure; subjective false sensations of cold and wrong reference of sensations of pain; relief of erythromelalgia by section of the nerves; certain curious cases of spinal curvature associated with mental aberration; and some remarkable cases of hysterical contraction differing markedly from the forms of hysterical contraction described by the French. This, however, gives only an incomplete notion of the contents of the book, but it would require an elaborate analysis of each chapter to set forth all that the volume contains of value and suggestion to the neurologist, so that we must be content with commending it heartily to all who have any interest in the rarer forms of nervous disease.

Ophthalmic Operations as Practised on Animals' Eyes.

By CLARENCE A. VEASEY, A.M., M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic, etc. With 56 illustrations. Philadelphia: The Edwards & Docker Co. 1896.

This is a small manual of 94 pages upon ophthalmic operations as performed upon animals' eyes for the purpose of teaching students the technique of the various operative procedures commonly employed upon the human eye. All the common operations are described for the removal of a foreign body from the cornea, Mules's operation, and resection of the optic nerve. No doubt it would make a good text-book for students to follow in practice operations, in connection with a course on operative ophthalmology.

Las Inflamaciones Pelvianas de la Mujer, y su Tratamiento mas inteligente segun las Clinicas. Report made to the Eleventh International Congress of Medicine, Department of Obstetrics and Gynecology. Celebrated at Rome from the 29th of March to the 5th of April, 1894. By DR. D. CELESTINE MARTIN de ARGENTA, Director of a Gynecological Clinic and the Professor of Gynecology at Salamanca. Madrid: *La Revista de Medicina y Cirujia Practica*. 1894.

The author, after a very thorough and searching review of various abandoned pathological theories in gynecology, takes the very rational stand, that while it is of importance from a scientific standpoint for us to study the anatomical theories and sources of pelvic inflammation, yet these distinctions are from a clinical standpoint comparatively unimportant. He holds that there are too many refinements in our technical language, and that it would be better to place pretty much all of the inflammatory affections under the single title, "Peri-Metro-Salpingitis."

He then sets forth in detail a variety of arguments derived from analogy, in support of his belief that an inflammatory affection of any one of the sexual organs is necessarily accompanied by more or less of an inflammatory reaction in the whole generative system; from which he draws the inference that the treatment should be the same in all cases, excepting in so far as the degree of inflammation may warrant or not a surgical interference.

He believes that the introduction of ichthyol into gynecology has rendered it possible to cure almost all inflammatory affections of the generative organs without resorting to the knife, and describes in detail the manner in which he uses it. Internally, he gives half-grain pills of ichthyol, beginning with one pill three times a day, and increasing to a limit of 120 centigrammes. Locally, he resorts to thorough vaginal douches of corrosive sublimate and lysol solutions, followed by painting the vault with ten-per-cent. ichthyol and glycerine, and then by packing with iodoform gauze soaked in the same solution.

In severe cases he adds the use of ichthyol by rectal suppositories, and even abdominal injections of equal parts of ichthyol and lanolin. He believes that this treatment will lead to the resolution of all inflammatory lesions in which "suppuration has not yet been established or encysted." He is opposed to the operative treatment of any case without a previous resort to ichthyol. In rare cases he supplements this treatment by a curettage, but he appears to practically eliminate the radical operations from his treatment of inflammatory affections, other than acute pelvic abscess and large pyo-salpinx.

A First Series of Fifty-four Consecutive Ovariectomies, with Fifty-three Recoveries. By A. C. BUTLER-SMYTHE F.R.C.S. Ed., F.R.C.P. Ed., Senior Surgeon to the Grosvenor Hospital for Women and Children; Senior Surgeon to Out-Patients, Samaritan Free Hospital for Women and Children. London: J. & A. Churchill. 1897.

Mr. Butler-Smythe has recorded his experience in ovariectomies. The histories of the cases are given in detail, and a table of operations is appended. The first part of the work is the most satisfactory, for it gives the results of the personal experience of the author. It is interesting to note that the author, on

page 5, states: "Ether, or gas and ether, are almost invariably used at my operations. Curiously enough, on the only two occasions where chloroform was given, I very nearly lost my patients from syncope. I have witnessed several deaths from this anesthetic, and frequently have seen cases where only the most energetic measures have been successful in averting a catastrophe. I regret to say that I never feel comfortable when giving chloroform, or when operating on a patient under its influence. In my opinion ether is a much safer anesthetic; and next to ether I prefer gas and ether, or the A. C. E. mixture."

This, as the opinion of an English surgeon, is worthy of note; for we are often led to believe that chloroform is used with perfect safety in the hands of English practitioners. We congratulate Mr. Butler-Smythe on his record, and trust that he will again contribute to the knowledge of this subject as his experience increases.

A Course in Practical Histology. By E. A. SCHÄFER. Second edition; 12mo; pp. xi, 298. Philadelphia: Lea Brothers & Co. 1897.

We are pleased to welcome a second edition of this excellent little manual, showing many improvements, through the author's careful revision. The volume is attractive in appearance, well printed and sufficiently illustrated. It is especially adapted to the needs of medical students, and to the wants of the practitioner who uses the microscope, as more and more practitioners do every year. Care has been taken to select the methods which, in the author's experience, can be completely relied upon; and no attempt has been made to give anything approaching a complete account of modern methods, the multiplicity of which is bewildering, and many of which have been devised only for a particular line of research. There is a introductory chapter on the microscope and other apparatus; then follow chapters on the tissues and organs, describing the best methods for each.

To judge the merit of the book, we have examined, first, the selection of the methods; second, the character of the directions given. The methods chosen are all good, and in many cases undoubtedly the best; but in a few cases we note omissions which are regrettable. Perhaps the most important is the absence of Zenker's Fluid, which, though very recently introduced, has already taken its place as one of the most valuable fixing solutions yet devised. We miss also Cox's modification of the Golgi method, and should like a fuller presentation of the uses of methylene-blue. As regards the clearness of the directions, there is nothing to be desired beyond what the book offers. American readers will regret that less space is not given to the inferior microtomes, and more to the superior types, commonly used with us.

This manual will be found very useful in connection with all practical work. Histological descriptions are, of course, not included in its scope.

THE PAY OF POLICE SURGEONS.—The police surgeons of Washington, D. C., have joined in a petition to the Commissioners, urging an increase in their gross estimate for the pay of the police surgeons of the District. Under the present rate the surgeons receive a monthly salary of forty-five dollars. Last year the calls and office consultations amounted to over fifteen thousand, and under the present salary they were paid for each consultation less than nine cents.

THE BOSTON

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THE SURGERY OF THE STOMACH.

EWALD,¹ of Berlin, read before the recent International Medical Congress a paper on this subject, which his large experience renders of great interest. The prognosis of operation upon the stomach has definitely improved, although there is still a marked difference between the results as reported by surgeons and physicians. He had had under observation in the past two and a half years 29 cases of gastro-enterostomy, 17 cases of resection, and 22 cases of gastrostomy. In most of the cases the condition dealt with was carcinoma, but there were three cases of benign stricture of the pylorus. In all but three cases the immediate operative result was perfect. The following were the final results: 26 gastro-enterostomies, with 16 deaths, or 62 per cent.; 13 resections, with 9 deaths, or 69.2 per cent.; and 22 gastrostomies, with 12 deaths, or 54 per cent. mortality. These results are more unfavorable than those reported by surgeons, especially those from Mikulicz's clinic. But the surgeon, says Ewald, often regards a survival of the operation as a cure.

The limitations of the indications for operation, which are very variable, cause the statistics to vary; for example, the exclusion of manifestly unfavorable cases, which improves the statistics. The principal reason for failure lies in conditions which are beyond the surgeon's control. Cases often present insurmountable difficulties.

For the prognosis the following factors are important: (1) the position of the tumor on the stomach wall and the extent of surface involved; (2) the extent of metastatic involvement of other organs; (3) the extent of cachexia and consequently diminished powers of absorption and assimilation after the operation. Before opening the abdomen one can form no idea of the position and relations of the tumor. The so-called early diagnosis of carcinoma by analysis of the gastric secretion has not proved of value. The increase in the lactic acid appears, as a rule, later than the time the tumor first becomes palpable. Without the palpa-

¹ Centralblatt für Innere Medizin, September 25, 1897.

ble tumor the diagnosis can only be extremely doubtful. We operate earlier at present than formerly, only because we make up our minds to operate, as a rule, sooner. The possibility of early operation depends entirely upon early recognition of the tumor. Gastrostomy is little more than a method of producing euthanasia. Cases of carcinoma of the esophagus should be supported as long as possible by feeding through esophageal tubes or per rectum, and gastrostomy attempted only when the body weight begins to diminish to the danger point.

In cases which apparently present favorable conditions for operation, the prognosis is always doubtful, and interference should be advised only with a full understanding of this fact. The prospects of a cure are hardly 25 per cent. and of improvement not more than 50 per cent.

For every possible reason, cases which seem favorable should be brought to operation at the earliest possible moment.

SUBCUTANEOUS INJECTIONS OF THE SALICYLATE OF MERCURY.

WOLTERS,¹ who has previously written on the subject of the local changes after intra-muscular injections of the salicylate of mercury, reports his observations made on a syphilitic patient who had died shortly after the injections had been made. Six injections had been made, the last one three months before death. The conditions for examination were favorable, as the foci were well isolated in the muscle tissue. The points of injections were evident on the cadaver, in the form of small, firm nodules, a circumstance that has been noted before. In some cases these nodules could be felt at the end of a year. The patient in question died of a polyneuritis; but whether this was produced by syphilis, mercury, or both together, could not be determined. Microscopical examination of the muscle excised at the point of injection showed the muscle bundles affected, a part of the fibres being preserved while many others were degenerated, and replaced by a tissue made up of large cavities and meshes. The larger and smaller cavities were mostly bounded by connective-tissue fibres, which contained many nuclei. In places, they took the form of canals, which followed the long axis of the muscle. "Mastzellen," pigment-bearing cells and free pigment were present, but no signs of fresh inflammation except about the vessels. There was a mild grade of endarteritis, both of the arteries and veins. It was evident in all places that the sarcolemma of the individual muscle fibres was in a state of proliferation, and was continuous with the tissue which bounded the vacuoles, therefore the canals and cavities are lined with sarcolemma, whose nuclei are in a state of active proliferation. Hence the result of the injection of salicylate of mercury is the mechanical and chemical destruction of a certain number of muscle fibres, from which are pro-

duced the cavities and canals, lined with sarcolemma. The sarcolemma proliferates, and later atrophies and produces scar tissue. No fibrin and no micro-organisms could be detected, and no mercury was apparent. Wolters considers that the latter fact, namely, that no mercury could be found at the site of the *dépôt* three months after the last injection, serves to disprove the objection often made, that there is danger of sudden absorption for a long time. He believes that the fluid injected is driven in between the muscle fibres either at the time of injection or shortly afterward, and forms the cavities and canals. He is in doubt as to what importance to attach to mechanical, and what to chemical factors, but inclines to the opinion that the latter are more active, and that there is a slow breaking up of the material injected. In the case of calomel there is a more acute and active splitting up at the point of injection.

In the same number of the *Archiv.*, Schulze writes of the danger of pulmonary embolism from the injection of salicylate of mercury. He reports the case of a man of thirty-two, perfectly well hitherto, who was treated at intervals of from five to eight days with injections of this drug suspended in liquid paraffine for syphilis. Immediately after the fourth injection, as the patient had just left the house, great giddiness and chills were experienced, followed by a long fit of coughing, by vomiting, and by sharp stinging pains in the left pulmonary region, so that he could scarcely breathe. He was assisted home, and had during the night and the following day great difficulty in breathing and severe coughing fits, although no physical signs were present. After a few days the symptoms disappeared and the injections were renewed.

Schulze thinks that this was undoubtedly an instance of pulmonary embolus, which was produced either by paraffine (in which the mercury was suspended) or by a particle of the drug itself. These symptoms, occurring as they did within five minutes after the injection, correspond completely with those described by Lesser and others in emboli from the injection of insoluble mercurial salts. In seven cases reported by Quincke, the symptoms did not appear so soon after the injection as in the case above reported, but this may be due to the fact that oil was used instead of liquid paraffine. Schulze regards the pulmonary symptoms as less likely to be caused by mercurial intoxication than by circulatory disturbances of an embolic nature. Möller has shown that embolic symptoms may be produced in animals solely by the injection of paraffine or gum arabic without the addition of a mercurial preparation, although it cannot be doubted that the addition of the mercury increases the danger, probably by increasing the size of the plugs carried into the veins. If the symptoms were solely those of an intoxication, other symptoms, such as stomatitis and enteritis, would be likely to be present, sooner or later. Blaschke's caution is approved of, namely, to be sure there is no blood on or in the canula after inserting the needle, and before making the injection.

¹ *Archiv. f. Derm. u. Syph.*, 1897.

If these precautions are taken, Schulze considers that the intra-muscular injection of insoluble preparations of mercury becomes as safe as any other mode of using mercury.

MEDICAL NOTES.

THE PRINCE OF WALES' HOSPITAL FUND now amounts to nearly £184,000.

THE PASTEUR INSTITUTE FOR INDIA.—The Maharaja of Patiala has presented the Indian government with a site for the Pasteur Institute to be established at Simla.

A CURATIVE SERUM FOR YELLOW FEVER.—The daily press publish telegraphic reports from Montevideo stating that Dr. Sanarelli announces that he has discovered a curative serum for yellow fever.

A MUSICAL FOREIGN BODY.—The *Medical Press and Circular* quotes from the *Revue de Laryngologie* the case of a girl of thirteen, who was throwing up in the air a toy trumpet for the playful purpose of catching it in her mouth, when suddenly it slipped into the windpipe, and afterwards down into the right bronchus. The result was that at each inspiration and expiration the trumpet gave out a note that could be heard fifteen yards away. The patient refused operation, and death occurred twenty-three days later.

YELLOW FEVER.—During the past week, the doubt cast by local physicians of Galveston, Tex., upon Dr. Guiteras's diagnosis of the fever in that city has been removed, and the disease has also appeared at Houston, Tex. Shot-gun quarantines have paralyzed commerce and common-sense between these cities and New Orleans, and traffic on the Houston and Texas Central and Southern Pacific railroads is almost at a stand-still. Reports from Mobile are more favorable, and in New Orleans there has been no marked change in the situation since last week.

OLINGER'S CONSUMPTION CURE.—The following extract from the *Denver Republican* shows the skill which a layman, even an undertaker, may display in drawing inferences on medical subjects from "his observations":

J. W. Olinger, a Fifteenth-Street undertaker, has discovered what he thinks is an undisputed fact. From his observations he believes that no person having a missing arm or leg ever contracts consumption; and he therefore suggests that amputation might be added to the many cures for the disease which are offered by humanitarians. He thinks the idea worthy the attention of the medical world. He further concludes that if amputation checks the circulation, amputation may not be required if the circulation is checked. He invites correspondence on the subject.

SMOKE.—At a debate on smoking among the members of the British Association, many speakers denounced and others advocated the practice. Professor Huxley said: "For forty years of my life tobacco has been a deadly poison to me. [Loud cheers from the antitobacconists.] In my youth, as a medical student I tried to smoke. In vain; at every fresh attempt my insidious foe stretched me prostrate on the floor. [Repeated cheers.] I entered the navy; again

I tried to smoke and again met with a defeat. I hated tobacco. I could almost have lent my support to any institution that had for its object the putting of tobacco smokers to death. [Vociferous applause.] A few years ago I was in Brittany with some friends. We went to an inn. They began to smoke. They looked very happy, and outside it was very wet and dismal. I thought I would try a cigar. [Murmurs.] I did so. [Great expectations.] I smoked that cigar; it was delicious! [Groans.] From that moment I was a changed man; and now I feel that smoking in moderation is a comfortable and laudable practice, and is productive of good. [Dismay and confusion of the antitobacconists. Roars of laughter from the smokers.] There is no more harm in a pipe than there is in a cup of tea. You may poison yourself by drinking too much green tea, and kill yourself by eating too many beefsteaks." [Total rout of the antitobacconists and complete triumph of the smokers.]—*Medical Record*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, October 13, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 34, scarlet fever 41, measles 2, typhoid fever 26.

YELLOW FEVER ON A BOSTON-BOUND STEAMER.—The British steamer *Honiton* from Progreso, Mexico, for Boston, was detained off Vineyard Haven on October 8th by order of the Marine-Hospital Service, owing to the fact that she had lost three men from yellow fever on the voyage. She was brought from Vineyard Sound to Boston in charge of a pilot, and on arriving was detained at quarantine until October 11th, when having been thoroughly disinfected, she was allowed to proceed to her berth at Constitution Wharf. The crew were detained at quarantine a few days longer.

NEW YORK.

THE CRIMINAL AND THE STATE.—During the past week there was an exhibition of convicts' work and of various prison apparatus by the Prison Reform Association at its building in East 15th Street. One of the most curious collections in the exhibition was that of articles made by the inmates of the State Hospital for the Criminal Insane, at Matteawan, Dutchess County, of which Dr. H. E. Allison is superintendent, and in the same room with this was a series of plaster casts of noted criminals, affording opportunity for careful study.

During the three days' exhibition daily conferences were held in the rooms of the Association, and on the closing day, October 9th, the subject discussed was, "Criminal Types—Disease and Crime." The principal speaker was Dr. Austin Flint, who said, in part: "The criminal and crime, the treatment of the crime and of the criminal: these ideas come to me, as a physician, as of the first importance. It is not our prov-

ince to punish, much less to kill, unless the necessity is imperative. The worst thing we can do to a man is to kill him; the next worst is to imprison him. The best thing to do with a criminal is to cure him. It is with diffidence and yet with boldness that I allude to the practice of the judiciary, who are lawyers with no equipment for such work, attempting to decide the most intricate and delicate questions of psychology, a circumstance which often and inevitably leads to miscarriages of justice. It is often the fault of expert testimony, as it is given to-day, where the expert is an advocate and must make a good impression, that the court is misled. These questions of the mental condition of accused persons should be considered by a board of expert medical advisers, who shall determine what is the truth. There is a great deal of misapprehension of what is insanity. The matter would be simplified if one rule were followed. Insanity means a change, and every case must be measured by itself. What is a sign of insanity in one man is not in another — may in that other be natural to his condition or habits. Mere eccentricity is not insanity."

Dr. Flint said that while to-day, in his judgment, there is no such thing as a pathological anatomy of insanity, the world is standing on the threshold of the greatest discoveries. He predicted that the present study of the nerve cells of the brains of criminals would reach results that would make the best results hitherto attained seem almost trivial.

Secretary Round read a reply, strongly in the affirmative, by Dr. J. B. Ransom, physician at Clinton Prison, to the question: "Are you in favor of a Board of Medical Experts in court to determine matters within the province of the physician?" "A correct and efficient treatment must rest," he said, "as in all other departments of human affairs, upon proper classification as a primary and essential step to proper observation. Such classification, to be of value, must rest upon anthropological data. Inasmuch as anthropology is scientific and positively medical, the essential work of classification naturally falls within the physician's province, and can alone be performed by him. The first step, therefore, in classification, is the appointment to every criminal court of a competent physician or board of physicians to assist the court in determining expert questions relative to the criminal's physical and psychological condition at the time of the trial."

Dr. Allison, of the Matteawan State Hospital, then read a paper on "What Constitutes an Insane Criminal and What Status does he Occupy?" after which the Bertillon system was explained and discussed.

DR. EVANS'S PROPOSED CHARITIES. — Dr. Thomas W. Evans, the noted American dentist of Paris, who has treated the teeth of most of the royal families of Europe, sailed on the steamer *La Touraine* on October 9th, after a short visit to this country, the first that he has paid since 1856, when he went abroad to reside. Before starting he announced his intention to bequeath almost all his fortune, which is reported to be very large, to educational and benevolent insti-

tutions in America, and stated that he was already in communication with the heads of a number of universities in regard to the work and needs of their institutions. In particular, he has a special desire to establish a great dental school in Philadelphia, his native city, where deserving students may be enabled to acquire their profession at the least possible cost.

A NEW HOSPITAL FOR QUEENS COUNTY. — A new hospital, to be known as the Nassau Hospital, has been organized in Queens County, Long Island, and the association having the matter in charge has already secured temporary quarters for the institution at West Hampstead. It is proposed to erect a permanent hospital building at Mineola, and a successful entertainment in aid of the project was recently given at the Queens County Fair Grounds by the ladies of the towns in the vicinity.

DEATH OF DR. P. G. FRYE. — Dr. P. G. Frye, one of the oldest and best known physicians in Queens County, died at his residence at Oyster Bay on October 9th. He was eighty years of age. He was a native of Candia, N. H. He was much respected in the community, and at one time was President of the Queens County Medical Society.

DEATH OF DR. ARCHIBALD A. HIGGINS. — Dr. Archibald A. Higgins, a leading physician and former judge of Monmouth County, N. J., died at his residence at Manasquan, N. J., on October 9th, of Bright's disease. He was seventy years old. He was a member of the State Legislature in 1888 and 1889, and in 1893 was appointed by Governor Werts a lay judge of Monmouth County, in which capacity he served until legislated out of office by an act removing all lay judges in the State. He leaves a wife and one son, Dr. A. S. Higgins.

Miscellany.

BOSTON DISPENSARY.

THE statistics of this institution for the year ending September 30, 1897, are as follows:

The number of new patients treated at the Central Office is 28,865, classified as follows:

Medical Department. — Men, 3,058; women, 5,020; children, 4,775; total, 12,853.

Surgical Department. — Men, 1,466; women, 842; children, 663; total, 2,971.

Skin Department. — Men, 576; women, 627; children, 522; total, 1,725.

Department for Diseases of the Nervous System. — Men, 829; women, 1,235; children, 207; total, 2,271.

Department for Diseases of the Throat and Nose. — Men, 943; women, 863; children, 777; total, 2,583.

Department for Diseases of Women. — Women, 1,122.

Department for Diseases of the Eye. — Men, 354; women, 606; children, 389; total, 1,349.

Department for Diseases of the Ear. — Men, 230; women, 254; children, 284; total, 768.

Department for Diseases of the Genito-Urinary System. — Men, 2,261; women, 22; total, 2,283.

Department for Diseases of the Rectum and Anus. — Men, 113; women, 54; children, 1; total, 168.

Orthopedic Department. — Men, 121; women, 110; children, 42; total, 273.

Dental Department. — Men, 167; women, 159; children, 175; total, 499.

The number of visits made by patients old, and new, at the Central Office is 70,382, classified as follows:

Medical, 30,223; surgical, 40,159; total, 70,382.

The number of patients treated in the Districts is 15,352, including 448 cases of midwifery, classified as follows:

Men, 2,606; women; 6,020; children, 6,728; total, 15,352.

The results of treatment in the Districts are as follows:

Discharged, cured or relieved.	13,831
Removed to hospitals	1,271
Died	366
Remaining under treatment	90

15,458

Under treatment at last annual report 106

15,352

The number of visits made by the district physicians, 23,337

The number of patients treated at the Central Office and in the districts 41,323

The number of cases midwifery attended during the year 448

The number attended since July, 1856 8,497

Whole number of patients since October, 1796 1,378,845

Whole number of patients since July, 1856 1,259,682

Average daily attendance at the Central Office 230

Largest number present any one day, February 15th 383

Smallest number present any one day, January 28th 55

Number of recipes put up at the Central Office during the year 80,148

Number of house recipes 67,879

Number of district recipes 12,269

Largest number put up in any one day, February 15th 423

Smallest number put up in any one day, January 28th 90

The list of medical officers for the ensuing year is as follows:

Surgeons. — Drs. Edward O. Otis, Frederic M. Briggs, Edward A. Pease, Warren F. Gay.

Physicians. — Drs. Robert Disbrow, Thomas M. Rotch, Harold Williams, Edward M. Buckingham, William F. Temple, Henry Jackson, Robert W. Greenleaf, Samuel Breck, George A. Sargent, Edward L. Twombly, William E. Fay, William H. Prescott, Augustus S. Knight, Frederic R. Tower, John W. Bartol, Edmund C. Stowell, Alfred A. Wheeler, John N. Coolidge.

Department for Diseases of the Skin. — Drs. Francis B. Greenough, Abner Post, James S. Howe.

Department for Diseases of the Nervous System. — Drs. Frederic Coggeshall, William R. Woodbury.

Department for Diseases of the Throat and Nose. — Drs. John W. Farlow, Frederic C. Cobb, William S. Boardman, William E. Chenery. Assistant, Dr. Benjamin Tenney.

Department for Diseases of Women. — Drs. John B. Swift, George Haven, Malcolm Storer, Charles H. Hare.

Department for Diseases of the Eye. — Drs. Frank E. Draper, William E. Baxter.

Department for Diseases of the Ear. — Drs. Wallace Preble, Edgar M. Holmes. Assistants, Drs. Philip Hammond, Charles S. Wright.

Department for Diseases of the Genito-Urinary System. — Drs. Gardner W. Allen, Charles M. Whitney, Howard A. Lothrop, C. Morton Smith.

Department for Diseases of the Rectum and Anus. — Dr. Walter J. Otis. Assistants, Drs. Joseph C. Stedman, John S. Phelps.

Obstetric Department. — Dr. Charles M. Green. Assistants, Drs. Edward Reynolds, Charles W. Townsend.

Orthopedic Department. — Drs. Calvin G. Page, Chas. F. Painter.

Department for Mental Diseases. — Dr. Walter Channing.

Pathologist. — Dr. Edward M. Green.

Dentist. — Dr. A. H. Fisher.

District Physicians. — Drs. George M. Muttart, Fred Drew, Carl A. Ewald, Arthur L. Chute, Frank A. Higgins, William Cogswell, James S. Stone, George A. Harlow, William P. Coues, Sidney A. Lord, Richard F. Chase, Robert E. Edes.

Physician to Roxbury Central Office. — Dr. Henry F. Hewes.

Apothecary. — George Lachambre. Assistant, Everett C. Dodge. Dr. W. H. H. Hastings, Superintendent.

PERFORATION OF A GASTRIC ULCER INTO THE PERICARDIUM.

THIS accident is of such rare occurrence that the following comments of the *Lancet* upon a case reported in that journal for August 14th are of interest:

The probability of a gastric ulcer perforating the wall of the stomach depends chiefly on its situation. An ulcer on the anterior surface of the stomach will almost certainly lead to perforation if the ulcerative process continues; but should the ulcer be situated on the posterior wall adhesions form very readily, so that the stomach becomes adherent to the diaphragm or to the left lobe of the liver; but the diaphragm itself may become perforated by an extension of the ulceration, and then the ulcer may open into the left pleural cavity or into the pericardium. Perforation of the diaphragm by a gastric ulcer is decidedly a rare occurrence, and even when it does occur the pleura is much more frequently affected than the pericardium. Of 28 cases of perforation of the diaphragm by gastric ulcers collected by Ludwig Pick, only ten were cases in which the ulceration had perforated the pericardium. In the *Lancet* of August 14th is recorded a very interesting case which occurred in the practice of Mr. Collingwood Fenwick, in which a gastric ulcer had perforated the pericardium with an immediately fatal result, and yet no previous symptoms had occurred to point to the presence of the gastric ulcer. In four of the ten cases collected by Pick the two surfaces of the pericardium had become adherent before the ulceration had perforated, so that the ulcerative process involved the substance of the heart itself.

THE MISFORTUNES OF A MEDICAL MAN.

ALL the French daily papers have recently given much space to the discussion of the case of Dr. La Porte; and in *Le Matin*, a Paris daily, on September 21st, under the scare heads, "Obstetrical Butchery," "Delivery by Mallet Blows," etc., appeared an account of the case of the young doctor living in the Quartier de Charonne, whose experience furnishes food for reflection.

This young physician had been in practice since 1893. He had moved to the quarter only fifteen days before, and was one of those called upon to make night calls on the poor, for which they are inadequately paid by the police department. The compensation for a night visit to an obstetric case is the munificent sum of ten francs, or twenty francs if the physician personally delivers the woman.

It seems, according to the report, that Dr. La Porte answered a police call to a woman in the quarter who had been in labor for two days under the care of a midwife, who had unsuccessfully attempted to deliver her by operative means. On the doctor's arrival he found the woman much exhausted, administered chloroform, and after spending three-quarters of an hour in the attempt to apply the forceps, found that the lock would not work, and he could not get them on. He had no instruments for craniotomy; but considering that immediate delivery was imperative, he told the husband he must sacrifice the child's life to save the mother, called for the tool box, and attempted to perforate the

head, first with an upholsterer's needle, and then with a hammer and chisel. The husband, however, could no longer endure the sight of this "revolting butchery," and snatched the mallet and chisel from the doctor's hand; the woman came out of chloroform, and the doctor, as the husband would no longer allow him to proceed with the delivery, left the house, after protesting against the husband's interference with his operation.

Another physician was called, who had the woman sent to a lying-in hospital, where she died in about an hour after giving birth to a mutilated infant. An autopsy performed on the body of the woman showed that the bladder and peritoneum had been perforated by the upholsterer's needle.

The unfortunate physician had been locked up on the charge of incompetence and malpractice; the story of the operation is told, with the usual embellishments, by the daily press; the doctor is accused of carelessness and culpable neglect in not having suitable instruments at hand, and of butchery, in attempting to deliver the woman with a chisel and mallet. He, very reasonably, it seems, protests that instruments for craniotomy are not ordinarily carried by physicians even to instrumental deliveries, and that there was no time to send for them. The midwife loyally stands by the doctor, and says that he did not act with the brutality with which he is accused.

A physician, Dr. Erzbischoff, who is well and favorably known in the district, and has been in practice there for thirty years, according to the reporter, remarks: "My feeling is that my young friend acted unwisely in attempting so dangerous and difficult an operation without more experience, and the possession of suitable instruments, etc.," and then proceeds to display to the reporters the imposing array of brilliantly shining instruments in their cases "which no one ought to attempt obstetric cases without, etc." In the following issue of the paper the doctor comes out with the statement that he had been misrepresented, and that what he said was, that if Dr. La Porte had had a longer experience as emergency physician to the police department he would probably not have undertaken the operation of craniotomy single-handed, but would have sent the woman to a hospital.

Such incidents as the foregoing portray in startling colors the difficulties which beset the young practitioner among an ignorant class in the community. If he is a man of courage and confidence in his own skill, he is apt to undertake operative work in cases where another man, with less confidence, would send the patient to a hospital. Any surgeon doing emergency practice in the dwellings of the ignorant poor exposes himself, in case the patient dies, to the danger of getting into Dr. La Porte's situation. Such practice requires hard common-sense, avoiding timidity on the one hand and rashness on the other. The want of this quality, as well as the want of proper instruments, seems to have undone this doctor and this patient. The precaution of having the patient's family absent from the room, which physicians who practise among the well-to-do are able to take, is unfortunately impracticable in the dwellings of the poor, where, in cases of emergency, one is obliged to depend upon them for assistance.

As to Dr. Erzbischoff, he apparently talked too much.

To those who think the path of the poor young

physician is strewn with flowers, the following comparison by a writer in the *Canadian Medical Review* of the choice of a career between the Klondike and a medical education is worthy of consideration:

It may be asked by many a young man just now whether he should go to the Yukon or to a medical college. So far as the *Review* is concerned, it would not seriously advise either course to glory, a fortune or the grave. If, however, some youths, ambitious for fortune or fame, are determined to go to one or the other of the above places, then really the balance of argument lies in favor of the Yukon. By going to the latter place one will make something soon or lose everything in the attempt. Of two forms of death, it would appear that being frozen is full as easy as the gradual one of starving to death by the slow academical method of attending a medical college. What though fifty per cent. should meet with death by freezing or speedy starvation in the search for gold in the Klondike, would not the results in the end be better than that ninety per cent. should meet with disappointment in the search for gold after spending many years in the study of medicine? If either form of fever is to attack young men, we think the prognosis is decidedly in favor of the Yukon type, as compared with the medical-school type. The latter is a very lingering disease.

It is well in starting on either career to take plenty of provisions, and prepare for an arctic winter—in the case of the medical student of many years' duration.

Correspondence.

THE INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.

October 1, 1897.

MR. EDITOR:—Whatever the results, practical and otherwise, of the International Medical Congress recently held at Moscow, it is as yet too premature to judge; one thing, however, is certain: it has uncovered a *terra incognita* before the eyes of the scientific world; it has shown that the "Barbarians of the North" have progressed in medical and allied sciences by gigantic strides to a position not very far from that occupied by the other European nations. The Russian has proved himself to be not only an apt pupil, but also a careful and conscientious independent investigator. The difficulties of the Russian tongue have served as a great obstacle in the way of introducing the world of science to the vast accumulation of scientific labor and original research, of which the Congressists caught but a glimpse from the papers read by the Russians and from visiting the medical institutions of Moscow and other cities. There are fields of labor—as that of the so-called "zemstvo" physicians—which are peculiarly adapted to the conditions of life in Russia, and which cannot possibly be comprehended, and therefore appreciated by a foreigner: in these an enormous amount of work is done by thousands of quiet, unobtrusive practitioners, especially in the line of public hygiene, of which there is a truly lamentable lack in a great many parts of the empire, and which, in view of the ignorance of the population, it takes more than ordinary courage to establish.

As far as can be judged, the Congress—with the exception of some inevitable occurrences of an unpleasant nature—turned out to be a success. The great number of physicians, among whom shone not a few stars of the first magnitude, the abundance of papers presented, and the importance of the subjects discussed,—all prove conclusively that the medical world has accepted the invitation of Russia to the Congress most willingly; although it is not to be denied, that curiosity to see the "Russian bear" in his lair prompted not a few in responding to the call. What they saw in Moscow (or to be more explicit, what was shown to them of Moscow) was certainly a pleasant disappointment. I understand that the Executive Committee of the Convention, notwithstanding a great

many obstacles in their way (of which the foreigners need not necessarily be cognizant) have discharged their duties to the satisfaction of all, and it was certainly due partly to their efforts that the great numbers of foreigners left Moscow with a greater, so to say, scientific baggage, than they brought with them. Add to this the proverbial Russian hospitality, that seemed to even excel itself on the occasion, the unique features of Moscow — with its Kremlin, on one side, reminding one of some Asiatic city; and its hospitals, libraries, scientific collections, its great university, on the other hand — and you will readily perceive that the impression left on the minds of the foreigners by Russia and its representative scientists will be lasting and favorable. With the impressionable nature of the Russian and his almost fanatical love for science (a trait of character readily noticed by the keen Virchow) no one can foretell what a powerful impetus in the direction of scientific investigation the Congress has given to Russian science. At the same time nothing could so elevate the standing of Russian culture beyond the confines of the empire.

Not by any means the last party to profit by the "feast of science" is the Russian government. Constantly holding in check the embryonic public opinion of the land, the Russian government has always striven to create for itself a favorable public opinion in Europe (the utility of such a policy does not concern us here), sometimes at the expense of a great deal of energy, as by subsidizing certain parts of the press in Europe, keeping a whole system of spies, etc. It requires no fertile mind to comprehend, that having taken a most active participation in the preparations for the Congress, and having extended unbounded hospitality to the foreigners (for if the Russian government *does* do things, it does not do them by halves), the Czar himself taking an almost direct interest in the proceedings, the government has won over to its side hundreds of intelligent staunch supporters, who will carry with them pleasant remembrances into all the corners of the habitable globe. This is by no means a matter of small importance. We all remember the flutter of excitement and the adverse criticism toward the Russian liberals, created by the sensational reports of Rev. DeWitt Talmage's visit to St. Petersburg and his interview with the Czar, who not only allowed him to enter his most august presence, but actually permitted him to taste of his cuisine and to pat his children!

As if to strengthen the political *mésalliance* between France and Russia, the next Medical Congress has chosen Paris as its place of meeting. But strange to say, as compared with the Germans, both quantitatively and qualitatively, the French were insufficiently represented in Moscow. Besides, the methodical Germans had their Committees all prearranged long before the opening of the Congress, while the Frenchmen were rather slow in doing so; hence, very probably, the great difference in the respective representations.

Of the many famous men present no two attracted as much attention as the great master Rudolf Virchow and the founder of the modern school of criminology, Cesare Lombroso. The venerable old teacher, who counted among those present many a gray-haired pupil (Virchow is seventy-six years old) of his, called out quite a pathetic protest, when he intimated in his opening speech that this may be the last medical congress he is able to attend. Of his several addresses that in the Section of General Pathology on the "Rôle of the Vessels and of the Parenchyma in Inflammation," seems to be the most notable one.

A deputation from the women physicians of Russia thanked him for his efforts in behalf of the medical education of women; in 1893, when the women were not admitted to the University, Professor Virchow was the first to open his lecture-rooms and laboratories to them. In reply he said, that the woman brings into her scientific work an idealism and the purity of her soul. He also expressed his delight at the opening of the medical school for women in St. Petersburg.

Prof. C. Lombroso, whose appearance was hailed with delight, as he has quite a number of appreciative admirers

among the Russians, delivered, among others, a notable address on the "Latest Requisitions of Psychiatry." An unassuming servant to medicine, psychiatry has invaded so many departments of knowledge, that no other branch of science can be compared to it. She has given a new and more perfect classification of hysteria, she has elucidated many points regarding epilepsy, revealed the etiology of pellagra, alcoholism, ergotism, discovered a whole series of degenerative processes in cretinism, goitre and myxedema, at the same time giving us means to either foresee or to cure these degenerations. She has explained the nature of the phenomena of epidemic fanaticism. She has succeeded in proving that a great many of the so-called criminals are in reality sick men who, instead of being punished, must be subjected to medical treatment. Guided by clinical experimentalism, the progressive alienists came to the conclusion, that they must study rather the patient than the disease, that they must find in the patient's physical and functional disturbances as much as they look for in psychical alterations. Fortified by their first successful efforts the alienists continued in the same direction, hoping to discover certain characteristic traits, that would aid them in distinguishing the sane from the insane. Without as yet finding these, they nevertheless established a new method of investigation in the domains of psychiatry and crime. They have concluded, that against the *a priori* investigation of the crime, we must put the direct analytical examination of the criminal himself, and of the conditions of life surrounding him; guided by this idea, our system of punishment must be such as to act rather less severely, but the law must strive to set aside the conditions creating the criminal.

In the domain of psychology she has first of all shown the parallelism between the phenomena of ideation, so far beyond and above our control, on the one hand, and the phenomena of perception, so easily verified, on the other hand. We all know the perseverance of very strong and very prolonged impressions, that are left even after the subject causing them, has disappeared. This law of perseverance is found to be uppermost in the mental sphere of the insane; thus one patient who became insane because of fright caused by an explosion of powder, continued to imagine himself in the midst of flames. Such and a great many other facts assist us in comprehending the mechanism of thinking. In the cortical strata of the brain in which thought is formed there takes place a movement, analogous to that said by the physiologists to take place in the end-fibres of the sensory nerves.

Psychiatry thus leads us further than pathological anatomy. Thought presents in reality the diminished image of the subject, an image called out by sensation. But while in the condition of waking, thanks to the predominance of brighter perceptions, this image is so pale, that we are unable to determine its nature. Only when these perception phenomena disappear, as in sleep, in the hallucination of the monomaniac or of the hypnotized subject, does the idea become what it was, that is, an image. But it is while studying hypnotism and hysteria, that the secrets of psychical phenomena are revealed to us, because knowledge of these mental conditions enables us to understand the secret with the aid of experimental investigation. Facts prove that thought is connected with the law of molecular motion of the cortical brain matter.

Professor Lombroso paid a flying visit to Count Leo Tolstoi, whom he considers one of the greatest minds of the century, and does not at all agree with Dr. M. Nordau in classing him among the great degenerates. Unfortunately, one of the count's sons was just then passing through a severe typhoid, and the doctor's stay had to be shortened.

In the Section of Gynecology and Obstetrics, Professor Sneguireff, of Moscow, delivered the Chairman's Address, in the course of which he pointed to the picture of Raphael's Sistine Madonna as a perfect type of healthy and beautiful womanhood, for which science and art must strive. "Take care that the cradle of humanity is healthy, because health is beauty, beauty is truth, and truth is happiness. The peace of the future and happiness on earth consist in the

knowledge of preserving one's strength, given by nature, and in developing the harmony founded on mutual love and respect. Not only may the woman enjoy the rights that we enjoy, but she must have more rights and less duties."

By the number of important papers under discussion the Section on Hygiene was one of the most interesting. Prof. V. Vaughan, of Ann Arbor, Mich., read a very able paper on the examination of drinking-water, and Professor Novy, of the same University, on the necessity of instruction in the elementary schools in the measures for combating infectious diseases. To organize the work of public hygiene, Dr. Burgertern recommends in his paper the systematic spreading of popularly written treatises on the subject by the aid of some official method; the instruction in hygiene by competent teachers in all the schools of the land; the establishment of chairs to institutes of hygiene in connection with every medical school so as to prepare a sufficient number of specialists in public hygiene; a special sum to be designated by the central government for the purpose of instructing the people in hygiene.

Among other addresses in the same Section was one on "Alcoholism in its Relation to Public Hygiene." Dr. Grigorjeff, of St. Petersburg, brought forward some interesting statistics concerning the State monopoly of the sale of alcohol in Russia; in general it has tended to diminish the evil. Dr. Yarosheffsky, of Samara, discussed the special hospitals for alcoholics. He and Dr. Korovin have among other things called the attention of those present to the fact, that among those battling against the great evil in the civilized communities, the physicians are not to be found; although they could do much more than the various prohibition societies, whose utility is after all a matter of fiction rather than of reality; alcoholism is to be considered as a sort of an epidemic disease and treated accordingly.

A most brilliant address was delivered by the famous neuro-pathologist, Krafft-Ebbing, on the "Etiology of Progressive Paralysis." It was a skilful analysis of the condition of modern civilized life, done by the hand of a master. He pointed out that the modern man has paid dearly for the great progress in trade, manufacture, agriculture and for the innumerable inventions. The intensity of the modern life is still more enhanced by the political activity, the great diversity of opinions, the struggle for existence, not only among individuals, but among classes and nations; the nervous system is thus in a condition of never-ceasing excitation, increased by the abuse of the various nervines, as tobacco, tea, coffee, alcohol. The physical degeneration of the great masses of people segregated in the large manufacturing centres is the true reflection of their miserable conditions of life, and appears as rachitis, scrofulosis, tuberculosis, etc. The female is not surrounded by any more favorable circumstances. Such conditions form certainly a very fertile soil for the development of various nervous disorders, among which progressive paralysis occupies a pre-eminent place. The ever-spreading curse of syphilis is probably the most important etiological factor in the causation of the disease; he would, however, not commit himself to considering syphilis as a *sine qua non* in the etiology of progressive paralysis. If he were to state the etiological factors of the disease he would say: "civilization and syphilization."

Another hardly less interesting and important address was that by Prof. I. Metchnikoff on "The Plague." The interest in the paper was heightened by the fact, that the author applied the comparatively new method of serum-therapy in the treatment of the disease, which up to lately was considered only as a subject of historical interest and not of medical importance; but its recent appearance in India and in Hong Kong has attracted the attention of the scientific world. Recent investigation of the plague has enabled us to diagnose the disease early and to check its spread in time, and so perfected has the method become that even a student is now able to diagnose a case of the plague.

Very truly yours,

A. ROVINSKY, M.D.

METEOROLOGICAL RECORD

For the week ending October 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...26	29.88	68	79	56	76	99	S.W.	N.W.	8	16	O.	R.	.08
M...27	30.04	52	60	45	66	52	N.W.	N.W.	20	17	C.	C.	
T...28	30.20	52	62	41	59	36	W.	N.W.	12	15	C.	C.	
W...29	30.28	56	67	45	48	49	N.W.	N.W.	15	2	C.	C.	
T...30	30.24	63	76	50	65	67	W.	S.W.	3	10	C.	C.	
F....1	30.12	71	86	56	62	61	N.E.	W.	16	11	C.	C.	
S....2	30.66	50	56	44	73	47	N.E.	N.E.	6	26	C.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 2, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,060	710	282	12.46	14.98	7.56	.56	2.66	
Chicago	1,619,226	359	113	18.90	10.80	12.96	2.70	2.70	
Philadelphia	1,214,256	342	106	14.50	13.63	3.19	1.16	8.37	
Brooklyn	1,160,000	351	141	17.36	12.88	9.52	1.40	4.76	
St. Louis	570,000	140	29	12.73	15.62	.71	4.26	2.13	
Baltimore	550,000	188	68	9.34	—	3.74	—	3.18	
Boston	517,732	172	68	15.46	10.44	9.6	2.90	2.32	
Cincinnati	405,000	91	—	13.08	11.99	4.36	3.27	5.45	
Cleveland	350,000	78	32	5.12	3.84	1.28	2.56	1.28	
Pittsburg	285,000	—	—	—	—	—	—	—	
Washington	277,000	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	25	7	8.00	16.00	—	—	—	
Worcester	105,050	38	13	15.78	10.52	13.15	—	—	
Fall River	96,919	46	25	17.36	4.34	13.02	—	—	
Lowell	87,193	28	12	17.85	7.14	17.85	—	—	
Cambridge	86,812	21	9	23.80	19.04	9.52	9.52	—	
Lynn	65,320	17	—	23.52	—	—	—	—	
Charleston	65,165	36	11	19.39	—	11.76	—	—	
New Bedford	62,416	29	12	3.45	13.80	—	3.45	—	
Lawrence	55,510	22	13	45.65	—	33.20	—	4.16	
Springfield	54,796	11	6	28.56	14.28	14.28	—	14.28	
Holyoke	40,000	—	—	—	—	—	—	—	
Portland	36,062	7	1	—	28.56	—	—	—	
Salem	35,753	—	—	—	—	—	—	—	
Brockton	32,884	7	3	42.84	—	14.28	—	—	
Malden	32,716	7	—	14.28	14.28	14.28	—	—	
Chelsea	31,406	8	—	—	—	—	—	—	
Haverhill	23,475	—	—	—	—	—	—	—	
Gloucester	28,890	7	5	14.28	14.28	14.28	—	—	
Newton	28,392	5	2	20.00	40.00	20.00	—	—	
Fitchburg	27,812	11	—	18.18	27.27	9.09	—	9.09	
Taunton	22,662	—	—	—	—	—	—	—	
Quincy	21,891	—	—	—	—	—	—	—	
Pittsfield	21,812	4	0	—	25.00	—	—	—	
Waltham	21,575	8	4	37.50	12.50	12.50	—	—	
Everett	17,448	—	—	—	—	—	—	—	
Northampton	14,794	—	—	—	—	—	—	—	
Newburyport	14,794	—	—	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,854; under five years of age 1,003; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 431, consumption 337, acute lung diseases 219, diarrheal diseases 222, diphtheria and croup 103, typhoid fever 51, whooping-cough 51, malarial fever 15, scarlet fever 12, cerebro-spinal meningitis 7, measles 5, erysipelas 2.

From whooping-cough Chicago 10, Baltimore 7, St. Louis 6, Brooklyn and Boston 5 each, New York and Philadelphia 4 each, Cincinnati 3, Cleveland, Charleston and Cambridge 2 each, New Bedford 1. From scarlet fever New York 5, Philadelphia, Brooklyn and Lawrence 2 each, Baltimore 1. From malarial fever St. Louis 6, Baltimore, Nashville, Charleston and Fall River 2 each. From cerebro-spinal meningitis Lynn 2, New York, St. Louis, Worcester, Malden and Everett 1 each. From

measles New York, Chicago, Baltimore, Providence and Cambridge 1 each. From erysipelas Chicago and Baltimore 1 each. In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending September 25th, the death-rate was 17.1. Deaths reported 3,600, diarrhoea 237, diphtheria 75, fever 57, measles 54, whooping-cough 51, scarlet fever 43.

The death-rates ranged from 22.5 in Liverpool to 10.4 in Swansea; Birmingham 20.0, Bradford 16.7, Cardiff 14.7, Gateshead 16.0, Huddersfield 14.9, Hull 18.5, Leeds 15.7, Leicester 16.9, London 15.7, Manchester 22.3, Newcastle-on-Tyne 18.7, Norwich 14.7, Nottingham 16.3, Portsmouth 14.0, Salford 20.1, Sheffield 22.4, Sunderland 21.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 2, 1897, TO OCTOBER 8, 1897.

CAPTAIN RICHARD W. JOHNSON, assistant surgeon, ordered to proceed from Fort Logan, Col., to Fort Douglas, Utah, and report for temporary duty.

FIRST-LIEUT. LEIGH A. FULLER, assistant surgeon, is relieved from duty at Fort Meade, S. D., and ordered to Fort Assiniboine, Mon.

FIRST-LIEUT. EDWARD L. MUNSON, assistant surgeon, is relieved from duty at Fort Assiniboine, Mon., and ordered to Fort Adams, R. I.

CAPTAIN GEORGE MCCREERY, assistant surgeon, is relieved from temporary duty at the U. S. Soldiers' Home, Washington, D. C., and ordered to Fort Myer, Va.

CAPTAIN EDGAR A. MEARN, assistant surgeon, is relieved from duty at Fort Myer, Va., and ordered to Fort Clark, Tex.

CAPTAIN JAMES D. GLENNAN, assistant surgeon, is relieved from duty at Fort Clark, Tex., and ordered to Fort Myer, Va.

The order assigning CAPTAIN NORTON STRONG, assistant surgeon, to duty at Fort Myer, Va., is revoked.

CAPTAIN ROBERT R. BALL, assistant surgeon, died October 5, 1897, at Washington, D. C.

Leave of absence for one month is granted FIRST-LIEUT. THOMAS J. KIRKPATRICK, JR., assistant surgeon, Fort Douglas, Utah.

PROMOTION.

CAPTAIN JUNIUS L. POWELL, assistant surgeon, to be surgeon, with the rank of Major, October 1, 1897, *vice* BROWN, retired.

RETIREMENT.

MAJOR PAUL R. BROWN, surgeon, having been found by an Army Retiring Board incapacitated for active service by reason of disability incident to the service, by direction of the President, retired from active service this date, October 1, 1897.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The first regular meeting of the year 1897-98 will be held at the Medical Library, 19 Boylston Place, on Monday evening, October 18th, at 8 o'clock.

The leading subject of the evening will be "Physical Training in the Public Schools." Dr. Walter Channing will make a report on behalf of a committee appointed to investigate the question. Other speakers will be Drs. C. J. Blake, E. H. Bradford, W. M. Conant, E. M. Hartwell, and, by invitation, Dr. S. H. Calderwood.

Dr. H. F. Vickery will report a case of "Transposition of the Viscera."

Dr. Thomas Dwight, by invitation, will demonstrate a new original model of the Abdominal Viscera.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will hold its first meeting of the year at the Medical Library, 19 Boylston Place, Wednesday evening, October 20th, at 8 P. M.

Short communications by Drs. A. A. Taft, Mark W. Richardson, R. C. Cabot.

Paper by Dr. C. N. Barney: "Cerebral Syphilis; with Report of a Case of Chronic Meningo-Encephalitis, Secondary to Syphilis." Discussion opened by Dr. J. J. Putnam.

Meeting of November 17th. Drs. W. W. Gannett and Wm. T. Councilman: "Yellow Fever."

E. W. TAYLOR, M.D., *Secretary*.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, October 27, 1897, at 8 P. M.

Papers: Dr. Storer, "Vulvo-Vaginitis in Children." Dr. Burrage, "Some Results of the Postural Method of Draining the Peritoneal Cavity after Abdominal Operations."

F. W. JOHNSON, M.D., *Chairman*.
C. H. HARE, M.D., *Secretary*.

RECENT DEATH.

ROBERT B. MORISON, M.D., of Baltimore, died suddenly September 30th. He had for some time been afflicted with Bright's disease. He was born in Baltimore and was a son of the late Dr. N. H. Morison, for many years provost of the Peabody Institute, and a nephew of the late Rev. J. H. Morison, D.D., of Milton. Dr. Morison entered Harvard with the class of 1873, but left college at the end of his sophomore year. He graduated from the medical department of the University of Maryland in 1874, and afterwards studied for several years in the hospitals of Europe. He was at one time in the faculty of the University of Maryland, and subsequently dermatologist at Johns Hopkins Hospital. He had a wide reputation as a dermatologist, and was formerly a frequent contributor to medical journals. He had been president of the American Dermatological Association.

BOOKS AND PAMPHLETS RECEIVED.

Recurrent Gall-Stones. Angioma of Spleen. Excision of Cecum. By John Homans, M.D., Boston, Mass.

E. Merck, Darmstadt, Verzeichniss Sämmtlicher Präparate, Drogen, und Mineralien mit Erläuterungen. 1897.

The Diagnosis and Treatment of Chronic Gastric Catarrh. By Frank H. Murdoch, M.D., Pittsburgh, Pa. Reprint. 1897.

Remarks on Laminectomy, with Report of a Case done Sixteen Months after Fracture. By Oscar J. Mayer, M.D., San Francisco. Reprint. 1897.

Report of the Commissioner of Education for the year 1895-96. Volume I, containing Part I. Washington: Government Printing Office. 1897.

Fiftieth Anniversary of the Hartford Medical Society, founded September 15, 1846. Proceedings at the Celebration October 26, 1896, at Hartford, Conn.

The Treatment of Malaria. Clinical Lecture delivered at the Philadelphia Hospital. By Judson Daland, M.D. (Univ. of Penna.), Philadelphia. Reprint. 1897.

A Criticism of Modified Milk and of Modern Dairy Methods. Some Personal Observations upon the Effects of Changes of Climate upon Men and Animals. By Richard Cole Newton, M.D., Montclair, N. J. Reprints. 1897.

Epiphora, or Watery Eye; Lachrymal Abscess; Necrosis of the Bony Walls of the Lachrymal Canal; Implantation of a Glass Ball for the Support of an Artificial Eye; Grattage for the Radical Cure of Granular Lids. By L. Webster Fox, M.D., Philadelphia. Reprint. 1897.

Appendicitis and Its Surgical Treatment, with a Report of Seventy-five Operated Cases. By Herman Mynter, M.D. (Copenhagen), Professor of Operative and Clinical Surgery in Niagara University, and Surgeon to the Sisters of Charity Hospital in Buffalo, N. Y. Philadelphia: J. B. Lippincott Co. 1897.

The Origin of Disease, Especially of Disease Resulting from Intrinsic as Opposed to Extrinsic Causes, with Chapters on Diagnosis, Prognosis and Treatment. By Arthur V. Meigs, M.D., Physician to the Pennsylvania Hospital. With 137 original illustrations. Philadelphia: J. B. Lippincott Co. 1897.

Essentials of Obstetrics. By Charles Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Pediatrics in the Long Island College Hospital, and Obstetrician to the Hospital, assisted by Harold F. Jewett, M.D. Illustrated by 80 wood-cuts and three colored plates. New York and Philadelphia: Lea Brothers & Co. 1897.

Tuberculosis of the Genito-Urinary Organs, Male and Female. By N. Seun, M.D., Ph.D., LL.D., Professor of Practice of Surgery and Clinical Surgery, Rush Medical College; Attending Surgeon to the Presbyterian Hospital; Surgeon-in-Chief, St. Joseph's Hospital, Chicago. Illustrated. Philadelphia: W. B. Saunders. 1897.

The Diseases of Women, a Hand-Book for Students and Practitioners. By J. Bland Sutton, F.R.C.S., Eng., Surgeon to the Chelsea Hospital for Women; Assistant Surgeon, Middlesex Hospital, London, and Arthur E. Giles, M.D., B.Sc., London, F.R.C.S., Edin., Assistant Surgeon, Chelsea Hospital for Women, London. With 115 illustrations. Philadelphia: W. B. Saunders. 1897.

A Manual of Legal Medicine for the Use of Practitioners and Students of Medicine and Law. By Justin Herold, A.M., M.D., formerly Coroner's Physician of New York City and County; late House Physician and Surgeon of St. Vincent's Hospital, New York City; Member of the New York County Medical Association, Medico-Legal Society, etc. Philadelphia: J. B. Lippincott & Co. 1897.

The Normal and Pathological Circulation in the Central Nervous System (Myel-Encephalon). Original Studies by William Browning, Ph.E., M.D., Attending Neurologist to the Kings County Hospital; Lecturer on Normal Neurology at the Long Island College Hospital, etc.; Member of the Society of American Anatomists, the American Neurological Association, etc. Philadelphia: J. B. Lippincott Co. 1897.

Original Articles.

A NEW METHOD FOR THE REMOVAL OF DISEASED PROCESSES IN THE NECK POSTERIOR TO THE STERNO-MASTOID MUSCLE.¹

BY FRANK HARTLEY, M.D., NEW YORK,
Surgeon to the New York Hospital.

GENTLEMEN:—I wish to thank you for the honor you confer upon me to-night, and to ask your indulgence if I am repeating to you what you may already know better than I.

For some years I have been especially interested in the surgery of the neck, and have paid particular attention to the manner in which operators have progressed when attacking extensive disease in this region. I must admit that I see but few who seem to be so thoroughly conversant with the anatomy that they proceed with ease and confidence in the detailed work of an operation, give themselves a sufficient field in which to do their work and avoid hugging too closely the diseased tissue. It is the exception to find one who willingly operates in the distinctly uninvolved region, dissecting out the important structures first and finally removing the growth itself, unless that region be some such a one as the submaxillary triangle.

I wish, therefore, to call to your notice a method of operation designed for a more thorough removal of processes in the neck involving the space occupied by the sheath of the carotid, and in front, beneath and behind the sterno-mastoid muscle.

For those who operate continually upon the neck many cases of glandular enlargement will necessarily come under their observation; and although the minor degrees of these enlargements are easily removed by the normal and adopted incisions in front or behind the sterno-mastoid, or curved incisions exposing the submaxillary and superior carotid triangles, or a combination of these incisions, nevertheless, a sufficient number remains where no combination of these incisions will expose a sufficient area for a careful and precise dissection of the vessels and nerves from the infiltrating and adherent mass without extensive scars.

The complete exposure of the important parts of the neck at the beginning of the operation renders it safer and consumes less time than when one is adding incisions to expose certain extensions of the disease. Especially is this the case where the growths are extensive, as in carcinoma and sarcoma, where we wish to operate wide of the disease and must have the field to work in. For this work usually the operator is content with making his incision in front of the sterno-mastoid, only to find if the case be an extensive one, that he must either do unsatisfactory work, and not divide the sterno-mastoid muscle, or he adds another incision behind this muscle and works beneath it. In other incisions he makes the H incision with division of his sterno-mastoid muscle, and leaves parts of three scars to be subsequently seen.

It has been my custom in general to use for the sub-

maxillary triangle the incision adopted by Kocher for the tongue. A straight incision on the anterior border of the sterno-mastoid for the superior and inferior carotid triangle, and an incision behind the sterno-mastoid for the posterior superior triangle; but in all these cases the disease is not extensive and does not involve extensively the region beneath the sterno-mastoid muscle.

When the disease involves, however, the space beneath this muscle, encroaching upon the superior and inferior carotid triangles, as well as the posterior triangles of the neck, my method of procedure has been as follows:

The incision begins generally just below the mastoid process, a variable distance, depending upon the upper level of the growth, and passes in front of the sterno-mastoid muscle to its middle, when the direction is slightly altered to end at a point one inch above the sterno-clavicular articulation, thence laterally with a rounded angle above the clavicle and across the poste-



rior triangle of the neck a sufficient length to expose this region and to allow a line drawn from the two extremities of the incision to pass behind the posterior margin of the mass.

We now incise to or through the platysma muscle and strip back the skin to beyond the growth, so that when the flap is held up a straight line will be made from the two extremities of the incision along the attached border of the flap. The external jugular is tied above and below. Anteriorly, we expose the posterior belly of the digastric muscle and the omo-hyoid muscles as landmarks. This brings us into direct relation with the common facial vein, facial artery, the lingual, occipital, posterior auricular and superior thyroid arteries and veins and the hypoglossal and descendens noni nerves in the upper triangle, while in the lower triangle beneath these muscles are the jugular (internal) vein and the common carotid artery. At this level on the posterior border of the sterno-mastoid muscle we expose and divide, if necessary, the superficial branches of the cervical plexus (the ascending, transverse and descending), and recognize distinctly the spinal accessory nerve above and the omo-

¹ Read before the Surgical Section of the Suffolk District Medical Society, April 30, 1897.

hyoid muscles below, placing us in relation with the anatomy of the posterior triangles.

We now divide the sterno-mastoid about its middle from without inward, so as to recognize the posterior layer of the fascia forming its sheath. In some instances the muscle is already so stretched by tubercular glands and so easily retracted that this division is not necessary. Yet I think in such cases, unless the disease involves an extensive area both anterior and posterior to the sterno-mastoid as well as behind it, the anterior or posterior straight incision would rather have been indicated. In case the sterno-mastoid is divided and its posterior sheath recognized, it is lifted above with the retractor and the spinal accessory nerve is seen entering and traversing the muscle. The descending noni, the jugular vein and carotid artery, and possibly pneumogastric nerve and sympathetic nerve should now be recognized and seen. The lower half of the sterno-mastoid is now reflected below in the same manner. This gives us at this level the omohyoid muscle and immediately internal to it the sterno-hyoid muscle, the common carotid artery, internal jugular vein, and the communications with the anterior and external jugular vein, behind which is the pneumogastric nerve, the sympathetic nerve and the vertebral artery. We also see here the upper branches of the brachial plexus and the communication with the lower cervical nerves.

It is here and at this level that one extirpating either glands or a new growth must dissect with the greatest care, both in order not to injure the communicating branches of the cervical with the brachial nerves or the muscular branches of the brachial plexus. Yet it can be accomplished in all cases where operation should be attempted, and in those cases where the nerves must be sacrificed the chances for prolongation of the life of the patient must counterbalance the paralysis following. This avoidance of injury to the nerves can generally be done by remembering to keep well above the scalenus anticus, medius, levator anguli scapulæ and to dissect closely to the mass here until the nerves are seen. In the upper portion of the field the danger consists in extensive cutting as one approaches the spinal accessory just as it passes beneath the jugular vein, as we wish to preserve its connection with the three cervicals before its entrance into the sterno-mastoid as well as the first two cervical with the hypoglossal, and the three upper cervical with the sympathetic ganglion (superior). The third and fourth nerves, together with the second and third, give us the sensory nerves, and these may, if necessary, be divided without concern. The muscular branches are situated so close to the muscles which they supply, and so close to the scaleni over which they pass, that injury to them is not feared with reasonable care.

The brachial plexus proper, that is, the cords forming it, is so well protected by the scalenus anticus and medius that there is little fear of injury to it.

Yet here in a close dissection we wish to avoid the rhomboid branch from the fifth passing through the scalenus medius and beneath the levator anguli scapulæ, the subclavian from the fifth and sixth passing over the plexus and subclavian artery to the subclavius muscle, the supra-scapular from the fifth and sixth branches passing in the posterior superior triangle beneath the trapezius and to the supra-spinatus muscle.

The branches from the third, fourth and fifth to the phrenic are not so liable to injury since the dissection

here is oftener easier because of the later infection of glands; and if the process were malignant it would contraindicate operative interference. In this portion of the wound is also seen the subclavian artery, internal jugular vein with subclavian veins, the thyroid axis, the vertebral artery, and once I have recognized the thoracic duct. There is little danger of injuring these structures provided one protects them with blunt retractors and has a perfect and clean view of his field of work.

The anatomical points to remember may seem to many surgeons somewhat extensive, and so to endanger too much the life or future usefulness of the patient; but I will answer to this that those who do their work in narrow and ill-lighted fields in dangerous regions are themselves more liable to two dangers, either the incomplete removal of the tumor or the injury of just the particular tissues mentioned. In such a region and for the class of cases for which it is to be used it should be the idea of the surgeon to locate his growth first in reference to its relation to the surrounding important parts and remove them from the tumor, rather than the tumor from them, for the best healing of large wounds is found when the tissue left is perfectly uninvolved by the disease, and the imperfect nutrition of the tissue from the pressure, etc., of the growth has been relieved.

The conditions in which this method of procedure may be used are (1) tubercular lymphadenomata occupying the space uncovered by the flap, especially those cases of more or less rapidly growing lymphadenoma which have been known as Hodgkin's disease, pseudo-leukemia, etc., many of which are now found to be tubercular and which when thoroughly extirpated do not recur, as I can testify in a number of cases; (2) chronic hyperplastic lymphadenomata; (3) malignant glands or tumors when deemed removable; (4) thyroïdal accessory growths; and (5) the deep branchogenic tumors of this region. All of these cases may be considered as applicable to this incision when they occupy the region mentioned, that is, behind the sterno-mastoid as well as in front, and which are not fully exposed without a division or retraction of the muscle.

Such cases are in my mind more rapidly performed when the muscle is divided at first — and certainly more carefully, safely and completely. I am most certainly in favor of the complete removal of the disease, whatever it may be; and the imperfect results I have seen have always been those in which such a removal was not or could not be carried out. In no instance where such a removal was accomplished has there been a directly local return. Even in tubercular abscess in this region its enucleation in this manner has always been followed by the kindest healing. An incision such as this carries out the surgical demand to make an incision in the skin sufficient to allow a careful and safe procedure in the depth. The extent of the remaining scar is of no importance, provided that it fall in the normal direction and is attended with an exact suture. Langer's investigation in the normal-skin cleavage has shown that in certain directions in the body incisions will vary much in gaping of the wounds, so that in one direction the borders of the wound will of themselves remain apposed, in other directions will gape more or less extensively. More important is also (and these two points often correspond) the direction of the vessels and nerves.

The incision mentioned here follows as near as possible the natural cleavage of the skin and the direction of the muscles and nerves, and gives in all cases a finer scar than an incision at right angles or oblique to this one.

I therefore believe that in this incision we attain the greatest field of exposure with the earliest possible chance for removal of stitches and the most thorough removal of the disease. As I have previously mentioned, I have been interested in this region for some years and have been watching carefully the manner of procedure in other operators, and I determined some time ago to work on this line in order to have a decided method of procedure in all cases, no matter what the extent, provided the location was the same. It is

wound healing was not so good nor the scarring so slight. I have, therefore, given them up during the last year and have used only the above-described incision.

The only drainage necessary is through a small incision made in the attached border of the flap on the anterior border of the trapezius muscle at the junction of the lower one-third and upper two-thirds of this same attached border.

In conclusion, I wish to state that I believe we have for all regions of the neck incisions which show but little disfigurement except in the region here mentioned. For the submaxillary, the submental, the subhyoid, the superior and inferior carotid triangles and the subclavian triangles, the most approved incisions



so often observable that an operator starts with an incision behind or before the muscle and making a poor enucleation, either gives it up or adds a curved or transverse cut over the sterno-mastoid with division of the muscles in order to give a field, but only after a great expenditure of time and often much bleeding. One readily sees that nothing was foreseen, and that the operation was devised as he went along. Instead of the two or three scars, is it not better to have one observable scar in the neck and a complete exposure from the beginning.

The cases operated upon in this manner have included two extensive sarcomata and thirteen large tubercular lymphadenomata, in one of which cases over forty glands were removed, and in another thirty-eight glands. Both of these latter cases resembled in general appearance the glands of pseudo-leucocythemia. One brachio-genic tumor was comparatively easily removed on account of ready exposure of the field. At the Roosevelt Hospital the assistants themselves did five cases. Although the incisions formerly used by me—the U, the S, the H and the T—have been attended with the same dissection in the depth, and have given the same complete exposure, yet the

are arranged in accordance with embryological development and the natural cleavage of the skin. In the region here considered, where the disease is extensive and requires a thorough exposure, incisions have largely disregarded these rules.

By the employment of this method it has been my endeavor to obtain (1) a complete exposure of the field in which one is to operate; (2) a scar which is seen along the anterior border of the sterno mastoid muscle in a natural depression in the neck and not very noticeable in the ordinary dress if primary union in the wound has occurred; (3) a complete exposure of the important tissues of the neck, permitting one to remove completely the diseased tissue and at the same time to command with ease and certainty the danger of hemorrhage and nerve section in any part of the neck, from the mastoid process to the clavicle; (4) an incision parallel to the arteries and nerves and in the line of the cleavage of the skin securing an early primary union, a slight scar and a diminished danger of infection of the wound from such early and complete union; (5) a rapid union of the wound, permitting an early dismissal from the hospital. The usual time necessary for observation is one to fourteen days.

THE DIAGNOSIS OF SOME COMMON INJURIES IN THE SHOULDER REGION.¹

BY AGNES C. VIETOR, M.D., BOSTON, MASS.,

Acting House-Surgeon, New England Hospital, Boston; Late Instructor in Physical Diagnosis and Surgery, Woman's Medical College of the New York Infirmary, etc.

IN the winter of 1895-96, through the kindness of Dr. Van Arsdaie, I studied, at the Good Samaritan Dispensary, 23 patients who complained of pain and impairment of motion in the shoulder region. Of these, 14 traced their disability to an injury.²

In examining the patients, it is necessary to say, I followed the same system in each case. First, the patient was inspected passively as to attitude, position and relations. Then, the bones and joints of the entire shoulder girdle, the upper vertebræ, the sternum and the ribs were examined, to exclude the grosser lesions of fracture, dislocation, etc. Next, an examination of the softer tissues was made; and, finally, measurements of the arms, forearms and hands were taken. This topographical survey having shown the anatomical relations present, the physiology of the various structures was next investigated. That of the bones, joints, muscles and nerves was studied by having the patient execute all the voluntary movements possible, and supplementing this inquiry by putting him or her through the circle of possible passive motions. Sensations of touch, temperature and pain were inquired into. The examination was then continued by the use of the faradic and galvanic currents for testing the finer responses and the nutrition of the nerves and muscles in the shoulder region and of the arm;³ where any suspicion attached to the forearm, the examination included that and the hand. Finally, the boundaries of the heart, lungs, liver and spleen were outlined, and the heart and lungs auscultated. I regret that the limitations of a crowded clinic prevented me from learning that most important thing—the condition of the kidneys.

The reports which follow contain simply the departures from the normal which were noted.

CASE I. A woman, forty-six years old, housewife. Eleven weeks ago she tripped over a rug, and fell forward, bruising her right arm and knee. No swelling resulted, but a small ecchymosis formed in the region of the internal condyle of the humerus. At first she could not raise her arm from the side, but gradually the use of it returned, except that she cannot yet button her skirts at the back of the waist line. She complains also of spontaneous pain in the neck, along the anterior border of the trapezius; in the shoulder, just where the acromion overhangs the joint; and vaguely over the scapula; also, down the whole of the arm and forearm, but most marked in the deltoid region, in the bend of the elbow and at the wrist; and in the fingers when she rubs the forearm. Sometimes, there are vague feelings of "needles" in the same regions. At night, the arm feels heavy; all movements are made with more difficulty and the pain is greater.

Physical Examination.—Comparison made with the left side. Right deltoid region appears smaller;

there is a depression behind the head of the humerus, below the acromion process (posterior deltoid region); prominence of the vertebral border of the scapula, a furrow forming beneath it as the arm is abducted or when the shoulders are moved forwards. Pressure high up in the axilla, in the region of the brachial plexus, gives the same pain in the shoulder as that of which she complains. Tenderness on pressure on the outside of the arm, just below the acromion, also in front of the acromion. Right deltoid and biceps are both one centimetre smaller than left.

Voluntary Movements.—Abduction is slow, feeble and apprehensive; at about 60° it causes pain in the neck, arm and down the radial side of the dorsum of the forearm; when the arm becomes horizontal, pain occurs in the axilla and on top of the shoulder. Above the horizontal, there is no pain but the whole arm feels "heavy," and the humerus falls forward to the side of the face. At about 60° of abduction, the scapula begins to rotate with the humerus. Adduction is complete. The patient has noticed she has more power to use the forearm if she closely and forcibly adducts the arm. In putting the hands behind the back, movements are slow, feeble and painful. She can barely clasp her hands in the median line behind; cannot fold the right arm with the left behind her back. Rotation limited and painful, both internal and external. Flexion of forearm on arm is weakened if the forearm is first supinated (to eliminate the flexor action of the supinator longus).

The co-ordinate action, of whose incompleteness she complains, that is, reaching behind to button her skirts, is arrested about midway. She slowly partially abducts the arm, flexes and pronates the forearm, flexes the wrist and hand on the ulna, and then slightly rotates the humerus inwards so that the back of the hand lies against the lumbar region, just above the crest of the ilium. Here the action is arrested by the increasing weakness and pain in the shoulder, deltoid region and along the dorsal and flexor aspects of the radial side of the forearm, and the arm falls heavily to the side.

The range of passive is about the same as of active movements, the limit being marked by the same pain referred to the deltoid region, bend of elbow, acromio-humeral and upper and outer scapular regions. When the arm is abducted two-thirds of the distance to the horizontal, the scapula moves with it in further abduction and in returning adduction. Rotation of the humerus is limited, particularly outward.

Electrical Examination.—Comparison made with left side. Nerves (in supra-clavicular fossa), with both faradism and galvanism: Passage of the current is more painful than on the other side; diminished irritability of deltoid, biceps and rhomboids; no response in serratus magnus.

	MUSCLES.	
	Faradism.	Galvanism.
Deltoid . . .	Diminished.	Increased in anterior; diminished in posterior; sluggish contraction and increased A C C in all parts of the muscle.
Biceps . . .	Diminished.	Diminished, with increased A C C.
Triceps . . .	Normal.	Increased.
Supinator . . .	Normal.	Increased.
Rhomboids . . .	Diminished.	Diminished, with increased A C C.
Serratus Magnus . . .	None.	None.

¹ Read before the Section on General Surgery of the New York Academy of Medicine, May 11, 1896.

² A full report of these cases will be published in the Transactions of the New York Academy of Medicine, 1896.

³ In no case did I find the brachialis anticus completely paralyzed; but in several cases, owing probably to its double nerve-supply, the results of its examinations were not sufficiently satisfactory for me to be willing to place them on record. I have, therefore, uniformly omitted them from the reports.

The examination of this patient shows a faulty action of nerves, muscles and the shoulder-joint.

Nerves.—Pain, tenderness and parasthesia show irritation somewhere along the course of the sensory nerves. The motor nerves involved, separated from the muscles to which they are distributed, are accessible only in the supra-clavicular fossa, and even there it is not always possible to isolate separate trunks. However, at and near the supra-clavicular point of Erb (Remak, Hoedemaker), it is in all cases possible to get reactions from different combinations of muscles. Examination of the grouped trunks of the motor nerves in this situation showed a diminished conductive power to both faradic and galvanic currents to some of the muscles about the shoulder, while those of the forearm and hand responded as vigorously as on the other side.

Muscles.—In analyzing the impairment of motor power in the various actions of the shoulder, the most prominent factor is the failure of the rhomboids and serratus magnus to keep the scapula applied to the thorax, and to fix it for the movements of the arm. Every one of the muscles which fails in this case to act properly has one of its extremities attached to this too movable scapula. Hence, from this fact alone it would be impossible to say there was any fault in the shoulder muscles themselves. But, on testing them individually, more or less marked nutritive changes are found,—the quantitative and qualitative electrical changes which accompany a motor lesion and which correspond with the electrical changes mentioned as occurring in the nerve trunks. These changes are most marked in the deltoid⁴ and biceps. In addition, measurements show each of these muscles to be one centimetre smaller than on the unaffected side, and as the right arm is usually larger than the left, this would indicate an atrophy of certainly more than one centimetre.

Shoulder-Joint.—But there is still another element interfering with the action of the muscles around the shoulder. There is an abnormal connection between the scapula and the humerus, so that when the humerus is abducted to about 60°, the scapula rotates with it in further abduction, and returns with it to the same point in adduction. "In normal abduction and adduction," to quote Morris,⁵ "the scapula is fixed and the humerus rolls up and down upon the glenoid fossa. During abduction, the head descends until it projects beyond the lower edge of the glenoid cavity, and the greater tuberosity impinges against the arch of the acromion. . . . The greater tuberosity by striking against the acromion process and coraco-acromial ligament stops short any further advance of the bone in these directions, and thus abduction ceases altogether as soon as the arm is raised to a right angle with the trunk. Further elevation of the arm beyond a right angle is effected by the rotation of the scapula round its own axis by the action of the trapezius and serratus magnus upon the sterno-clavicular and acromio-clavicular joints."

In the present case, the normal rotation of the scapula with the humerus is anticipated, taking place at 60° of abduction. There are two possible causes for

such a changed mechanism. Taking for a basis the physiology of the joint movement in abduction, which I have just quoted, the rotation of the scapula would be anticipated (1) by any impediment to the rolling down of the head of the humerus upon the glenoid fossa, or (2) by any obstruction to the rise of the greater tuberosity. But the problem is not so simple as is implied by the consideration of these primary elements only; the action of these bones depends on that of many accessory tissues. Quain touches upon some of the complicating conditions when he says: "The arch formed by the acromion, the coracoid process and the deltoid ligament, lined by the subacromial bursa, forms a sort of secondary socket in which the extremity of the humerus, covered by the tendons inserted into the great tuberosity, revolves." Sappey,⁶ speaking of the humeral head descending below the glenoid cavity, says it comes into contact with the capsular ligament and projects into the axilla. Again, he says: "As the arm approaches the horizontal, the great tuberosity begins to be engaged beneath the acromion. . . . Its displacement is peculiarly favored by the subacromial bursa. . . . The upper part of the capsular ligament and the accessory ligament are pressed back behind the coraco-acromial ligament in a celluloadipose space, which is limited below by the supraspinatus and above by the outer extremity of the clavicle."

But even this does not cover all the ground, for the agent upon whose activity and co-operation all this mechanism depends is the deltoid muscle, and its practical relations with the humerus begin at its insertion into the middle of the outer surface of the shaft of this bone. From this point it passes upward like an inverted hammock, broadening rapidly as it ascends; it covers the upper half of the outer surface of the humerus and all contiguous structures, the greater tuberosity, with its attached tendons, and the outer part of the capsule. It does not follow the capsule and the head of the humerus into the coraco-acromial vault, however, but leaping upward over the coraco-acromial arch, it covers the coracoid process and the coraco-acromial ligament and becomes firmly attached to the acromion process, the scapular spine and the clavicle. Its under free surface glides readily upon the structures covered by it and attached to it by a very loose, bursoidal tissue. (According to most writers, the bursal tissue is distinct, with well-defined walls and cavity.)

With this view of the region involved, it is evident that abduction is a very complicated and extensive action, requiring not only the integrity of the joint surfaces and their enclosing capsule, with its synovial lining, but also the integrity of all the external tissues which by their actions upon, or relations to, this capsule might influence it; and, even further, the integrity of the muscles which abduct the humerus, and of all the tissues which, internally or externally, might influence the action of these muscles. Hence, a locking of the scapulo-humeral joint during the movement of abduction may have its cause located anywhere along, or accessory to, the curve beginning at the deltoid insertion, running up to the coraco-acromial vault, curving over along the head of the humerus and the glenoid cavity and terminating in the axilla below this cavity.

⁴ It is interesting to compare the study, given under the heading of voluntary movements, of the attempt of the patient to button her skirts behind her, with Duchenne's description (*Physiologie des Mouvements*, Paris, 1867, pp. 62, 64) of paralysis of the posterior deltoid.

⁵ Morris: *Human Anatomy*, Philadelphia, 1895.

⁶ Sappey: *Traité d'Anatomie Descriptive*, third edition, Paris, 1875, i and iii.

Now, abduction is not a simple action of the abductor muscles, but when such action is desired, a more widely diffused impulse is sent out in several directions, principally to the serratus magnus and trapezius, as well as to the abductors of the humerus. When there is any impediment in the abducting path, that is, the curve described above, the impulse to the serratus magnus and the trapezius continues and, in response to this, the factors of the stage of hyperabduction (that is, beyond 90°) supplement the deficient abduction proper (to 90°), the rotation of the scapula is anticipated and the arm rises in abduction; but the centre for rotation of the rising arm is located not in the scapulo-humeral joint but beyond it, in the acromio-clavicular and sterno-clavicular articulations.

For all practical purposes, the impediment in the abducting path may be sought for in one of two great classes, it may be intra-articular or extra-articular, or it may be a combination of the two. If intra-articular, it must be connected with pathological variation of one or more of the constituent parts of the joint proper. These constituent parts are bone and articular cartilage, held together by ligaments which are lined by synovial membrane. Barwell,⁷ referring to the inaptness of both cartilages and ligaments to take upon themselves primarily any inflammatory action, says: "The morbid appearances and the symptoms of an isolated chondritis or syndesmitis, supposing that such affections could exist, are unknown. The pathologist never sees, and the surgeon never has reason to suspect, the existence of such diseases. It may then be taken as assured that the only maladies with which we have to do arise either in the synovial membrane, or in the bones of joints." In the patient under consideration, it is unnecessary to dwell on the question of osteitis in the absence of all of its well-known symptoms. There remains for consideration synovitis, the most probable lesion of all. Surgeons are united as to the ease and frequency with which this occurs. Many of the symptoms of this patient suggest the manifestations of synovitis, but almost without exception they at the same time show striking differences.

The history of the case is not the history of a case of synovitis,⁸ but as the patient did not come under observation till after eleven weeks, may there have been such an inflammation, nevertheless? May there even have been an arthritis, it being a well-established fact that a continued synovitis is apt to lead to more or less involvement of the other joint constituents and so cause an arthritis? And as the result of either synovitis or arthritis, have we some intra-articular adhesions binding together the scapula and humerus?

But the cause of the joint limitation may be entirely extra-articular. Again seeking an anatomical basis, we find that the extra-articular tissues in the shoulder are periarthritic cellular tissue; bursæ; muscles; tendons; deep and superficial fasciæ, enclosing nerves, blood-vessels, lymph-vessels and nodes; and, finally, integument—and the disability, if extra-articular, must be due to such pathological changes in one or more of these as to interfere with the act of abduction. It is easy, in this case, to exclude the integument, fasciæ, blood-vessels and lymph-vessels and nodes—there are no cicatrices, no gross loss of substance, no

swelling or apparent infiltration, no increase of tension or thickening discoverable in any of the accessible tissues.

The muscles, tendons and fasciæ show no rigidity, no spasm or contraction. The muscles do, indeed, give evidence of nutritive change; but while a weakened and painfully-acting muscle might fail to move one bone of a joint upon another, it is not conceivable that it could hold the two bones immovable except by spasm, or by wasting to such a degree that actual shortening occurred, and instead of being covered by an elastic, controlling tissue, the joint would be bound by a rigid, restricting tissue. Neither of these conditions is present.

No gross changes are found in the nerves, which, however, do show evidences of irritation and of parenchymatous change, as manifested by their diminished power of conduction, and by the quantitative and qualitative modifications in the electrical reactions of the muscles to which they are distributed. A diminished power of nerve conduction and a weakened muscular response to nervous stimuli do not, however, bind the bones of a joint together unless the same conditions obtain as we discussed under wasting of muscle, and such as do not exist here.

The bursæ and periarthritic cellular tissue remain to be scrutinized. First, as to the bursæ: it must be remembered that the shoulder-joint is in relation with several tendons and one muscle, and that the muscle (deltoid) and most of the tendons are separated from the capsule by bursæ, several of which bursæ communicate with the articular cavity.

Nancrede⁹ gives a summary of the various constant and adventitious bursæ, and mentions as most constant and important those beneath the acromion and deltoid and beneath the subscapularis and the infraspinatus.

I do not find any reports of inflammation of the subscapularis and infraspinatus bursæ, though Nancrede refers to them as likely to become secondarily affected through their anatomical communication with the joint cavity. Inflammation of the subacromio-deltoid¹⁰ bursa is well known.

Jarjavay¹¹ studied this bursa upon the cadaver. Cutting through the deltoid at its attachment and turning it upward over the acromion and clavicle he found that as the arm was abducted the walls of the bursa were puckered up, forming a pad below the beak of the acromion; and that as the humerus became horizontal, the tuberosity glided beneath the acromion, pressing inwards the bursal folds. "If the walls are normal, this gliding is done without friction and without noise, but if the walls are thickened and the cavity crossed by fibrous septa, a 'jolting' (*soubresaut*) is made and a kind of cracking. This condition is often met with in workmen who habitually exercise their arms in laborious work,¹² and in them it is easy to produce

⁹ Nancrede: *Injuries and Diseases of Bursæ*; Ashhurst: *The International Encyclopedia of Surgery*, New York, 1882, vol. ii.

¹⁰ Some writers speak of this bursa as the subacromial, but the context shows that they also understand it to be prolonged under the deltoid; others, again, refer to it as the subdeltoid and sometimes do not refer to its subacromial connection; still others say "subacromial or subdeltoid." As both relations are important, the writer would suggest that the term *subacromio-deltoid* bursa would be comprehensively descriptive and unmistakable.

¹¹ Jarjavay: *Sur la luxation du tendon de la longue portion du muscle biceps huméral*, etc., *Gaz. Hebdomadaire*, 1867, 2 s., iv., p. 358.

¹² The writer has often noticed this crackling crepitus in persons who have never done any hard work, and not infrequently in children. Barwell (p. 420) says: "It is an important circumstance that movement produces in many hysterical joints a fine, slight crackling which might mislead diagnosis; it is to be remembered that certain joints of persons, between fifteen and eighteen, the age of greatest growth, habitually crepitate in this manner. A coarser crepitation may some-

⁷ Barwell: *Diseases of the Joints*, in Ashhurst: *The International Encyclopedia of Surgery*, New York, 1882, vol. iv., p. 261.

⁸ In answer to repeated and varied inquiries, the patient is sure there was never any swelling of the joint, no spasm of muscles, no stiffness, the pain has always been the same.

this noise by abducting the humerus. When the shoulder undergoes exaggerated movements of torsion, the walls of this bursa are contused or torn, leading to an inflammation with tumefaction of its walls, making movement of the arm painful, hence immobility, hence also the cracking, the 'jolting,' which is occasioned by the movements of elevation and abduction, and of rotation of the humerus when the latter is horizontal; and, finally, the sense of a reduction as if there had been something displaced in the shoulder."

(To be continued.)

CLIMATE OR ENVIRONMENT AS A FACTOR IN THE REPAIR OF NEURASTHENIA AND MELANCHOLIA.

BY JOHN MADISON TAYLOR, A.B., M.D., PHILADELPHIA.

THERE is a strong belief prevalent among the profession of medicine and the laity alike, that climate exerts a marked influence for good or ill upon persons suffering from brain-fag, nerve-tire and melancholia. It is my desire to call attention to the subject before this experienced body of widely scattered and acutely observing medical men, especially familiar with climate and its effects, which I hope will provoke a discussion and bear fruit now or a year hence, when I propose again to reopen the matter. If one or another climate does help or hinder these sufferers, it is important to know the fact and accumulate and sift the evidence; to note the effect of altitude, sea-level, heat and cold relations, humidity, winds, and the like, characteristics of soil, flora, and whatever factors go to make up that subtle entity, a suitable dwelling during special forms of debility.

The writing of climatologic experts has hitherto been directed almost exclusively to the needs of sufferers from pulmonary, asthmatic, rheumatic or other sensitive ailments. The martyrs to these ills have superadded not seldom the complicating factor of neurasthenia, and it would be instructive if these could be differentiated and considered separately. However this may be, one fact is thrust upon the attention of American physicians obtrusively: the increasing number and complexity of instances of exhaustion, with will loss or impairment, mental depression and other effects of modern hurry, strains, responsibility, coupled with excesses of various sorts, not always intrinsically reprehensible, oftentimes praiseworthy, accidental or inevitable. A large part of these persons refuse systematic medical treatment, but are quite willing to "try a change of climate," which they often prescribe for themselves; they act during their wanderings as they choose, seldom wisely, and return when it is convenient, or make such changes as fancy or whim may dictate. It is worse than unfortunate that the public are guided less than they were by medical advice in these matters, valuing the opinion of a presumably skilled and learned professional man less in matters of general conduct than the views of clergymen, who are so often valetudinarians trying a new region each summer, or the ideas of accidental acquaintances. They talk a vast deal of rubbish on their return about their experiences and conclusions. We medical men thus suffer in our dignity and influence, and the public

make a lot of blunders oftentimes most disastrous for themselves. However, it is our own fault largely, and this we should seek to remedy, first, by being at greater pains to know, and, secondly, by giving definite, clear and forceful reasons for our opinions. We really know very little of the climatic possibilities of America, and as to those of Europe we are guided chiefly by hearsay or ancient precedent. It is not permitted the average medical man to roam for his own instruction among health resorts, and when he turns to literature he is too likely to find interested plaudits based upon reasons more or less commercial. We then need, most conspicuously, formulated information as to our own climates. This knowledge is, however, growing steadily, thanks largely to the efforts of this Society. It would be greater if concerted effort in the search for, and interchange of, opinions were more systematic and frequent.

I personally have been fortunate in seeing a large number of health-resorts in four continents, and am thus enabled to form some opinion as to their charm and especial equipment. Also, I have been enabled to judge somewhat of their suitability to the class of cases under discussion, because my experience of these localities has been largely on account of certain sufferers from nervous disturbances with whom I was thus travelling. I offer here, for comparison with the views of others, a few conclusions from this and also a pretty large subsequent experience gained at second-hand from patients of my own, and also from the nurses or attendants, upon whose conclusions I am much more apt to depend. One fact stands out more boldly than any other. Environment is, for these folk, of far deeper influence than locality, and as the first factor is always much more controllable than the latter, upon it the medical adviser must chiefly depend in the majority of cases. Environment includes many important things, the first of which is suitable companionship, most often solved by a proper paid attendant, preferably a skilful and tactful nurse. With such a companion it is not necessary, often objectionable, to stir far from home. Plenty of places can be found within a few miles of one's own residence admirably adapted to all reasonable requirements. Then, if from home, there follow a number of desiderata connected with creature comforts which are often interpreted by the patient to mean palatial hotels of mammoth size, with a bewildering array rather than special suitability of dietary. However, even herein a judicious selection need not go amiss, the province again and duty of one other than the patient.

There are doubtless many advantages to be claimed for radical geographical changes, escape from a cold winter being one of the most conspicuous and popular. The warmth and sunlight of subtropical regions afford opportunity for outing which cannot be gainsaid, but it is a question whether the reversal of the seasons is so well for those who are lacking in vascular and nervous tone for whom cold, under suitable precautions, is an invaluable tonic. Indeed, I have repeatedly seen evil effects, lack of gain and changes for the worse, from the occasional excessive heat and emasculating softness of the sunny South. I accompanied a gentleman to the tropics, whose trouble was the result of simple protracted overstrain, who suffered intensely from the enervating qualities of the heat and lifeless air. A change to a cool hill country, where we kept busy and active in a simple physical way, wrought a

times be detected in old, long-standing cases of hysteric malady, more especially in such as have been treated as though affected with real disease."

notable improvement. And so it often is, the inaction of unseasonable heat, theoretically restful, is galling to an active mind and body, which require a change of form in the lives of normal impulses rather than a checking off of these, or an enforced inactivity induced by depressing heat, which so frequently occurs in sub-tropical winters. Again, it is a great evil for the physician to assume that because he personally happens to enjoy the seacoast, and himself sleeps well when there, that a man, all tingling with jaded and irritated nerves, and sleepless from worries and hyperemic brain-states, must also be similarly benefited. The small repeated noises which make up the roar of the sea are sometimes revolting to such sufferers. There is also another element in seashore air—the small repeated concussions on the eardrums caused by the ceaseless beat of air-waves; also a certain vibratile influence, due to the beat of the surf on the shore, which the patient also shares, possibly, by a species of bone-conduction to the brain. All these are small points, it may be, but in the aggregate most unpleasant. Many persons are persistently sleepless at the seaside; some, indeed, are never well when on the surface of the sea, though not actually nauseated. They suffer from sea dyspepsia. I have an intimate friend who was retired from the navy because of an unconquerable inability to digest while on board ship, although never seasick.

Mountains, again, are charming to see and invigorating to climb, but to remain long in high altitudes occasionally produces harmfulness, especially to those lacking in vascular tone. The nervous distress due to ærial rarefaction is recognized, though perhaps not yet fully understood. As a rule, it seems to me high altitudes aid apathetic states, and are liable to produce restlessness in irritable folk.

Let me call attention finally to the great unwisdom of allowing a sufferer from the effects of diseased impulses to rush helter-skelter from place to place, like the dove when she escaped from the ark, ever seeking rest, and finding none; or, *per contra*, the sufferer from will-loss who becomes apathetic or melancholic, choosing obstinately to stick in one spot into which he may drop by accident, declining to budge unless forcefully urged to do so on rational grounds or pure and simple domination.

NOTE.—It would aid the writer more materially to receive communications from those who have experience on this subject from which he may construct a paper to be read before the Climatological Society next year. Address Dr. J. M. Taylor, Bar Harbor, Me., or 1504 Pond Street, Philadelphia, Pa.

Clinical Department.

REMARKS ON THE TREATMENT OF TUBERCULOSIS BY THE ANTI-TUBERCLE SERUM.¹

BY GUY HINSDALE, A.M., M.D., PHILADELPHIA, PA.

It has been ascertained that if a living culture of tubercle bacilli is injected into the veins of very old mare mules, they will succumb to the disease in from the seventieth to the ninetieth day. Experience shows that if they pass over the ninetieth day they get well. By the one hundredth to the one hundred and tenth day the tubercle bacilli fade away, and even the

tubercular nodules become lost. Tuberculin is present up to the one hundred and fifteenth day; but by the one hundred and thirtieth to the one hundred and fortieth, the tuberculin is entirely absent, and the largest amounts of the anti-tuberculin are present. At the one hundred and thirtieth to the one hundred and fortieth day, there is no tuberculin reaction; but the serum has the highest protective and curative properties.

The ass and the mule bear the injection of the tubercular products with a remarkable immunity. As to inoculation beneath the skin, there is only slightly appreciable reaction, except with strong doses of an emulsion of these products. It is manifested by tension, heat and sensitiveness at the point of inoculation, during a period varying from four to six hours.

In intravenous inoculation by the auricular or jugular vein there is no microscopic phenomenon, local or general, except a slight reaction of 1° C., in case of abundant injection.

This immunity persists for inoculations more and more virulent and in greater quantity. The inoculations were repeated as many as six times on the same subjects, and at intervals, at first great and then shorter.

It has been found that the serum of the blood of the ass and mule, treated in this manner, is perfectly harmless for normal as well as tubercular animals; and that there is constant competency of this serum, presumed to be antitubercular, in antagonism to tuberculosis of human origin when administered in the case of the guinea-pig and rabbit.

The post-mortem examination of animals thus treated showed that in the different organs a barrier of fibrous tissue enveloped the tubercular granulations, the lymphatics in the neighborhood were hypertrophied and ganglions were numerous.

The serum of the ass and mule not subjected to treatment has a weaker antagonistic action than in the case where treatment has been used. That the action is strongest with the serum of animals treated at moderate intervals by feeble doses of tubercular emulsions at a high virulence.²

Boinet made experiments on guinea-pigs, in doses varying from six to sixteen centimetres. Most of the immunized animals remained immune. He advises, in the human subject, the use of two to four cubic centimetres of the serum in an injection; he has treated eight patients in this manner. In three cases of slow tuberculosis, apyretic with crackling, the results were quite favorable. A marked amelioration was noted in two cases of tuberculosis in the second stage.

The treatment is useless where cavities exist; it is injurious in acute attacks, with fever, hemoptysis, night-sweats and laryngeal complications.

Ilericourt and Richet make what they term a "phymo-serum."³ They employed dogs and rabbits. The case which they report is as follows:

A woman of thirty-four, without hereditary history, became phthisical, following an injury to the lung. She had cough and occasional bloody expectorations, and chronic laryngitis. Emaciation and night-sweats present. The sputum was abundant and purulent, with enormous quantities of bacilli. Crepitant, sub-crepitant and moist râles at the apices, with dulness on percussion.

¹ Read at the meeting of the American Climatological Association, at Washington, D. C., May 5, 1897.

² Redon and Chenot; Soc. de Biol., June 29, 1895.

³ Comptes Rendus de la Société de Biologie, January 12, 1895.

On December 15th, she received one-tenth of a cubic centimetre of neo-serum; on the 18th, 20th and 27th, one cubic centimetre each day. On the 31st, two cubic centimetres. On January 4th she received two cubic centimetres, and on the 8th, three. On January 14th, bacilli were very rare. Great improvement followed this treatment.

Viquerat says that the anti-tuberculin has the power of preserving the life of a guinea-pig which has been inoculated with the tuberculin six weeks previously for a period of a year or more; and that it will cure a guinea-pig which has been infected three weeks previously.

The serum which I used was prepared under the direction of Prof. Joseph McFarland in the Biological Laboratory of the H. K. Mulford Company, Philadelphia. A doukey was first injected with mallein to exclude the presence of glands. He then received an injection of one cubic centimetre of tuberculin, and this dose was doubled every five or six days until he received 200 c.c. at a dose. Very little reaction followed. The temperature rose only one to one and a half degrees, and there was some slight local edema. After the maximum dose was given the animal was allowed to rest three weeks for complete elimination of tuberculin to take place. The animal was then bled, and the blood was allowed to stand in a refrigerator five or six days. The serum was then collected, and one-half per cent. of trikresol was added, to act as a preservative; it was then kept sealed in a cool place.

While it is too early to make any complete report of the clinical tests of this agent, I wish to record one case in which I have employed the serum, in the hope that it will encourage others to make trial of it.

The patient was a married woman of twenty-seven who had a cough in February, 1896, and began at that time to lose flesh and strength. My notes taken in March of that year are as follows: Left lung normal. Right lung: increased vocal fremitus but not marked; bronchial breathing posteriorly; slight impairment of the percussion not posteriorly; some râles at the apex. In April she weighed 120 pounds, and is losing flesh; coughs and has night-sweats. Right upper lobe consolidated. Bronchial breathing on both sides, especially the right. Increased vocal resonance.

In May, amphoric breathing on the right side; coughs badly, and has fever at night. In bed one week, and has had a hemorrhage. Is pregnant.

Confined January 1, 1897. The physical signs all point to well-established phthisis.

I chose this case as being a test of the efficacy of any treatment, and had the sputum examined, which resulted in the discovery of a large quantity of tubercle bacilli.

January 16th. Temperature 98.5°. Injected five minims of the serum.

January 17th. Temperature 98.5°. Injected 10 minims; on the 18th, 20th, 22d and 24th, 15 minims; on the 29th, 30 minims; on the 31st, 40 minims.

March 2d. Injected 40 minims; on the 9th, 20 minims.

March 25th. Weight 127 pounds. Has had some soreness below the left apex and in the back.

There has been no rise of temperature and no unpleasant effects of any kind. All the injections were made in the left arm near the insertion of the deltoid, after carefully cleansing the part. There has been general improvement in all respects. The bacterio-

logical examination on March 9th and 15th showed absence of tubercle bacilli.

Examined May 2, 1897. Percussion note clear all over the chest, front and back; breath sounds clear; no râles. The only abnormal sign is a slightly increased vocal resonance over the right apex. The patient is steadily gaining weight and strength, and has little expectoration. The progress of the case will be reported to the Association next year.

THE USE OF TINCTURE OF IODINE IN CHRONIC TRACHOMA AND PANNUS.

BY WILLIAM E. BAXTER, M.D.,

Ophthalmologist to the Boston Dispensary.

SOME time ago the writer's attention was called to the use of the tincture of iodine, in ulcers and suppurative conditions of the cornea, such as are usually treated by the galvano-cautery; and since that time this method has been used exclusively in these conditions, as the iodine penetrates more thoroughly to the limits of the diseased tissue, is fully as effective as, and leaves less scar than, the galvano-cautery. After watching the action of iodine in clearing up the cornea in these cases, it occurred to the writer to use this agent in other troubles of the cornea; and so the following method of treating chronic trachoma and pannus resulted: the application of a moderate amount of equal parts of tincture of iodine and glycerine to the everted lids, then turning the lid back without removing the excess of the remedy.

This method is applicable to chronic cases, and under its use the granulations melt down, the mucous membrane resumes a normal appearance, and the cornea clears, better than under any other method that the writer has used.

The application is painful, and cocaine should first be used; the applications should be made as often as two or three times a week.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

PUERPERAL FEVER IN PRIVATE PRACTICE IN ENGLAND.

DR. CHARLES J. CULLINGWORTH¹ presents some alarming statistics in his inaugural address before the Obstetrical Society of London showing conclusively that puerperal fever, far from having diminished in private practice in England and Wales, has considerably increased. He cites the percentage of deaths from puerperal fever from 1847 to 1895. In 1847 it was 1.5 per 1,000 births, remaining below 2, with only seven exceptions, until 1881. During and since that year, the mortality has varied from 2 to 3.3 per 1,000, the latter figure being reached in 1893. If, as he says, the figures err, they err in the direction of being below the truth, not in excess of it. In London the total death-rate from childbirth has considerably diminished. The diminution is due, however, not to any appreciable lowering of the mortality from puerperal fever, but to a lessened mortality from the acci-

¹ Lancet, March 6, 1897, p. 643.

dents of childbirth. In the provinces, the total death-rate remains practically unaltered; but whilst there has been a diminution in the mortality from the accidents of childbirth, the mortality from puerperal fever has increased to such an extent that, instead of being accountable for less than a third of the total mortality, it is now accountable for more than one-half. The prevalence of puerperal fever he shows to be dependent, not on the density of the population, but on the character of the medical attendance. In some districts ignorant midwives are largely employed, and often spread the disease broadcast.

Two maps of London are given: one showing the density of the population, the other the relative incidence of puerperal fever. The lack of correspondence in the two maps is very marked. Hampstead heads the list in the largest proportion of cases of puerperal fever, while St. Giles, Strand and St. Luke are at the other end of the list, and St. Martin in the Fields has reported no deaths from the disease from 1891 to 1895.

Why is it, he asks, that while puerperal fever has become a thing of the past in our lying-in hospitals, there has not been a corresponding diminution in private practice? It is because of the ignorance of midwives and the carelessness of medical men in antiseptic details, both of which should be remedied.

ANTISEPTIC MIDWIFERY IN THE LONDON LYING-IN HOSPITAL.

Dr. Clement Godson² in a valedictory address before the British Gynecological Society compares the results at the City of London Lying-in Hospital from the time he became connected with it in March, 1870, up to the end of April, 1886 (a period of 16 years), with that beginning July 1, 1886, when corrosive sublimate as the antiseptic came into use there, up to December 31, 1896 (a period of 10½ years). Early in 1870, out of 227 women delivered, 12 died, or 1 in 19. Notwithstanding many sanitary alterations in the building, frequent closures of the hospital were required from the increasing prevalence of puerperal fever. Thus, in the two years 1882 and 1883, the mortality was 1 in 23. On July 1, 1886, the hospital was reopened, corrosive sublimate being used as an antiseptic. The first 420 confinements took place without a death; and in the 10½ years since then, out of 4,608 deliveries only 11 deaths from all causes have occurred. In the last five years, out of 2,392 deliveries, no death from septicemia has occurred.

Thus it will be seen that architectural arrangements, drainage, ventilation, segregation and drugs had all been tried, and without success. Antiseptics alone had brought success.

SERUM TREATMENT OF PUERPERAL SEPSIS.

Barton Cooke Hirst³ reports three cases of puerperal sepsis treated by anti-streptococcic serum. The first case promptly recovered; the second case grew steadily worse, and died; and the third case showed alarming symptoms after each injection, but recovered. Hirst does not believe we are in a position to pronounce any judgment in this new treatment.

The following objections may be urged against the treatment with considerable force:

(1) The well-tried older plans of treatment will

result in a cure of about four-fifths of the cases; hence recovery may be attributed to the serum when it was really due to some other form of treatment.

(2) It is difficult to procure a thoroughly reliable preparation of the serum.

(3) The use of this remedy must be always more or less empirical, as there are a third or more of cases of puerperal sepsis in which there is a mixed infection, or in which the infective agent is not the streptococcus at all. A bacteriological examination of the uterine discharges is not enough to solve this question.

(4) The treatment is not entirely free from risk.

(5) There is some danger that too great reliance for a time might be placed upon this form of treatment to the neglect of older, better tried, and perhaps more successful plans.

(6) No one yet knows how this remedy acts; if it simply produces a hyperleucocytosis, there are other and simple agents which will have the same effect.

These objections, however, are not so weighty as to forbid his giving the method an extensive trial in the future.

Richard C. Norris⁴ reports a case of severe puerperal septicemia where thorough and repeated local and general treatment had no effect in checking the disease. Vomiting supervened. Profound depression and the peculiar appearance of grave septic absorption were present to make the outlook glowing. The temperature was 105.8° F., and the pulse 144. Ten cubic centimetres of Marmorek's anti-streptococcic serum were injected. The effect of the serum was very marked. Within twelve hours the temperature fell to 98° F., and the pulse to 96. The local changes in the cervix were most decided, the swelling and induration and pseudo-diphtheritic exudate almost wholly disappearing. Seven other injections were given and the patient in six days seemed to be getting well rapidly when she was attacked by facial erysipelas to which she was subject. In five days under the use of the serum the temperature and pulse again reached normal.

G. E. Shoemaker⁵ reports a case of puerperal septicemia following abortion, where the patient was not seen until she was in the last stages. Local treatment as well as an injection of ten cubic centimetres of Marmorek's anti-streptococcus serum were employed but death occurred in three days. Cultures from the autopsy showed no streptococci, but a pure culture of what proved to be probably the colon bacillus, was found in the infected corpus luteum.

Edward P. Davis⁶ reports a severe case of puerperal sepsis where the uterus was cleared of decomposed placental tissue by a curette, was douched and packed with iodoform gauze. The next morning the temperature had fallen somewhat, but the patient continued alarmingly weak. Marmorek's serum was injected with immediately favorable and remarkable results, and the patient went on to a complete recovery.

In two other cases the serum, as well as local and general treatment, was employed; but both patients died.

Dr. J. M. Baldy⁷ reports a case of puerperal sepsis, with lymphangitis and phlebitis, where the patient was not apparently critically ill. After the first injection

⁴ American Journal of Obstetrics, May, 1897, p. 629.

⁵ Loc. cit., p. 637.

⁶ Loc. cit., p. 642.

⁷ Loc. cit., p. 645.

² Lancet, January 13, 1887, p. 221.

³ American Journal of Obstetrics, May, 1897, p. 625.

tion of serum her temperature went above 106° , still higher after a second injection; and death occurred within a few hours.

Dr. John B. Shober⁸ presents an analysis of 21 cases of puerperal sepsis, collected from the *Lancet* and the *British Medical Journal* for 1896, treated with anti-streptococcic serum. In these there were 17 recoveries and four deaths, a mortality of 19.04 per cent. This is a decided improvement over the mortality reported by Charpentier of 42.5 per cent. in 40 cases.

He concludes, that, in order to obtain the best results, it is of prime importance to secure a reliable serum. The case should be one of unmixed infection, and the injections ought to be begun immediately upon the onset of symptoms. It is highly important to apply intra-uterine and vaginal medication in connection with serum treatment.

Walter Edmunds⁹ reports a case where it is his belief that the anti-streptococcus serum saved the patient's life. Here there was pus in the knee-joint, which proved to contain streptococci, and surgical treatment was not had recourse to till some time after the administration of the antitoxin, and great improvement had already occurred. Until the antitoxin was used the patient was so ill that it was thought doubtful whether she would recover.

DRESSING FOR THE UMBILICAL CORD.

Samuel W. Lambert¹⁰ reports an epidemic of umbilical sepsis in the new-born, occurring at the Nursery and Child's Hospital, New York. Out of 169 children born there during 1896, 18 had sepsis starting from the umbilicus, and five of these died. He concludes that the question of prophylaxis against infection of the navel depends on, first, the adoption of means to hasten the drying of the stump of the cord; second, the prevention of the access of bacteria to the umbilical ulcer. He believes that the importance of the first has been lost sight of. All drying powders and dressings which hinder the free access of air delay the process of mummification and increase the risk of sepsis. Experimentally he discovered that stearate of zinc powder permitted the cord to dry up quickest, and gauze was preferable to absorbent cotton.

THE DIAGNOSIS OF EARLY PREGNANCY.

Dr. Wm. T. Gardner¹¹ makes the following observations on the diagnosis of early pregnancy in 75 cases. The value of the sign of "morning sickness" he considers very much overestimated. A typical morning sickness is not infrequently met with in patients who have a uterine displacement or an extensive salpingitis. The breast signs are most constant and most reliable in those pregnant for the first time. The enlargement of the papillæ comes the earliest, and is the most constant and easily recognized. Enlargement and tenderness on pressure are very early and constant signs. The fat breast is large, soft and, even in primiparæ, is more or less pendulous, while the breast of early pregnancy is firm and stands out from the chest wall.

By the end of the third month milk is present in nearly all cases. Pigmentation of the areola

never entirely disappears and thus this sign is of very little value after the first pregnancy. The blue discoloration of the vagina he considers of great value in the later stages of gestation. In 75 cases under three months he detected it 15 times.

The velvety feel due to the superficial softening of the vaginal portion of the cervix he found in all of the 75 cases. A similar condition is, however, found in some of the inflammatory conditions of the uterus. In a very large percentage the uterus was found tilted forward. The most important of all signs in the early months, and one, without which he does not make a diagnosis, is the cystic feel of the uterus. Practically a cystic uterus is always a pregnant uterus. There is, however, one exception to this statement, — a cystic fibroid will give nearly the same sensation as a pregnant uterus. The variety of the cystic fibroid, its comparatively slow growth, and the absence of other signs of pregnancy make the diagnosis clear.

TREATMENT OF PLACENTA PREVIA BY CHAMPETIER DE RIBES' BAG.

Dr. G. F. Blacker,¹² in a paper on the use of this appliance, observed that in the more severe cases of hemorrhage from placenta previa, this bag might be employed in place of version, by introducing it into the amniotic cavity after rupture of the membrane. Used in this way, the bag acted both as a tampon in arresting the hemorrhage, by pressing the separated portion of the placenta firmly against the uterine wall, and also as a dilator of the cervical canal, and a very powerful stimulus to uterine contractions. He had treated five cases of placenta previa in this way, and had collected 17 other cases similarly treated. He showed that in only one case did severe hemorrhage occur after the introduction of the bag; that such hemorrhage might, as a rule, be readily controlled by traction upon the bag, that in none of the cases was any difficulty experienced in introducing the bag, nor was any preliminary dilatation of the cervix necessary; and that the average length of time required for the complete dilatation of the cervix after the introduction of the bag was five hours and ten minutes. Of the mothers all recovered but one that died of sepsis. Of the 22 children, 14 were born alive and 8 dead. Of the 14, 4 subsequently died, giving a total mortality of 54.5 per cent.

The advantages claimed for the bag were:

- (1) Ease and facility of introduction.
- (2) The certain arrest of the hemorrhage.
- (3) Any further hemorrhage controllable by traction upon the bag.
- (4) The bag and not the child's body dilates the cervical canal.
- (5) The ease of delivery after expulsion of the bag.
- (6) The fact that the bag is a very powerful stimulus to uterine action.
- (7) The lessened fetal mortality, as compared with the results obtained by version.

SUPERFETATION.

H. W. Mills¹³ reports a case of delivery of a sixteen weeks' fetus, together with a perfectly fresh healthy ovum of about seven weeks. The patient, forty-two years old, had had only one previous pregnancy, which resulted in an abortion at three months.

⁸ Loc. cit., May, 1897, p. 647.

⁹ American Journal of the Medical Sciences, April, 1897, p. 424.

¹⁰ Medical News, May 1, 1897, p. 557.

¹¹ American Journal of Obstetrics, January, 1897, p. 54.

¹² Medical Press and Circular, April 21, 1897, p. 409.

¹³ Lancet, March 13, 1897, p. 736.

She had had three periodical discharges of blood during the present pregnancy.

ON THE ACTION OF ERGOT ON PREGNANT WOMEN.

Lombe Arthill,¹⁴ master of the Rotunda Hospital, Dublin, sums up his experience with ergot, which he gives in combination with strychnine, as follows:

(1) That when administered previous to the termination of pregnancy in the case of women in whom a tendency to post-partum hemorrhage is known to exist, it tends in a marked manner to prevent the occurrence of hemorrhage.

(2) That when so administered in ordinary doses, it does not produce any injurious effect on either mother or child, and that its exhibition seems to delay the commencement of labor in such cases.

(3) It tends to make the involution of the uterus more perfect, and lessens the chance of the occurrence of subsequent uterine troubles, many of which depend for their cause on imperfect involution of that organ.

(4) It will not bring on premature labor or induce abortion unless uterine action has previously been set going.

(5) In cases of threatened abortion its administration frequently seems to act as a uterine tonic, and in some cases tends to avert the danger of a miscarriage, provided the ovum be not blighted.

(6) That, if the ovum be blighted, and especially if it be detached, ergot usually hastens its expulsion.

MANAGEMENT OF TWIN LABORS.

Stephenson¹⁵ concludes that the life of the second child is greatly imperilled if the labor be prolonged over half an hour after the birth of the first child. The infant mortality of the second half-hour after the birth of the first child is four times greater than that of the first half-hour. In the cases he analyzes it is found that the mortality in the second-born of twins is large if the head presents. When the second child was either transverse or a footling, none were lost. In a word, the mortality for mothers and children will be rendered as little as possible if the second child is extracted immediately after the first is born.

THE RELATION OF ACETONE TO ECLAMPSIA.

Drs. J. A. Clark and T. L. Skelton¹⁶ report two instructive cases bearing on the etiology of eclampsia. In the first case severe eclampsia occurred where renal insufficiency did not exist. Renal inflammation showed itself at the same time that the premonitory signs of poisoning appeared, reached its height after the cessation of eclampsia, and then rapidly improved, thus indicating that the renal inflammation was secondary to, and caused by, the same poison that produced the eclampsia. In the second case there was a severe nephritis, evident renal insufficiency, but an active liver and no eclampsia, seeming to show that the kidney disease is not the cause of the eclampsia, but a result of the elimination of a poison. The writers find acetone in the urine in these cases, indicating abnormal decomposition of organized proteids.

In eclampsia, then, there is primarily the non-elimination of the products of retrograde carbohydrate metamorphosis, and these products undergo further decomposition with development of convulsive poisons and acetone. In non-nitrogenous elimination the waste

products from the fetus in addition to those of the mother are sufficient to irritate the liver cells, with the production of the peculiar fatty degeneration. When this irritation is sufficient to cause more or less complete non-elimination the waste products quickly accumulate and undergo those changes which result in eclamptic poison and acetone.

This theory accounts for the fact that the best results in treatment are obtained from hepatic stimulants and cholagogues. Carl Braun has for his routine treatment a pill of aloes and colocynth, from which he reports unusually good results. The poison originates partly in the fetus; how else can we explain the cessation of convulsions after the death of the fetus, even though retained in the uterus, or after delivery of the child. Those cases of eclampsia occurring during and shortly after labor are caused by the contraction of the uterus forcing suddenly from the uterine sinuses the blood, which is loaded with the result of tissue changes in the fetus, into the maternal circulation; inasmuch as the systematic examination for acetone has never been made, its exact relation to eclampsia and its prognostic importance have not been determined. Its relation to tissue changes is such that no examination of the urine of pregnant women is complete without an examination for acetone.

ACETONE IN THE URINE OF PREGNANT PATIENTS AS AN INDICATION OF FETAL DEATH.

Knapp¹⁷ reports ten cases of fetal death in which acetone was found in the urine of the mother during and for three days following labor. Half of these cases were syphilitic, but the influence of syphilis on the presence of acetone is not known. Jaksch's method of testing for acetone was used.

MANUAL RECTIFICATION OF FAULTY HEAD POSITIONS.

Henry D. Fry¹⁸ comes to the following conclusions on this subject:

Occipito-posterior positions with slow engagement require rectification. First, try postural treatment; if unsuccessful, introduce the aseptic hand, raise the head, flex and turn the occiput to the front.

Brow and transverse presentations of the vertex at the brim are treated on the same principle. Face presentations at the brim must be changed by raising the head, pushing up the forehead and drawing down the occiput. If a occipito-anterior position, the head must be rotated after changing into a vertex presentation. Occipito-posterior and face presentations within the pelvis may often be treated in the same manner. By aid of anesthesia and posture the head may be raised sufficiently high to disengage it.

In favorable cases of occipito-posterior and face presentations efforts may be limited to secure extreme flexion in one case and extension in the other, until descent is completed. Rotation of the occiput or chin forward may then be accomplished.

SYMPHYSEOTOMY AT THE BAUDELLOCQUE CLINIC.

Pinard¹⁹ analyzes 95 cases of contracted pelvis occurring in this clinic during 1896, among which there were 68 spontaneous deliveries. Of the artificial deliveries there were two Cæsarean sections followed by amputation of the uterus and appendages, one version, six forceps operations, four destructive operations

¹⁴ British Medical Journal, March 6, 1897, p. 567.

¹⁵ Scottish Medical and Surgical Journal, 1897, Nos. 1 and 3.

¹⁶ American Journal of Obstetrics, February, 1897, p. 196.

¹⁷ Centralbl. für Gynäkologie, 1897, No 16.

¹⁸ American Journal of Obstetrics.

¹⁹ Annales de Gynécologie, January, 1897, p. 7.

on dead children, and 14 symphyseotomies. The only two natural deaths occurred in the latter class, one from frank pneumonia, the other four days after delivery from streptococcus sepsis originating in the uterus not in the symphyseotomy wound.

There were no difficulties met in the operation, and no serious hemorrhage. He particularly recommends an instrument devised by Professor Farabeuf for separating the cut surfaces of the symphysis after the section. A considerable laceration of the vagina occurred in all cases that needed a secondary operation. In another case there was an abscess of the left labium majora following the operation.

As to the solidity of the symphysis afterwards, Pinard says there is absolutely nothing to be desired. All have returned to their occupations, some of them practising very fatiguing trades. He also speaks from an experience of 12 patients that have had symphyseotomy performed in two pregnancies, that the solidity of the pelvis is not compromised by succeeding pregnancy or repeated symphyseotomy. Of all the patients operated on in four years, four only present functional urinary troubles. Two in consequence of lesions of the urethra or of the bladder, and two without apparent lesions of the bladder or urethra, have incontinence of urine.

During this year five women on whom symphyseotomy had been previously performed again entered the clinic and gave birth to their children spontaneously; and he is disposed to admit, after weighing and measuring the children, that the increase in size of the pelvis due to the operation may not perhaps be only momentary.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

MEETING of Friday, April 30, 1897, Dr. H. L. BURRELL in the chair.

Dr. FRANK HARTLEY, of New York City, read, by invitation, a paper on

A NEW METHOD FOR THE REMOVAL OF DISEASED PROCESSES IN THE NECK POSTERIOR TO THE STERNO-MASTOID MUSCLE.¹

Dr. G. H. MONKS: It is with very great interest that I have listened to the description and results of this new operation of Dr. Hartley's, for the removal of tumors of the neck. The plan which he has of laying bare the entire side of the neck, dividing the sterno-mastoid and removing the whole mass of diseased tissue from both triangles, and from the region under the sterno-mastoid, seems to be original. I have made a somewhat similar incision several times, but have made it rather as a matter of necessity in special cases, and have not felt that it was desirable to repeat it as a regular procedure. As for the incision, itself, the lines seem to correspond, as Dr. Hartley said, with Dr. Langer's lines of cleavage, and "Kocher's normal incision," so-called. Lifting up this flap on a hinge, as it were, enables one to see the whole field. I have several times divided the sterno-mastoid, and have al-

ways been much surprised to find that no paralysis resulted.

Dr. Hartley assures me that he has never had any trouble resulting from the division of this muscle in the slightest degree. I can hardly agree with the doctor as to the necessity of avoiding the small nerve twigs of which he has spoken. In fact, it seems to me there are only a few structures in the neck which need to be looked out for, and it is only rarely that the surgeon, who is familiar with his anatomy, wounds any of these structures. The internal jugular vein is the one important structure which is perhaps the most frequently injured. This may be torn or cut, but it is of no great consequence as the hemorrhage, though profuse, can be readily stopped, and a lateral ligature or suture be applied to the vein. This has occurred to me on two or three occasions. Once having divided a small branch of the vein, my assistant, in his haste to secure the bleeding point, grasped too much tissue in the hemastatic forceps, and then incautiously pulled upon these forceps tearing a large piece out of the vein. He had included a part of the internal jugular within the forceps without knowing it. It therefore seems to me very desirable that in these cases where there is a profuse hemorrhage, that one should, so far as possible, find the exact spot from which the blood escapes, and seize as little tissue as possible by the forceps.

The next structure most often in the way is the spinal accessory nerve. This I have never wounded accidentally, but have frequently come across it in a position where it might easily be wounded. The division of this nerve, however, would simply mean the paralysis of a part of the trapezius muscle. It should, of course, be sewn together at once. The phrenic, pneumogastric or the cervical sympathetic might be wounded, but only, I think, by a careless operator. One has also to look out for the thoracic duct on the left side which enters into the subclavian vein and the lymphatic duct on the right. I have never seen a case where either of these was wounded, although other surgeons have told me that they have seen the thoracic duct opened, an accident which was followed by an escape of white chyle into the wound, but no serious results followed. On the other hand, the books often speak of this accident as a very serious one, and one which is likely to be followed by a fatal termination.

In operating low down in the neck one should also not forget the proximity of the top of the pleura. The hemorrhage which comes from the wound in all these operations is, as a rule, not very profuse, and I think it is a good plan not to put in any ligatures at first, unless one is sure that pressure will not be sufficient. In this way, the number of ligatures left in the wound is reduced to a minimum. As for the scar which is left after these operations, accurate suturing is of great importance. Tension sutures are sometimes desirable.

Dr. Hartley has not told us about the kind of sutures which he uses, nor the methods of applying them, and I hope he will be good enough to do so. I think he must admit that the after-treatment is also of some importance — by the use of proper bandages, the accurate placing of a large and absorbent dressing with considerable pressure, and the necessity for rest general, as well as local, after the operation.

Dr. MUMFORD: The paper read by Dr. Hartley is

¹ See page 469 of the Journal.

important because it puts before us in a logical and convincing way, the proper reasons for this method of operating. The thoroughness of his statements leaves unmentioned but one argument in favor of this procedure. It is conceded that the great objection to operating on tumors of the neck—and I refer especially to tuberculous glands—is the difficulty in obtaining a primary union, and, that failing, the trying experience of an exhausting, obstinate, suppurating wound. I regard the operative cicatrix so often alluded to by others as of very minor importance. In view, then, of the importance of obtaining a primary union, this large encircling incision is of the very greatest value, and for some years I have used it in suitable cases with advantage, in fact, by its use, the operation is subcutaneous. In all operations absolute skin disinfection is an impossibility, and when the underlying structures are of a disorganized pathogenic nature, a mixed infection is common when they are approached through an imperfectly disinfected skin.

By making our skin incision at a distance from the mass of disease to be removed, and then peeling back the flap with a fresh knife, there is practically no chance for a mixed infection from the cut skin, and the mass can be attacked freely in this large exposed field.

Healing of the replaced flaps also is more rapid, as the problem concerns only perfectly normal tissues; and underlying exudate does not press so directly upon the fresh scar. The line is small to a minimum and keloid is almost unknown.

DR. F. M. BRIGGS: The discussion has turned to the removal of cervical glands. As this is a subject to which I have given very careful attention and one which I have studied in detail, I wish to protest against this operation as a routine treatment. I think that such cases should be left alone until there is no further possibility of absorption. If they break down, they should be treated by the canula method which I have shown to be a satisfactory one, and one which leaves either no scar, or a minimum scar. Their removal is an operation which is undoubtedly indicated in certain cases, but one, that, in my opinion, is resorted to much more frequently than it should be. The lymphatic glands prevent further absorption. They do not infect. If the operation is called for, it should be a complete one; and as the reader has clearly demonstrated, the skin ought to be dissected back and the subcutaneous tissues divided in the most thorough manner, if these glands must be removed. But, I personally object, and think I have enough data to make this objection a valid one, to the indiscriminate operation for the removal of cervical glands.

DR. HARTLEY: This operation was not devised for cases which had not been previously given the usual treatment, both internal and local. Those cases of mixed infection resulting in abscesses confined to single glands or a number of glands (cold abscess), are often cured by either drainage or the injection of sterilized iodoform oil with or without a permanent drainage. The cases I selected as suitable for this operation were cases of caseous degeneration or abscess, or else cases of simple gland enlargement (without either caseous degeneration or abscess) in front of, beneath and behind the sterno-mastoid muscle. They were cases in which the disease could not be benefited by the treatment of one or two or a number of broken-down glands, but in which a cure could be obtained only by a complete enucleation of the entire mass, no matter whether that

mass contained sinuses or abscesses or whether it was made up of hypertrophic tubercular lymphadenomata. Surgeons see many of these cases entering a hospital, whereas the other class of cases rarely comes under their notice unless in dispensary treatment.

DR. J. H. WRIGHT showed, by means of the stereopticon, sections from a spinal cord in which an unusual tract of degeneration was present. This tract of degenerated nerve fibres was situated in the posterior column of one side of the cord and marked out the ascending path of the fibres of a degenerated posterior nerve root of the lumbar region. The case was one of metastatic carcinoma of the mamma, involving the sacrum and spinal column, which came to autopsy in the laboratory of the Massachusetts General Hospital. The patient had been operated upon by Dr. H. L. Burrell about two years previously. There was no local recurrence present at the time of death. The degeneration of the posterior root of the lumbar nerve was apparently due to its involvement in the new growth in the sacrum. The degenerated tract could be traced upward in the posterior column on the same side to the neighborhood of the eighth or ninth dorsal nerve root, where the cord showed extensive diffuse degenerative changes owing to pressure from the new growth in the spinal column. There was no evidence of a corresponding tract of degeneration extending downward in the posterior column below the entrance of the degenerated nerve root, as would be expected in the light of the present teaching of the finer anatomy of the spinal cord.

DR. E. H. BRADFORD of Boston read a paper on
DEFORMITIES OF THE FOOT IN ART,²
illustrated by the stereopticon.

AMERICAN DERMATOLOGICAL ASSOCIATION.
THE TWENTY-FIRST ANNUAL MEETING, HELD AT
WASHINGTON, D. C., MAY 4-6, 1897.

FIRST DAY.

DR. JAMES C. WHITE, of Boston, opened the meeting with the

ANNUAL ADDRESS OF THE PRESIDENT,

in which the members were reminded that the Association had now been in existence for twenty years, and the work of this period was briefly reviewed.

It was claimed that the Association, through the efforts of its individual members, had contributed largely to the advances which have been made in this department. There had been read at the meetings and published 327 papers, while many important works on dermatology and several atlases by members had appeared and the data gathered were of inestimable value. Dermatology in this country can now be said to hold an independent position, and writings here can now be held to occupy a plane with those of all other countries.

The rôle of the parasite has been of late years enormously enlarged. Many dermatoses formerly confused have been given a position by themselves. New diseases have been discovered, while new methods of treatment have added to the number. Methods of cure do not, however, keep pace with the discovery and separation of individual diseases.

² To be published in a later number of the Journal.

It was suggested that the best interests of the Association called for change of time and place of meeting. The reasons for this included the present unfavorable time of meeting, necessitating a suspension of college work for a week in a very busy period of the year.

The first paper read was

A CONTRIBUTION TO THE STUDY OF BLEEDING STIGMATA,

by DR. JAMES NEVINS HYDE, of Chicago, who reported the case of an adult male subject who suffered from hemorrhages from the surface of the skin, apparently spontaneous in origin. Some of these bleedings had lasted for six months at a time. Eventually there was a shortage of 55 per cent. of hemoglobin and nearly 65 per cent. of erythrocytes. The author reviewed the literature collated under the titles bleeding or bloody stigmata, bloody sweat, hematisidrosis, Hautblutungen, hysterical stigmata, and ecstasy. There was no hemorrhage from mucous surfaces.

The paper showed that it was possible for a man up to the average in general health to develop a malarial cachexia and to show symptoms of pernicious anemia, with bleeding from a single point, and never from two points at the same time. Though dwelling in a region supposed to be free from malaria the presence of the plasmodium was shown without accompanying enlargement of the liver or spleen. There was no cycle shown in the appearance of the germ.

The case was regarded as unique.

The next paper was upon

HYSTERICAL DERMATO-NEUROSIS,

by DR. A. VAN HARLINGEN, of Philadelphia.

Four cases were reported, all occurring in young women. The lesions were bullous or excoriated after the bleb wall had been broken or rubbed off, or gangrenous. The face, chest and limbs were the regions affected. The subjects usually presented some manifestations of hysteria and were anemic.

He believed a definite process was operative, and that the term "neurotic excoriation" was too vague to cover the condition. He would also oppose the name "feigned or malingering eruption."

He referred to a previous paper on a similar subject recently presented by him before the College of Physicians of Philadelphia, and said that the present paper dealt with one variety of hysterical dermatoneurosis, the erythematous.

Erasmus Wilson had reported similar cases under the designation "neurotic excoriations."

Wilson's cases occurred chiefly in hysterical young girls. They were characterized by the outbreak of erythematous patches, with flaccid bullae, accompanied by marked sensations of burning, tingling and pain.

The question whether these eruptions were not of a fictitious character having been brought forward, Wilson had said that his own very decided opinion, founded upon a careful and anxious study of the affection, was that the eruption is not the product of malingering but that it is a well-defined form of cutaneous disease of neuropathic origin.

LINEAR NEVUS

was discussed by DR. P. A. MORROW, of New York, in a paper based upon two cases, of which colored drawings were shown, and concerning whose nature

and pathology remarks were made. The older names were objectionable in so far as they suggested a one-sidedness to the eruption, a constant nerve origin or a connection with ichthyosis.

In the instances reported, bands of verrucous raised masses extended in one from the nucha to the middle back upon one side of the spinal column and in the other from the tip of a finger over the palm, wrist and forearm to the elbow. One had existed seven and the other twelve years. There had been no signs of the affection in early childhood, though it is thought to be of congenital origin.

The histological report corresponded with that of the recognizing changes, including increase in the prickly cells, heaping up of the corneous cells, etc. The speaker thought there were several clinical varieties to be made out.

THE VARIOUS FORMS OF PITYRIASIS AND THEIR RELATION TO ERYTHEMA, ECZEMA AND PSORIASIS,

was the title of a paper read by DR. G. H. FOX, of New York, in which he took the ground that nomenclature might be simplified by including under some general and simple term like pityriasis a variety of ill-defined but similar scaly affections. He scarcely ever had occasion to use the term seborrhea, and such acute erythematous-squamous affections as occur in rings and rounded patches upon various regions of the body, some resembling eczema, some psoriasis, and some lichen, might well be brought into one general class. In the affections mentioned pityriasis rosea was included.

A large collection of photographs was exhibited upon the walls to demonstrate how closely allied clinically many of these affections are and how closely the whole group simulated the psoriasis group.

In the discussion the suggestion made in the paper was opposed on the ground that it would be a step backward.

Several similar affections have already been clearly differentiated, and thus appear on the verge of being separated. Of the former pityriasis rosea stands out by itself as presenting but little difficulty of diagnosis after one has become familiar with the type. Seborrheal eczema was also thought to be now a pretty clearly defined condition.

A DISCUSSION UPON THE X-RAYS

was participated in by DRs. GILCHRIST, BRONSON and others, illustrated by drawings of ulcers, dermatitis, periostitis, osteitis and other injuries produced by the rays now so frequently seen and reported. There is in some instances an indolent slough which does not separate for a long time. Subjects who manifest any idiosyncrasy in regard to the rays after the first exposure should be very cautiously subjected to further trial of the rays.

BLASTOMYCES.

DR. GILCHRIST exhibited microscopic specimens of blastomyces, now shown for the first time as causative agents in skin disease; also protozoa in the tissues, in caseous masses and in the stage of sporulation in cutaneous disease.

THE REPORT OF THE COMMITTEE ON STATISTICS

was made by DR. HYDE.

The returns from New York were especially meagre. Ten thousand cases were reported, a falling off of sev-

eral hundred from last year. Scabies was shown to be especially prevalent in Boston, so far as the report went.

SECOND DAY.

The officers elected for the ensuing year were as follows: President, Dr. J. N. Hyde, of Chicago; Vice-President, Dr. E. B. Bronson, of New York; Secretary, Dr. J. T. Bowen, of Boston.

New members elected were Dr. J. C. Johnston, of New York; Dr. F. H. Montgomery, of Chicago; and Dr. M. B. Hutchins, of Atlanta.

As the place of the next meeting, New York was chosen, and the time the first Tuesday in June.

The first paper of the morning session was

STRONG SOLUTIONS OF THE ICHTHYOL GROUP IN ACUTE AND CHRONIC INFLAMMATORY CONDITIONS OF THE SKIN,

by DR. H. G. KLOTZ, of New York.

The group of reduction agents, including thiol and tuneol, has usually been applied in weak solutions or combinations. The speaker has found that strong applications of this valuable class of remedies often present many advantages, even in acute conditions. They must, however, be most judiciously used and at proper intervals. They exert a decided contracting effect upon the blood-vessels and have a marked anti-parasitic influence. A point not hitherto brought out in connection with the use of ichthyol is that in a 50-per-cent. watery solution it dries rapidly upon the skin, making a protective covering without the addition of collodion or other substance to make a varnish. It had thus been found of value in acute forms of dermatitis, including that from poison-ivy, burns, freezing and traumatism. It had given good results in erysipelas, eczema and zoster; and it is thought that in dermatitis herpetiformis it will likewise be found of benefit, as well as in urticaria, dermatitis herpetiformis and the acute exanthemata.

As is well known, the chief use of ichthyol has been in those chronic states which are markedly increased in the cornification. Here often the effects of the drug are more marked if it is preceded by cauterization or strong stimulation.

In discussing Dr. Klotz's paper DR. BRONSON mentioned the fact that bichloride of mercury could be added to a watery solution of ichthyol in greater strength than it could be used in a simple solution in water. A 50-per-cent. ichthyol varnish was of great use. The groups shown in Dr. Fox's picture, being all of probably parasitic nature, would all have received benefit from this treatment.

DR. BUCKLEY spoke of the advantageous use of ichthyol internally in certain erythematous conditions.

DR. ALLEN considered that Dr. Jackson had done much to retard the free employment of ichthyol by members of the Association by his report upon the drug many years ago, in which he stated that it was of little use in dermatology. In fact, there is scarcely a drug to-day used by dermatologists of such wide application and usefulness.

THE NATURE OF THE XANTHOMATA,

was the title of a paper read by DR. S. POLLITZER, of New York.

The reader had undertaken a series of microscopic studies to determine the differences which might

exist histologically between the various xanthomas, concerning whose exact nature such diversity of opinion exists. Thirteen cases were studied by the reader, five of them being of xanthoma planum palpebrarum, four of xanthoma tuberosum, and four of so-called xanthoma diabetorum. The clinical grounds for separating xanthoma of the eyelids from xanthoma multiplex are that in the latter the nodules are round, firm, elevated papules, while the eyelid patches are soft plaques in the level of the skin. The latter, too, persist throughout life; while the multiplex form sooner or later undergoes involution. The multiplex form is rare; that of the lids common. The two forms are rarely associated in the same individual. That of the eyelids the reader claims is not a new growth, but, as his observations have led him to believe, a degeneration of pre-existing embryonally misplaced muscle-tissue. The so-called xanthoma cell is a fragmented muscle-fibre in a state of granulo-fatty degeneration with proliferation of the muscle-cell nuclei. The various stages of the change from normal muscle-fibre to xanthoma cell were shown in microscopic slides from which microphotographs were made and exhibited. This explanation harmonizes with a number of hitherto unexplained clinical and pathological facts, namely, the absence of clinical signs of tumor; its almost exclusive occurrence in the region of the face, where peculiar muscular conditions prevail; its hereditary nature; its usual development after middle life, when degenerative processes are apt to occur; the peculiar yellow pigment that is always present in muscles undergoing fatty degeneration, etc.

The structure of the eyelid xanthoma and xanthoma multiplex were shown to be essentially different. The latter forms a sharply circumscribed tumor in the cutis. It is an irritative, hyperplastic development of connective tissue whose cells produce fibrous tissue or undergo degeneration. In xanthoma diabetorum the process is more diffuse and the tendency toward fatty degeneration more marked than in the non-diabetic multiplex variety. In 85 per cent. of multiple xanthoma either diabetes or some severe liver lesion attended with jaundice was found. The author thinks it likely that further research may show that fibrous nodes and fusiform enlargements of tendons in chronic rheumatism should be classed along with the nodes of xanthoma. We would then have a large group characterized by toxemic conditions, in all of which irritative connective-tissue lesions occur in the skin and elsewhere. At one extreme of the group would stand fibrous nodes of rheumatism; at the other, the transient nodules of xanthoma diabetorum, while between them would stand the nodule of common xanthoma multiplex.

In the discussion upon Dr. Pollitzer's paper, DR. HYDE said that clinically he had seen eyelid xanthoma in a subject of diabetes. The term xanthoma diabetorum is objectionable. The glycosuria is often transient.

DR. JOHNSTON did not see how xanthoma of the lids could be classed with xanthoma diabetorum. Against the latter being a new growth is the fact that the lesions can disappear and exacerbate coincidentally with decrease or increase of the sugar in the urine.

DR. MORROW spoke of the tendency of recurrence after the removal of lesions by treatment. He believed there was a causal connection between the

presence of sugar and the development and exacerbations of the lesions.

DR. ALLEN said that in a paper presented last year he had advocated the use of the term glycosuric dermatoses instead of diabetic for these lesions since true diabetes was often not present.

DR. BOWEN said the theory of the xanthoma cells was a very plausible one. If transition forms could be shown, the reader's position would be strengthened.

DR. POLLITZER, in closing, said he would look upon glycosuria in the presence of xanthoma of the lids as a coincidence. He would regard the generalized form upon the hands and face as of the connective tissue variety, which disappears. He believed some toxemia was behind the sugar as a causative factor. Whether or not the process is inflammatory depends upon the definition of the term upon which pathologists in no wise agree. In the Cohnheim sense it is not clinically nor pathologically an inflammation. It is connective tissue proliferation. To this all will agree. The diabetic form differs from the tuberoso form, as Dr. Morrow claims, but the processes are similar.

DR. SHEPHERD's case, in which nodules of xanthoma disappeared promptly upon the removal of biliary calculi, is of much interest.

DR. WELCH, the President of the Congress, visited the Section, and in a brief address spoke of the great opportunities presented to the dermatologist for the study of general pathological conditions. Not only is the opportunity for securing material abundant, but the skin is so directly exposed to external injury, infection and to various stimuli that the inflammatory reactions can be observed clinically as well as histologically at every stage. He was pleased to observe that such excellent opportunities were not being wasted; and general pathology could confidently look to this department of science for most promising results in the future.

CONTRIBUTIONS TO THE ETIOLOGY OF CONGENITAL ICHTHYOSIS

was the title of the next paper, read by DR. J. M. WINFIELD, of Brooklyn.

In a case described there was absence of the thyroid gland and the presence of inflammatory changes in the derma suggestive of micro-organisms and such bodies were found in the lymph spaces. A bacterial irritation is capable of producing a seborrheal dermatitis, and the thyroid may have an inhibitory effect; and when the latter is absent it might account for the development of the ichthyotic changes. The mother after having three normal labors, bearing healthy infants, had two succeeding pregnancies which were attended with nervous shocks and excitement which resulted in the birth of ichthyotic children.

DR. HARTZELL thought it hardly possible that the theory of maternal impressions can apply to these cases, but the presence of micrococci must be regarded as accidental. The absence of thyroid was interesting but its exact etiological significance was difficult to state.

DR. GILCHRIST thought the arguments not very strong. Cocci of decomposition can be excluded because of the precautions taken in the examinations. If the thyroid alone is removed in the case of dogs without the para-thyroid gland being taken away at the same time, the same results do not follow as when

this is done. This fact might have a bearing on the case.

DR. BOWEN said such instances confirmed his opinion that two different processes have been described; one a keratoma, the other due to retention of the epitrachial membrane enveloping the child. The term keratosis was preferable to ichthyosis.

HEREDITARY AND CONTINUOUS SHEDDING OF THE FINGER-NAILS

was the next paper, in which DR. D. N. MONTGOMERY, of San Francisco, reported a clinical instance attended with the presence of albumin. In the shedding of nails in ataxia it is the toe-nails which are affected. In diabetes shedding is rare, though mentioned in the books.

In no case known to the reader has shedding been so continuous as in his own case now reported. The patient's mother and a maternal uncle had been similarly affected.

DR. JOHNSTON said, in discussing the paper, that there might be a granular degeneration in the matrix layer of the nail-bed.

DR. WHITE asked if there was trophic change in the hair, or if other members of the patient's family were thus affected. He referred to a photograph which he had exhibited, showing such combined trophic changes which had run through three generations.

DR. KLOTZ asked as to the condition of the teeth.

DR. MONTGOMERY said, in closing, that the theory of degeneration would not apply, since the nails were apparently healthy, being clear and transparent and were shed unchanged. The teeth and hair were good. While the mother and a maternal uncle had the same affection, the father's nails had been "crumbly," it was said.

DR. LUSTGARTEN suggested an analogy to epidermolysis bullosa, in which shedding of the nails occurs.

SYMMETRICAL ATROPHY OF THE SKIN

was the next paper, by DR. J. A. FORDYCE, of New York.

The case upon which it was based concerned a woman of forty years. Colored drawings were shown to illustrate the lesions and locations. These consisted of scaly patches followed by bullæ upon the knees, ankle, foot and elbows. The general surface shows atrophic thinning. The first pathological change noted is capillary dilatation. The duration had been more lengthy in the cases hitherto reported than in this. It was thought to be allied to lupus erythematosus. There were evidences of vaso-motor disturbances but no organic affection of the nervous system could be detected.

DR. KLOTZ spoke of an instance which seemed to have a rheumatic origin.

DR. HYDE had never seen a similar case. Some of the appearances surely suggest lupus erythematosus.

DR. GILCHRIST said it had not been accepted by pathologists that lymphocytes leave the vessels. He thought idiopathic atrophy a good term for the affection.

DR. BRONSON thought it fair to surmise that this was an instance of the rare condition previously described. It differed in several particulars from the case described by himself, being more diffuse. He thought there might be a central spinal affection.

DR. DUHRING said he would regard the three or four cases of atrophic disease now described as identical. There are other diseases in which atrophy prevails but is preceded by inflammatory signs, as, for example, in *striae atrophicæ* and *morphea*. One case showing inflammatory symptoms at a given stage does not throw it out of the group. Later on, the inflammatory symptoms will probably all disappear. In classifying it the affection must be placed with the atrophies.

THIRD DAY.

SOME CASES OF FEIGNED ERUPTION

were reported in a paper read by DR. F. J. SHEPHERD, of Montreal.

Peculiar bullous, excoriated, ulcerated and gangrenous lesions were described, and photographs shown to illustrate cases not capable of classification under any of the recognized dermatoses. Some looked as though they might have been produced by burning the surface.

One case reported presented areas of dry gangrene upon the hands and forearms. After careful bandaging no more lesions appeared. The reader thought they had been produced by some heated disc of metal. In another, acid was thought the agent employed to cause lesions on the cheeks. Lesions upon the feet of a gangrenous nature in another case looked like those produced by a hot-water bottle in patients who were unconscious. The absence of motive should not preclude the diagnosis of feigned eruption.

DR. DUHRING thought we must have proof that an eruption is artificial before we can call it so. He had seen few instances of feigned eruption, and had proved that some so-called had been neurotic in origin.

DR. GRINDON spoke of artificial eruptions — not feigned, but produced by design.

DR. ALLEN spoke of the accidental effects of hot-water bottles.

DR. BRONSON spoke of a possible morbid susceptibility of the part; and he thought the reduced condition of the patient had much to do with the severity of the traumatism in hot-water-bag burns, for example. Similar lesions may not be due to design.

DR. WHITE said, in answer to Dr. Duhring, that circumstantial evidence should be admitted just as much as in a murder case. It would rarely occur that the patient could be detected in the act of inflicting personal injury. He referred to an instance of ulcerative dermatitis about the region of the mouth, evidently due to some application to remove hair, still no direct proof could be obtained.

DR. SHEPHERD said, in closing, that "eruptions probably feigned" would have been a better title for his paper.

(To be continued.)

INSANITY IN PRUSSIA is reported to be increasing so rapidly that the asylums are entirely inadequate to accommodate the large number of patients requiring treatment. In 1871 the total number of lunatics in Prussia was 55,063, in 1880 it had risen to 66,345, while in 1896 it had gone up to 82,850. The growth of insanity is more marked among men than among women. Of 100,000 Prussian males there are 278 insane, and of a like number of women, 243.

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LOWELL INSTITUTE LECTURES BY PROFESSORS DARWIN AND FOSTER.

THE simultaneous presence in Boston of two distinguished professors of the University of Cambridge, each speaking with the highest authority on his own special subject, is an event of no common interest in the educational history of Boston.

Prof. Geo. H. Darwin, a son of the great expounder of the theory of evolution in the organic world, himself a mathematician of the highest rank, is setting forth in a course of Lowell Lectures the theory of tidal movements, and drawing therefrom conclusions of the greatest importance in cosmical mechanics. Although this subject requires for its investigation the most refined methods of mathematical analysis, the results are presented in language free from technicalities and not requiring for its comprehension the special training of the physicist.

His colleague, Prof. Michael Foster, also speaking from the Lowell platform, is discussing a subject of more special interest to the members of the medical profession. "Some Features of Brain-Work" are presented by this well-known English physiologist in a course of six lectures, beginning October 18th. From the brief summary printed on the tickets, as well as from the success of the opening lecture, it is evident that the physiology of the nervous system in its unity as well as its complexity, as revealed by modern research, is to be sketched by a master hand.

Professor Foster requires no introduction to those members of the medical profession who have obtained their medical education within twenty years. In his text-book, published for the first time in 1877, the advanced student and the original investigator found not a collection of isolated and often conflicting statements, but a logical and careful presentation of evidence, with wise suggestions as to the direction in which truth was to be sought in those fields where investigations had yielded only uncertain results. In its successive editions the work has kept pace with the advance of physiology, and its author has shown us how in physiology,

as in other sciences, the "solid nucleus of acquired truth year by year grows larger at the expense of its envelope or zone of strife where truth and error mingle in conflict."

Professor Foster began his career as a physiologist in 1867, as lecturer on practical physiology in University College, London. In 1869 he was appointed professor in the same institution. In 1870 he became Prælector in Physiology at Trinity College, Cambridge, and in 1883 was appointed first professor of physiology in the University of Cambridge. Since 1881 he has held the position of Secretary of the Royal Society, and in this capacity has exerted a strong influence upon the development of science in England. He took a prominent part in the deliberations of the International Congress of 1896, in which it was decided that, beginning with the year 1900, a card catalogue of the scientific literature of the world shall be published under the auspices of the Royal Society, and when this great undertaking shall be inaugurated the result will be largely due to the energy and sagacity of Michael Foster.

Our profession is indeed to be congratulated on the opportunity afforded them by the Lowell Institute of meeting men so instrumental in determining the progress of contemporary science as Professors Darwin and Foster.

THE HEREDITY OF ACQUIRED CHARACTERISTICS.

THE theory of Weismann that acquired characteristics are not transmitted by heredity has not found favor with the medical profession. Apart from all speculations about body plasma, which is *individual* and modifiable, and germ plasma, which is *racial* and not modifiable—speculations which cannot be said to have a very substantial basis—the question to the medical man resolves itself into this: whether acquired peculiarities and morbid conditions are handed down to offspring. The physician who sees instances of congenital syphilis—one of the parents having been syphilitic—and congenital tuberculosis, neurasthenia, etc., derived from one or both parents who had acquired the morbidity, is likely to hold to the opposite of Weismann's contention. That certain nervous affections (as hysteria) acquired by the parent under circumstances of shock, great mental strain, etc., may be transmitted to one or more children is also a matter of frequent observation; finding its counterpart in experiments of Brown-Séquard, whereby guinea-pigs were rendered epileptic and transmitted to their young their epilepsy after certain injuries of the "epileptogenous zone."

Cesare Lombroso takes up the subject of the transmission of acquired characteristics in a late number of the *Forum*.¹ He remarks that the question is of the utmost importance not only in explaining the origin of zoölogical modifications in different species, but also in aiding us to decide whether we can profit

organically, so to speak, by the actions of our fathers, that is, whether the labor of the part can be accumulated and transformed into labor that may be called organic, or whether such labor must be wholly lost.

He alludes to the vast number of facts on record to prove that physical characteristics artificially acquired have been hereditarily transmitted. The biological history of the camel makes it wellnigh certain that the hump, which, as in the analogous tumors on porters' backs is only a collection of fat around a slight protuberance of the vertebrae, is a physical modification produced by burden-bearing, the wild llamas, ancestors of the camel, having absolutely no hump, while this hump is atrophied in the racing camel. The callosities of the knees and breasts, which arise in the camel from continual kneeling to receive its load, are acquired like the callosities of the human body, and though wanting in the camel's wild brethren, they are perfectly apparent in the young camel before he has begun to work.

Among the many examples of acquired psychical characteristics which the writer adduces is the following: Civilized man has acquired in the cerebral cortex—in a fold of the parietal lobe—the psychical centre of reading, which in certain maladies (in thrombosis and apoplexy) is paralyzed, causing the reading power to disappear. Now this centre has positively been acquired within historic time; it is certainly not found in men yet savage. The same may be said of the speech centre,—the third left frontal convolution,—since everything goes to prove that the first man had no language, just as the new-born child has no language, and the Hottentots and Weddahs have but very imperfect ones. The organ tends to become more and more differentiated in our modern civilization.

The above considerations, though fatal, in so far as they contain scientific fact, to Weismann's doctrine, that acquired faculties, etc., are not transmitted to offspring, will not to some readers carry the conviction which attends the demonstration in individual instances of the direct transmission of acquired characteristics. Weismann contends that influences which affect the somatic cells do not correspondingly affect the reproductive cells so that the modification or defect is entailed to progeny. But, going back to physical changes, does not the fact of hereditary syphilis prove such transmission? Here, apparently, is an external agent, the virus of syphilis, which has profoundly modified both germ cells and somatic cells in the parent and in the offspring. May not a thousand influences, of various orders, produce a similar effect? The syphilitic father cannot hope that in accordance with the Weismann doctrine, his unborn progeny may escape the malefic infection. The true doctrine of heredity lends no support to this view. That there is a direct transmission of moral as well as physical traits has been of common observation from antiquity.

"Scilicet expectas ut tradat mater honestos
Atque alios mores quam quos habet?"²

¹ *Forum*, October, 1897.

² *Juvenal*, Sat. vi, 239.

The doctrine of Weismann, lately so strongly assaulted by Herbert Spencer in the *Contemporary Review*, is so contrary to both physiological and pathological facts that we believe that it will be eventually abandoned by its author, as it is being generally discarded by scientific men everywhere.

The maternal influences affecting offspring are very subtle; a bad organic habit of the one may irretrievably blight the post-natal life of the other. Dr. Frank B. Earle recently reported a notable instance of the kind before the Chicago Medical Society. In the preceding December he attended at the birth of a ten-pound girl, whose mother, a morphinist, seemed specially solicitous regarding her babe. Inquiry revealed the fact that three children had died soon after birth, the first in two and a half days, and the third in four days. In this case, on the third day the child became sleepless, pale and prostrate; five minutes later died. The mother had taken eight to fourteen grains of morphine daily, commencing soon after marriage.³

Physiologists have observed that previous pregnancies have an influence upon offspring. Dr. Austin Flint remarks that this is well known to breeders of animals. "If pure-blooded mares or bitches have been once covered by an inferior male, in subsequent fecundations the young are likely to partake of the character of the first male, even if they be afterward bred with males of unimpeachable pedigree. What the mechanism of the influence of the first conception is it is impossible to say, but the fact is incontestable. The same influence is observed in the human subject,"⁴ Fookes of Fairfield, Wiltshire, England, has given instances of the same kind known to himself. Herbert Spencer, from a review of these and other facts with a like bearing, concludes that: "We must take it as a demonstrated fact that during gestation traits of constitution inherited from the father produce effects upon the constitution of the mother; and that these communicated effects are transmitted by her to subsequent offspring." "We are thus supplied with an absolute disproof of Weismann's doctrine that the reproductive cells are independent of and uninfluenced by the somatic cells; and there disappears absolutely the alleged obstacle to the transmission of acquired characters."⁵

MEDICAL NOTES.

UNIVERSITY OF TEXAS. — Dr. William S. Carter, demonstrator of physiology in the University of Pennsylvania, has been elected professor of physiology in the University of Texas.

TYPHUS FEVER AT SAN FRANCISCO. — A case of typhus fever was recently discovered at St. Luke's Hospital in San Francisco. The patient, a man aged twenty-three years, was removed to the pesthouse.

END OF THE SMALL-POX IN MONTREAL. — The health authorities of Montreal have declared that the small epidemic of small-pox, from which the city has suffered for some time, is now over, there having been no cases there for upwards of three weeks.

THE LIBRARY OF SIR MORELL MACKENZIE has been advertised for sale in a London auction room. Besides a large number of general works there are many authorities on his specialty. Among his own contributions to medical literature there are many copies of his "Growths in the Larynx" and "The Laryngoscope," both published in 1871, also of "Leprosy of the Air-Passages."

RULE MADE THAT MEDICAL SCHOOLS MUST TEACH IN ENGLISH. — We learn from the *Journal of the American Medical Association* that the quarterly meeting of the State Board of Health was held at the Great Northern Hotel, Chicago, October 5th. A resolution was adopted that after May, 1901, no school of medicine or midwifery would be recognized unless its instruction was given in the English language. A number of schools of midwifery in Chicago will be affected. After May 1, 1898, no candidate for license to practise medicine in the State will be examined unless he gives documentary evidence of a preliminary or basis education equivalent to that of a high school course.

YELLOW FEVER IN THE SOUTH. — The yellow-fever situation has not improved; and October 18th the number of deaths in New Orleans had reached 100. Somewhat less than 900 cases have been reported to the New Orleans Board of Health since the beginning of the epidemic in September. The disease has appeared at Baton Rouge, and at Montgomery, Ala. Dr. Guiteras is reported by the *Boston Herald* to have given his opinion with regard to the source of the epidemic as follows: "The source of this epidemic is, as usual, the island of Cuba. At least 90 per cent. of the cases of yellow fever imported into the United States from which epidemics have resulted have been introduced from Cuba. The last great epidemic was that of 1878. It cost this country many thousands of lives and \$200,000,000. That amount, added to what the present affliction will entail, would be more than enough to buy the whole island. A complete system of sanitation in Havana is the only means to prevent importing the disease into the United States. American methods of sanitation could eradicate it from Havana. The attitude of the Spanish government with regard to the malady has always been that of criminal indifference." With Havana as a constant and unregenerate source of infection, and the shotgun quarantine as a familiar and favorite means of protection, we do not seem to have made much real progress since the great epidemic of 1878. Fortunately November and colder weather are not far off. The general public at the South does not demand from the health-officer and the doctor the truth, but what it wants to hear; under these conditions there are doubtless those who have not the courage to tell the truth.

³ New York Independent, October 7, 1897 (article by Dr. J. B. Mattison).

⁴ Flint's Text-Book of Human Physiology, American Edition, 1888, p. 797.

⁵ Contemporary Review, May, 1893.

Trade from Northern cities to the South has of late been seriously interrupted.

THE MISSING LINK.—The party of scientists and antiquarians who were exploring the Rocky Mountains in the spring of the year 2000, mounted on their new '00 model bikes, suddenly heard a loud cry of triumph from the lips of Professor Rubbertire of the Smithsonian Institution, who was some distance ahead. Hastening forward, they found the professor standing by the side of the moldering remains of a wagon. In front of the decaying fragments lay the petrified remains of four extinct animals. "See!" said the professor, pointing to the animal to the right, nearest the wagon. "We have found the missing link between that noble machine, the bicycle, and the animal kingdom at last."—"What is it?" asked the excited group.—"That, gentlemen," said the professor, "is undoubtedly the fossil remains of a wheel horse."—*Detroit Free Press.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, October 20, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 48, scarlet fever 26, measles 3, typhoid fever 23.

THE STRAFFORD DISTRICT (N. H.) MEDICAL SOCIETY.—This medical society held its ninetyeth annual meeting at Dover, N. H., October 13th. Dr. A. C. Heffenger, of Portsmouth, was elected president.

A PROTEST OF THE NEWPORT SANITARY PROTECTIVE ASSOCIATION.—The Newport (R. I.) Sanitary Protective Association, at a recent meeting, protested against the manner in which the Newport City Council had filled the place of city physician recently made vacant by the death of the late Dr. Turner, alleging that the present incumbent is the only one of the twenty-five practitioners of medicine in Newport who has not a diploma from a reputable and legally chartered medical college. His legal status as a practitioner is alleged to depend upon a statement from the late Dr. Turner that he was engaged in the practice of the medical profession in Rhode Island prior to January 1, 1892.

NEW YORK.

YELLOW FEVER AND COMMERCE.—Three steamship lines running out of New York for New Orleans and Galveston are practically tied up, trade through the ports of the Gulf of Mexico having been paralyzed on account of yellow fever. It was the action on October 10th of the health authorities at interior ports supplied from the cities named, in prohibiting the reception or through transit of freight handled in those places, that caused the check to Southern commerce. The evil effects of the suspension are felt in heavy loss to shippers, carriers, merchants and customers; the loss of wages to sailors and longshoremen; higher prices to consumers for necessities, at points in the extreme South and the Southwest, and

temporary famine in such goods as are ordinarily shipped from the port of New York. It would be a loss to allow freight to accumulate at the quarantined ports, as country towns would refuse to take it at any future time.

LORD KELVIN'S VISIT TO COLUMBIA UNIVERSITY.—Lord Kelvin, the electrical expert and one of the most eminent of living English scientists, who arrived in this country in August last to attend the meeting at Toronto of the British Association for the Advancement of Science, sailed from New York on October 16th. A couple of days before his departure he paid a visit to the new buildings of Columbia University, through which he was escorted by Dr. Chandler and several members of the Faculty. He paid particular attention to the inspection of the scientific laboratories, which, although the apparatus is not yet complete, afforded him much interest, and expressed himself as greatly pleased with all the latest American appliances. "It is amazing," he said, "how much you Americans can accomplish in two short years. These buildings are marvellously constructed considering this brief space of time. I envy you that library. It is a strange, but true, fact that in Great Britain we could never have found such liberality for such a purpose."

THE COST OF INDISCRIMINATE CHARITY.—The Commissioners of the Department of Public Charities on October 11th adopted the report of Superintendent of the Poor, Bauer, on the result of his investigation of unworthy cases of charity. On March 26, 1896, the President of the Board directed Mr. Bauer to make a census of the different private institutions which were paid to take care of the city's poor, sick and needy. This was done in conformity with the rule established by the State Board of Charities, in accordance with the revised constitution of 1894. The report shows that \$1,313,491 has been expended on unworthy people, and the result will be a great saving to the city in the future. There were 26,561 individuals being supported. Of these Mr. Bauer has approved 13,276, and disapproved 13,285.

GYMNASIUMS IN THE PUBLIC PARKS.—A well-attended and enthusiastic meeting was recently held at Terrace Garden in favor of free gymnasiums in the public parks and the opening of more play-grounds for the children of the city. The practical spirit of the meeting was shown by its adoption of the plan of beginning the good work with a gymnasium in the new East River Park, and attention was called to the success which Boston has met with in establishing such gymnasiums, as pointing the way to a similar success in New York. All that is needed is official action in response to the strong and unquestioned popular demand.

A CASE OF QUADRUPLETS.—The wife of a motorman on the Troy City Railroad has had four children at a birth. Two of them were males and two females, and the average weight of the infants was six and one-

half pounds. The family resides at Albion, a suburb of Troy, and there are four other children, the oldest being a girl of sixteen and the youngest a boy of five.

DEATH OF DR. BLOODGOOD.—Dr. William E. Bloodgood, a retired physician, died at his residence in West 89th Street, New York, on October 10th, in the seventy-fifth year of his age. He was a graduate of the Medical Department of the University of the City of New York, and for a number of years was a prominent practitioner. Later, however, he gave up the profession and engaged in business.

DEATH OF DR. JAMES P. DALY.—Dr. James P. Daly, a Democratic candidate for coroner in the Borough of the Bronx at the approaching Greater New York election, died of apoplexy on October 15th; and the immediate cause of the attack is said to have been mental strain and overwork in the campaign. On the night preceding his death he addressed two political meetings, and the first symptom of illness appeared just after the conclusion of his second speech. Dr. Daly was a graduate of Bellevue Hospital Medical College, in the year 1886, and was a well-known practitioner in the annexed district of the city.

Miscellaneous.

MEDICAL RESPONSIBILITY FOR THE ABUSE OF MEDICAL CHARITY.

It is perhaps well to remind the medical profession that at least a part of the blame for the abuse of medical charity, the results of which are so disastrous alike to the public and the profession, is to be placed on their own shoulders. At a discussion on the subject held at the recent meeting of the New York State Medical Association, Mr. J. Harsen Rhoades made some pertinent remarks on this subject:

"I shall criticise your own profession rather sharply," he said, "but I wish it understood that I do it in the kindest spirit. You must recall that we laymen connected with charitable institutions must rely upon your recommendation largely in passing upon applicants to the medical staff. Most charitable institutions are too poor to establish a bureau to examine applicants.

"But the first great cause of the abuse of medical charity, I take it, is in the great multiplication of medical works of this character. There are too many hospitals, too many dispensaries, too many private institutions. Their number should be reduced. Dispensaries should not be allowed to accumulate.

"The next great cause of the abuses complained of is in the ambition of young medical men to attach themselves to medical charities already in existence, or to found new ones in connection with church charities, or independently, upon which they hope to build reputation for themselves, and out of which they expect individually to earn a living and establish a practice.

"Then there is the difficulty of determining who are poor and who are able to pay and the natural repugnance to close inquiry through fear of driving away those really entitled to aid, for it is the honest poor who suffer in silence and who possess an honorable pride which prevents a disclosure of their true condition. In this connection must be mentioned the secret willingness of many young practitioners to conceal facts which come to their knowledge

showing a patient's ability to pay, in the hope of securing such patient for private practice.

"The remedy seems to me, to lie in careful selection of young physicians for service in medical institutions and hospitals, and business principles applied in the profession; to dismiss or compel the resignation of all men appointed who prove careless, incompetent or self-seeking; and this is not now, nor has it ever been done, on the part of the medical profession.

"There is also need of the passage of a law which shall compel all charitable institutions of every kind to establish a clearance bureau, which can be easily done in connection with the Charity Organization Society, each sharing in the expense of maintaining such bureau and in proportion to the number of patients recorded against each. Such a law should compel all institutions to send weekly a list of all patients applying for relief, with their residences and all known facts. These names should be filed, tabulated and investigated by the clearance bureau, and the result sent to each institution. It is my honest belief that such a bureau, once in operation, would disclose an amount of fraud on the part of thousands and tens of thousands who now receive alms or help of various kinds that would be appalling."

THE PRICE OF BREAD IN ITALY, AND THE HEALTH OF THE POOR.

A CORRESPONDENT of the *Lancet*, writing from Rome, makes the following statement:

The dearness of bread has been agitating nearly every commune, from the Alps to Etna, bringing the proletariat and the poor into sharp collision with the bakers, throwing the bakers themselves "upon strike," and sending deputations from both interests—the consumers and producers—to magistrates, members of Parliament, and even the Prime Minister, the Marquess Di Rudini himself, without, however, as far as one can see, eliciting any hope of a way out of the imbroglio. Local circumstances intervened to modify the situation, which may roughly be described as this: the poor cannot afford to pay 40 centimes (*4d.*) for the *pagnotta* (loaf), and the bakers cannot afford to sell it at less unless the flour is supplied them at a figure below that at which the *dazio consumo*, or octroi duty, maintains it. What is occurring here occurs, *plus "local color,"* all throughout the kingdom. The Syndic invites the *Associazione dei Negozianti Fornai* (Association of Shop-keeping, as distinguished from *lavoranti*, journeyman bakers), to offer bread for sale at 40 centimes for the better quality and 38 or 35 centimes for the inferior. The *Associazione* replies, with flour at its present price, *Non possumus*. A threat on the part of the Communal Administration to impose *prezzi coercitivi* (compulsory prices) on the bakers is met with a defiant, "You had better try." At Venice the journeyman bakers go out on strike, and the *Municipio* (town council) orders two hundred *quintali* (hundredweight) of bread from Milan to keep the "Queen of the Adriatic" from starving; but the strikers have the grim satisfaction of seeing the said municipality constrained to sell it at 30 centimes the kilogramme, a significant commentary on the threat of *prezzi coercitivi*. Meanwhile the lack of bread is bringing other ailments to the front, and the potato—in Italy a rather slighted esculent—is having its turn of popularity. Edibles of even humbler sustaining power are also invoked, with the result that "fungi" of more than suspected quality are multiplying the cases, already all too frequent, of "mushroom poisoning."

The crisis through which Italy is now passing is very grave. Malnutrition is one of the many curses of her laboring poor: prolific of stunted stature, impaired muscular power, and generally of the diseased developments fraught with evil augury of her future. Vainly do her medical philanthropists, like Dr. Angelo Celli, professor of hygiene in our medical school, tax their ingenuity to invent a more nutritive dough than that employed by the baking interest.

The crushing *dazio consumo* lays its paralyzing finger on all such efforts, and forces men like Professor Celli and forty more of the same profession to court a seat in Parliament in order to cut at the root of the evil by fiscal amelioration and financial reform. Some twenty of these medical candidates were returned for as many constituencies at the general election in March last, and nearly all of them sit on the Extreme Left. And *quid mirum*? They are medical philanthropists first and political legislators afterwards; and their first thought is to raise the submerged masses from the slough of insanitation, with its attendant following of disease, crime and anarchic conspiracy, and place them on the footing promised them when "Italy, one and independent," was substituted for "Italy, a geographical expression."

A few figures will show what fearful abuses philanthropists like Dr. Celli and Dr. Colajanni are laboring to remove, and agitating the public and Parliament to consider. In Naples alone malnutrition in 1873 caused 131 deaths, *con vizi di conformazione congeniti* (congenitally abnormal conformation); and in 1896 the number had risen to 240. In the same city, in 1873, there were 1,216 deaths from tuberculosis in its various forms, and in 1896 they rose to 1,812. Increase of population does not explain this evil increment, which, as Dr. Colajanni remarks, is *graduale costante*. The Di Rudini Government will soon have to face a reassembled Parliament; and one of its first duties will be to consider the ill-nourished, badly-housed, hygienically-neglected poor—to leave the "Dark Continent" to take care of itself and to brighten that still darker region around it—the true "Italia Irredenta"—which seethes, suffers and succumbs.

THE AMERICAN JOURNAL OF PHYSIOLOGY.

THE number of investigations in physiology and its allied sciences now made in this country is grown so large that the present means of publication are no longer sufficient. Physiologists can no longer print in foreign countries, often in foreign languages, or in general medical journals, without stunting a growth, which, unchecked, will come to be a gratification to every American, and a wholesome influence in American medicine. To meet the needs of investigators in physiology, physiological chemistry, physiological pharmacology, bio-chemistry and certain other branches of biology, a special journal will be published, the first number appearing in January, 1898. The *American Journal of Physiology*, as the new publication will be called, will contain in each volume about five hundred pages, divided into parts or numbers, to be issued whenever material is received. It is expected that not more than one volume a year will be printed. The *Journal* will be edited by H. P. Bowditch, M.D., Boston; R. H. Chittenden, M.D., New Haven; W. H. Howell, M.D., Baltimore; F. S. Lee, M.D., New York; Jacques Loeb, M.D., Chicago; W. P. Lombard, M.D., Ann Arbor; and W. T. Porter, M.D., Boston.

It is not to be supposed that a journal devoted solely to the publication of original researches in physiology will ever do more than pay for its paper and printing, and it is probable that some years must pass before the new enterprise will cease to be a financial burden on a small number of investigators. Yet the need of such a publication is undoubted. The aid of all friends of learning is asked until the journal shall be established on a self-supporting basis. The subscription price, which is five dollars per volume, should be sent to W. T. Porter, M.D., 688 Boylston Street, Boston, Mass.

METEOROLOGICAL RECORD

For the week ending October 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...3	30.63	48	56	40	69	73	71	N.	S.	9	10	C.	C.	.02
M...4	30.41	60	75	44	67	67	62	S.W.	S.W.	7	8	C.	C.	
T...5	30.12	61	75	47	64	59	62	S.W.	S.W.	7	14	C.	C.	
W...6	28.86	62	73	52	80	77	78	S.W.	W.	10	9	C.	C.	
T...7	29.94	56	62	50	69	77	73	N.W.	N.	6	5	C.	C.	
F...8	30.06	52	58	45	72	54	63	N.W.	N.	9	6	F.	F.	
S...9	30.02	54	67	42	62	39	50	S.W.	N.	18	16	F.	C.	
Mean														
Max														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 9, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,060	716	274	13.58	13.58	5.88	1.12	3.92	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	315	99	13.92	10.15	1.45	1.16	8.99	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	104	—	12.20	14.64	3.05	2.41	3.66	
Baltimore	550,000	179	74	10.44	11.76	.56	3.36	—	
Boston	517,731	192	59	11.96	13.52	5.20	3.64	2.60	
Cincinnati	405,000	99	—	12.12	8.48	1.01	2.02	7.07	
Cleveland	350,000	102	41	3.96	3.96	.99	—	2.97	
Pittsburg	285,000	80	31	12.50	7.50	5.00	3.75	2.50	
Washington	277,000	97	20	12.36	14.42	3.09	3.09	5.15	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	14	2	16.64	29.12	8.32	8.32	—	
Worcester	105,050	26	15	26.95	11.55	11.55	3.5	11.55	
Fall River	95,819	44	28	15.89	11.35	13.42	2.27	—	
Lowell	87,183	28	11	21.42	10.71	17.85	3.67	—	
Cambridge	86,812	16	7	7.70	19.25	7.70	—	—	
Lynn	65,220	—	—	—	—	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	20	9	35.00	10.00	35.00	—	—	
Lawrence	55,510	19	10	21.04	—	10.52	5.26	5.26	
Springfield	54,790	20	6	5.00	10.00	—	5.00	—	
Holyoke	42,664	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	10	3	—	20.00	—	—	—	
Brookton	35,853	7	1	14.28	28.56	14.28	—	—	
Malden	32,884	6	1	33.33	—	—	—	33.33	
Chelsea	32,716	12	5	8.33	16.66	8.33	—	—	
Haverhill	31,406	14	3	7.14	7.14	—	—	7.14	
Gloucester	29,475	—	—	—	—	—	—	—	
Newton	28,990	11	2	27.27	9.09	18.18	9.09	—	
Fitchburg	28,392	9	0	11.11	—	—	11.11	—	
Taunton	27,812	5	3	20.00	—	20.00	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	8	2	—	—	—	—	—	
Everett	21,575	7	1	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	1	1	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,357: under five years of age 737; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 314, consumption 280, acute lung diseases 237, diarrheal diseases 115, diphtheria and croup 97, typhoid fever 45, whooping-cough 31, scarlet fever, cerebro-spinal meningitis and malarial fever 7 each, erysipelas 2.

From whooping-cough Baltimore 11, New York 9, Philadelphia 4, St. Louis 3, Cincinnati 2, Pittsburg and Providence 1 each. From measles New York 2. From scarlet fever New York 3, Providence 2, Philadelphia and Baltimore 1 each. From cerebro-spinal meningitis New York and Worcester 3 each, Washington 1. From malarial fever Philadelphia, St. Louis and Nashville 2 each, Boston 1. From erysipelas New York 2.

In the thirty-three greater towns of England and Wales with

an estimated population of 10,992,524, for the week ending October 2d, the death-rate was 16.8. Deaths reported 3,538, diarrhea 229, diphtheria 67, fever 61, measles 60, scarlet fever 51, whooping-cough 46.

The death-rates ranged from 11.7 in Cardiff to 23.7 in Liverpool; Birmingham 17.1, Bradford 17.1, Croydon 12.0, Gateshead 20.1, Huddersfield 13.9, Leeds 18.2, Leicester 13.3, London 15.3, Manchester 21.3, Newcastle-on-Tyne 21.6, Nottingham 16.6, Portsmouth 12.9, Salford 20.3, Sunderland 17.6, Swansea 13.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 9, 1897, TO OCTOBER 15, 1897.

The leave of absence granted CAPTAIN ASHTON B. HEYL, assistant surgeon, Fort Riley, Kan., is extended two months.

Leave of absence for one month is granted FIRST-LIEUT. JAMES S. WILSON, assistant surgeon, Camp Eagle Pass, Tex.

Leave of absence for one month is granted CAPTAIN W. E. PURVIANCE, assistant surgeon, Fort Columbus, N. Y.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING OCTOBER 16, 1897.

J. C. WISE, medical inspector; F. A. HESLER, passed assistant surgeon; R. K. SMITH, assistant surgeon, detached from the "Philadelphia" and ordered to the "Baltimore."

N. L. BATES, medical director, detached from the Museum of Hygiene and ordered to duty as chief of the Bureau of Medicine and Surgery.

J. R. TRYON, medical director, detached from the Bureau of Medicine and Surgery and ordered to New York as general inspector of United States naval hospitals.

H. J. BABIN, medical inspector, ordered as president of the Naval Examining Board, New York, October 9th.

C. H. WHITE, medical director, detached as president of Naval Examining Board, New York, October 9th, and ordered to Washington in charge of Naval Museum of Hygiene.

J. C. PRYOR, assistant surgeon, detached from the Naval Hospital, Mare Island, and ordered to the "Adams."

A. FARENHOLT, assistant surgeon, detached from the "Vermont" and ordered to New York Navy Yard.

C. G. HERNDON, surgeon, ordered on temporary duty at the Naval Museum of Hygiene.

W. B. GROVE, assistant surgeon, detached from Naval Laboratory, New York, and ordered to Mare Island Hospital.

C. P. BAGG, passed assistant surgeon, detached from the "Marion" and ordered to the "Adams."

M. K. JOHNSON, assistant surgeon, detached from the "New York" and ordered to duty with the "Vicksburg."

R. SPEAR, assistant surgeon, detached from the Naval Laboratory, New York, and ordered to the "New York."

C. BIDDLE, surgeon, detached from Marine Rendezvous, San Francisco, ordered to Washington in charge of patient, then report at the Navy Department.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE TWO WEEKS ENDING OCTOBER 9, 1897.

KALLOCH, P. C., surgeon. To proceed to McComb, Miss., for special duty. October 2, 1897.

WASDIN, EUGENE, passed assistant surgeon. Relieved from duty at Ocean Springs, Miss., and directed to proceed to New Orleans, La., and report to Surgeon H. E. CARTER for duty. October 4, 1897.

MAGRUDER, G. M., passed assistant surgeon. To proceed to Sabine Pass, Tex., for special duty. October 3, 1897. To proceed to Houston, Tex., and await orders. October 9, 1897.

COBB, J. O., passed assistant surgeon. Relieved from duty at Cairo, Ill., and directed to proceed to Jackson, Miss. September 27, 1897. To proceed to Fontainebleau, Miss., for duty. October 9, 1897.

GEDDINGS, H. D., passed assistant surgeon. To proceed to New Orleans, La., and report to Surgeon H. R. CARTER for duty. September 27, 1897.

CLARK, TALIAFERO, assistant surgeon. To proceed to Cairo, Ill., for temporary duty. October 2, 1897. Granted leave of absence for two days. October 6, 1897.

PROMOTION.

PARKER C. KALLOCH, passed assistant surgeon, commissioned as surgeon, September 22, 1897.

CASUALTY.

W. D. BRATTON, passed assistant surgeon, died at Sabine Pass, Tex., October 2, 1897, of injuries contracted in line of duty.

RESIGNATION.

DR. GUSTAV LIERMANN, has resigned his position in the College of Physicians and Surgeons of Boston as Professor of Diseases of the Digestive Organs.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1898, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1898.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1897 has been awarded to Dr. Joseph Collins, of New York, for his essay entitled: "Aphasia."

THOMAS R. NEILSON, *Secretary.*

RECENT DEATHS.

SURGEON-GENERAL NEWTON L. BATES, of the U. S. Navy, died at Washington, on October 18th. He was appointed surgeon-general about two weeks ago, to succeed Surgeon-General Tryon, and was obliged, on account of the illness which finally resulted in his death, to take the oath of office in bed. He entered the navy from New York State in June, 1861, and prior to his appointment as surgeon-general was a medical director with the relative rank of captain, and was on duty at the Naval Museum of Hygiene in Washington.

WILLIAM D. BRATTON, Passed Assistant Surgeon, died, at Sabine Pass, Texas, on the 2d instant, under peculiarly distressing circumstances.

In the pressing need of medical officers for active work during the present yellow-fever epidemic in the South, Passed Assistant Surgeon Bratton, though an invalid, and, therefore, on waiting orders, promptly volunteered his services to meet the emergency, and the tender was accepted in the spirit in which it was made. He was ordered to Sabine Pass to assume charge of service matters relating to the quarantine service at that port, where he arrived and reported himself on duty the 28th ultimo. On the 1st instant he had been superintending the disinfection of a vessel; and returning to the ship to reassure himself upon the work done, he fell through a ventilating hole, striking his head on an iron knee, producing concussion of the brain. He remained undiscovered for several hours, and when found was unconscious, and remained so until death occurred, eighteen hours after the unfortunate accident.

William Du Bose Bratton was born in Fairfield County, South Carolina, June 23, 1860, the son of General John Bratton, of Winnsboro, in that State. He was graduated at the Medical College of South Carolina, March 1, 1884, and for the year following was house-surgeon at the Charleston City Hospital.

He was commissioned as assistant surgeon April 1, 1885. He was commissioned a passed assistant surgeon April 2, 1888, and again assigned to duty as medical officer on the revenue cutter *Bear* for service in Alaskan waters. In May, 1889, he was ordered to duty in command of the Service at Portland, Ore., where he remained two years, and was then assigned to duty at Chicago, Ill. In 1893, he was placed in command of the Service at Buffalo, N. Y., where he remained till January 9, 1894.

In the fall of 1893, he first became aware of a condition of his health which gradually disclosed a tuberculous character, and after the Bureau had been officially informed of it, he was sent to Wilmington, N. C., for its favorable climate, where he remained several months, doing meanwhile temporary service at Delaware Breakwater Quarantine, but later he was placed on "waiting orders" (January 1, 1895), taking up his residence in Arizona, and finally in New Mexico, to obtain the advantages of the southwestern arid region. After a two years' residence there, he reported, in March, 1897, his gradual return to a state of health, which justified him in asking for an early restoration to active duty; but further delay was advised in order that he might have the benefit of a longer residence and, if possible, a permanent cure.

During the period of "waiting orders," he became much interested in the climatic treatment of consumptives, and wrote several reports on the arid region of the Southwest as the best locality for such work, recommending the establishment of a sanitarium in that section for the treatment of patients of this Service suffering from the disease.

Original Articles.

ON THE BACTERIOLOGICAL EXAMINATION OF THE STOOLS IN TYPHOID FEVER, AND ITS VALUE IN DIAGNOSIS.¹

BY MARK W. RICHARDSON, M.D., BOSTON,
From the Laboratory of the Massachusetts General Hospital, Boston, Mass.

THE bacteriological history of typhoid fever begins properly with the year 1880. Previous to that time, though much work had been done upon this disease by Klein, Klebs, Birsch-Hirschfeld and others, and that, too, with the object of finding, if possible, an organism specific for the malady, yet little had been accomplished to clear up satisfactorily the etiology of typhoid fever.

In those days, of course, the science of bacteriology was in its infancy, and the search for a disease-germ was carried on under conditions infinitely more difficult, and with methods immeasurably more crude than those now employed. Practically, all our elaborate culture methods were still to be discovered, and we find the first bacteriological work of Klein, Klebs, Birsch-Hirschfeld, Eberth and Koch upon typhoid confined almost entirely to the search for micro-organisms in stained sections of typhoidal tissues.

Up to 1880, then, nothing conclusive had been determined. Elaborate studies of intestinal lesions, mesenteric glands, the spleen, kidneys and liver had demonstrated often, to be sure, the presence in these organs of various bacteria, mainly cocci, but the results of these investigations had been very inconstant, and did not allow the formation of any conclusions as to the relation of the organisms to the disease process.

In 1880, Eberth,² in a most painstaking series of observations, demonstrated in the organs of typhoid cadavers with great constancy the presence of collections of short, stout bacilli, with rounded ends. These observations were confirmed almost immediately by Koch,³ who, working entirely independently, had arrived at very similar conclusions.

The next advance was made by Gaffky,⁴ who first obtained the new organism in pure culture, and subjected its characteristics to thorough study.

The claims of Eberth, Koch and Gaffky, that in this new bacillus the cause of typhoid fever had been found, have been borne out by the experience of the past fifteen years, but not without opposition; for, with the improvement in bacteriological technique, several other organisms very similar to the typhoid have been discovered, to identify which a considerable number of differential tests have been found to be essential. Of these pseudo-typhoid organisms the bacillus coli communis has been the most troublesome; indeed, Lösenner⁵ states that, up to 1894, no less than 689 methods had been suggested for the differentiation of the typhoid and the colon bacillus alone. Lösenner concludes that an organism, in order to be proved the typhoid bacillus, must satisfy the following ten conditions:

1. The organism must show, without liquefaction, a characteristic growth upon gelatin.
2. Must vary in size, and have marked motility.

3. Must have a large number of flagella (10-12-15).
4. Must decolorize by Gram's method of staining.
5. Must form no gas when grown in a medium containing grape, milk or muscle sugar.
6. Must cause no coagulation of sterilized milk.
7. Must produce no indol when grown in an albuminous medium.
8. Must produce, in neutral milk-serum, an acid reaction never exceeding three per cent. of a deci-normal sodic-hydrate solution.
9. Must grow upon one-half of a potato in the same manner as a known typhoid organism on the other half.
10. Must show no growth upon Maassen's normal solution with addition of glycerin.

Then to these ten essentials we add perhaps the most important:

11. The organism must show the specific typhoid reaction when treated with typhoid serum.

Furthermore, Proskauer and Capaldi, in a recent publication, recommend the use of two test solutions devised by them.⁶ In Solution No. 1 the typhoid bacillus does not grow at all, whereas the colon bacillus not only grows but also produces an intense acid reaction. In Solution No. 2 both organisms grow; but, in this case, it is the typhoid which produces the acid reaction. I have applied this test to 16 typhoid and six colon cultures, and my results have been uniformly satisfactory.

Although the bacillus coli communis, with its many varieties, has been the chief bacterium to necessitate these differential tests, its manner of reaction to the various media differs markedly from that of the typhoid bacillus. It would not seem difficult, therefore, to consider them organisms differing utterly in nature. It is only when we study other bacilli of the same group, such as the bacillus fecalis alkaligenes, or the mouse-typhoid bacillus, organisms which combine, in most striking manner, the characteristics of both coli and typhoid, that we begin to doubt whether, after all, the typhoid bacillus is anything more than a modification of the colon bacillus, which, under favoring conditions, has changed its nature, and acquired a much increased virulence.

This problem has been solved, I think, by R. Pfeiffer's discovery⁷ of the specific serum reaction which takes place when a fluid culture of the typhoid bacillus is treated with the serum of a person sick with typhoid, or with the serum of an animal made artificially immune to typhoid. In this reaction, as is well known, the typhoid bacilli, which are ordinarily perfectly discrete, motile organisms, lose their motility, and become clumped together into larger or smaller aggregations. Under certain fixed conditions, it has been found that no organism but that of typhoid fever will react to typhoid serum. It would seem, therefore, that this specific reaction of the organism to the products of its own growth were sufficient evidence that it is a bacterium *sui generis*.

Having demonstrated the new organism with great constancy in the tissues of persons dead of typhoid fever, bacteriologists next turned their attention to the problem of isolating the typhoid bacillus from the fluids and excretions of the living body.

Gaffky⁸ made cultivations from typhoid stools upon ordinary gelatin, but the speedy liquefaction of his

¹ Read in part before the American Medical Association, Section on the Practice of Medicine, Philadelphia, June 3, 1897.

² Virchow's Archiv, 1880, Bd. 81; also 1881, Bd. 83.

³ Mitt. aus dem Kais. Gesundheitsamte, 1881, Bd. 1.

⁴ Loc. cit., 1884, Bd. 2.

⁵ Arb. aus dem Kais. Gesundheitsamte, 1894, Bd. 11.

⁶ Zeit. für Hygiene, Bd. xxiii, Th. iii.

⁷ Loc. cit., xxi, p. 203.

⁸ Mitt. aus dem Kais. Gesundheitsamte, 1884, Bd. 2.

medium by the other organisms present caused his experiments to fail.

In 1885, A. Pfeiffer⁹ announced that, by the use of an agar medium, he had been able to isolate from typhoid dejections a bacillus identical with that of Eberth.

In the same year, Simonds¹⁰ cultivated upon gelatin the typhoid bacillus from the stool of a patient at the sixteenth day of the disease.

In 1889, Karlinski¹¹ examined the stools of 21 typhoid patients with positive results in all. The organisms never appeared before the ninth day, and in three cases the bacilli were obtained first upon the 21st day.

In 1890, Karlinski¹² said that out of 44 cases, in which the symptoms had been those of typhoid, and in which the typhoid bacilli had been found in the stools, the organisms were found also in the urine in 21. Further, the presence of the bacilli in the urine was always associated with albuminuria. Karlinski succeeded in cultivating bacilli from the urine in one case as early as the third day of the disease.

In 1891, Karlinski¹³ reported several atypical typhoid cases in which, at autopsy, no intestinal lesions were found, but in which typhoid bacilli had been cultivated from the blood. Furthermore, typhoid bacilli were found in the blood, rose-spots and spleen, by Seitz,¹⁴ Flein,¹⁵ Neuhaus¹⁶ and Rutimayer.¹⁷

From the observations of the above-mentioned writers, and especially from those of Karlinski, it would appear that the detection of typhoid bacilli in any suspected material must be a very simple matter. When, however, we learn that, in proving their cultures, these observers used practically but three differential methods: the hanging drop, the growth on gelatin, and especially the absence of visible growth upon potato, we see that the value of their work can be but very little; for we now know that these few test-conditions are fully satisfied by several other organisms. It is, therefore, more than probable that the organisms isolated by Karlinski and others were, in the great majority of cases, not typhoid bacilli at all, but other bacilli of the same group, probably varieties of the colon bacillus.

In the examination of stools for typhoid bacilli the chief difficulties have arisen from the presence of other varieties of bacteria. These have been a disturbing element, first, because their colonies often resembled markedly those of typhoid, and, secondly, because they, in their growth, often liquefied the gelatin before the typhoid colonies got a chance to grow. This latter difficulty could be obviated, to be sure, by the use of an agar medium, but the procedure still remained largely one of chance, and it was necessary to pick up and verify many colonies at random in the hope that one or more would prove to be typhoid.

It was essential, therefore, to devise some medium upon which either typhoid bacilli alone would grow, or upon which they could be distinguished easily even in the presence of other organisms. To this end Chantemesse and Vidal¹⁸ added to ordinary gelatin carbolic acid in the strength of one-fourth percent. By this

means the growth of bacteria other than typhoid was said to be inhibited.

Thoinot¹⁹ applied the same principle by adding to 500 c. c. of suspected water 20 drops of carbolic acid. In this case, also, all bacteria except typhoid were said to be inhibited in their growth.

Holz²⁰ could confirm only partially the results of Chantemesse, Vidal and Thoinot. Holz conceived the idea of combining the advantages of potato and gelatin in one medium. His gelatin was made up with a watery extract of potato, and given such an acidity that 10 c. c. would be neutralized by from 2.4 to 3.2 c. c. of a deci-normal sodic-hydrate solution. This acidity in itself prevented the growth of a number of organisms, and this inhibitory power was still further increased by the addition of .03 percent. of carbolic acid. Upon this medium the growth of the typhoid bacilli was said to be characteristic, the colonies, and especially those upon the surface, being easily distinguished as small, clear, oval and transparent.

Although the potato gelatin of Holz marked a distinct advance in differential media, it seems to have found comparatively little favor, for, in 1895, we find Wathelet²¹ still working with ordinary gelatin. Wathelet examined about six stools in each of 12 typhoid cases; 600 different colonies were picked up and verified, and only 10 of these proved to be typhoid. These 10 colonies came from four cases, and never in any case were the specific organisms found in more than in one stool. How Wathelet proved his cultures is not stated. It is probable, however, that modern differential methods were used, an assumption which would explain, in large part, the discrepancy between his results and those of writers in the eighties, when misplaced confidence in potato cultures undoubtedly caused most serious mistakes.

It seems clear, therefore, that, up to 1895, the bacteriological examination of the stools in typhoid fever could have had but little real value as a diagnostic procedure.

In 1895, the subject was again taken up, and this time by Elsner.²² Elsner considered the potato gelatin of Holz the best medium devised up to that time. The appearance of the typhoid colonies was not always characteristic, however, especially when the carbolic acid was added.

Elsner, in his work, first experimented with infusions of hay, beets, straw and grass, but could not improve upon the potato extract. Then he made a long search for a substitute for carbolic acid. A great variety of substances were tried, such as naphthol, balsams, oils, alkaloids, glycogen, indol, scatol, urea, and many chemical salts and combinations. The substance finally hit upon was the iodide of potash in the strength of one per cent.

The formula for this medium, as given by Elsner, was very brief and somewhat unsatisfactory. I will, therefore, give it more in detail as carried out by myself.

1. (a) Pare carefully and cut into small pieces half a kilogramme of small potatoes. (Small potatoes are less acid and thus better for our purpose.) Or better, grate the potatoes to a fine pulp. (b) Add a litre of water and let stand twenty-four hours in a cool place. Or, instead, the mixture may be boiled for one and a

⁹ Deutsch. med. Woch., 1885, No. 29.

¹⁰ Loc. cit., p. 854.

¹¹ Cent. für Bakt., 1889, p. 65.

¹² Prag. med. Woch., 1890, No. 35.

¹³ Wien. med. Woch., 1891, Nos. 11 and 12.

¹⁴ Bakt. Studien zur Typhus-etiologie, München, 1886, p. 9.

¹⁵ Cent. für Med. Wissenschaften, 1881, p. 635.

¹⁶ Berlin. klin. Woch., 1886, No. 6.

¹⁷ Cent für klin. Med., 1887, p. 115.

¹⁸ Gaz. des Hôp., 1887, p. 348.

¹⁹ Loc. cit.

²⁰ Zeit. für Hygiene, 1890, p. 143.

²¹ Ann. de l'Inst. Pasteur, 1895, p. 252.

²² Zeit. für Hygiene, 1895, xxi, p. 25.

half hours. In the latter case, after boiling, make up to one litre the loss of water by evaporation.

2. Mash thoroughly, and strain through a fine cloth.

3. Boil with 10 per cent. or 15 per cent. gelatin.

4. Clear with egg.

5. Filter first through cotton, then through paper.

6. Test the acidity with deci-normal sodic-hydrate solution. If 10 c. c. are neutralized by from 1.5. to 2.5 c. c. of the sodic-hydrate solution, the medium is sufficiently correct as to acidity. If it takes more than 2.5 c. c. to neutralize 10 c. c. of the medium, then the acidity must be reduced by the addition of normal sodic-hydrate solution.

7. Add K. I., one per cent.: (a) to the medium as a whole, or (b) to the individual tubes as used. Use a solution of K. I. so made that one cubic centimetre is equivalent to one gramme of the salt.

Gelatin made up in this way gave, in most instances, satisfaction. Several times, however, for some reason still unknown, the medium failed to allow the typhoid bacilli to grow upon it. The fault probably lay in some variation in the potatoes used.

Upon this medium typhoid and colon-bacilli were practically the only organisms to grow. Rarely proteus and other forms were seen. Moreover, the growth of the typhoid and colon bacilli was perfectly characteristic. In twenty-four hours, at the room temperature, only colon colonies were visible, and these appeared as gray-brown, round, and coarsely granular. The typhoid colonies, on the other hand, appeared first after the lapse of forty-eight hours, and were characterized by their small size, pallor, translucency, and fine granulation. They were also described as resembling drops of dew.

Elsner experimented with 30 typhoid and colon cultures, and never failed to differentiate them easily. He also diluted the typhoid bacilli with water up to 1:8,000,000,000, and could still demonstrate their presence. Further, he examined the feces of 17 typhoid patients, with 15 positive results. Each organism was proved as to its identity by all modern methods, including Pfeiffer's serum test. In several cases the organisms were isolated as early as the seventh day, and, in one case, as late as the sixth week. Since the publication of Elsner's article his method has been used by a considerable number of other observers.

Brieger²⁸ examined the stools of 10 typhoid cases, all with positive results. He further observed that, as a case became afebrile, the bacilli disappeared largely from the stools. This was not always the case, however, for, in one instance upon the second, and in another upon the 38th day, of convalescence, the organisms were still present. In Brieger's opinion, if the bacilli persist, we should fear a relapse.

Lazarus²⁴ demonstrated repeatedly typhoid organisms in five cases examined between the first and third weeks. In one convalescent case the examination of the stools was positive 41 days after the temperature had reached the normal point.

Chantemesse²⁵ examined 13 cases, all with positive results. Eight cases were positive on the seventh day, one on the 26th day, the other four coming between these two dates.

Pollac²⁶ searched 62 stools in 20 cases. Bacilli

were found as early as the seventh day, and as late as the 30th day, also twice during relapse. In 30 normal stools no bacilli were found. One case was especially interesting and instructive, inasmuch as it came to autopsy and no typhoid lesions were found. Further investigation showed that the bacillus isolated had not been the typhoid bacillus at all, but the bacillus fecalis alkaligenes of Petruschky.²⁷ This organism resembles markedly that of typhoid, but it can now be easily differentiated by its failure to react to typhoid serum, as well as by its characteristic of producing an alkaline and not an acid reaction when grown in proper media.

Mills²⁸ examined one stool in each of seven cases, of which six were typical typhoids, while one simulated an appendicitis. Positive results were obtained in two cases—the so-called appendicitis upon the tenth day, and a typhoid late in the disease.

Courmont²⁹ investigated 9 typhoids and 11 other cases. Two typhoids gave positive results, the rest were negative. The number of stools examined in each case was not stated.

Finally, according to Remlinger and Schneider³⁰ typhoid bacilli were found by the Elsner method in the stools of 5 out of 10 non-typhoidal patients; in 9 out of 37 samples of well and spring water; and in 7 out of 13 samples of dust. The stools were those of (1) a case of leukemia with fever, (2) a case of miliary tuberculosis without intestinal symptoms, (3) a case of intestinal disturbance previous to an acute dysentery, (4) two cases of chronic malaria with no intestinal symptoms. In the case of the water and the dust, the organisms were found irrespective of the presence of a typhoid epidemic in the locality. These results are, of course, very remarkable. I think, however, until they are confirmed by other observers, they should be received with great reserve.

Although, at the time of its publication, the method of Elsner marked a great advance as a diagnostic procedure in typhoid fever, its value has been recently completely overshadowed by the specific serum reaction discovered by Pfeiffer and perfected by Widal.

My own investigations were undertaken primarily to test the practicability of the Elsner method as such. Later my object was to compare it with the serum test—to see whether there might not be cases characterized by no serum reaction, but in which bacilli could be demonstrated in the stools. Finally, I wished to test, if possible, the value of the assertions of Remlinger and Schneider as to the ubiquity of the typhoid bacillus.

Before enumerating my results I will state that the latter part of my experiments were carried out upon an agar medium devised by Capaldi.³¹

This medium is made up as follows:

Aq. dest.	1000.0
Witte's peptone	20.0
Gelatin	10.0
Mannit (or grape sugar)	10.0
Na. Cl.	5.0
Potassium chloride	5.0

Boil and filter. Add two per cent. agar. Make alkaline with 10 c. c. of a normal sodic-hydrate solution. Boil, filter and sterilize. In eighteen hours the typhoid colonies are seen as small, round, colorless

²³ Deutsch. med. Woch., 1895, p. 835.

²⁴ Berlin. klin. Woch., 1895, No. 49.

²⁵ Comptes Rend. Soc. de Biol. 1896, 10 s., iii, p. 215.

²⁶ Cent. für innere Med., 1896, No. 3.

²⁷ Cent. für Bakt., 1896, p. 187.

²⁸ La Clinique, Bruxelles, 1896, July 30th.

²⁹ La Province Méd., 1896, September 14th.

³⁰ Ann. de l'Inst. Pasteur, 1897, January 25th.

³¹ Zeit. für Hygiene, xxiii, Part iii.

and transparent, in contrast to the larger, more opaque, brownish colon colonies. I have never had any difficulty in making up this medium, and my results with it have been at least as good as, if not superior to, those with the potato gelatin. Its advantages are:

1. Liquefaction is avoided.
 2. Colonies are much larger, and thus more easily picked up. With the gelatin the typhoid colonies were often so small that it was impossible to make inoculations from them.
 3. Plates are ready for examination in eighteen hours rather than in forty-eight or seventy-two hours.
- The only disadvantage is that colonies of the bacillus pyocyaneus, or of the streptococcus, often resemble markedly those of typhoid. The only difference in procedure is that, with the agar the plates are first poured and hardened, the suspected material being spread upon their surface, whereas, with the gelatin the material and media are thoroughly mixed before the plates are poured. Although I have made use of two methods in my work, my results, for the sake of simplicity, will be considered together.

In the course of my investigations there were examined 109 stools in the cases of 49 individuals. Of these 49 cases, 13 were typical typhoids in the febrile stage, and in these 13 cases 55 stools were examined.

The isolation of the typhoid bacillus was accomplished in 10 out of the 13 febrile cases, in 19 out of the 55 stools. In one case the bacilli were found on what was said to be the fifth day; but the history was somewhat indefinite, and the disease was probably further advanced. Two cases were positive on the 11th day. In the other seven cases the typhoid organisms were first discovered on the 12th, 20th, 23d, 27th, 28th, 29th and 36th days respectively. Seven out of the 10 cases were positive upon the first examination. How much sooner the organisms might have been found had the stools been received earlier it is, of course, impossible to say. In the three other positive febrile cases the bacilli were isolated only after several examinations on the 20th, 27th and 28th days.

In proving the typhoid cultures thus obtained the following methods were used:

1. Hanging drop, for size, shape and motility.
2. Growth on gelatin stab and slant.
3. Growth on bouillon.
4. Growth on sugar agar. No production of gas.
5. Growth on peptone solution. No production of indol.
6. Growth on potato. No visible growth.
7. Growth on litmus-milk. No coagulation. Very slight production of acidity.
8. Two test solutions of Capaldi and Proskauer.
9. Reaction to typhoid serum.

Of the negative febrile cases, three in number, one was unsatisfactory because the stools could be examined but once, and that on the sixth day of the disease. The other two cases were typical typhoids, and one went through a relapse as well. Although six stools in one case and eight in the other were searched, and that too, by both methods (Elsner and Capaldi), I was never able to isolate the typhoid bacillus.

All these 13 cases gave well-marked serum reactions at least two days before the organisms could be recovered from the stools. We see, therefore, that, as far as this series of cases goes, the serum test proved itself, in all ways, much superior as a diagnostic aid. There have been a number of cases reported,

however, such as those of Biggs and Park,³² Breuer,³³ Thoinot,³⁴ and Achard³⁵ in which the serum reaction did not come until very late in the disease — till convalescence began, or perhaps till a relapse occurred. In such cases it would seem as if a bacteriological examination of the stools would be of great value, for the appearance of the bacilli in the dejections of the second week is a quite common occurrence. In fact, Kolle³⁶ reports two cases which illustrate this point, in which the serum reaction was obtained first on the 16th and 17th days, but where the bacilli were cultivated on the 10th and 11th days.

To continue with my own cases: two stools in two cases of doubtful typhoid were examined with negative results. These two cases never presented any serum reaction, and were practically convalescent when investigated.

Twenty-three stools of 13 convalescent cases gave but one positive result, and that one day after the fever had disappeared. In one of these cases the search was kept up till the 24th day, but the results were all negative.

Seventeen stools of 17 non-typhoidal patients were all negative. Included in this series were cases of grippe, pneumonia, sepsis, meningitis, otitis media, endocarditis, gonorrheal rheumatism and neurasthenia.

Furthermore, the intestinal contents of 12 individuals were secured at autopsy and examined. This series of observations was undertaken in order that, in case of a positive result, there might be no doubt as to the diagnosis. The pathological examination in these cases showed them to be absolutely non-typhoidal in character, and bacteriological cultivation never revealed any typhoidal bacilli.

From the foregoing, it will be seen that the dejections of 29 non-typhoidal individuals showed no typhoid bacilli. Moreover, when we add to this number 47 similar stools examined by Pollac, Chantemesse and Courmont, we have a total of 76 with not a single positive result.

This experience is certainly very different from that of Remlinger and Schneider, who found specific bacilli in 50 per cent. of the non-typhoidal stools investigated. The only case supporting Remlinger and Schneider which I could find was one referred to by Chantemesse as occurring in a person whose occupation was that of caring for typhoid patients.

CONCLUSIONS.

1. The isolation of typhoid bacilli from the dejections of persons sick with typhoid fever is, in the great majority of cases, a practicable procedure.
2. With the appearance of convalescence the organisms disappear rapidly from the stools. They may persist, however, for several weeks. This fact is important as regards disinfection.
3. The value of the serum test is, in most instances, greater, by reason of its simplicity and its earlier appearance. In those cases, however, in which the specific blood changes necessary for the serum reaction do not appear till late in the disease, till convalescence or till the occurrence of a relapse — in such instances the bacteriological examination of the stools can be of great value.

³² American Journal Medical Sciences, 1897, p. 291.

³³ Berlin. klin. Woch., 1896, p. 1,068.

³⁴ Sem. Med., 1896, No. 63.

³⁵ Loc. cit., April 14, 1897.

³⁶ Deutsch. med. Woch., 1897, p. 132.

4. The results of Remlinger and Schneider, who declare the typhoid bacillus to be a ubiquitous organism, could not be confirmed by the writer.

In closing, I wish to express my thanks to those physicians of Boston and vicinity who have, in so many ways, materially assisted me in my work. I am especially indebted in this regard to Dr. J. H. Wright, Director of the Pathological Laboratory at the Massachusetts General Hospital, and to Drs. Pegram and Low, house physicians at the Children's Hospital.

SOME CASES OF CYSTITIS.¹

BY EDGAR GARCEAU, M.D., BOSTON,

Surgeon to Out-Patients, Free Hospital for Women; Lecturer on Gynecology in Tufts Medical School.

IN general terms, the curable affections are those which are superficial in character, while those resisting treatment are the cases of long-standing cystitis in which the inflammation has involved the interstitial tissue and muscles. In the latter cases local treatment is often of little avail. At cystotomies undertaken for the cure of these cases one never fails to note a great increase in thickness of the bladder wall; it is apparent from this that injections and medicines taken internally must have very little curative effect since their action is exerted only upon the mucous membrane of the bladder. The only treatment thus far which gives relief and sometimes cures is cystotomy; but the disagreeable features of this operation are so marked that one hesitates before recommending it. In the superficial forms of inflammation the advantage given by the cystoscope is that the lesions can be treated locally and that the applications can be made directly and exclusively to the diseased areas leaving the rest of the bladder intact; much stronger stimulating applications can therefore be made, which in many instances excite a healthy regenerative action and so effect a rapid cure.

The various diseases of the bladder can therefore be treated intelligently and with an appreciation which sight only can give. Before the advent of the cystoscope it was customary to diagnose and treat as "cystitis" cases in which the cardinal symptoms of inflammation of the bladder were present, associated with the presence of pus in the urine. Necessarily no clinical attempt could be made to determine the extent and seat of the lesion. For instance, a case of nodular cystitis may give rise to exactly the same train of symptoms as a single solitary ulcer, or as a chronic interstitial cystitis; yet the treatment is radically different in each. This being the case, it seems justifiable to subject to cystoscopic examination women who have suffered from cystitis for an appreciable length of time, reserving for the classical treatment solely those cases of acute cystitis which are so readily and easily cured by simple means.

Lest it should be thought that a cystoscopic examination involves an excessive amount of suffering, it may be said here that this is not the case. With a No. 8 (millimetre) cystoscope and a good light the female bladder may be inspected with ease and satisfaction, all parts being brought under the eye and submitted to actual inspection. With this small-sized cystoscope previous dilation of the urethra,

really the most painful part of cystoscopic examinations, is quite unnecessary in the great majority of women. The examination, in the knee-chest posture, may be made practically painless if one or two crystals of pure cocaine are inserted in the meatus urinaris and left there a few moments before the cystoscope is introduced. The author has found this to be the best method of cocaineizing the meatus. But after the first examination, it will be possible to dispense with cocaineization, for the passage of the instrument causes no more pain than the passage of the female catheter.

Treatment of vesical lesions can be carried on through the small-sized cystoscope quite as well as through a larger one. The cases which follow have been selected with a view of demonstrating the necessity of cystoscopic examination.

CASE I. Nodular cystitis.

Mrs. H. A., a woman forty-seven years old, was seen April 1, 1897, for the first time. Her urinary symptoms began last September, and were sudden in their onset. She thinks she "caught cold." She passed urine very frequently, and had a good deal of tenesmus. This lasted three weeks, and then there was a respite for a while. She had another attack in December, and others at intervals until the time when first seen. Then she was urinating every few moments with much "needle-like" pain and great tenesmus. She got up five or six times a night. The general health under these circumstances was very poor and she had emaciated rapidly. There was a history of phthisis in two paternal uncles.

The cystoscope showed the following: Urethra and vesical neck somewhat redder than normal; bladder slightly redder than normal. A small patch of enlarged lymphoid nodules, circular in outline, one centimetre in diameter, slightly elevated above the surface, deep red in color, of velvety appearance, was seen in the left hemisphere, in the posterior wall, just above the trigonum. A similar smaller patch was seen in a corresponding situation in the right hemisphere. There was no enlargement of either kidney on external examination, and no other sign of renal involvement. Her previous childbirths had stretched the meatus urinaris so that it was quite patulous, and this patulous condition of the meatus made it probable that the infection was an ascending one rather than a descending one. Still, in order to ascertain the condition of the kidneys with reference to a possible purulent affection in one or both, especially as there was a phthisical history, the ureters were both catheterized. The urine drawn exhibited the following characteristics:

RIGHT URETER.—Nine and one-half cubic centimetres in seven minutes. Urea, 1.13 per cent. Bloody (trauma). Faintly acid. One-eighth to one-quarter per cent. of albumin. Much sediment: chiefly blood; many small caudate cells; small and medium round cells, free and in clumps; rather numerous hyaline and granular casts, some with fat adherent; few leucocytes, free and in an occasional small clump.

LEFT URETER.—Eight cubic centimetres in seven minutes. Urea, 1.39 per cent. Normal color. Very acid. Trace of albumin. Much sediment; many small caudate epithelia; round epithelia; occasional leucocyte; rarely brown granular cast of large diameter; occasional hyaline casts, some with fat adherent.

BLADDER URINE.—Urea, 2.52 per cent. Normal color. Very acid. Trace of albumin. Considerable sediment: normal blood; squamous epithelia; many hyaline casts, rarely one with renal epithelium adherent, some with fat adherent; few renal epithelia; some pus; numerous round epithelia, free and in clumps.

This examination showed that there was no suppurating process going on in the kidneys. The casts

¹ Read, by invitation, before the Obstetrical Society of Boston, April 20, 1897.

and other elements were accounted for by passive congestion due to a cardiac complication.

As an experiment, the treatment of this case was entirely local in nature, no drugs having been given internally. The treatment began by touching the patches with nitrate of silver powder collected on the end of a wet probe; care was taken to make the application accurately so as not to touch the surrounding mucous membrane. The relief was immediate and marked. She at once urinated only six or seven times a day, and got up twice at night. Three days later the patches were burned with a fine galvano-cautery needle. Two days after this she was urinating four times a day and did not have to get up at night at all. The patches exhibited a healthy aspect and were diminishing in size. Six months later she was still well.

This case is a typical one of the class of cases first described by Alexander² and by him called "nodular cystitis." In this form of cystitis the inflammation affects the lymphoid nodules, which are found in the majority of healthy bladders. These nodules are of small size, but when inflamed they become enlarged and rise above the surface of the mucous membrane of the bladder. In the inflamed state, the nodule attains the size of a sago grain. The nodules have a disposition to become inflamed in certain localities, and this leads to the formation of patches which are made up of many nodules closely packed together: occasionally they may be seen scattered about here and there individually inflamed. Alexander thinks that this form of cystitis possesses no characteristic features which entitle it to be classed as a special disease etiologically considered; he thinks it simply an infection of the lymphoid nodules of the bladder, as distinct from a diffuse inflammation affecting the mucous membrane as a whole.

CASE II. Acute cystitis, ulceration of the urethra; bartholinitis; cystotomy.

Mrs. X was forty-eight years old. For many years she had suffered from a fibroid which had been kept in check by appropriate treatment. Her urinary symptoms began four weeks before she was first seen by the author. The usual symptoms of cystitis were present: frequent painful micturition and tenesmus. At one period she was urinating every few minutes, but lately the pain attending the act of micturition was so intense that the desire to urinate was controlled so that she could limit the number of urinations to once in two hours; when she did urinate, however, she suffered intense agony in the urethra, and the pain lasted an hour afterwards. The right vulvo-vaginal gland was swollen, and pus could be squeezed from it.

There was a question of periurethral abscess, inasmuch as a considerable amount of pus could be squeezed from the urethra at one time. The meatus was patulous. In order to determine the nature of the lesion ether was given. The urethra was much thickened, but through the cystoscope no opening of an abscess could be detected with a probe; there was, furthermore, no undue thickening at any one point. But at the vesical orifice were three very small ulcers with grayish bases; and there was another one a little lower down towards the meatus, larger in extent. They were all cauterized with a hot probe. The bladder was intensely injected, and presented the appearance of active inflammation of a mucous membrane. No ulcerations were seen in the bladder.

The day after this treatment she was still suffering great pain on urination, and an attempt was made to make an application of iodoform powder to the irritable ulcers; but it was so painful that repetition of the procedure was impossible. Inasmuch as she was exhausted by her long agony, and inasmuch as local treatment was impracticable, it seemed best to drain the bladder by cystotomy, in order to prevent the urine from passing over the irritable ulcers. This was done accordingly. Complete relief followed. The vulvo-vaginal gland was dissected out and removed at the same sitting, and the urethral ulcers cured. When the inflammation has subsided under the influence of hot boracic acid douches and internal diluents the artificial opening will be closed.

This case takes its interest from the fact that cystotomy was done for an acute affection. Urethral ulcers can generally be treated satisfactorily by local applications. In this case the general inflammation of the bladder and urethra was so severe that the symptoms strictly referable to the ulcers were thereby greatly intensified. The patient was a sensible woman, not neurotic in the least, and capable of enduring great pain without much complaint. Her sufferings were extreme, and demanded relief imperatively.

CASE III. Cystitis, with superficial ulceration.

Mrs. H. was a woman twenty-nine years old, who had had three children and three miscarriages. Since the last child was born, four years before examination, she had been ill. At that time a catheter had been used for retention, and she had had more or less trouble with the bladder ever since. There were periods of repose during which she suffered but little; but at other times she was greatly annoyed. When first seen, last September, she was obliged to urinate every ten or fifteen minutes; and so great was the vesical irritability that if she could not urinate when she wished to there was incontinence. At the menstrual periods her sufferings were aggravated.

Pelvic examination disclosed a large, tender right ovary, and a similar condition on the left side. The uterus was large and heavy, and there was a discharge exuding from the os. The cervix was lacerated. The cystoscope showed a bladder which was slightly injected throughout, and here and there were several small yellow areas, about half a centimetre in diameter, which appeared to be superficial ulcers. The vesical neck, trigonum and urethra were all very much injected.

The treatment began by touching the yellow spots with a ten-per-cent. solution of nitrate of silver, and likewise painting the trigonum, vesical neck and urethra with the same solution. Appropriate treatment for the pelvic condition was also instituted. The topical applications were repeated three or four times at intervals of a few days, and at the end of that time there was marked improvement. She was then urinating every hour only, and got up twice at night; the incontinence happened only twice a day. The next time the cystoscope was introduced the ulcerations were all touched with solid nitrate of silver stick. This treatment cured her, for when she was seen the next time, seven days later, she announced that she was well. Urination was only four times a day, and she slept all night without waking. There was no pain and no incontinence.

In December she was operated on at the Free Hospital for Women, and had the cervix repaired and a

² Journal of Cutaneous and Genito-Urinary Diseases, July, 1893.

cureting done. When seen again, the latter part of January, she was quite comfortable. The urination was normal, and her pelvic symptoms were much relieved.

The special feature of this case was the rapid relief given by cauterizing the ulcers.

CASE IV. Ulceration of the vesical neck.

Mrs. C. was first seen in August, 1896. She gave a history of some previous bladder trouble, and there was also a history of a miscarriage which had caused a double salpingo-ovariitis; but the latter affection was in the chronic stage and gave little trouble. The principal complaint was with the bladder. She was urinating every little while night and day; and the pain both during and after the act was most severe. It was described as knife-like, or needle-like. This description suggested either fissure of the neck of the bladder or ulcer of the urethra.

On cystoscopic examination a smaller ulcer pointing towards the right ureter was found just inside the sphincter vesice, about one and a half centimetres long and two millimetres wide. It had a zone of hyperemia around it. The trigonum was injected, and the rest of the bladder was also somewhat red. The ulcer was touched with pure nitrate of silver. Thirteen days later she reported herself well. There was no pain on micturition; she urinated only two or three times a day, and not at all at night. This relief seemed so rapid that it excited some suspicion as to whether the patient's veracity could be relied upon; but this suspicion was set aside when she came again two weeks later with a history of further trouble with the bladder. She said she had experienced so much relief from the last application that she wished to have it repeated. This was done, and she had no further trouble. Seen three weeks afterwards, she reported herself well.

CASE V. Secondary carcinoma of the trigonum.

Mrs. H., a woman forty-five years old, had been troubled more or less for several months with frequency of micturition. But her principal trouble, cancer of the uterus and vagina, had given rise to such severe symptoms that the vesical irritation was not thought much of. At the operation for removal of the cancerous growth — cureting — a cystoscopic examination was made in order to cauterize, if it seemed desirable to do so. The bladder-wall was markedly infiltrated on the side of the vagina. Through the cystoscope several irregular nodules were seen projecting up on the surface of the trigonum, and at the summit of the most prominent of these nodules was a small red spot where the disease was just breaking through. The rest of the bladder was normal in appearance. The red spots were touched with nitrate of silver. Three weeks later she was having no trouble with the bladder. Urination was every six hours, including the night. The relief will doubtless be only temporary.

THE COST OF YELLOW FEVER. — According to the *New York Herald*, it is estimated that the loss to business men in New Orleans alone will amount to \$25,000,000, while the losses in other directions and the cost of maintaining the quarantine will run the total up to \$38,000,000. Most of this loss is the result of the unreasonable excitement of the neighboring towns and villages, which have shut off all supplies from New Orleans, paralyzing business in that city.

THE DIAGNOSIS OF SOME COMMON INJURIES IN THE SHOULDER REGION.¹

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(Concluded from No. 17, p. 415.)

This brings us to the last of the anatomical elements outside the shoulder-joint — the periarticular cellular tissue. This is merely the loose connective tissue which fills in the interstices which would otherwise be left among the more highly specialized tissues already enumerated.

Gibney¹² describes a primary inflammation of this tissue which he prefers to call a periarthrititis.

Nancrede mentions a primary inflammation which he more exactly calls *periartritic cellulitis*; its pathology is similar to that of cellulitis in other regions, and it yields similar symptoms, only modified according to the neighboring tissues.

Duplay¹³ quotes the conclusions of Jarjavay as to the occurrence of subacromio-deltoid bursitis. He says he has several times verified the accuracy of Jarjavay's description, but he claims that all of Jarjavay's cases were acute, succeeding immediately or almost immediately to the trauma. He then calls attention to what he claims is a chronic type, which he names *scapulo-humeral periarthrititis*. He was able to hold an autopsy on one of his patients, but an analysis of the findings which he reports, shows that in this case, which the author calls one of periarthrititis,¹⁴ the lesions demonstrated may be considered as five: (1) chronic subacromio-deltoid bursitis and subdeltoid cellulitis, with obliteration of bursa and formation of connective-tissue adhesions between the deltoid and humerus; (2) chronic inflammation of the capsule (most marked in lower portion) leading to thickening; (3) periarticular cellulitis, internal to the joint, leading to the formation of fibrous connective tissue; (4) congestion of ulnar and internal cutaneous nerves; (5) atrophy of deltoid. Examination of the biceps is not reported, although the author explains the semiflexion of the forearm and the pain in the elbow and coracoid process by assuming the existence of adhesions between the deltoid and biceps. Examination of the circumflex nerve is omitted, also, though in his further remarks on the case, the author assumes that the pain upon pressure is due to a neuritis of the circumflex nerve, the result of compression and traction exercised by the adhesions.

It must also be noted that the injury was not a simple traumatism of the shoulder but was complicated by a dislocation of the humerus, and it is impossible to say how many of the pathological findings above reported were due to this dislocation.¹⁵

¹ Read before the Section on General Surgery of the New York Academy of Medicine, May 11, 1896.

¹² Gibney: *Periarthritis*, New York Medical Journal, 1880, xxxi, p. 449.

¹³ Duplay: *De la Péri-arthrite Scapulo-humérale et des Raidours* Qui en sont la Conséquence, Arch. Gén. de Méd., 1872, 6 s., xx, 2.

¹⁴ "This periarthritis, localized more particularly in the subacromial bursa and in the subdeltoid cellular tissue, determines thickening and induration of the cellular tissue and of the walls of the bursa, the formation of adhesions and of fibrous bands which impede or completely prevent the gliding of the upper extremity of the humerus beneath the coraco-acromial vault and the under surface of the deltoid."

¹⁵ It is interesting to note the condition of the subacromio-deltoid bursa in seven cases of extensive injury of the shoulder-joint, with probable dislocation of the humerus, reported in detail by John Gregory Smith (London Medical Gazette, 1834, xiv). In three of these cases, it is simply noted that the bursa communicated with the joint; in three, the bursa was said to be enlarged and its walls thickened; in one, no mention of bursa was made.

Nevertheless, most stress is rightfully laid by the author upon this case because it is the only one in which an autopsy could be held. He reports five cases of simple contusion followed by similar symptoms, and these he claims are also due to a similar pathological condition, having for origin a traumatic inflammation of the periarticular tissues.

It seems a just criticism to object to the use of the term *peri-arthritis* for a group of lesions several of which it is already possible to diagnosticate separately; and, again, to suggest that the question is not only as to the existence of a *peri-arthritis* in a case complicated by a dislocation, but whether it is correct to attribute the same pathological changes to similar symptoms when the provoking causes are radically different in extent and complexity, and when such symptoms might result from other lesions.¹⁷ Even in this first case of Duplay's, it is legitimate to ask whether the thickening of the capsule may not have been an important factor in the ankylosis, and whether passive motion, gymnastics, cataplasms, douches and massage may not have been effectual in stretching a thickened capsule as well as in stretching and rupturing adhesions.¹⁸

It cannot be regarded, then, as a fully established fact that, in the absence of a predisposing cause, slight injuries will provoke a connective-tissue inflammation of such magnitude. It is, however, very well established that slight injuries will provoke a synovitis (and this may expend its chief activity on the surroundings of the joint, according to Barwell) or a nerve lesion.

One is forcibly impressed, on reading Duplay's paper, with the fact that the study is incomplete in that while symptoms are present pointing directly to nerve involvement, no examination of the nerves is made, and that while a muscular atrophy is mentioned in every case, no data are given for determining whether this is a simple or a degenerative atrophy.

Desplats¹⁹ was not satisfied that a scapulo-humeral "*peri-arthritis*" would account for the muscular atrophy in Duplay's cases, especially in regions as remote from the articulation as the forearm and hand. He reports two cases which he diagnosticates as "*rheumatism*," in which the shoulder symptoms were similar to those described by Duplay under the heading of "*peri-arthritis*." In both, Desplats found sensitiveness of the brachial plexus, and in one of them the deltoid showed a diminished response to the faradic current, while the posterior deltoid gave no response whatever to it. He also noted trophic changes in the skin and subcutaneous areolar tissue.

With this review of the possibilities, I wish to point out that the symptoms which our patient presents do not correspond exactly with those of any of the groups above mentioned, but that they do present points of similarity with all of them; and, further, that it is not necessary to assume the existence, as a separate lesion, of any of these inflammatory conditions.

We note first of all that the symptoms of a traumatism of the brachial plexus are clear and unmistakable. Nothing else will satisfactorily account for the nerve and muscle symptoms already enumerated, when taken in connection with the history. I would suggest that the shoulder symptoms are the result of a trophic change due to injury of the circumflex nerve which already shows such marked disturbance in its sensory and motor branches. It will be remembered that the circumflex nerve supplies not only the shoulder-joint but also all the tissues from the joint outward to, and including, the integument.

It is well recognized that structural changes in the joints occur in association with, or as a consequence of, nerve lesions. Charcot²⁰ describes them in cerebral, spinal and peripheral lesions.

S. Weir Mitchell²¹ calls attention to the fact that his father, Prof. J. K. Mitchell, in 1831, described joint lesions following spinal injuries, occurring below the point of spinal affection. He continues: "Of all the various forms of mischief wrought by nerve wounds, most intractable and disabling are curious inflammatory states of joints to which we were the first to call attention." Again, he says, "It is quite clear that injuries of the spine, diseases of this organ and of the brain, and wounds or any form of lesion of nerves are capable of developing in the joints inflammatory conditions, usually subacute, and which so precisely resemble rheumatic arthritis in their symptoms and results that no clinical skill can discriminate between the two."

Bowlby²² says: "It has been my fortune to observe for some years past, and to keep constantly under my notice, a large number of cases of nerve injury of most varied kinds, yet in none of them have I seen any joint affections so extremely acute and painful as those described by S. Weir Mitchell. On the other hand, I think that arthritic lesions of a less severe and more chronic kind are amongst the most common results of nerve injury."

The apparent discrepancy existing between the joint symptoms described by Weir Mitchell and by Bowlby is removed when one recalls the various articular and periarticular tissues already enumerated, and remembers that all these tissues are usually supplied by the same nerve; and, further, that the trophic manifestations of a nerve lesion vary greatly—as to the particular tissue affected, the area of distribution, the kind of trophic change and its extent. Thus, it would seem from Weir Mitchell's description that in the cases to which he there refers, the synovial membrane was affected in its cavity as well as in its deeper, more extra-articular relations. Bowlby's description, on the contrary, gives no suggestion of synovial change, unless it might be in the direction of atrophy. The case I have reported, this evening, and others to which I will refer later, seem to have points in common with both Weir Mitchell's and Bowlby's, but to correspond with neither. However, they are, I believe, only different manifestations of the same cause.

I have not found cases like mine described, but the literature is full of expressions which would indicate that every writer on the subject of joint or nerve lesions has frequently met with analogous con-

¹⁷ As Richet says (*Des Opérations Applicables aux Ankyloses*, Paris, 1850): "Ankylosis is not a disease; it is an organic condition which follows a disease; it is stamped with no peculiar character when the affection which has given birth to it has disappeared. It is only a vicious cicatrice."

¹⁸ Berne (*Traitement des Péri-arthrites Scapulo-humérales par le Massage Méthodique*, *L'Union Méd.*, 1897, 3 s., xlv, p. 151) recapitulates Duplay's article and reports eight similar cases, with results which closely parallel those of Duplay. Berne, however, used only massage, saying, "Massage is the most potent and the surest means of cure applicable to *peri-arthritis*."

¹⁹ Desplats: *De l'Atrophie Musculaire dans la Péri-arthrite Scapulo-humérale*, *Gaz. Hebdom.*, 1878.

²⁰ Charcot: *Leçons sur les Maladies du Système Nerveux*, Paris, 1875, second edition, vol. i, pp. 3-6, 24.

²¹ S. Weir Mitchell: *Injuries of Nerves*, Philadelphia, 1872, pp. 168-170.

²² Bowlby: *Injuries of Nerves*, *Lancet*, London, 1887, p. 1021.

ditions in other localities — and perhaps in the same, also.²³

Unfortunately, so few post-mortem examinations have been made that we are as yet unable to decide what are the joint changes occurring in these cases. Some periarticular changes usually accompany intra-articular lesions of any duration, but extra-articular changes may exist alone and may exactly simulate intra-articular disabilities. While Duplay's case can not be regarded as conclusive because of its complication with dislocation and because of the non-examination of the circumflex nerve and its distribution, nevertheless, one must remember its many points of correspondence with the case of this patient and of others which I shall report; and while the partial ankylosis could be explained by contraction of the capsule,²⁴ or other trophic joint changes in the area of distribution of the circumflex nerve, hindering the descent of the humeral head, it would be equally well explained by trophic changes in the area of distribution of the circumflex nerve to the subdeltoid areolar and periarticular tissues, hindering the ascent of the greater tuberosity.

The diagnosis, then, which I offer in this case is a traumatism of the brachial plexus, leading to muscular paralysis and atrophy; and partial ankylosis of the shoulder, from trophic changes in the area of distribution of the circumflex nerve, somewhere within the abduction curve. Reasoning from analogy of reported cases and from anatomy, these changes would probably be located either in the capsule (lower part?) or in the subacromio-deltoid areolar tissue — although intra-articular changes cannot be excluded.

The next is a more interesting patient in that she came under observation the day after the accident, and in that various manifestations of the nerve lesion appeared one after the other.

CASE III. A woman, fifty-six years old, housewife. Yesterday, she fell down several steps; catching at the knob of the door, as she began to fall, she says she "stretched" the left arm. She complains of pain when moving the humerus in any way, as well as of spontaneous pain in the shoulder-joint and in the deltoid and biceps region.

Physical Examination. — Comparison made with right side. Left arm hangs at the side, flexed at the elbow, patient supporting the forearm with the right hand. She says she supports it because it hurts more at the shoulder when she lets it hang. Deltoid region looks flatter, the muscular markings being obliterated. Ecchymoses over the deltoid, a little above the insertion, and over the lower third of the biceps. Tenderness on pressure above and in front of the shoulder-joint and over the ecchymoses. Deltoid feels softer than normal. No anesthesia, but the patient seems a little slow in localizing impressions. No atrophy is perceptible.

²³ Gowers: Diseases of the Nervous System, London, 1892, vol. i, p. 62.

MacLagan: Three Cases of Neuritis and Spurious Arthritis, Transactions Clinical Society, London, 1891-92, p. 5.

Nicaise: Injuries and Diseases of Nerves; Ashurst, International Encyclopedia of Surgery, New York, 1882, vol. iii, p. 570.

²⁴ In this connection, Dr. Mary Putnam Jacobi says: "It is well known that during the trophic lesions of inflammation, the elements of tissues revert to their youthful, embryonic form. Further, that a special characteristic of young fibrous tissue is its marked tendency to retract, as is shown in the fibrous tissue of cicatrices. We may be therefore justified in asking whether the trophic lesion of the fibrous capsule, due to the injury of its nerve, may not determine a reversion towards an earlier, more youthful structure, characterized by the special aptitude for retraction which we observe in cicatricial tissue."²⁵

Voluntary Movements. — Abduction only to about 10° (about the degree of abduction possessed by the supraspinatus). No flexion or anterior abduction; slight extension and slight posterior abduction; rotation is incomplete, both internal and external.

Flexion of forearm on arm only a little beyond a right angle. The forearm is held flexed simply to permit the patient to support the arm and so ease the pain in the shoulder (due to contusion and to the weight of the arm now unsupported by the relaxed deltoid). It is readily extended when the arm is supported so that no movement is communicated to the shoulder, and so that the arm does not drag upon it. When the forearm is extended, pronation and supination are incomplete; when it is flexed and the elbow supported, pronation and supination are complete.

Passive Movements. — All can be made, but with great difficulty on account of the pain referred especially to the shoulder-joint.

Electrical Examination. — Same responses on both sides to both faradic and galvanic currents in nerves and muscles; on the left side, the passage of the current through the nerves and the contraction of the muscles around the shoulder-joint caused pain.

To economize space, the further course of the case will be briefly summarized here.²⁵

Beginning with a paralysis of the deltoid, which was complete when seen the next day, a partial paralysis of the biceps, and a pronounced contusion which obscured the field of activity of the shoulder muscles, it seemed that the extent of the mischief was declared. Under absolute rest in a shoulder splint, the case ran a promising course. As the effects of the contusion passed off, the power of the deltoid appeared to return. Remembering what Weir Mitchell says of contusion of nerves — "in graver lesions, sensory and motor power are usually both lost at first, even if a bullet merely grazes the nerve, so that at the outset one can not know whether the nerve is divided or merely stunned. It is common to see function return after what seemed a serious loss" — I hoped to see the improvement continue. But the appearance of changed quantitative and qualitative electrical reaction in nerve and muscle and commencing atrophy of the muscle showed the damage to the circumflex nerve was intrinsic.

As the effects of the contusion still further decreased, movements in general became freer, pain lessened till it became a negative matter, lingering strongest in the region of the contusion over the lower third of the biceps but remaining somewhat in the deltoid region and the shoulder, especially when movement was attempted.

At the end of the third week, the biceps showed increased weakness and some decided electrical change in both nerve and muscle reactions, and commencing atrophy of the muscle. Next, a quantitative change appeared in the triceps and supinator.

Then, suddenly, at about the end of the fourth week after the injury, all the former symptoms returned but many times more pronounced. The pain was intense, making the patient groan aloud, and it extended over the whole scapula and arm, in the shoulder-joint and down the dorsum of the forearm. Deltoid abduction was entirely lost; all other movements were diminished. In addition, when abduction was made passively, the

²⁵ The detailed report will appear in the Transactions of the New York Academy of Medicine, 1896.

scapula, for the first time, began to rotate when the humerus was at about 60°. The electrical changes in the deltoid became more marked; they remained the same or slightly increased in the biceps, triceps and supinator, while similar changes appeared in the supraspinatus, infraspinatus and teres major and minor (?).

I do not see any possible diagnosis to be made here other than a traumatism of the circumflex and musculocutaneous nerves, followed by an "ascending neuritis" to contiguous branches of the brachial plexus. Such a course as from the circumflex along the posterior cord to the musculo-spiral (triceps and supinator), then to the lower subscapular (teres major — the teres minor being involved by extension along the posterior division of the circumflex); and again from the musculo-cutaneous along the outer cord to where the suprascapular nerve (supraspinatus and infraspinatus) is given off, would seem a possible route.

The joint lesion is difficult to explain, but it seems to me to be similar to the one in Case I, and I am inclined to offer the same hypothesis: that is, a trophic change in the area of distribution of the circumflex nerve, somewhere in the abduction curve already described. According to this hypothesis, if the affection of the suprascapular nerve should extend to its articular branch, we might expect further changes in the joint; and yet, as I shall show in other cases, not every case of circumflex injury causes ankylosis. Similarly, not every case of nerve lesion causes other trophic manifestations. We have yet to discover the laws governing the development of the different trophic manifestations, just as we have yet to discover the law governing "ascending neuritis."

CONCLUSIONS.

Looking back over this report, it is evident that as a result of injury, often apparently slight, pain and impairment of motion in the shoulder region are common consequences; that these symptoms may be due to lesions in any one or more of the tissues in this locality; that the pathology of these lesions is obscure but undoubtedly complex and varied; and that hence we are not yet in a position to make many exact inferences, but from the foregoing cases the following conclusions seem justifiable:

(1) That traumatism of the brachial plexus in the region of the shoulder is of common occurrence, since, without any selection of patients, there came to me in an ordinary general surgical clinic, 10 cases within four months.

(2) That it is easy to overlook the nerve lesion, since in many instances the muscular paralysis is not marked, is often insignificant, and is masked by the pain which is apt to be the prominent symptom, and to which the motor impairment is usually attributed.

(3) That in a certain proportion of these cases a more or less marked ankylosis of the shoulder-joint supervenes, the disability being most marked in the field of abduction. In these cases, there are found distinct evidences of affection of the circumflex nerve in its sensory and motor branches, and the presumption appears to be well-founded that this ankylosis is due to a trophic change in the distribution of this nerve to the joint or to the extra-articular tissues under its control, these lying largely, if not entirely, in the abduction curve described. The resulting lesion has been shown in the cases of other nerves to be changes in the

interior of the joint, contraction of the capsule, or conversion into contractile tissue of fibrous tissue; all changes such as would lead more or less in the direction of ankylosis.

No especial difference in the ankylosis was observed when affection of the suprascapular nerve was added to that of the circumflex.

(4) A noticeable point is the practical absence of a predisposing history (although, of course, such accidents might occur as readily to neurotic as to other patients). These patients were all hard-working people, in average health and with negative family and personal histories, unless otherwise noted. All were emphatic in declaring themselves perfectly well except for the shoulder trouble. The emphasis was so noticeable as to suggest a psychic concentration and to seem almost a feature of the nervous affection.

(5) In *all* cases of injury in the shoulder region, the nerves and muscles should be systematically examined by the faradic and galvanic currents, not only at the time of the first examination and diagnosis but at each subsequent examination and dressing. In this way only would it be possible to tell whether there is a nerve injury, either alone or complicating injuries of other tissues.

(6) Especially in all cases where pain is located in the shoulder, and where the temptation is to make a diagnosis of sprain, or periarthrititis, or rheumatism, should the circumflex and suprascapular nerves be examined, as well as the muscles to which they are distributed. These nerves supply the shoulder-joint, and in three of the cases in this report an abnormal connection between the scapula and humerus was present, while at the same time a lesion was demonstrable in the muscular distribution of one or both of these nerves; and in ten of the cases, pain was felt in the shoulder, while a lesion was demonstrable in the muscular distribution of one or both of the nerves supplying the joint.

(7) A prominent characteristic of these cases is the wide range of electrical reactions found. These reactions are perfectly distinct and well marked when sought for carefully, but it can readily be seen that they might easily be overlooked in a perfunctory examination. A reference to the reports will show that a typical RD, as described by Erb, was seldom present, and even when found only portions of the muscles usually gave such a response; rarely was an entire muscle so affected. It will readily be seen that these cases would remain undiagnosed by observers who would have in mind only the typical RD. But Erb, himself, calls attention to the great range of variability in the nerve and muscle reactions, extending from the normal formula to the complete RD; and this is a matter of common experience to all who devote any care to testing these tissues.

In closing, the writer desires to express her thanks to Dr. Van Arsedale for the opportunity to study these cases, and for his kindness and courtesy in providing her with every facility for such study.

THE DENSITY OF POPULATION IN GREAT CITIES.
— "For thirty-two acres in New York City there are 986.4 people to the acre. The nearest approach to this congested condition is a little spot in Bombay, where there are 759.66 to the acre. The densest London district has only 365.3 people to the acre."

Clinical Department.

SOME CASES OF URETHRAL POLYPUS.¹

BY EDW. REYNOLDS, M.D.

THE female urethra is very rarely the seat of any diseases other than caruncle of the meatus and passing gonococcal inflammations. Its examination is, in consequence, too often neglected; but I have thought that brief notes of these two cases might be of interest in emphasis of the point that in examining the urinary apparatus of women we ought not to fix our attention upon the bladder and ureters to the exclusion of the urethra, which ought, on the other hand, to be carefully looked over as a routine step in the first examination of every case.

CASE I. H. N., bookkeeper, twenty-five years old, came to the Boston City Hospital on December 24, 1896, with the following history: Having always had good local health, she was attacked five months ago during her convalescence from a severe typhoid by frequent and painful micturition, accompanied by a frequent involuntary escape of a few drops of urine. On examination with the cystoscope, a reddened and eroded stripe was seen to extend across the trigonal region from the mouth of one ureter to the other. This is an appearance which might readily be excited by the passage of an acrid and excoriating urine for some little length of time, and which would ordinarily disappear after a time under diuretics, or more rapidly after one or two local treatments accompanied by diuretics. I accordingly spotted this reddened stripe lightly with the solid nitrate of silver, and, I may add, afterwards prescribed diuretics, regulation of the diet, etc.

I had supposed that this would have ended the interest of the case, but while watching the appearance of the urethra during the withdrawal of the cystoscope, as is my custom, my attention was caught by an unusual projection which was visible for a moment when the end of the cystoscope was about one-third of an inch outside of the vesical end of the urethra, and which disappeared almost instantly. After re-introducing and withdrawing the cystoscope several times, I finally caught across its edge a delicate papilla-like polypus which was about three-eighths of an inch long, cylindrical in shape, and perhaps hardly more than a thirty-second of an inch in diameter. In order to test its importance as a source of symptoms, I refrained from disturbing it at that sitting. The patient returned five days later reporting but little change in her symptomatology. On examination with the cystoscope the redness of the bladder had greatly decreased, and I thought no other treatment of the bladder necessary, at all events at that time; but again catching the little polypus over the edge of the cystoscope, I pressed it against the edge of the instrument by means of absorbent cotton and readily separated it, apparently at its junction with the mucous membrane; the base was then touched with the solid nitrate of silver.

The patient did not return to the hospital until about a month ago, when she stated that all pain had ceased. In place of urinating about once an hour and twice at night, she now habitually went two hours in the daytime and was not obliged to rise at night at all. She was still at times obliged to urinate as often as

once an hour by day, a frequency which was apparently due to some slight irritation of the left ureter, but a large part of the frequency and all of her tendency to an involuntary escape of urine was apparently due to this insignificant polypus. She was again treated by cauterization of the mucous membrane in the neighborhood of the left ureteral orifice and was directed to continue medicinal and hygienic treatment. I have not had any recent opportunity of examining her, but I yesterday received a report to the effect that she now urinates only once in four hours, but has still some slight discomfort for a few minutes afterwards which, however, she does not think worth treating for.

CASE II. Mrs. F., forty-four years old, was seen by me in consultation with Dr. Hedenburg, of Medford, in August, 1897. She was then confined to her bed altogether because she had found that when she was in bed she was able to refrain from urinating for as long sometimes as half an hour, while if she tried to keep about urination was almost constant. Under rest in bed she was improving somewhat at the time I saw her. The history was that twenty years before, after the birth of her first child, she was afflicted by painful micturition, following an extreme distention of the bladder due to her physician's anxiety to avoid the use of a catheter. This lasted only two weeks but some frequency had always persisted and during the last five years she had urinated, as a rule, every twenty minutes in the daytime, and had risen many times each night. Some eight ounces of urine were shown me which had been allowed to stand for several hours, and which contained about an inch of pus at the bottom of an eight-ounce bottle. It was cloudy, slightly alkaline, but not offensive. On microscopical examination, the pus was found to be mingled with phosphates and mucus, and as it did not seem promising, was not examined further. On vaginal examination, the vesical end of the left ureter was found to be enlarged and tender. On examination of the bladder, its mucous membrane was found to be essentially normal, except for a red spot around the left ureteral orifice, which was itself much swollen and pointing. The mucous membrane in this neighborhood was touched up with the solid nitrate of silver, care being taken to avoid the ureteral orifice. The patient was put upon small doses of corrosive sublimate in pill form, large amounts of water, and a carefully regulated diet.

Five days later she reported great improvement, urinating much less frequently, and only twice at night. The ureteral orifice had a much more healthy appearance, but it was now noticed that the circular appearance which the urethral orifice normally shows as it closes over the end of the cystoscope was marred by the projection into it of two fang-like processes from the left posterior quarter. These were red and angry-looking, and were lightly touched with nitrate of silver. Two days later they were retouched.

Owing to my absence from the city, the patient was not seen nor treated again for about six weeks. She then reported that she urinated only every three hours, and for the first time in years was able to walk about freely. She also stated that she now realized the absence of an uncomfortable feeling (she was inclined to call it pain) under the left false ribs, the existence of which she had been unconscious of at her former visit. She was advised to continue the medical and hygienic treatment, but was not examined locally.

¹ Read before the Obstetrical Society of Boston, April 20, 1897.

Five weeks later she reappeared, stating that she had urinated but once in three hours and seldom more than once at night until within the last few days, when she had been afflicted by an urgent and almost constant desire. She had been for two weeks without the bichloride, which had apparently been the cause of rectal tenesmus and bleeding. The left ureter was still slightly tender, but was not so much swollen as formerly. She was put upon five grains of iodide of potash and the elixir buchu et potassi citratis three times a day, but was not examined by the cystoscope at this visit. A week later her symptoms were unaltered. Her bladder was now examined and a red and slightly elevated patch just above the left ureter was touched with nitrate of silver, as were also the fringes about the internal orifice of the urethra. Within a fortnight, that is, by November 17th, the frequency had been reduced to but once at night and to from two to three hours during the day with entire comfort during the intervals. At this time the fringes were represented by short stumps, and during the next six weeks these were cauterized weekly, showing unfortunately an obstinate tendency to reappear.

Since then she has visited me about monthly. The fringes have several times been just perceptible as slight elevations of the mucous membrane, and have then been re-cauterized, the return of symptoms being always strictly coincident with the reappearance of the polyp. The bladder has only twice been the site of slight redness about the left ureteral orifice. There is still a ureteritis, for which the patient is likely to remain under medical treatment for a long time to come, but for several months now she has habitually been able to abstain from urinating for about four hours in the daytime, and during all that time has been disturbed at night on only one single occasion.

These cases, in addition to the interest which so little known a condition of the urethra may excite, seem to me admirable illustrations of the most frequent class of cases which I meet among the urinary affections of women, that is, frequent and painful micturition, which is dependent at bottom, upon an inflammation of the ureter and pelvis of one kidney, but which is rapidly and easily relieved from a symptomatic point of view by a very few topical treatments of the bladder, the improvement being, however, only temporary unless the essential and underlying condition is steadily combated by medical and hygienic methods.

A CASE OF SEPTIC PYELITIS FOLLOWING CYSTITIS, AS A COMPLICATION OF THE PUERPERIUM.¹

BY HENRY EHRLICH, M.D.

THE patient was Mrs. J. J., age thirty-five.

Family history good, with the exception that her mother died of phthisis.

Previous History.—Has had no recent acute illness, and no inflammatory pelvic disturbance. Had a retroversion of the uterus treated a few years ago by Dr. F. W. Johnson, from which she recovered.

A year ago, while pregnant five months, a miscarriage was induced by her attendant, through an error in diagnosis, and during the convalescence she developed a slight vesical catarrh, which disappeared under

appropriate treatment in a short time. This was the first time that she had ever been troubled by any disease of the urinary organs.

She became pregnant for a second time in April, 1896, and her condition during her pregnancy was good; there were no uncomfortable symptoms attributed to the bladder at any time.

She was taken in labor January 18, 1897. Position of child O. D. P. After a tedious labor of eighteen hours she was delivered with forceps. A slight rupture of the perineum was immediately sutured, and it readily united.

Her convalescence for ten days was uneventful. There was no rise of temperature above 99.5° F., and the pulse averaged 74.

On the morning of the eleventh day the patient began to complain of discomfort in the pubic region, and of painful and frequent micturition. This was followed at night by a chill. Temperature 103.5° F., pulse 110, and a sharp pain in the left loin and back.

I saw her the next morning; and on a careful physical examination of the chest nothing abnormal was found in the heart or lungs. Tenderness on pressure was very acute in the left loin over the region of the kidney, and there was an area of hyperesthesia over the lower left chest, including the lower dorsal and upper lumbar vertebrae.

An examination of the pelvic organs at this time showed complete involution of the vagina and uterus and no evidence of genital sepsis anywhere. There was a considerable but painless distention of the abdomen. The urine at this time was pale and cloudy, with acid reaction; specific gravity 1.015. It showed one-eighth per cent. of albumin; and a microscopic examination of the sediment showed a moderate excess of white corpuscles, some blood, and an excess of bladder epithelium.

Calomel and seidlitz powders were at once administered, and they produced copious evacuations from the bowels. Benzoate soda and quinine, a milk diet, and an occasional morphia suppository to control the tenesmus, constituted the treatment at this time; and it was followed by an amelioration of the bladder symptoms. But her general condition seemed to grow worse. There were occasional chills, with erratic flights of temperature to 105° F., and the patient showed evidence of intense septic infection.

On February 4th the pain was still severe in the left loin; there was great restlessness, and hiccough was noted. Pulse 110, temperature 105.2° F.

An examination of the urine showed the quantity in twenty-four hours to be 26 ounces, specific gravity, 1.018, acid reaction; one-fourth per cent. albumin, and in the sediment an abundance of pus, some blood, bladder epithelium, numerous caudate cells from the pelvis of the kidney, and hyaline and granular casts of large diameter were found.

A diagnosis of acute pyelitis following cystitis was made at this time, which was concurred in by Dr. C. W. Townsend, who saw her with me.

On February 5th the patient began to have frequent loose movements, numbering as many as fifteen in the twenty-four hours; this continued for three days, and was not interfered with. The temperature from that time on began to descend, the general condition to improve, and the secretion of urine to increase till 48 ounces were being passed in the twenty-four hours.

On February 8, 1897, the pain in the left loin be

¹ Read, by invitation, before the Obstetrical Society of Boston, April 20, 1897.

gau to disappear; but in the afternoon there was a sharp pain in the right side complained of, in the region of the nipple. The temperature again rose, and on auscultation a pleural friction rub was discovered. This subsided under the local application of an ice-bag. No demonstrable effusion resulted.

The subsequent course of the case was one of gradual improvement. For nine days the temperature rose from one to two degrees at night, and was normal in the morning.

On February 25th a pustular eruption appeared on the trunk and limbs, but under treatment with antiseptic baths, disappeared in the course of a fortnight.

April 10th. Patient is now up and about, has gained in flesh and color, and her strength has improved during the use of appropriate tonics. The urine has now a specific gravity of 1.015, acid reaction; sediment slight in amount, an occasional pus cell and bladder epithelium.

The treatment consisted of fifteen-grain doses of sodium benzoate every three hours, five-grains capsule quinine every three hours, morphia suppositories occasionally for the pain and tenesmus, cold baths as required. Later, the benzoate of soda was replaced by a capsule of boric acid, 15 grains every six hours. From 30 to 40 grains of quinine was administered daily for 21 days. The food consisted of milk and broths. An ounce of whiskey was given every two hours for 10 days, and then gradually reduced.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR meeting, April 20, 1897, the President, DR. FRANCIS H. DAVENPORT, in the chair.

DR. EDGAR GARCEAU reported, by invitation,

SOME CASES OF CYSTITIS FROM A CYSTOSCOPIC POINT OF VIEW.¹

DR. HENRY EHRLICH, by invitation, reported

A CASE OF PUERPERAL PYELO-NEPHRITIS.²

DR. EDWARD REYNOLDS reported

SOME CASES OF URETHRAL POLYPUS.³

DR. G. J. ENGLEMAN believed that the local, direct application by means of the cystoscope was of great value where there were small growths or distinct ulcerations.

DR. G. W. KAAH was much gratified to see such good results reported from the use of such small instruments as shown by Dr. Garceau. The large instruments are if possible to be avoided as they cause so much pain.

DR. C. W. TOWNSEND said the case reported by Dr. Ehrlich was of great interest as showing entirely satisfactory results from internal medication in diseases of the pelvis, ureter and bladder. In this case local treatment by means of the cystoscope and ureteral catheter would undoubtedly have caused so much pain and nervous excitement that more harm than good would have resulted.

DR. F. H. DAVENPORT said that, as a rule, he had found that polypi in the urethra gave use to symptoms unless they were in the form of sensitive caruncles.

DR. EDW. REYNOLDS said that nothing works so well in the bladder as nitrate of silver. He is now trying formalin. The handle for the cystoscope showed by Dr. Garceau is certainly most convenient. The smaller the instrument the better. He generally used Nos. 8 or 10; but when there is much to be done, it is well to dilate to No. 13. He has never seen any ill results from cocaine as a local application to relieve pain in these cases.

AMERICAN DERMATOLOGICAL ASSOCIATION.

THE TWENTY-FIRST ANNUAL MEETING, HELD AT WASHINGTON, D. C., MAY 4-6, 1897.

(Concluded from No. 17, p. 426.)

ELEVEN CASES OF POROKERATOSIS (MIBELLI) OR HYPERKERATOSIS EXCENTRICA (RESPIGHI) IN ONE FAMILY,

was the title of a paper by DR. T. C. GILCHRIST, of Baltimore.

Two patients, father and son, were shown at the meeting. They presented lesions upon the hands, feet, legs, wrists and forearms. In the son, now aged twenty-one years, the affection had begun at the age of five, upon the neck, nose, chin and ears. The lesions are very slow in development and spread. The eleven cases are found distributed over four generations. The father's grandmother and one of her brothers had it, as well as the father's brother. Three brothers and a sister of the young man showed characteristic lesions beginning between the fifth and ninth year of age. The sister's two children, a son and daughter, showed the first signs at the age of seven and nine respectively. The reader had examined eight of these subjects personally, and found the father's statement as to identity correct.

The eruption consists of lesions of various sizes and forms. There are two varieties: the smallest, chiefly on the face, consists of minute (one-half to one millimetre in diameter) dirty-brown, semiglobular elevations of horny nature. They grow very gradually; and when they reach the size of a small pin-head (one to two millimetres) the centre sinks in and a peripheral horny ridge is formed. Coursing along the ridge is a minute groove. As extension occurs, the centre of the patch takes on an atrophic though callous appearance. The largest patches are about split-pea size. These lesions return after using the canthar, but not after excision.

Microscopic examination showed that the disease begins as a marked hyperkeratosis of the sweat pores and upper portion of the duct, or of the opening of the sebaceous gland, or of two adjoining openings of both glands. This was followed in some instances by dilatation of the sweat duct and gland beneath, followed by atrophy of the glomerulus. Sections from some of the oldest lesions presented a picture almost like that of psorospermiosis follicularis vegetans (Darier).

Only one case has hitherto been reported outside of Italy, that recently published in the *Cutaneous Journal* by Dr. Hutchins, of Atlanta. The Italian observers have not considered the affection hereditary, but the present series points strongly in that direction.

The reader proposed the name *porokeratosis excentrica*, the first referring to the chief pathological fac-

¹ See page 437 of the Journal.

² See page 444 of the Journal.

³ See page 443 of the Journal.

tor, and the last to a very striking clinical feature, that is, the manner of peripheral extension.

A SCALE OF MEASUREMENTS FOR THE ACCURATE AND UNIFORM DESCRIPTION OF CUTANEOUS LESIONS

was presented by DR. C. W. ALLEN, of New York.

The scale proposed is constructed upon a unit of a quarter-millimetre, which corresponds to the diameter of the smallest lesions of the skin. The numbers range from one to five hundred. Within a circle representing the highest figure are included a series of smaller circles of definite dimension corresponding to the various coins, fruits, seeds, grains, etc., now employed in such an inaccurate, unsatisfactory and unscientific way to denote the size of lesions, plaques, tumors, etc.

The scale numbers can be reduced to millimetres, if desired, by dividing by four. Thus, No. 40 is ten millimetres or one centimetre in diameter. The term *tetmil* is proposed to designate the unit. It is especially in the smaller sizes that accuracy is often of the utmost importance in describing the primary lesions of a disease.

After some discussion, in which it was admitted by all that some more satisfactory plan than the one hitherto followed would be desirable, it was voted to refer the scheme to the Committee on Nomenclature, with a view of introducing it at the next International Dermatological Congress.

A PECULIAR AFFECTION OF THE HAIR FOLLICLE.

This paper was read by DR. JOSEPH GRINDON, of St. Louis, describing a chronic inflammation of the hair follicle, with extension of a portion of the root-sheath *en masse*. This cast-off filum remained closely attached around the hair shaft, being carried up in the growth of the hair, and succeeding extensions forming head-like masses threaded upon the hair in a way to closely resemble nits. There is slight redness about the follicle's mouth; and a slight alopecia results, which is, however, curable. The masses are grayish-white, and bear a close resemblance to the ova of the pediculus capitis. Hence the importance of accurate diagnosis. The masses are found to be made up of cells from both layers of the internal root-sheath surrounded by amorphous detritus and sebum. Trichorrhexis nodosa, monilethrix, piedra, lepothrix and such clinical curiosities as Hodara's and Giovannini's diseases are likewise simulated.

DR. HYDE said the observation here recorded would seem to necessitate a new classification of the diseases of the hair.

IMPETIGO HERPETIFORMIS

was discussed in a paper by DR. M. B. HARTZELL, of Philadelphia, based upon an instance recently observed.

The patient was nearly eighty years of age, and presented upon her abdomen and afterward upon her face, neck and extremities crops of pustules more or less grouped, becoming crusted over and showing miliary pustules about the margins of the plaques as the central part dried. Death occurred after a train of severe symptoms and several recurrences.

IMPETIGO HERPETIFORMIS, OR DERMATITIS HERPETIFORMIS

was the title of the next paper, by DR. J. A. FORDYCE.

The subject in the case reported, of which colored

drawings and microscopic slides were shown, was a male, in whom groups of vesicles occurred, becoming confluent over the legs and arms. Over the thighs and the abdomen large irregular plaques extended in a peripheral manner, slowly clearing up in the centre. With each new outbreak there was elevation of temperature. After several weeks the lesions slowly disappeared, leaving pigmented areas upon which new groups of vesico-pustules appeared. Papillomatous lesions formed in the axillary spaces. Albumin in small amount and some granular casts were present.

The blood and serum from the punctured vesicles contained large numbers of eosinophile cells. An acute inflammation of the derma and vesicles in the deep layers of the epiderm were disclosed by the microscope. The cell exudation contained many polynuclear leucocytes and eosinophile cells.

The eruption presenting features of both impetigo herpetiformis and Duhring's disease strengthened the speaker's opinion that both should be included in one and the same class.

A paper on

PSEUDO-LUPUS OF THE FACE DUE TO THE PRESENCE AND GROWTH OF BLASTOMYCES OR BUDDING ORGANISMS RESEMBLING YEAST PLANTS

was read by DR. T. C. GILCHRIST, of Baltimore.

The patient was a man of thirty-five years. The lesion began as a "pimple" behind the right ear, slowly increasing over a period of several years, leaving as it extended a linear atrophic scar. The cheek was involved, and in seven years had reached the region of the eyelid. Two years later the nose and opposite cheek became involved.

A second lesion on the hand required four years to cover the back of the member. There was no pain. The appearances were largely those of lupus vulgaris. Specimens were shown of the small bodies found in the miliary pustules; several grouped together. To discover them sections must be thin and treated with liquor potassæ, alone or with glycerine. They develop by budding, as in yeast, and mycelium also forms in cultures.

Inoculations gave nodules in the lungs of animals, from which pure cultures can be inoculated through a long series, always producing pseudo-tubercles, caseation and pustulation. The blastomyces is hence pyogenic, producing nodules and lesions similar to those of tuberculosis. The disease is named by the author "blastomycetic dermatitis." The bodies are doubly contoured.

DR. FORDYCE spoke of a case now under his observation, in which this might prove the true diagnosis, since until now a diagnosis could not be established.

DR. DUHRING spoke of the value of the microscope in studying such cases, and thought future study of supposed instances of tuberculosis of the skin might show them to be of the nature of the affection here described. The photograph shown represents the same condition as seen in some cases regarded as tuberculosis cutis.

DR. WHITE thought the reader's restriction of lupus verrucosus cutis to certain regions of the body was too limited. He related an instance now under his care in which the nodule occurred upon the sole and side of the foot. It had been acquired in early childhood and he thought the infection had been due to going bare.

foot about the house and grounds where a tuberculous parent had expectorated. He thought Dr. Gilchrist's case might have been a secondary inoculation in an instance of true tuberculosis of the skin.

DR. HYDE thought he had seen much the same appearances as presented in the photograph, and which he had looked upon as tuberculosis. He referred to a case of his own in which upon the ankle of an adult there was a patch of tuberculosis cutis.

DR. GRINDON and DR. KLOTZ joined the other members in congratulating Dr. Gilchrist on the great value of his paper to dermatology.

DR. BOWEN said we no longer had to stick to the old descriptions of Rheil and Paltauf. Plaques of typical tuberculosis verrucosa may be wholly dry and without pustules or vesicles. Dr. Gilchrist expressed his sense of honor in being elected a member of the Association. He had mentioned the occurrence of tuberculosis upon the feet. In the experiments both he and Dr. Stokes had been most careful to exclude tuberculosis which was done absolutely by inoculation experiments. Miliary abscesses are produced by the active hudding process of the plant.

The last paper, entitled

LYMPHANGIOMA OF THE LABIA MAJORA,

by DR. WHITE, of Boston, concerned a young girl. The disease was of several years' duration. One papilomatous growth removed and examined showed tissue changes as illustrated by drawings and microscopic specimens. The diagnosis rested between lymphangioma and lymphangiectases. The speaker did not know how the question could be determined.

The conclusions were that it was lymphangioma superficiale.

THE PRESIDENT made a few remarks on retiring, dwelling upon the success of the meeting and its interesting features.

The successor to the chair, DR. HYDE, was then introduced, who thanked the members for the honor conferred.

THE NEW YORK ACADEMY OF MEDICINE. SECTION ON GENERAL MEDICINE.

STATED Meeting, October 19, 1897, LOUIS F. BISHOP, M.D., Chairman.

PROF. WILLIAM OSLER, of Johns Hopkins University, Baltimore, read a thoughtful, scholarly and attractively written address on

INTERNAL MEDICINE AS A VOCATION.

It was a plea for the medical consultants and a description of the methods believed by the author to be the most efficient in preparing the physician for a life-work of this character. It was often reiterated, he said, that the field of the pure physician in this country was becoming more and more restricted, but he contended that there was still an abundant opportunity for properly equipped men possessing the requisite qualifications of mind and temperament, and that each generation had to grow its own consultants.

After referring to such eminent examples as Hosack, Alonzo Clark, Austin Flint, Fordyce Barker and Alfred L. Loomis, who had passed away, he said that their works remained to testify to their ability, but what was really best in them had died with them. Wherewithal should a young man prepare himself for

following in their steps? The character of Lydgate, in "Middlemarch," might well serve for a model, though a less melancholy fate than his was to be hoped for. No more shining example could be desired than the late Austin Flint, and he would assume that the neophyte started out with the same advantages that he had. This was assuming a great deal, however, for he had had the benefit of the teachings of such men as Professors James Jackson and Jacob Bigelow, of Harvard, the influence of which extended throughout his entire professional career.

The young physician, having completed his service as hospital interne, the question arose, Should he go abroad for further study? This might, perhaps, be desirable, but was by no means necessary. Dr. Flint did not go to Europe, but made his reputation in Buffalo and Louisville before he came to New York. Still, a year or two's work in foreign hospitals and laboratories would be most helpful. Whether he went abroad or not, he should eschew all narrowness of spirit, and aim to cultivate broad and liberal views. Even a New Yorker could learn something at the Massachusetts General Hospital and Boston City Hospital, or at the Pennsylvania Hospital and the University of Pennsylvania. Sir Andrew Clark, in speaking to him of his own career, had divided the latter into three periods, namely, ten years for bread, ten years for bread and butter, and twenty years for cakes and ale.

The young man should have high aspirations, as well as breadth of view, and he should strive to embrace every opportunity which brought him in contact with the sick. To this end it would be well for him to secure a position at first as clinical assistant at a dispensary; though he should be careful to avoid everything like specialism. There were three branches which he might perhaps cultivate with the greatest advantage, organic chemistry, physiology and morbid anatomy. In the field of organic chemistry the outlook was never so bright, and in this country particularly there was great need of experts; but unless our young physician, by his previous studies, was already well up on the subject, it would be hardly worth while for him to devote to it the amount of time necessary to make him a master in this department. In that of physiology, experimental therapeutics offered great opportunity and inducements; but if our physician had to limit his studies, he should devote himself especially to morbid anatomy, and in this dry-bread period should see autopsies daily.

In ten years thus employed a serious man would pick up a very fine education, and would be fit to pass from the dispensary to the hospital ward. If he had not previously been abroad he should go now, and it would be an excellent thing for him to devote the summer semester for several years in succession to foreign study and observation. In the meanwhile how was he to live? On crumbs from the tables of those in the period of cakes and ale; from journal work, from students' fees and from work in schools. He should keep his emotions in ice, and shun the temptations of Circe and Amaryllis. Many of the best consultants in London had passed ten, fifteen and even twenty years in dispensary work before getting wards. Teaching was of incalculable value to our physicians, but it should be done in moderation. Too many quiz classes and too much journal work had ruined many excellent medical men. The young man should be ex-

ceedingly careful as to what he wrote. Let him take care of his education, and his reputation would take care of itself.

The bread-and-butter period was to most men more trying than the first stage of their career. The risks were now greater, and many drifted into the specialties or general practice, and many dropped out. It was a well-known fact that those devoting themselves to surgery, in which skilful young hands were as necessary as brains, attained success at a much earlier period than the disciples of internal medicine. At forty-five our Lydgate should have a rich store of knowledge at his command; but he would probably have very little money in the bank. A large city was not necessary for his development, but if he lived in a small place he should make periodical visits to one or more of the great medical centres. In this connection Dr. Osler spoke of the great waste of clinical material frequently seen in small hospitals in cities, and in the hospitals of smaller towns. In twenty years the studious physician could look to a good consulting practice in almost any town of forty or fifty thousand inhabitants.

Even the period of cakes and ale was not without its drawbacks, and the busy consultant, with the thousand and one calls upon his time, often found it pretty hard to keep abreast with the knowledge of the youngsters in the dry-bread stage. In the life of almost every physician there came a time when he was sure to dally with the Delilah of the Press.

Dr. Osler then referred to three well-known medical men who, he said, had been described as follows: the first was a great physician, but no humbug; the second was a great humbug, but no physician; and the third was both a great physician and a great humbug. The first was the most successful of the three, though probably not from a financial point of view.

DISCUSSION OF THE PAPER, WITH REMARKS UPON THE RELATION OF GENERAL MEDICINE TO THE SPECIALTIES.

Dr. WM. M. POLK said that no one could practise in any department without a knowledge of internal medicine. The surgeon and the specialist took up their work at the point where the internal medical man left off, and there was a community of interest between internal medicine and what might be called external medicine. The poorest surgeon was he who began professional work as a surgeon. If such a one had the knowledge to hold his hand, he could often accomplish much more by internal medicine than by surgical interference. As to how to make a good consultant, one of the first things was to know how to write, for the man who was most accomplished in this direction generally had the greatest reputation. In the hospital, however, it was often found to be the case that the man who might not know how to write knew best how to tell you what was the matter with the patient.

Alonzo Clark used to lay more stress on getting close to disease than on anything else. "If you have a ward with thirty patients," he would say, "don't try to find out all about every one of them; but select from them the most pressing and urgent ones, and study these two, three, four or five cases minutely." The increase of specialism he thought was the curse of modern medicine. The specialist was too apt to let his own narrow branch of study overshadow everything else, and this was doing great injury to the profession

and bringing it into contempt among laymen. No one could be a good specialist unless he was first a good general practitioner.

DR. ANDREW H. SMITH said that two different views had been presented by Dr. Osler and Dr. Polk. While the former had lauded the consultant, the latter had made a plea for the general practitioner with an eye to the main chance. Perhaps the best thing was a happy medium between the two. To prepare himself for being such a consultant as was described in the paper, a man would certainly require all the time mentioned, as he would have to become more or less expert in most of the specialties, as for instance, in the use of the ophthalmoscope, the laryngoscope, etc. Yet the late Dr. Flint had no knowledge of bacteriology or such instrument as the laryngoscope. It seemed to him, however, that unless a number of young men are to take the trouble to fit themselves in the manner advised by Dr. Osler, good consultants would soon be very scarce. We had numbers of very clever men in the profession, but very few who stood head and shoulders above the rest, like Dr. Flint, for example. When such men were found, they seemed to possess an intuitive quality of mind and a nicety of observation which took in more than any mere instrument of precision ever could.

When young physicians consulted him in reference to their life work, he was accustomed to tell them to see all the disease they could, and to make their study of every case that they undertook complete and exhaustive. Thorough and conscientious work of this kind would eventually lead to a successful career. There was a distinction between a good diagnostician and a good practitioner. Some men were so much interested in pathological conditions that they were more anxious to get an autopsy than that the patient should get well, and he had frequently met with consultants who were deeply interested in the diagnosis but perfectly indifferent as to the matter of treatment. Trousseau used to speak of what he called the "therapeutic instinct," and he himself had often had occasion to notice the remarkable fertility of resource possessed by certain successful practitioners in small districts.

DR. A. JACOBI said that the class spoken of by Dr. Osler was a very small one, but there was also a large class who none the less had made internal medicine their vocation; though it could not be doubted that within the last few years, on account of the growth of specialism, the general practitioner had lost ground. After having spoken of the vast number of different specialists that we had now, including the "appendicitis man," the "stomach man," and the "hemorrhoidal specialist," he said that there seemed to be absolutely nothing left for the general practitioner. He believed, however, that specialism had about reached its height, that the present system would be remodelled, and that in the future we should have fewer specialties and better specialists. In truth, internal medicine, as a vocation, was the noblest of all, more particularly on account of its intimate relations with family life. The names of a past generation, like Bard and Mitchell and Hosack, were still household words, while the memory of the surgeons of the same period had disappeared. The practitioner of internal medicine, he thought, might well be designated as the statesman of the profession.

DR. OSLER closed the discussion. He thought that the plan adopted in London, where the young men

through their long years of dispensary service looked forward to becoming consultants, an excellent one. There was no reason why those aspiring to be consultants should not do some general practice, but, as in London, they should depend mainly for their equipment upon dispensary and hospital work. As to the necessity for such a young man's becoming expert in various specialties, referred to by Dr. Smith, the use of such instruments as the ophthalmoscope and the laryngoscope was now required in the course of study at all the best medical colleges, and there was no reason why he should not keep up his familiarity with them during his years of dry bread. While Dr. Flint might not have had a personal knowledge of bacteriology and other scientific subjects, he would venture to say that he always had about him young men who were thoroughly versed in them. What was always to him one of the most striking characteristics of this great teacher and consultant was his remarkable receptivity. Up to the day of his death he remained young in feeling, and he habitually kept himself in touch with the most advanced thought of the day.

In the mind of the consultant the matter of diagnosis was rightly regarded as the all-important consideration, since everything else depended upon it. This was well illustrated in three cases which he had seen within the last twenty-four hours. In the first, the patient was dying of pernicious anemia, a condition which had been previously mistaken for malarial cachexia. The second case was one of cancer of the stomach, where the diagnosis was of no value so far as the matter of treatment was concerned. The third was one of stone in the common duct, and in this instance hundreds of dollars might have been saved by an earlier recognition of the difficulty. The outcome of the case would depend very much on the surgeon to whom it was referred. The position of internal medicine in this country, he thought, would be better and better as an increased number of young men devoted themselves to clinical teaching.

Recent Literature.

The Diseases of Infancy and Childhood. By L. EMMETT HOLT, A.M., M.D., Professor of Diseases of Children in the New York Polyclinic. New York: D. Appleton & Co. 1897.

This is the latest and one of the most valuable additions to the now rapidly increasing list of works on Pediatrics by American authors. It is well arranged and well printed. The illustrations are, as a rule, of but moderate merit and the colored plates disappointing. It is, as a whole, clearly written, but the use of medical terms is often inexact. The most noteworthy feature of the book is the treatment, which is complete, minute and up to date. While recognizing the supreme importance of nursing and diet in the care of children, the author does not underestimate the value of drugs or hesitate to use them on their proper indications. We feel that this portion of the book will prove most valuable to both students and practitioners.

In a work of such exceptional and uniform merit it is difficult to find portions worthy of either special praise or condemnation. Some portions, however, seem worth individual consideration. The chapter on

the Peculiarities of Diseases in Children, especially the portion dealing with therapeutics, is unusually good. We had supposed, however, that the oil-skin jacket had passed away, together with the jacket-poultice, and that the value of inunctions of oil or cocoa-butter was far from proved. In the section on Diseases of the New-Born we find a new disease—"inanition fever."

The section on Nutrition is exceptionally good throughout. In his preface the author apologizes to a certain extent for the space devoted to this subject. We feel that this is uncalled for, however, and that even more space might well have been devoted to the subject. Even now we sometimes have to read between the lines to fully appreciate it. We feel, moreover, that more can be done in modifying the constituents of breast-milk than the author would lead us to believe. The classification of Derangements of Nutrition is original and well worth imitation in the future. We think, however, that the author has not sharply enough limited the term "marasmus," as he includes under it not only a disease, preferably known as "infantile atrophy," but also most secondary conditions of wasting. We feel, moreover, that infantile atrophy belongs more properly among diseases of the digestive tract.

We fail to see how the author can reconcile the classification of Diseases of the Digestive System adopted in this work with that to which he gave his approval as a member of the committee of the American Pediatric Society on the nomenclature of the diseases of the gastro-enteric tract in 1894, and which was adopted by the society. We think that a uniform nomenclature for these diseases is of the utmost importance, and that he has retarded the progress of our knowledge of them by not following the classification adopted by the national society. It seems to us, moreover, that, except in the names used, he has followed it in all essential particulars. We cannot see, however, why the disturbances resulting from improper food should be grouped under the head of chronic intestinal indigestion any more than elsewhere. With the exception of the classification, however, this section is most admirable and will well repay the most careful study. The treatment of these diseases is very good. We cannot agree with the author, however, that milk should not be given in the acute stage of gastro-enteric infection. We are glad to see that operation is favored in tubercular peritonitis, but are surprised that the tuberculin reaction is not mentioned as a means of diagnosis.

The section on Diseases of the Respiratory System is also of the greatest merit and shares the honors of the book with those on Nutrition and the Digestive Tract. We think, however, that catarrhal spasm of the larynx (spasmodic croup) is better considered as a variety of acute catarrhal laryngitis than as a separate disease. Under the term "asthma," the author, according to his own definition, includes many conditions which manifestly do not belong there. The article on Pneumonia is very good, and that on Broncho-Pneumonia is the best we have ever seen. We think the author makes a mistake in calling pneumonia with pleurisy "pleuro-pneumonia," and that such a term can only lead to confusion.

The section on the Diseases of the Blood, as well as the references to the blood throughout the work, are entirely inadequate, frequently misleading and often

erroneous. In the chapter on Malaria, moreover, the different forms of the malarial organism are not recognized, the difficulty of finding it is exaggerated, and the importance of its presence in diagnosis underestimated. The section on Diseases of the Lymph Nodes, on the contrary, is new in arrangement and exceptionally good.

The sections on Diseases of the Circulatory and of the Nervous Systems, as well as that on the Specific Infectious Diseases are uniformly good. Vaccinia is confused with vaccination, however, and we cannot subscribe to the statement that endocarditis is not common in scarlet fever. The article on Pseudo-Diphtheria is a new idea and, we think, a good one.

On the whole, the book is one of the best in English on Pediatrics, and is well worth perusal by all who are interested in this subject.

A Handbook of Medical Climatology, Embodying its Principles and Therapeutic Application, with Scientific Data of the Chief Health Resorts of the World. By S. EDWIN SOLLY, M.D., M.R.C.S., late President of the American Climatological Association. In one octavo volume of 470 pages, with engravings and colored plates. Philadelphia and New York: Lea Brothers & Co., Publishers. 1897.

It is strange, considering the important position as a therapeutic agent which climate has taken in the opinion of both the medical profession and the general public, that no systematic treatise on medical climatology has previously appeared. It has been left for Dr. Solly to collect the facts on which our knowledge must be based from the scattered sources which contain them, and from them to draw such deductions that, as he says, it is perhaps "hardly too much to say that it is possible to prescribe a climate with as much precision as a drug and with far greater effect in certain cases." A close study of the subject for thirty years has given the author a special fitness for the work and that he has done it well will be evident to any one who will give himself the pleasure of reading his interesting pages.

The subject-matter is divided into three sections, the first of which deals broadly with the principles of medical climatology and describes the close connection of this science with physics, meteorology, ethnology, geographical pathology, etc. The second treats of the therapeutics of climate in relation to disease, and phthisis being by far the most important from this standpoint naturally occupies most of the space. The various climatic factors which affect the prevalence of phthisis are described at length, as well as the relative prevalence of its different forms in reference to the selection of an appropriate climate for a developed case. The third section deals with special climates as typified in selected resorts, and contains a map of information as to their climate, elevation, population, drainage, etc., nowhere else obtainable in such condensed form, not the least important of which is a description of the accommodations and amusements provided for the invalid, on which his comfort and happiness (and indirectly his health) must depend.

The text is enriched by several finely executed maps. On laying down the book one is prepared to agree with the author that climatology is not the pure empiricism that many think, but is a science founded on natural laws and strengthened by rational experience.

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IS THE SYMPATHETIC SYSTEM THE SEAT OF THE EMOTIONS?

THE theory that the sympathetic ganglionic system is the physical basis of the emotional and specifically of the moral nature of man has been advocated with much ability by Dr. Maurice R. Bucke, of London, Ontario, who has made many contributions to modern psychology,¹ and whose paper on "Mental Evolution" at the meeting of the British Medical Association this autumn attracted much attention.

Bucke's contention is that the higher cerebral ganglia are the seats of the intellectual nature, and the sympathetic ganglia the seats of the emotions. In other words, the two groups of functions are distinct and have separate centres.

This view assumes that the emotions, love, fear, hate, etc., are simple and homogeneous, and that when elaborated in the sympathetic ganglia they have no admixture of concept or ideation, which are functions of the cerebrum. In fact, this author affirms that "any idea may exist without the coexistence of any emotional state"; and conversely, "any simple emotional state—faith, love, fear, hate—may exist without being associated with any idea." Is this true?

Is it not certain that in love and hate, trust and fear, which Dr. Bucke regards as the basis of the moral nature, the concept of the person or thing loved and hated (a cerebral fact) is an inseparable part of the emotion itself, just as, according to psychologists, the physical expression of the emotions is also an inseparable part? "A purely disembodied human emotion," says Professor James, "is a non-entity."²

In one respect Dr. Bucke's view that the sympathetic system is the seat of the emotions finds some countenance in Lange's theory³ founded on physiological experiments, that "the immediate physical expression of the emotion is a vaso-motor modification, and that the other physical manifestations are pro-

¹ See especially *Man's Moral Nature*, G. P. Putnam & Sons, New York.

² William James: *Psychology*, vol. ii, p. 452.

³ Lange: *Les Emotions, Etude Psycho-physiologique*, Paris, 1895, p. 93.

duced by the vaso-motor troubles — the modifications of the blood capacity of the different organs, the changes which are produced in the aspect of the organ and in its functions." This thought may not at first sight seem very clear, but he illustrates it in various ways. "Is it not possible," he asks, "that in sorrow the muscular enfeeblement is due to the anemia produced in the nervous system as well as in the skin and other organs by the constriction of the small arteries? And in rage, does not the uncontrollable force manifested have its source in the great afflux of blood which goes to the brain as well as to the skin and mucous membranes?"

However this may be (and doubtless these considerations are for the most part speculative), it remains certain that every emotion has an ideal side, and that if there are physical manifestations which originate in ganglia which belong to the sympathetic system, there are other equally notable manifestations which are properly ascribed to the cerebro-spinal system.

We may in this connection allude to the fact that in the light of evolutionary psychology, an emotion, of whatever nature (and the moral sentiment is included) is an exceedingly complex aggregate of feelings and associated ideas. Herbert Spencer calls emotions "presentative-representative feelings,"⁴ "in which a sensation, or group of sensations and ideas arouses a vast aggregation of represented sensations; partly of individual experience, but chiefly deeper than individual experience, and consequently indefinite." He cites as an example the emotion of terror: "Along with certain impressions made on the eyes and ears or both, are recalled in consciousness many of the pains to which such impressions have before been the antecedents; and when the relation between such impressions and such pains has been habitual in the race, the definite ideas of such pains which individual experience has given are accompanied by the indefinite pains that result from inherited experiences — vague feelings which we may call organic representations. In an infant crying at a strange sight or sound, while yet in the nurse's arms, we see these organic representations called into existence in the shape of dim discomfort to which individual experience has yet given no specific outlines." In this writer's "Data of Ethics," in the chapter entitled "Psychological View," he shows the application of this conception to man's moral nature which Dr. Bucke thinks has undergone [entire?] development during the last ten thousand years.⁵

It is, moreover, argued respecting the emotions that we *feel* that these have their seat not in the head but in the body, and the languages of all nations refer the emotions to the heart, in and about which organ are grouped some of the larger ganglionic masses of the great sympathetic.

This can hardly be regarded as a serious argument, since the indications which consciousness may give as to the seat of an emotion are very vague. Who can

tell by his feelings whether his hopes and fears begin in the cardiac plexus, solar plexus, or cortex cerebri? Consciousness may locate correctly a pain and even the hypochondriacal distress of certain abdominal diseases, but an emotion, in whatever part it may originate, is too rapidly diffused in its physical effects to admit of any strict localization.

Is there an "abdominal brain" (comprehending especially the solar and uterine plexuses) as some physiologists and notably Dr. Byrom Bramwell think, with a quasi consciousness and a mode of suffering of its own? We may speculate regarding this question, we cannot answer it, though the extent to which some persons are governed by the stomach or the uterus might indicate to others the truth of the affirmation.

The cerebral origin of many emotions seems evident, and in all (as stated above) the participation of sensory and ideational processes can be shown on analysis. Is emotion — or rather feeling — only another aspect of intellect, both being modes of a primary sentience as comparative psychology is said to teach?

It is noteworthy that writers on mental alienation class the affective insanities as *cerebropathies*, placing mania and melancholia, those emotional diseases *par excellence*, under the head of "General Ideational Insanity"; and that Maudsley, one of the most philosophical of writers, speaks of melancholia as a "neuralgia of the cortical conscious cells."

PROTECTION IN FRANCE AGAINST FOREIGN MEDICAL PRACTITIONERS.

As many of our readers already know, there has been a constantly increasing disposition in France towards "protection" as a politico-economical policy, and along with this an illiberal and ungenerous discrimination against the practice of medicine by foreigners. At present the head of the French Cabinet, M. Méline, is and has been for years the apostle *enragé* of "protection" in France. The present laws are practically prohibitory of medical practice by foreigners not already established, and if such regulations remain in force after the passing away of their fellow-countrymen now in practice, American and English travellers are going to find themselves in an awkward and disagreeable situation.

A correspondent, who personally has nothing to lose by the present situation, writes as follows:

You may possibly have heard that the French have been legislating recently in such a way against foreign doctors that, as their law now stands, it is *impossible* for a foreign doctor to come and practice in France. To do so he must first take the French B.A. degree, and then go through the five-year curriculum. This means that he must spend about seven years in France before being allowed to practise, and this no matter who he may be, how well known, or what positions he may have occupied.

You will see at a glance that this is practically a prohibitive law. Suppose, for instance, that your health broke down and you wished to come and practise in the south of France for the sake of the climate. It could not be done.

I consider this law, although as you will see *it favors me*, preventing other men from coming here, as so contemptible that

⁴ Classification of Feelings, in Illustrations of Progress, D. Appleton & Co., New York.

⁵ Montreal Essay on Mental Evolution.

I think the men at home ought to take some notice of it, by legislating against the foreigners who shut us out — French, Germans, Swiss, and (soou) the Italians — and also by not sending their patients to French practitioners here or in the South.

I think the action of the French authorities is one that is grossly unfair, and that in the long run, when the present men who are here die off, it is going to cause a great deal of annoyance and trouble to the travelling Americans. The Frenchmen never speak English, and you know that all their habits of hygiene and their care of the sick, as well as methods of treatment, differ widely from ours. The day will come, with the present law, when Americans will have no one to fall back on but these Frenchmen, who, whatever their merit may be, which I do not contest for a moment, will *never* get on well with Americans, and particularly with Americans ignorant of the French language. Fancy yourself, for instance, falling ill in Russia with no one but a Russian physician who didn't know English!

NARCOTISM AND ALCOHOLISM.

At a meeting of the New York Medico-Legal Society held October 19th, Dr. J. B. Mattison read a paper on "Narcotic Inebriety in America," in the course of which he said he was happy to make the announcement, based on extended observation, that the use of narcotics was on the wane in this country. In regard to opium inebriety he said that its decrease was mainly due to the substitution by physicians of codeine, phenacetine and electricity for morphia. At the same meeting Dr. Agnes Sparks, of Brooklyn, read a paper on "Alcoholism in Women." Alcoholism in women, she said, had heredity as its origin to a lesser degree than in men. Inebriety from a fondness for alcohol also obtained less often in women, and this neurosis therefore presented strongest proof that its origin lay in perturbed physical conditions. First in frequency was a condition due to lack of nutrition and wear and worry of domestic life and social demands. The other most common cause was pain and unrest incident to disorders of sex for which solace was sought in the anesthetic and paralyzing effects of alcohol. The treatment she advised was curative and preventive. The remedial agents of greatest value were strychnia, arsenic, electricity and hypnotism. At first it was often advisable to allow a certain amount of alcoholic stimulus, preferably given in milk; but this should be discontinued as soon as possible. She gave the first place to strychnia, hypodermically, administered daily. Hypnotism acted best in periodic cases, the *séances* being given between the drinking bouts. No case, she thought, should be deemed beyond hope until every aid that scientific treatment could now surely extend should prove of no avail; alcoholism being not only a curable but a preventable disease. In the discussion that followed the reading of the paper other physicians took a less hopeful view of the subject. Dr. Arthur C. Brush said that during the last few years he had noticed a considerable increase in drunkenness among women, and Dr. I. N. Quimby said that he had known and treated more than two hundred female inebriates, and had not been able in any way to reform more than ten per cent. of them, the results being less favorable than in the case of male drunkards.

MEDICAL NOTES.

DEFALCATION OF A HOSPITAL OFFICIAL. — It is reported that the secretary of a London hospital devoted to diseases of the chest, has disappeared leaving behind very large defalcations.

DR. VAN REYPEN APPOINTED SURGEON-GENERAL OF THE NAVY. — President McKinley has appointed William K. Van Reypen Surgeon-General of the United States Navy, to fill the vacancy caused by the death of the late Surgeon-General Newton L. Bates.

YELLOW FEVER NECESSITATES A CHANGE OF CAPITAL. — Owing to the prevalence of yellow fever in Montgomery, Ala., the State government has been removed to Birmingham. The governor and all of the State officers are transacting business from that point.

AN INTERNATIONAL LEPROSY SOCIETY. — At the International Conference on Leprosy, the sessions of which have just ended at Berlin, a commission was appointed to prepare plans for the formation of an International Leprosy Society. Professor Virchow is the president of the commission.

A MEDICAL MAN DIES UNDER CHLOROFORM ANESTHESIA. — Dr. Robert Smith, Medical Superintendent of the Dunston Asylum, Gateshead, England, died recently while under the influence of chloroform, in the Stockton and Thornaby Hospital. He was about to undergo an operation for fistula.

YELLOW FEVER IN THE SOUTH. — During the past week the yellow-fever situation in the South has not improved; and on Tuesday, October 26th, 50 cases and 5 deaths were reported in New Orleans. The cases are now widely diffused throughout that city, and are occurring in districts which have heretofore been healthy.

CONSUMPTIVES IN CALIFORNIA. — It is reported in the daily press that the State Board of Health of California has issued orders directing physicians in charge of asylums to segregate consumptives and report the number in each asylum. This is said to be preliminary to the enforcement of rules for segregating consumptives in all health resorts.

THE GERMAN PATHOLOGICAL SOCIETY. — At the recent meeting of the German Scientists and Physicians at Brunswick a new society was organized, to be known as the German Pathological Society. It is to hold its meetings each year in the same place and just after the sessions of the former society at the close of which it was organized this year. Professor Virchow is the president of the new society, and Professor von Recklinghausen its secretary.

SERUM DIAGNOSIS AND TYPHOID EPIDEMICS. — The determination of the question whether the cases of simple diarrhea which so often precede or accompany epidemics are perhaps unrecognized cases of typhoid and may in some cases be the original source of the epidemic is a legitimate and proper field for the employment of serum diagnosis. This test was applied in connection with the Maidstone epidemic

to eight cases of simple diarrhea by Surgeon Captain Smith, at the Pathological Laboratory of the Army Medical School at Netley, with the following conclusions:¹ these examinations as detailed show that it is unsafe, without a controlling bacteriological examination, to infer that cases of diarrhea which occur either before or in the course of epidemics of typhoid fever are in any way cause or consequence of the prevailing epidemic.

CARBOLIC ACID IN A CLARET BOTTLE.—At University College, London, recently two workmen drank carbolic acid which was supplied to their foreman from the college laboratory in a claret bottle without a label. They drank it supposing it to be claret, and one of them died in consequence. In the words of the *Medical Press and Circular*: "One does not expect recklessness of this kind in connection with a chemical laboratory, and it is to be hoped that the authorities responsible for the proper ordering of the seat of learning concerned will take immediate steps to reorganize the methods of their subordinate officials. Whereas from 1861 to 1864 only two persons died from accidental carbolic-acid poisoning, in London, yet from 1891 to 1894 no less than 129 persons met with a similar untimely end. That fact may be commended to the attention of the University College officials." How many deaths and accidents, here and abroad, will it take to make health authorities recognize that carbolic acid is a poison, and take appropriate action?

ULCERATIVE ENDOCARDITIS TREATED BY ANTISTREPTOCOCCIC SERUM.—Dr. J. W. Washbourn, Physician to the London Fever Hospital and Assistant Physician to Guy's Hospital, reports (*Lancet*, September 18th) a case diagnosed as ulcerative endocarditis successfully treated with antistreptococcic serum. He feels quite clear as to the fact that the pulmonary valve was affected, and that the diagnosis was justified. The result of the treatment was most striking and in Dr. Washbourn's opinion it saved the patient's life. The pyrexia ceased after the first fortnight. The injections were given daily in doses of twenty cubic centimetres for two months, when the patient was discharged from the hospital well, except for pulmonary regurgitation, and was seeking a situation a month later. The large amount of serum used is worthy of record. The treatment lasted nine weeks, during which time 1,030 cubic centimetres of serum were injected in 59 doses. The only ill-effect was a transient rash. Throughout the case the cardiac symptoms remained in the background, the infective process being the most prominent feature. The antistreptococcic serum was used because it was thought that the case was most probably one of streptococcic infection, although there was no bacteriological evidence of the presence of streptococci in the blood.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, October 27, 1897, there

¹ British Medical Journal, October 16, 1897.

were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 42, scarlet fever 26, measles 7, typhoid fever 13.

DEATH AT AN ADVANCED AGE.—Mr. Joseph Manuel died at Kennebunkport, Me., Friday, aged about one hundred years. He leaves a wife, to whom he had been married seventy-seven years.

A NEW "CONTAGIOUS HACK."—The city of Newton, Mass., has ordered a new ambulance for the transfer of patients suffering from contagious diseases, which is to be fitted with the best modern appliances for the comfort of the sick passengers. The old "contagious hack" which is now in use is said to have become too dilapidated for further service.

SUFFOLK DISTRICT MEDICAL SOCIETY, CENSORS' EXAMINATION.—The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society at 19 Boylston Place, on Thursday, November 11, 1897, at 2 p. m. Candidates must make personal application to the Secretary, and present their medical diploma, or its equivalent, at least three days before the examination. For further particulars apply, from 2 to 3 p. m., to John Dane, M.D., Secretary, 29 Marlborough Street, Boston.

THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—At the quarterly meeting of the Massachusetts Association of Boards of Health, held recently at the Parker House, President H. P. Walcott was the presiding officer and the subject of "The Prevention of the Pollution of Milk Supplies" was the chief topic under discussion. Prof. W. T. Sedgwick reported, for the Committee, rules for the protection of milk-supplies from pollution.

THE NAVAL SURGEONS' VISIT TO THE BOSTON CITY HOSPITAL.—Medical Inspector and Surgeon M. C. Drennan of the White Squadron and the medical officers attached to the fleet visited the City Hospital during the recent stay of the warships in Boston harbor, and inspected the entire institution. They were received by President A. Shuman of the trustees, assisted by Dr. Rowe, superintendent of the hospital, and a committee of the visiting staff.

A COTTAGE HOSPITAL FOR LACONIA, N. H.—The trustees of the Laconia Cottage Hospital Association have decided to lease the Rhoda C. Ladd property for a cottage hospital for a term of five years. The Ladd estate was bequeathed to the city for a hospital several years ago, and this is the first action taken toward establishing the institution. The cottage hospital movement is merely preliminary to the establishment of a permanent hospital within a few years.

NEW YORK.

NEW YORK COUNTY MEDICAL ASSOCIATION.—At the first meeting, October 18th, after the summer vacation of the New York County Medical Associa-

tion, Dr. John Shrady read a memorial address on the life and character of the late Dr. J. Lewis Smith, and Dr. Austin Flint a similar address on the late Dr. William T. Lusk. At the same meeting Dr. Achilles Rose, who recently returned from a visit to Greece extending over several months and who published a valuable paper on Greek Anthropology in the *New York Medical Journal* of September 25th, made some interesting remarks on the present condition of that country, the prevailing misrepresentation in regard to its people, and the danger of its subjugation again to Turkish dominion.

ST. LUKE'S HOSPITAL.—The annual meeting of the Society of St. Luke's Hospital was held at the hospital buildings on October 18th. The report made by the Board of Managers showed that the death-rate from all causes for the year was 10.3 per cent. In the medical department 1,201 cases were treated, and 1,243 in the surgical department, exclusive of the out-patient department. The total expenses for the year were \$153,299, and the deficiency of income as against expenses for the year \$57,499. The report of the Building Committee stated that the cost of the buildings was \$1,749,605, which added to the cost of the land, \$530,000, brought the total outlay for the erection of the new St. Luke's Hospital up to the sum of \$2,279,605.

THE BOARD-OF-HEALTH LEPEES.—Four of the five patients constituting the leper colony at the hospital for contagious diseases on North Brother Island recently left their quarters there, and the Board of Health has refused to take them back, on the ground that in this climate and under the conditions prevailing in New York City leprosy can no longer be regarded as a contagious disease. Two of the lepers are Chinese and the other two natives of the West Indies, and all of them have been on North Brother Island for over a year. At present three of the men are quartered in a tent on the grounds of Bellevue Hospital, and the fourth, a mulatto, is said to be stopping with his mother in a house on East Sixty-second Street. The Commissioners of Public Charities have decided that the lepers come within their jurisdiction, rather than that of the Health Department, and they will probably be permanently cared for on Blackwell's Island. A year ago, Dr. Roberts, Sanitary Superintendent, in a report on the leper colony in charge of the Board of Health, recommended the discharge of the patients; affirming that no harm could come to those who might be brought in contact with them, and expressing that it was an unjust and needless hardship to keep them prisoners in isolated confinement. On December 29th last a special committee on leprosy of the Medical Society of the County of New York, consisting of Drs. George B. Fowler, A. A. Smith, George H. Fox, E. R. Bronson and H. G. Piffard, made a report declaring that leprosy is not necessarily contagious and deprecating indiscriminate segregation. "It would appear," the report stated, "that other conditions than that of mere proximity are essential

before leprosy can be accounted a contagious disease. What these conditions are, whether they relate to location, soil, climate, food or mode of habits of life, is unknown; but with little doubt it is because of their absence that this and other similarly favored localities have thus far remained exempt from any prevalence of leprosy." The International Congress of Leprologists, which has lately held its meeting in Berlin, under the influence of Professor Hansen of Bergen, Norway, and against the views of Besnier, of Paris, affirmed the opinion that leprosy is contagious, though not hereditary, and that isolation is desirable and to be enforced by public authorities under certain conditions.

Miscellany.

LORD LONDONDERRY ADVOCATES DISEASE DISSEMINATION.

["Dairy farmers in this country have a genuine grievance in being compelled to produce milk and butter under the best sanitary conditions, and to compete in their own market with an unlimited quantity made in Denmark under no kind of sanitary conditions at all."]

"The above utterance is the calm, deliberate statement of a person who claims to rank as a statesman, who has been Viceroy of Ireland, is a territorial magnate, and has an important influence in the legislation of the United Kingdom. It is by Lord Londonderry, reported in the *Daily Graphic*, September 1st. We have heard and read many dangerous statements by men of supposed light and leading, but we doubt if even the worst minded and ignorant of politicians could sink to a deeper depth than this ex-viceroy and statesman has done in his speech at the Sedgefield Agricultural Show on August 31st. It is not a pleasant thought that any body of Englishmen can be found so servile as to refrain from discountenancing such an utterance because it comes from a lord.

"Put into plain English, what does Lord Londonderry complain of? He complains that the dairy farmer is compelled to preserve sanitary conditions in his business, that is, that he must no longer, as he did in the bad old times, wash his pans in sewage-polluted water, have his sheds ankle deep in foul, reeking animal droppings, and send out milk loaded with deadly germs to the public, spreading suffering, disease and death broadcast. There is no article so liable to spread infection as milk is, and, even with the sanitary restrictions which Lord Londonderry considers 'a genuine grievance,' a great amount of disease is now disseminated by milk. Milk is the principal food of infants, but, overthrowing Herod, Lord Londonderry would not only have infants doomed to typhoid, scarlatina, etc., but would give filth a free hand, and spread disease and death everywhere amongst adults, in order that his class—the landlords—may spend a little less in necessary public-health work, sewerage, drainage, pure water-supplies, and the like, and be enabled to screw more rent out of their tenants, who now have to spend some money which could be extorted as rent in sanitary improvements required for their own health and the safety of the public. Such opinions are worse than those of the most raving anarchist. Yet their author was on Tuesday posturing before the Duke and

Duchess of York in Ireland and proud of having entertained royalty nineteen times.

"He would be better if he entertained beliefs less like unto those of Swift's Yahoos, which were, after all, only the creation of a satirist, whilst Lord Londonderry's are the deliberate expressions of a person posing as a statesman, who has been Viceroy of Ireland. We hope, for the well-being of humanity, that even amongst lords this insanitary person will find no imitators and no followers." — *Food and Sanitation.*

SERUM DIAGNOSIS OF TYPHOID FEVER.

THE following circular, addressed to the President of the Board of Health of the Province of Quebec has been issued by and received from Dr. Wyatt Johnston, Bacteriologist to the Board:

The simple technique recommended by this laboratory for the serum diagnosis of typhoid, by means of dried blood, has been found, after a year's trial, quite satisfactory for the practical work of diagnosis.

At the same time (as was recently explained by a Committee of the American Medical Association, of which I was a member), although for routine diagnostic work even the very simplest methods may give good practical results, yet for recording scientific observations quantitative methods should be selected. This is especially necessary in reporting exceptional cases at variance with the general results of others, or where the observations are made the basis of generalizations.

I have found that good uniform quantitative results can be readily obtained with the dry blood method by taking in the first instance drops of uniform size, collected by means of a wire loop (I use 20 gauge copper wire, two millimetres inside diameter), which is returned with the outfit and used subsequently to obtain dilutions of known strength. The method has been described more fully in a joint paper by myself and Dr. Harold Thomas before the British Medical Association at Montreal, on September 2, 1897.

For quantitative work, the blood is dried on an ordinary glass slide, or non-absorbent paper can be used if preferred. One of the outfits will be sent, when a quantitative estimation is desired, or to any who are practically interested in the matter. As already stated, I do not find quantitative work necessary for routine diagnosis, preferring to employ cultures having a sensitiveness so low as to give no reaction at all with non-typhoid.

In addition to the previous observations made by myself and Dr. D. D. McTaggart as to the use of attenuated cultures, I wish further to call attention to the importance of paying special care to the reaction of the test culture media. Bouillon cultures showing after twenty-four hours' growth of typhoid at 37° C., a slight uniform cloudiness only, and quite free from scum or sediment, offer the greatest security against pseudo-reactions. I find that such cultures can be obtained by using bouillon just on the verge of litmus acidity, giving no blue whatever to the red paper. From five per cent. to six per cent. of normal alkali are required to make this bouillon neutral to phenol phtalein.

Cultures which give a heavy bouillon growth are the ones which are most liable to give pseudo-reactions, that is, to clump in a deceptive manner spontaneously or with non-typhoid blood. If the culture is too acid the reaction may be defective. With a proper culture, I have never met with the typical reaction apart from typhoid fever. On the other hand, by employing certain incorrect methods of preparing the culture I can obtain at will very perplexing pseudo-reactions with a large proportion of non-typhoid bloods. This may be the explanation of a number of anomalous published results, though the difficulties can be also doubtless avoided by other means than those indicated here.

METEOROLOGICAL RECORD

For the week ending October 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S. 10	30.30	46	56	37	58	59	55	N.W.	S.	12	8	C. C.
M. 11	30.21	56	67	46	76	89	82	S.	S.	12	14	O. O.
T. 12	30.03	70	76	65	86	92	89	S.	S.W.	18	12	O. O.
W. 13	30.37	62	70	55	73	58	66	W.	N.W.	6	6	O. O.
T. 14	30.50	56	66	47	70	83	76	N.W.	S.W.	13	8	C. F.
F. 15	30.18	70	86	55	73	65	69	S.W.	S.W.	15	8	O. C.
S. 16	29.87	78	88	67	65	58	62	W.	S.W.	12	16	F. O.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 16, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,868,000	721	269	11.78	12.74	4.50	.98	2.24	
Chicago . . .	1,619,226	468	172	19.53	10.50	10.71	3.99	3.57	
Philadelphia .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . .	1,160,000	376	155	31.92	11.88	5.13	2.43	5.94	
St. Louis . . .	570,000	174	44	15.08	10.44	1.16	2.90	4.64	
Baltimore . .	550,000	171	54	23.20	6.96	6.38	5.22	11.02	
Boston	517,732	205	67	10.78	13.23	3.92	2.45	2.94	
Cincinnati . .	405,000	99	—	8.08	11.11	1.01	3.03	1.01	
Cleveland . .	350,000	101	30	12.00	2.00	—	5.00	8.00	
Pittsburgh . .	285,000	—	—	—	—	—	—	—	
Washington . .	277,000	89	24	11.23	5.61	2.24	2.24	5.60	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	105,020	34	12	20.58	11.76	11.76	—	2.94	
Worcester . . .	105,050	42	14	16.16	16.06	11.90	2.38	—	
Fall River . .	95,919	35	15	25.74	8.58	14.30	5.66	2.86	
Lowell	87,153	43	23	20.88	6.88	10.44	2.32	4.64	
Cambridge . .	86,812	28	13	21.42	10.71	14.28	—	3.57	
Lynn	65,220	24	7	12.45	8.30	4.15	4.15	—	
Charleston . .	65,165	26	7	22.04	—	11.02	3.84	—	
New Bedford .	62,416	19	11	31.56	—	21.04	—	10.52	
Lawrence . . .	55,510	20	7	15.00	5.00	10.00	—	5.55	
Springfield . .	54,790	18	5	5.55	—	5.55	—	—	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	14	5	14.28	14.28	14.28	—	—	
Brookton . . .	35,853	7	3	14.28	14.28	—	—	—	
Malden	32,894	—	—	—	—	—	—	—	
Chelsea	32,716	11	5	18.18	—	—	9.09	—	
Haverhill . . .	31,406	7	1	28.56	14.28	—	28.56	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton	28,990	10	2	20.00	20.00	—	10.00	10.00	
Fitchburg . . .	28,392	4	3	—	—	—	—	—	
Taunton	27,812	5	1	—	—	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham	21,112	5	3	20.00	—	—	—	20.00	
Everett	21,575	—	—	—	—	—	—	—	
Northampton .	17,448	—	—	—	—	—	—	—	
Newburyport . .	14,794	5	0	—	40.00	—	—	—	
Amesbury . . .	10,320	—	—	—	—	—	—	—	

Deaths reported 2,851; under five years of age 974; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, and fevers) 436, consumption 300, acute lung diseases 294, diphtheria and croup 116, typhoid fever 73, whooping-cough 16, malarial fever 15, scarlet fever 14, cerebro-spinal meningitis 12, measles 10.

From whooping-cough New York 7, Brooklyn 3, Chicago and Cincinnati 2 each, Baltimore and Brockton 1 each. From malarial fever St. Louis 11, Nashville and Charleston 2 each. From scarlet fever New York 7, Chicago 2, Brooklyn, Boston, Cincinnati, Cleveland and Cambridge 1 each. From cerebro-spinal meningitis New York 4, Boston 2, Washington, Providence, Worcester, Fall River, Lynn and Chelsea 1 each. From measles New York 5, Brooklyn and Providence 2 each, Chicago 1. From erysipelas New York and Chicago 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending October 9th, the death-rate was 16.2. Deaths reported 3,414, diarrhea 131, diphtheria 86, fever 73, measles 52, whooping-cough 47, scarlet fever 45.

The death-rates ranged from 26.2 in Bolton to 9.4 in Portsmouth; Birmingham 16.3, Bradford 14.4, Croydon 9.9, Gateshead 18.1, Hull 16.5, Leeds 18.2, Leicester 13.3, Liverpool 20.9, London 15.5, Manchester 21.7, Newcastle-on-Tyne 16.5, Nottingham 13.9, Sheffield 19.4, West Ham 16.0.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 16, 1897, TO OCTOBER 21, 1897.

CAPTAIN PETER R. EGAN, assistant surgeon, U. S. Army, is granted leave of absence for six months.

CAPTAIN J. D. POINDEXTER, assistant surgeon, U. S. Army, new on temporary duty in New York City, is ordered to Fort Hamilton, N. Y., for duty, when relieved from present duty by CAPTAIN WM. C. GORGAS, assistant surgeon, U. S. Army.

LIEUT. GUY C. M. GODFREY, assistant surgeon, U. S. Army, is relieved from further duty at Fort Yellowstone, Wyo., and is ordered to Fort Yates, N. D., for temporary duty.

CAPTAIN NORTON STRONG, assistant surgeon, U. S. Army, upon being relieved from duty as attending surgeon and examiner of recruits at Chicago, Ill., to await orders in that city for the convenience of the government.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, November 1st, at 8 o'clock.

Dr. F. S. Watson will read a paper on: "Some Recollections of the Twelfth International Medical Congress at Moscow."

Dr. F. C. Cobb: "Acute Empyema of the Antrum of Highmore." Discussion by Drs. A. Coolidge, Jr., and J. P. Clark.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place on Wednesday evening, November 3d, at 8 o'clock.

The evening will be devoted to a consideration of "The Treatment of Tubercular Disease of Bones," as follows:

(a) "The Pathology of the Disease in its Relation to Treatment," Dr. E. H. Nichols.

(b) "The Operative Treatment," Dr. A. T. Cabot.

(c) "The Non-operative Treatment," Dr. E. H. Bradford.

The presentation of specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES.—The address of the Secretary of this Association, Dr. James E. Pilcher, of the Army, has been changed from Columbus, O., to Fort Crook, Neb.

RECENT DEATHS.

JAMES SIMPSON, M.D., a prominent physician of San Francisco, Cal., died on October 22d, of pneumonia, aged seventy-one. Dr. Simpson was born in Calais, Me., in 1827. After his graduation from New York University, he entered the University of Edinburgh. After taking his degree he returned to Maine, and in 1852 went to San Francisco, where he settled after a period of practice in one of the California mining towns. He had served as president of the State Board of Health of California.

PROF. RUDOLPHE PIERRE HENRI HEIDENHAIN, incumbent of the Chair of Physiology at the University of Breslau, is dead. He was born in Marienwerder in 1834, and studied medicine and natural science at the Universities of Königsberg, Halle and Berlin, and experimental physiology under the direction of Professor Du Bois-Reymond.

BOOKS AND PAMPHLETS RECEIVED.

Stone in the Kidney. By Charles R. Robins, M.D., Richmond, Va. Reprint. 1897.

State Medicine to the Present Time. By Franklin Staples, M.D., Winona, Minn. Reprint. 1897.

Bunion: Its Etiology, Anatomy and Operative Treatment. By Parker Syms, M.D. Reprint. 1897.

Report of the Kensington Hospital for Women (Non-sectarian) from October 14, 1895, to October 12, 1896.

Auditory Aphasia. Pressure Neuritis caused during Surgical Operations. By Howell T. Pershing, M.D., Denver, Col. Reprints. 1897.

Splitting the Kidney Capsule for the Relief of Nephralgia. By George Ben Johnston, M.D., Richmond, Va. Reprint. 1897.

Transactions of the Chicago Pathological Society from December, 1895, to April, 1897. Volume II. Chicago: American Medical Association Press. 1897.

The Living Substance as Such and as Organism. By Gwen-dolen Foulke Andrews (Mrs. Ethan Allen Andrews). Supplement to *Journal of Morphology*, Vol. XII, No. 2. Boston: Ginn & Co. 1897.

The Vital Statistics of Massachusetts. A Forty Years' Summary. By Samuel W. Abbott, M.D., Secretary of the State Board of Health. From the Twenty-Eighth Annual Report of the State Board of Health of Massachusetts, for 1896.

Report of a Case of Intradural Spinal Tumor Extending through the Foramen Magnum, compressing the Extreme Upper Portion of the Cord, and Almost Completely Destroying it at the Third Cervical Segment. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1897.

Spinal Caries (Spondylitis or Potts' Disease of the Spinal Column). By Noble Smith, F.R.C.S. Ed., L.R.C.P. Lond., Surgeon to the City Orthopedic Hospital; Surgeon to All Saints' Children's Hospital; Orthopedic Surgeon to the British Home for Incurables. Second edition. London: Smith, Elder & Co. 1897.

An Epitome of the History of Medicine. By Roswell Park, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Based upon a course of lectures delivered in the University of Buffalo. Illustrated with portraits and other engravings. Philadelphia, New York, Chicago: The F. A. Davis Co. 1897.

Cutaneous Medicines: A Systematic Treatise on the Diseases of the Skin. By Louis A. Dühring, M.D., Professor of Diseases of the Skin in the University of Pennsylvania; Author of "A Practical Treatise on Diseases of the Skin," and "Atlas of Skin Diseases." Part II. Classification: Anemias, Hyperemias, Inflammations. Illustrated. Philadelphia: J. B. Lippincott Co. 1898.

A Practical Treatise on Sexual Disorders of the Male and Female. By Robert W. Taylor, M.D., Clinical Professor of Venereal Diseases in the College of Physicians and Surgeons, New York; Surgeon to Bellevue Hospital, and Consulting Surgeon to the City (Charity) Hospital, New York. With 73 illustrations and eight plates in color and monotone. New York and Philadelphia: Lea Brothers & Co. 1898.

Principles of Medicine, designed for Use as a Text-Book in Medical Colleges and for Consideration by Practitioners Generally. By Charles S. Mack, M.D., one of the Professors of Materia Medica and Therapeutics in the Hahnemann Medical College and Hospital, Chicago; recently Professor of Materia Medica and Therapeutics in the Homeopathic Medical College in the University of Michigan at Ann Arbor. Chicago: The W. T. Keener Co. 1897.

A Text-Book of Special Pathological Anatomy. By Ernst Ziegler, Professor of Pathology in the University of Freiburg. Translated and edited, from the eighth German edition. By Donald MacAlister, M.A., M.D., Linacre Lecturer of Physics and Tutor of St. John's College, Cambridge, and Henry W. Cattell, M.A., M.D., Demonstrator of Morbid Anatomy in the University of Pennsylvania. Sections IX-XV. New York: The Macmillan Co. 1897.

Constipation in Adults and Children, with Special Reference to Habitual Constipation and its most Successful Treatment by the Mechanical Methods. By H. Iloway, M.D., formerly Professor of the Diseases of Children, Cincinnati College of Medicine and Surgery; formerly Visiting Physician to the Jewish Hospital, Cincinnati, etc.; Member of the Medical Society of the County of New York, of the New York County Medical Association, etc. New York: The Macmillan Co. 1897.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In photo-lithochromes from models in the Museum of the Saint Louis Hospital, Paris. With explanatory wood-cuts and text by Ernest Besnier, A. Fournier and five other physicians to the Saint Louis Hospital. Edited and annotated by J. J. Pringle, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. London: The Rebus Publishing Co. Philadelphia: W. B. Saunders. 1897.

Ophthalmoscopic Representation of a Case of Traumatic Rupture of the Inferior Temporal Vein of the Right Retina. Clinical Notes of a Case of Injury Producing as the most Prominent Symptom Luxation of the Eyeball into the Orbit (so-called Traumatic Enophthalmos). A Case of Reparation from Extensive Injury Involving the Inner Angle of the Eyelids. Clinical History of a Series of Operative Procedures for the Cure of Cicatricial Ectropium from Antral Disease. Clinical History of a Case of Subconjunctival Dislocation of the Crystalline Lens. A Clinical and Histologic Study of a Case of Epithelioma of the Corneo-Scleral Junction. A Clinical Study of the Ophthalmic Symptoms seen in a Case of Fracture of the Anterior Base of the Skull. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprints. 1897.

Original Articles.

THE INSANE POOR IN PRIVATE DWELLINGS IN MASSACHUSETTS.¹

BY SIR ARTHUR MITCHELL, K.C.B., M.D., LL.D.,
Ex-Commissioner in Lunacy of Scotland.

THE boarding out of the insane poor began in Massachusetts in August, 1885, under the provisions of an Act approved in that year.

The number of patients boarded out on the 30th of September of each of the eleven years 1886 to 1896 is as follows:

September 30, 1886	34
" 30, 1887	73
" 30, 1888	80
" 30, 1889	110
" 30, 1890	148
" 30, 1891	155
" 30, 1892	175
" 30, 1893	164
" 30, 1894	158
" 30, 1895	142
" 30, 1896	129

These figures show a slow but steady growth of the number of the boarded-out during the first seven years, but during the last four years there is a steady decline, though it is said that there has been "the same effort to place patients out." According to the Report, "the lack of material alone has prevented the advance of the system." There is room, however, for doubting the accuracy of this opinion. Other causes of failure have been in operation, and these must be considered in forming an estimate of the result of the experiment, which, as the Report says, we may fairly expect to be able to do from a knowledge of what has happened during the eleven years of its working.

The experiment has never been on anything but a quite insignificant scale; and this Report, in trying to form an estimate of its result, discloses many things which, to one long acquainted with boarding-out on a large scale in Scotland, seem to account for its having been a failure from the beginning. It is not in the light of the declining figures of the last four years that the experiment is regarded as a failure, because the slow growth of the first seven years quite as emphatically marks it as a failure. It may do good, and it cannot do harm, if a Scottish Ex-Commissioner in Lunacy, who is known to have given much attention to the question of boarding-out, makes a running comment on sixteen points in the Report, which seem to him to call for remark. Perhaps this can best be done by appending observations to short extracts from the Report. In order to make the reading easy the extract or extracts relating to each point, with a short heading, will be indented, and the remarks will immediately follow.

Difficulties in the way of the success of the experiment were to be looked for—were, indeed, inevitable; but it seems justifiable, as a general remark, to say that sometimes difficulties appear to have been created, and that at other times difficulties have been greatly magnified. As another general remark, it may be said that there has been a misunderstanding of the real purpose of the system, and this will be shown in the observations which follow.

A most important disclosure of the Report is that

¹ Remarks on what is said regarding the boarded-out insane in the Eighteenth Annual Report of the State Board of Lunacy and Charity, January, 1897.

the number of persons who desire to receive boarders is in excess of the supply. The inference is that there is no scarcity of guardians; and as it will be seen from what follows that it is regarded as plain that the views which have regulated the supply should be altered, there is no reason why the boarding-out of the insane poor in Massachusetts may not yet be a great success.

As regards lunatics in almshouses the need of fresh legislation is very plain and very urgent.

I. MENTAL AND BODILY CONDITION OF PATIENTS PLACED IN PRIVATE DWELLINGS.

(1) "Persons of the quiet and chronic class."

Page 84.

(2) "Chronic cases of good physical health and quiet and tidy habits." Page 85.

(3) "Entirely tractable." Page 86.

(4) "Simply requiring to be comfortably clothed, housed and fed." Page 86.

In Scotland patients provided for in private dwellings are certified to be (1) incurable, (2) harmless, and (3) not in need of such special nursing as cannot easily be found out of institutions. This is regarded as enough. As a permanent provision is contemplated, incurability is assumed to be a feature of the patient's condition. Of course, patients may sometimes be erroneously certified to be incurable, and recoveries among them may therefore occur. Transferences from asylum care to private care, made for the purpose of completing or confirming convalescence, are not regarded as a mode of providing for the insane, but as a means of treatment; they are of a temporary character and are called *Liberations on Probation*.

II. ADVANTAGES TO PATIENTS OF CARE IN PRIVATE DWELLINGS.

(1) The "patient enjoys home comforts and pleasures, and a measurable return to his former habits of life." Page 85.

(2) "The flickering remnants of mental activity are stimulated by the presence of old familiar habits, and the patient is happier than in the hospital." Page 85.

This accords exactly with forty years' Scottish experience. If it is true of any single patient that his happiness and enjoyment can be thus increased, the State has no right to deprive him of that blessing, even if it cost a little more, instead of a good deal less. *Admittedly*, some lunatics do enjoy life more out of asylums than in them—in their old familiar roughish environments than in the great formal day-rooms and dormitories of a public institution, with the irksome discipline and methods which must, and always do exist there. If there are, as is *admitted*, some patients who can be thus benefited, it becomes a duty to ascertain how many there are, and, with that in view, to ask ourselves whether long connection with asylums does not tend to make us bad judges of what patients among the incurable could with advantage live under private care in natural non-institutional surroundings.

III. CHARACTER OF FAMILIES IN WHICH PATIENTS SHOULD BE PLACED AND ASYLUM TRAINING OF GUARDIANS.

(1) "In families without young children, and one or both of whose heads have had hospital training." Page 85.

(2) In families in which "enough of the hospital system appears to help ordinary family government." Page 85.

In the experience of Scotland the presence of young children in the homes of the guardians is often a decided advantage to the patients. It is a common experience to find a boarded-out lunatic an excellent and trustworthy nurse.

Asylum-trained guardians do not ordinarily prove so satisfactory as persons who have no special training, but who have shown good common-sense and kind-heartedness in their relations to their children, relatives and neighbors. There is nothing which is so much disliked in Scotland as the appearance in the homes of the boarded-out of any trace of asylum methods of management. Every effort is made to render the life of such patients a true home and family life—the patients being as nearly as possible members of the family in which they live. This is generally found to be quite possible; and the patients share the interests, the pleasures and the sorrows of their guardians.

IV. DIFFICULTY IN SECURING WITHOUT DELAY IN CASE OF ILLNESS THE CARE WHICH CAN BE AT ONCE OBTAINED IN ASYLUMS.

(1) There is a "difficulty of securing in case of illness the same care that can be obtained without the slightest delay in the hospital." Page 88.

It is difficult to believe that this is seriously advanced as an obstacle in the way of boarding-out suitable patients.

The *care* referred to is evidently medical care. The guardians may fall ill as well as the boarders, and there would be no greater difficulty in obtaining the attention of a medical man in the one event than in the other. It is no hardship that the guardians and patients should be on an equality in this matter. A residence would not, of course, be chosen because it was far from a doctor, nor, when such a residence was selected as in many respects suitable, would a specially delicate patient be placed in it; but, in a general sense, there is nothing in the condition of suitable patients to prevent their living in the circumstances in which people of their class usually live.

V. RISK OF GUARDIANS DOING THEIR WORK FOR THE SAKE OF GAIN.

(1) There is a risk that persons will "take patients for the sake of gain." Page 86.

(2) In agreeing to receive boarders "the motive of personal gain necessarily exists to some extent." Page 87.

No one could have expected that persons would receive insane boarders into their families without the hope of some advantage from doing so. Indeed, they ought not to do so without that hope. They ought to be sufficiently remunerated. Proper payment tends to secure good work in this as in other things. It is not a work of charity, though kindness should appear in it, and be required. The word *gain* has associations which give it an unpleasant ring; but the motive of gain or advantage is quite a proper motive, and in good administration there is no difficulty in preventing abuses and excessive gains.

VI. RISKS TO THE YOUNG PERSONS FROM ASSOCIATION WITH THE INSANE.

(1) "The companionship of a person afflicted with insanity is extremely unsuitable for young and unformed minds, and is sometimes even attended with dangerous results." Page 86.

(2) "The influence on children is far from good." Page 89.

No evidence of such injurious influence has presented itself in Scotland. It must be remembered that the insane, who are under private care, are believed to be incurable and harmless, and are often feeble in body as well as in mind. They are objects of sympathy, and the young, as well as the old, are led to treat them with kindness and consideration. In this direction there is an educational advantage to the young from having two or three imbeciles boarded in a village, in whose well-being the State shows an active and kindly interest. The real nature of the sad condition of such persons comes to be understood, and sentiments like the following become more common:

"An is there ane amang ye, but your best wi' them wad share? Ye mauna scaith the feckless, they're God's peculiar care."

It is difficult to disprove an assertion like that contained in these quotations. It is mere assertion, however, and on its side is unsupported by proof; and, so far as the experience of forty years' work in Scotland goes, there is no evidence of any such injury to the young.

VII. THE RISK OF OVERWORKING PATIENTS IN PRIVATE DWELLINGS.

(1) There is a "danger that too much work may be imposed" on them. Page 87.

(2) There is a risk of the "imposition of tasks too severe for strength." Page 87.

Of course, such a danger must exist. The risk, however, is not great. And it will not be difficult under a good administration to make arrangements which will render the risk exceedingly small. The existence of this, as of any other risk, ought not to be ignored, but it will not be found to be of such magnitude as to constitute any obstacle to the development of the system of boarding-out the incurable and harmless insane poor with guardians or care-takers selected from the people either of New England or of Old Scotland.

VIII. PATIENTS IN FAMILIES LOSE THE AMUSEMENTS OF PATIENTS IN ASYLUMS.

(1) "Patients in families are necessarily deprived of almost all the advantages of social life, the amusements and entertainments which form so large a feature of the ordinary hospital routine." Page 87.

The dances, theatrical performances, concerts, and games of asylum life become proper, or rather necessary, as a relief to the dull monotony and routine of that life, and are needed for patients, officers and attendants alike. But going back to family life is a going back to true social pleasures and enjoyments. These are longed for by asylum inmates just in proportion to the power they have of longing for anything. No sane person would exchange them for asylum dances and concerts. The thousand and one familiar things constantly going on around patients in families constitute a far greater source of enjoyment than the scenic and got-up entertainments of asylums, and fill their lives with truer delights. Of course, all this involves the ability to give to boarded-out patients a life closely approaching to real family life, that is, the ability to place them with guardians or care-takers who will make them as far as possible members of their families. That this is possible has been abun-

dantly proved, and the happiness of many of the insane poor has in that way been much increased.

IX. PRIVATE CARE BEST SUITED FOR CONVALESCENTS.

(1) Care in private dwellings "seems to apply most happily to those who are on the road to recovery"; they are "convalescent homes for them"; "several patients entirely recovered in this way, whose recovery would have been doubtful, or very much delayed, had they remained in the hospital." Page 88.

(2) "Convalescent cases receive the most benefit" under private care; "for them the system is best suited." Page 89.

There is a complete misunderstanding here of what is properly enough called the *system* of boarding-out. It is a method of providing for the care of the incurable and harmless, and it concerns itself with arrangements and conditions which are expected to be lasting.

Of course, recoveries are often hastened and confirmed by removing patients, who are improving, from asylums to care in their own homes or in the homes of persons not related to them, and every good Lunacy Law should make it easy to liberate patients on probation for some definite period with this good end in view.

But it is an altogether different feature of the lunacy administration of a country which proposes to provide for a considerable number of harmless and incurable lunatics in private dwellings, instead of leaving them in asylums.

The number of pauper lunatics in Scotland satisfactorily provided for in private dwellings is 23 per cent. of all the pauper lunatics in the country. Scotland is nearly twice as populous as Massachusetts, and the proportion of the insane to the population is nearly the same.

In further reference to this point, it seems proper to ask whether convalescent insane patients are more fit than others to be exposed to the risks of being under the care of persons without hospital training, of being without the means of instantly having a doctor, of being kept for gain, of being overworked, etc., and also, whether they would not injure young persons associating with them, and would not suffer from the loss of hospital entertainments and hospital social life.

X. STRAIN ON GUARDIANS OF ATTENDANCE ON PATIENTS BOARDED WITH THEM.

(1) The guardians or care-takers may tire "of the strain which this constant and unremitting attendance occasions." Page 86.

(2) "They can never leave home together without first securing some reliable neighbor to take charge in their absence." Page 86.

If suitable patients are selected for care in private dwellings there will not be any such "constant and unremitting attendance" as to cause any strain which will be a subject of complaint. It may be otherwise, of course, if the patients are badly chosen. The presence of an insane member in a family will no doubt sometimes — perhaps often — make it as difficult for both guardians, if there are two, or for the single guardian, if there is only one, to leave home as if there were young children in the family. But it will not be more difficult, and the parents of children, if they are sensible and respectable people, do not

complain of having to keep at home, or of their not being as free to move about as if there were no children under their care.

XI. WOMEN SHRINK FROM ASSOCIATION WITH PERSONS OF IMPAIRED INTELLECT.

(1) "Most women shrink from near association with persons of impaired intellect." Page 89.

This is a very surprising statement. It is not true of the women of Scotland. They are as capable and fearless as they are kind, in nursing persons of impaired intellect. They often devote themselves most lovingly and intelligently to the care of a helpless imbecile or dement.

It is not easy to believe that what is said here of Scottish women could not be said with as much truth of the women of Massachusetts.

XII. THE DEMAND FOR INSANE BOARDERS EXCEEDS THE SUPPLY.

(1) It is "a significant fact that the demand for insane boarders invariably exceeds the supply." Page 81.

(2) The "demand for patients is always greater than the supply." Page 89.

These are most important statements, and show the possibility of making care in private dwellings a part of any whole scheme for providing for the insane poor, if well-directed efforts are earnestly and continuously made. This, of course, assumes that the proportion of incurable and harmless patients in the whole body of the insane poor does not differ radically from the proportion in Scotland; and there is nothing to show that any such difference exists.

XIII. BOARDING-OUT IS OBJECTIONABLE AS LEADING TO THE REMOVAL FROM ASYLUMS OF USEFUL AND PROFITABLE WORKERS.

(1) "The boarded-out are those easiest to care for in the hospital." Page 88.

(2) "The number of paid employes in our hospitals is so small that much of the work must be done by patients with the result not only of considerable saving to the State, but of being a wise adjunct to the treatment of the patients. Thus the greatest number eligible for boarding-out are either quiet patients, doing no work, and requiring the minimum of hospital care, or else chronic cases, helpful to themselves and others, whose departure reduces the working force of the hospital." Page 88.

This view of the question is full of error. On the threshold it ignores the obligation of the State to do for the insane poor what is best for them, and to make their life as happy as it can be made. As regards a certain number of them — not inconsiderable — it may be safely said that every person, having special experience in the care of the insane, holds that they are happier out of, than in, asylums. All physicians act on that view, and so do all laymen. Every insane person is not sent to an asylum. Only those are sent, who, in addition to being insane, require care and treatment in institutions. It is recognized on all hands that it would not be right to subject some insane persons to the loss of liberty and the irksome discipline which asylum life necessarily involves. If then it is not right to send to asylums persons in certain states of insanity, it is clearly wrong to continue to detain persons in asylums, who, after a longer or shorter

residence there, have passed into corresponding states of insanity. Whatever the number of these persons is — whether it is large or small — they ought not to be kept in asylums when they have ceased to need such detention, and when they can be provided for otherwise, in a way which adds to their happiness. This should be a guiding view in State lunacy administration, even if the other way of providing for such persons led to some increase of cost. But it so happens that it diminishes cost and leads to saving.

It is not easy to believe that any one would seriously hold that it was right to keep persons in an asylum because they worked well and profitably — were good laundresses, were useful in the kitchen, gardened well, were good musicians, or were serviceable in other ways. This would be almost equivalent to holding that it would be proper to detain patients unnecessarily in asylums for gain to the asylum authorities, that is, for gain to the State.

But it is desirable to point out that the removal of quiet patients who are good workers, and are able to be helpful to themselves and others, has not the effects which it is here alleged to have. This has been abundantly proved. When such patients are removed, this is what happens: it is found that there are other patients who can be induced to work. The set of good workers being sufficient in number, no serious effort is made to lead non-workers to become workers. They are not wanted, and a refusal to work is too easily accepted as a thing that cannot be got over.

In this way the removal of the incurable and harmless does good to those who are left, and tends to increase the number of recoveries.

XIV. OVERSEERS OF THE POOR HINDER THE GROWTH OF THE SYSTEM OF BOARDING-OUT.

(1) Before removing patients to private care the "consent of the overseers of the poor must first be obtained," and they "prefer to care for them in their own almshouses." This is "a serious obstacle to the success of the system." Page 89.

(2) During the year ending March 31, 1896, "86 persons were discharged to the overseers of the poor, most of whom were eligible for boarding in families." Page 89.

(3) "Were small towns forbidden by law to make their almshouses receptacles for the insane, the number of those boarded-out would be largely increased." Page 89.

All this points to the necessity of fresh legislation.

(1) All the insane poor, *however provided for*, should be as much under the care of the State as those of them who are in asylums.

(2) No almshouse should be allowed to receive insane inmates, which is not licensed to do so by some State authority — the license being granted on well-considered conditions.

XV. MODES OF PAYMENT FOR THE INMATES OF ALMSHOUSES.

(1) Of one almshouse it is reported that "whatever is saved from the weekly allowance of two and one-half dollars for each inmate is allowed to the warden and matron for their services." Page 97.

(2) "It is certainly not to the credit of the State that a town should sell its unfortunate poor at public auction to the lowest bidder at the annual town meeting." Page 96.

(3) Some means should be devised to abolish "the practice of placing their poor in the family offering to support them at the lowest price." Page 96.

(4) "In one instance a town actually receives twenty-five dollars from an individual for the privilege of boarding one feeble-minded woman who renders valuable service." Page 95.

(5) "One of our cities maintains its poor at its almshouse by allowing the warden a certain sum per capita per week, his salary being what he is able to save from this amount." Page 96.

These things appear in an official report, and must be accepted as true; but it is impossible to believe that they will not soon be things of the past in Massachusetts — things to be remembered with some shame, as well as with regret.

XVI. CONDITION OF INSANE INMATES OF ALMSHOUSES AS REGARDS RESTRAINT AND WANT OF COMFORT.

(1) "In many almshouses there are still to be found strong cages that were formerly used for the close confinement of insane inmates. These have almost wholly gone into disuse, and but a small number of cases are subject to restraint or confinement." Pages 173, 4.

(2) In one almshouse it is reported that "a room for the special care of troublesome insane women has been built in the wing." Page 123.

(3) Of another almshouse it is said that "an insane man has unattractive lodgings in an out-building." Page 139.

All this is most unwillingly received as true. It points to an urgent need of fresh lunacy legislation. It is out of harmony with all the good, as well as great, things done in New England.

XVII. DEFICIENT SEPARATION OF THE SEXES AND OF THE INSANE FROM THE SANE IN ALMSHOUSES.

(1) In 66 of the almshouses neither are the sexes separated, nor are the sane separated from the insane. And in 35 more there is no proper separation of the sexes. In many others, though there is a separation of the sexes, there is no separation of the insane from the sane. Pages 95-172.

This state of matters is referred to in the report as very unsatisfactory. It is said, with reference to the want of separation of the sexes, that "complications from this cause are not unknown"; that "evils from the defect are apparent"; that the separation of the sexes should be made complete "to avoid such unfortunate results as have followed from the present arrangement"; and emphasis is laid upon the necessity both of separating the sexes, and of separating the insane from the sane (Page 95). It is difficult to understand how far the want of separation of the sexes goes, but it clearly goes to an extent which is undesirable and wrong.

ENGLISH GEOGRAPHY. — A recent number of an English medical journal, in quoting a paper read before a Western medical conference, says it was read at Indianapolis, INDIA.

PROPHYLAXIS CHEAPER THAN CURE. — "It costs two hundred dollars to have a frozen toe amputated in Alaska." — "Well, if you go, you would better have yours cut off before you start." — (*Chicago Record*).

THE PUBLIC CARE OF THE INSANE IN MASSACHUSETTS.¹

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AN eminent authority has divided the history of the treatment of insanity into three periods, — the barbaric, the humane and the remedial. It is to the credit of our profession in Massachusetts that we were early in the field in humane treatment, and that at the present time we are among the foremost in remedial treatment. A brief preliminary survey of the progress made in England and on the Continent may fit us to better appreciate our own relative position.

Although we read of an insane hospital founded by monks at Jerusalem in the sixth century, of shrines to which the insane resorted for healing in the seventh century, of asylums established in Mohammedan countries at intervals all through the Middle Ages, of an asylum founded in Utrecht during the fifteenth century, and of four others in Spain at the same period, we are not to suppose that any of these were asylums in our modern use of the word. In most cases they were under the care of monks, whose treatment was aimed at the punishment of sin rather than at the healing of sickness. "The Franciscans," says a careful writer, "used to whip daily those under their charge, and it would be idle to guess how many were burned, put to the rack, etc., under the theory of witchcraft and devilcraft."

The well-known "Bedlam" of London, one of the oldest existing insane hospitals, was originally a monastery of the order of Bethlehem, whence its name ("Beth-le-hem," corrupted in the popular speech to "Bedlam"). When that much-married monarch Henry the Eighth took upon himself to suppress the religious houses in England, he was pleased to convert this into an asylum, filling it, as he said, "with another set of crazy folks." It accommodated at this time some fifty or sixty patients, and yet it was not until nearly a hundred years later that it was able to boast a single medical attendant. Doubtless it was as well managed as any similar institution of its day. Yet its revenues were so scanty that the practice of allowing partially convalescent patients to wander about the streets, with badges affixed to their arms, begging in its behalf, was not abandoned until the middle of the seventeenth century. Another money-making method, more shocking still to the sensibilities of our day, is described by Francis Tiffany, in his sketch of the asylums of modern Europe. "Up to so late a date as 1770," says Mr. Tiffany, "this famous hospital was still regarded as the raree-show of the city, superior even, in the attractions it offered the pleasure-seeker, to a bull-baiting or a dog-fight. No more diverting entertainment could be devised by the average citizen for guests visiting him from the country than to take them, for a hearty laugh, to Bedlam, to see the madmen cursing, raving and fighting. There was to be had on show St. Paul or Julius Cæsar chained to the wall, or Semiramis or Joan of Arc ironed to the floor; while the general throng, left more at liberty, were guarded by brutal keepers, ready on the slightest provocation to knock them senseless with heavy clubs. The annual fees derived from this public entertainment amounted to several hundred pounds.

No one seems to have felt any pity for these poor wretches. The abyss which opened up between them and ordinary humanity was too wide and deep for any sympathetic imagination to span. A madhouse was a menagerie, nothing more, and it was as legitimate to look through the bars at one class of wild beasts as at another."

At the close of the last century there were only five public asylums in all England, and but very few private ones. The methods employed in the best of them may be judged from the fact that Willis, a specialist of such reputation as to be entrusted with the treatment of his Majesty George the Third, allowed his attendants to beat unruly patients at their discretion. Aside from the small number gathered in the asylums, the insane roamed at their will over the country — as if King Lear and Ophelia were always at large — or were confined in houses of detention, as a measure of public safety. These were but prison-houses, where the chain and lash, with slow starvation, were the methods most relied upon.

In other European countries things were no better. Hiring out the insane to farmers and peasants was not an uncommon practice. We read of a Scottish farmer, "as large as Hercules," who had a reputation for curing them by his severity. The first German insane asylum was not established till 1784. In the French asylums whipping was regularly allowed, — a practice whose horrors we do not fully appreciate until we learn that the attendants were often convicts serving out their time. One remedy much favored was the sudden plunging of the patient into cold water. But by "remedy" and "cure" we are not to understand anything like what is meant in our use of these terms. Indeed, a large part of the miseries which the insane have suffered, within modern times, have been due to the belief that their malady was the result of wilful sin, and was incurable. "God only knows," wrote a German scientist of high reputation, at the beginning of our own century, "whether an insane person can be cured or not."

Such being the beliefs and practices prevailing in the mother countries, it was not strange that the American colonists — poor, scattered, and in daily peril, and with all the complex machinery of a new civil life to set in motion — should have given but little thought to the needs of this despised class. In our own Massachusetts colony — according to Dr. Samuel Green, to whom I am much indebted for information concerning this period — the earliest legislation relating to them is an enactment of the General Court in 1676, at the time of King Philip's War. It has been suggested that the horrors of that war — in which it is estimated that one man in every eleven was killed, and one family in every eleven burned out of house and home — may have added to the number of the insane, and thus brought their condition to public notice. The enactment reads as follows:

"Whereas there are distracted persons in some towns that are Unruly, whereby not only the Families wherein they are, but others suffer much danger by them. It is ordered by this Court and the Authority thereof: That the Select men in all Towns where such persons are, are hereby Impowered and Injoyned to take Care of all such persons that they do not Damnify others, And also to take care and Order the Management of their estates in the time of their Distemperature, so as may be for the good of themselves and Families depending on them; and the Charge to be paid of the Estate of all such persons where it

¹ Delivered before the Middlesex South District Medical Society at its annual meeting, April 21, 1897.

may be had, otherwise at the publick Charge of the Town such persons belong unto."

Private diaries and newspapers of the period contain records of individual cases of what would now be regarded as insanity, although it was then explained as "possession of the Evil One." Doubtless many of the phenomena of the notorious "Witchcraft Delusion" of Salem would in our time be attributed to insanity. Twenty years before that period, the Rev. Samuel Willard, a minister of Groton, writes of a young girl of his town whose case was creating considerable excitement there. At the outset it baffled the skill of the neighbors, who were inclined to think her possessed of the Devil; and the minister was called in, who talked with her and prayed with her, but all to no purpose. A physician was sent for next, "who judged a main point of her distemper to be naturall, arising from the foulness of her stomache and corruptness of her blood, occasioning fumes in her braine, and strange fansyes." Finally, the poor girl confessed that she had made a covenant with the Evil One, and her actions were so strange that the doctor was nonplussed and gave up the case. He then "consented that the distemper was Diabolical, refused further to administer, and advised to extraordinary fasting." A council of ministers was convened to consider the matter, but they did not help her. She afterward declared that she had signed a league with his black majesty in her own blood. It is not recorded what became of this patient finally; but if she had been seized with the same symptoms twenty years later, there is little doubt that she would have been tried as a witch and hanged.

Chief Justice Sewall, in his Diary, under date of March 11, 1685-86, speaks of a "crazed woman" who created a panic in the Old Meeting-House, Boston, just before the Thursday lecture, when the building was crowded, by crying that the gallery was coming down. He then goes on to say:

"I know not whether the mad woman said the house fell, or whether her beating women made them scream, and so those afar off, not knowing the cause, took it to be that: but the effect was as before, and I was told by several as I went along, that one Gallery in the old Meeting-house was broken down. The mad woman was the Daughter of Goodman Bishop, Master of Morgan. She went in at the South-west door, beat the women, they fled from her! those above supposed they fled from under the falling Gallery."

Another early instance of insanity is found in "Public Occurrences, both Foreign and Domestic," Boston, September 25, 1690, the first newspaper printed on this continent. Without doubt the case was one of melancholia, and the account of it is as follows:

"A very Tragical Accident happened at Watertown, the beginning of this Month, an Old Man, that was of somewhat a Silent and Morose Temper, but one that had long Enjoyed the reputation of a Sober and a Pious man, having newly buried his Wife, the Devil took advantage of the Melancholy which he therefore fell into, his Wives discretion and industry had long been the support of his family, and he seemed harried by an impertinent fear that he should now come to want before he dyed, though he had very careful friends to look after him who kept a strick eye upon him, least he should do himself any harm. But one evening escaping from them into the Cow house, they there quickly following him found him hanging by a rope, which they had used to tie their Calves withal, he was dead with his feet near touching the ground."

Among the charitable contributions made by the

town of Chelmsford during the last century, appears this item:

"For Joseph Chamberlain, whose wife and son are at Groton distracted: May 10, 1752 was collected lawful money, 38l 2s 0d."

Evidently the sense of public responsibility for the care of the insane was on the increase. At about this time, in 1751, in the sister colony of Pennsylvania, the legislature received a petition praying its aid in founding a small hospital for the insane, and for other persons laboring under disease, on the ground that "some of them going at large are a terror to their neighbors, who are daily apprehensive of the violence they may commit, and others are continually wasting their substance, to the great injury of themselves and families, ill-disposed persons wickedly taking advantage of their unhappy condition, and drawing them into unreasonable bargains, — that few of them are so sensible of their condition as to submit voluntarily to the treatment their respective cases require, and therefore continue in the same deplorable state during their lives." The necessary act was passed, a sum of money was voted, conditioned on the raising of an equal amount by private means, and the new hospital was opened at Philadelphia in the following year.

In 1773 an asylum, notable as being the first founded for insane patients exclusively, was established by the State of Virginia at Williamsburg.

In the same year was begun, by private subscription, the building of a general hospital in New York, which was interrupted, first by fire, and then by the disturbances of the Revolutionary period. It was completed in 1791, and in 1797 two cases of mania were admitted. In that same year the "Maryland Hospital" was established in Baltimore for general diseases and insanity.

There were thus, at the beginning of the century, in the whole country, only four institutions of a public character where the insane were cared for — none of them in Massachusetts — and of these four only one had been built for the care of the insane, entirely with public funds. "Private institutions," says a distinguished authority — Dr. Charles F. Folsom — "were almost entirely unknown, and the few that existed were only better than the jails and poorhouses, where many of the insane were kept." Pitiable as this state of things seems, it is interesting to note the comment of Dr. D. Hack Tuke, Fellow of the Royal College of Physicians, London, that in America "the care and treatment of the insane were probably neither better nor worse than in the mother countries from which the early settlers came." Indeed, as to England, the first commission to look after pauper lunatics was not appointed till 1828, and then for London only. Up to that time the only act in force was one by which any two judges might cause them to be apprehended, locked up in some secure place, "and there chained." The parliamentary investigations of the years previous to the appointment of this pauper commission had revealed startling facts. In one asylum there was found to be but a single towel for the use of the one hundred and seventy patients. At Fonthill, thirteen out of fourteen patients were in chains or handcuffs. At Bethnal Green — an institution where five hundred were accommodated — there was no physician or surgeon in charge, but an apothecary made two or three visits each week. It was a common practice there to

chain patients to their cribs, and confine them from Saturday evening till Monday morning, to give the attendants a Sunday holiday.

But in all civilized countries a new epoch was dawning—"an epoch," says Tiffany, "as revolutionary within this especial realm as that of the Copernican system in the realm of astronomy. It implied an absolute reversal of all previous conceptions; the substitution, in the place of restraint and force, of the largest possible degree of liberty; the abandonment of the whole previous idea of brute subjection for that of the emancipation of the reason and the enhancement of the sense of personal responsibility." Two remarkable men, Philippe Pinel in France, and William Tuke in England, were the pioneers in the movement. Amid the horrors of the French Revolution, Pinel, the newly appointed superintendent of the asylum for incurables, appealed to the Commune for authority to set part of his patients free from their chains. The project seemed visionary and impracticable to the last degree. A deputy went with Pinel to the asylum. They were greeted by the yells and hootings of three hundred maniacs, "mingling the clanking of their chains with the uproar of their voices." "Are you mad yourself, Citizen," asked the deputy, "that you would unchain such beasts"? But Pinel's ardor triumphed; and within three days fifty patients were unchained, and with results such as fully justified the experiment.

Independently of Pinel, but along the same lines, the Society of Friends was working in England, under the leadership of William Tuke, not a physician, but a man of ample means and large benevolence.

The impulse of these reforms was soon felt in the United States. The first quarter of the century saw the establishment of a number of private and public asylums. That of the Friends at Frankford, Pa., modelled after Tuke's Retreat at York, was founded in 1817; our own McLean Asylum in 1818; the Bloomingdale Asylum in 1821; the Hartford Retreat in 1824; and the Columbia Asylum in South Carolina in 1827.

Turning now to the history of our own State exclusively, it may fairly be said that the first public care of the insane dates from October, 1818, when the McLean Hospital was opened in Charlestown, as one of the two departments of the Massachusetts General Hospital. By the end of the year it had nine patients. At that time both departments were governed, as they are now, by the same Board of Trustees, four of them appointed by the Governor and Council. The number of patients admitted during the first year of its existence was fifty-eight. The hospital, when it was founded, was assisted by appropriations from the State, and at that time a certain proportion of the inmates were a public charge. A few years later these were transferred to the State hospitals, and since then no State patients have been treated at the McLean Asylum; nor has the State made any contribution to, or in any way assisted it. But the continuing representation of the State upon its governing board makes it still, in a sense, one of our State institutions. Of its founding, Dr. Folsom writes: "It marks an important era in the history of mental disease in this country. It established the character and principles of treatment which have become universal among us, and especially the principle of State supervision. The trustees were men of broad views and high character. In nearly

eighty years (to 1897) their faithful and careful weekly visits to the asylum were only twice omitted. In advance of the usual practice of the time, too, a resident medical superintendent was appointed." This superintendent, Dr. Rufus Wyman, was a man of much learning, and, as has been justly remarked, one more than half a century beyond his day in regard to the care and treatment of the insane.

The opening of the State Hospital at Worcester, in 1833, was in some respects a still more notable event. Up to that time no State, with the single exception of Virginia, had attempted to do more than give assistance to private efforts in behalf of the insane. But the responsibility for the erection and maintenance of the Worcester Hospital was entirely assumed by the State, although voluntary contributions from various sources were received at the outset, the town of Worcester giving \$25,000 for the purchase of the site. Horace Mann was a leader in this enterprise; and his principle, that "the insane are the wards of the State," has now become a guiding one among all civilized nations.

What in the light of modern theory and experiment we may call the rational treatment of irrational patients was now fairly begun. The new humanitarian movement was given a great impetus by the efforts of four Massachusetts physicians,—Dr. Rufus Wyman and Dr. Luther V. Bell of the McLean Hospital, Dr. Samuel B. Woodward of Worcester, and Dr. John S. Butler of Boston. The attainments of men such as these commanded recognition abroad, as well as at home. Our collection of the social and vital statistics of insanity was on a par with that of any European country. An American work by Dr. Ray, on "The Medical Jurisprudence of Insanity," was admitted to be the first authority in any language. In respect to State asylums, our country was distinctly in advance of Europe, as was freely conceded by distinguished specialists who visited us.

But there was a dark side. Admirable as were our hospital methods, earnest as was the spirit of those in charge of them, the accommodations were utterly inadequate to the needs of our population. In 1843 the entire provision for the insane—in the State Hospital at Worcester, in the McLean Asylum, and in the Hospital at South Boston—was scarcely sufficient for 500 patients, while there were within the State 958 pauper insane and idiotic persons, besides 800 more maintained at private charge. Several hundred of the State's poor were thus left to the shelter of town or county poorhouses and jails, where the beliefs and practices belonging to the old era of barbarism were still lingering. To seek them out was work waiting for a philanthropist.

From the standpoint of philanthropy, the most important period in the care of the insane in Massachusetts is the decade following 1840. The alleviation of human suffering is especially the province of woman, and the providential instrument to begin the reform of the abuses to which insane paupers were then subjected was a woman,—Dorothea L. Dix, God's angel of mercy to all suffering from mental disorder throughout our land and the whole civilized world.

It is strange that the jail whose loathsomeness first attracted her attention should have been found in the very city which boasts itself as the seat of Harvard College. Our learned professors had been busy with their Greek, and no doubt could have discoursed most

edifyingly on the rites in the temples of Æsculapius; but it seems never to have occurred to them that the treatment of the insane in those classic days was probably much more humane than that which nineteenth-century Cambridge was providing for her unfortunates.

It was but a trifling incident, humanly speaking, which led Miss Dix to begin her investigations. She was asked by a young divinity student—Rev. J. T. G. Nichols, afterwards a minister at Saco, Maine—to assist him in his Sunday afternoon work at the East Cambridge House of Correction. Upon her first visit she noticed among the prisoners a few insane persons, and was surprised to observe that there was no stove in their room, nor any other means of proper warmth. The jailer explained that they did not need a fire, and that it would be unsafe for them to have one. "Her repeated solicitations," writes Mr. Nichols, "were without success. At that time the court was in session at East Cambridge, and she caused the case to be brought before it. Her request was granted. The cold rooms were warmed. Thus was her great work commenced."

Cold was the least of the evils brought to light by the efforts of this large-hearted and resolute woman. Far more shocking was the filth, the overcrowding, and the promiscuous herding together of innocent and guilty, sane and insane. Miss Dix's exposure of these conditions led to much newspaper controversy in the months that followed, in which she was supported by such men as Samuel G. Howe and Charles Sumner, who had made visits of personal inspection at her request. I quote from a letter of Sumner to Howe:

MY DEAR HOWE,—I am sorry to say that your letter does present a true picture of the condition in which we found those unfortunates. They were cramped together in rooms poorly ventilated, and noisome with filth. . . . You cannot forget the small room in which were confined the raving maniac, from whom long since reason had fled, never to return; and that interesting young woman, whose mind was so slightly obscured that it seemed as if, in a moment, even while we were looking on, the cloud would pass away. In two cages or pens constructed of plank, within the four stone walls of the same room, these two persons had spent several months. The whole prison echoed with the blasphemies of the poor old woman, while her young and gentle fellow in snffering, doomed to pass her days and nights in such close confinement with her, seemed to shrink from her words as from blows. And well she might, for they were not to be heard by any woman in whom reason had left any vestige of its former presence. It was a punishment by a cruel man in heathen days to tie the living to the dead; hardly less horrid was this scene in the prison at Cambridge. Ever faithfully yours,

CHARLES SUMNER.

For the next two years Miss Dix made it her business to find out whether the condition of things in Cambridge was exceptional, or whether something like it prevailed throughout the State. Note-book in hand, she visited every jail and almshouse in Massachusetts. On the mass of evidence thus collected—the evidence of an eye-witness—was based the Memorial which she addressed to the Legislature in January, 1845.

This remarkable address occupies 32 pages of the Public Documents. It is made up largely of extracts from her note-book,—the simple facts being left to tell their own tale, with little help of rhetoric. At the Northampton jail was a young man, violently mad,

who had come under no medical care and had been in no asylum. At the Burlington almshouse, an insane man in bed to save trouble, not allowed to rise oftener than every other day. At Lincoln, a woman in a cage. At Medford, a subject who had been in a close stall for seventeen years. At Bridgewater, three idiots, never removed from one room. At Pepperell, a man doubly chained, band and foot. At Granville, one losing the use of his limbs for want of exercise. At Saugus, a woman sitting on the floor, with limbs immovably contracted, so that the knees were brought up to the chin, the result of neglect and exposure. This woman's bed, "so-called, was about three feet long, and from a half to three-quarters of a yard wide; of old ticking or tow-cloth was the case; the contents might have been a full handful of straw or hay." At Newburyport, was a woman confined for years in a cellar, in a closet beneath the stairs, absolutely unlighted and unventilated. At Ipswich, a simple-minded girl, confined in an out-building with two insane men, one violently mad, their stalls not so much separated as to secure decency. At Wayland, caged in a woodshed, fully exposed upon the public road, a man who was partially clothed at the time Miss Dix visited him, but of whom his keeper reported that he was "more likely to be naked than not." Want of accommodations for the imperative calls of nature had converted the cage into a place of offence; he was said to be "cleaned out once a week." His limbs were so affected by confinement and cold that he was often powerless to rise. At Groton, in a solitary outbuilding, unlighted except when the weather allowed the door to be thrown open, was a young man chained by a heavy iron collar. At Westford, in a room of the almshouse, a young woman entirely naked but for portions of a blanket. She begged for clothes but was refused; pointed to the iron chain about her waist and said mockingly, "See there! nice clothes." At Fitchburg, in an outbuilding, utterly dark and furnished only with straw, a man whose look, "though feeble and sad, was calm and gentle," and who was sane enough to beg most pitifully for some books which Miss Dix was carrying in her hand. On her replying, "You could not use them, my friend; you have no light here," he made answer in a voice lowered cautiously, "Oh, give them to me, do! I'll pick a little hole in the plank and let in some of God's light." On inquiring of his master whether he could not be allowed more liberty, she was informed that they were thinking of getting a chain and collar from the blacksmith, so that they could keep him outdoors.

To the miseries which these unfortunates suffered from lack of occupation, even when their physical condition was not made intolerable by privation and cruelty, Miss Dix often calls attention. Of the moral dangers to which they were exposed, she speaks with great plainness. "A few months ago," says the Memorial, "a young woman in a state of insanity was confined entirely naked in a pen or stall in a barn; there, unfurnished with clothes, without bed and fire, she was left—but not alone: profligate men and bad boys had access to the den, whenever curiosity or vulgarity prompted." In the same connection she refers to the case of a young woman, of decent life and respectable family, at the Worcester almshouse. "I have seen her as she usually appeared, listless and silent, almost or quite sunk into a state of dementia. A few weeks since, revisiting that almshouse, judge of my horror

and amazement to see her negligently bearing in her arms a young infant, of which I was told she was the unconscious parent! Who was the father, none could or would declare."

Miss Dix points out that not the victims only, but the whole community, are corrupted by these horrors. Of her visit to Sudbury, she says: "Approaching, as I supposed, the poor-farm there, the terrible screams and imprecations, impure language, and amazing blasphemies of a maniac now, as often heretofore, indicated the place sought after. In a stall built under a woodshed on the road was a naked man, defiled with filth, furiously tossing through the bars and about the cage portions of straw (the only furnishing of his prison) already trampled to chaff. The mass of filth within diffused wide abroad the most noisome stench. With strange curiosity and eager exclamations were gathered, at a safe distance, the children of the establishment, little boys and girls, receiving their first lessons in hardness of heart and vice; but the demoralizing influence was not confined to children."

(To be continued.)

MY EXPERIENCE WITH HYPERACIDITY.¹

BY G. LIEBMANN, M.D.

To say that the treatment of hyperacidity has been to me so far a source of unmitigated perplexity and puzzle and, therefore, unsatisfactory in the extreme, would be putting it mildly. In the very nature of things the prospect of improving, or even curing, this secretory disorder should be most attractive to the physician, from the fact that here at least he is face to face with a well-defined abnormal, chemical condition, which to change and remove simple antidotal remedies suggest themselves readily. Here an abnormally large amount of acid, and here the sufficient amount of alkalies. What could be simpler than this chemical formula? But, alas, practice does not always bear out such theoretical reasoning; and my successes in following it out were few and far between. While antineurotic treatment in some cases gave good results, and also a diet consisting of proteids only was borne remarkably well, other cases of hyperacidity, apparently not differing in their clinical features or chemical behavior from the first ones, and treated in the same way, proved refractory and yielded to drugs and foodstuffs ordinarily used and efficient in chronic follicular catarrh.

But these apparent discrepancies between diagnosis and treatment are about to be removed. Up to the present time it was the generally accepted opinion, that hyperchlorhydric (increased secretion of the normal amount of hydrochloric acid, free and combined), if we may exclude *ulcer* in a given case, is always the result of a *neurosis* of the secretory sphere and that an inflammatory (catarrhal) process under such conditions would be out of all question. For in catarrh, it was held, the glandular cells are partially obliterated, partly clouded, or partly shrivelled up (Ewald), and under such conditions the amount of hydrochloric acid present must be either diminished or lacking entirely. Only a few days ago I found Dr. Danber, assistant of Professor Leube, in an article on "Continuous Gas-

tric Mucous Secretion," puzzled about a case of his, manifestly a case of chronic catarrh combined with slight hyperacidity. "How the latter in such cases can be explained," the writer says, "must be left for the present time to the various diagnosticians"; and he thus leaves the explanation to others.

Yet in many cases of hyperacidity, symptoms and conditions indicating a neurotic state were lacking, while those pointing to catarrh were present. Much as the abnormally high percentage of hydrochloric acid indicated neurosis, yet the other symptoms were those of an organic lesion. It was cases like these that, with their conflicting and misleading symptoms, baffled a correct diagnosis or an intelligent therapy. There was but one way out of this difficulty and this was the demolition of the tenet, that hyperacidity (ulcer excluded) is always the result of a neurosis and the assumption of the possibility of a *sour catarrh*. My chemical formula and guide so far has been,

Hyperacidity = Neurosis;
and my therapeutic formula,

Hyperacidity = Nervines.

These formulas had to be abandoned.

It was at this very juncture that the timely researches of Boas, Epstein, Hayem, and especially Paul Cohnheim, together with their examinations of bits of mucous membrane obtained in lavage or excised during operations on the stomach of the living subject, threw much light upon this very point. The results of these examinations also helped to clear up the situation and explain away the apparent discrepancies. It was found that there actually exists, beside the ordinary chronic catarrh with its wholesale destruction of gland cells, another variety, a *gastritis acida* or *gastritis prolifera* based on different anatomical lesions. These lesions consist, according to Boas and Paul Cohnheim, in the proliferation (abundant production) of the cover cells and a waste of the main cells of the glands.

The researches of Paul Cohnheim show, furthermore, that the function of secreting hydrochloric acid (if not the digestive ferments as well) devolves upon the cover cells exclusively, and that in case of a proliferation of these the amount of hydrochloric acid secreted must be in excess. The waste of the main cells, on the other hand, would not interfere with this hypersecretion, while mucous degeneration of the foveal layer (and not the gland cells) constitutes the so-called *gastritis mucipara* (gastrite parenchymateuse muqueuse of Hayem). Moreover, round cell infiltration of the foveal layer accompanies these anatomical changes.

We learn from these far-reaching investigations, that there are two forms of catarrh: one, the ordinary follicular gastritis chronica, in which there is a decrease or lack of hydrochloric acid; and one, gastritis acida, acid catarrh, in which we meet with hyperacidity. Again, we learn that in case there are weighty reasons to assume the presence of the second condition the mere evidence of hyperacidity will not be incompatible with the diagnosis of catarrh. While, however, Hayem inclines to the opinion that all gastric diseases depend upon an anatomical lesion, others still believe that there are functional nervous disorders and that hyperacidity is a prominent representative of that type. My own opinion is in accord with this time-honored supposition. But the time has come when we must separate the two pathologically and clinically different conditions, the *neurotic* and the *catarrhal*

¹ Read before the Clinical Section of the Suffolk District Medical Society, May 19, 1897.

forms of hyperacidity. By doing this the diagnosis and treatment of this protean disorder will be vastly simplified; and already the recognition of this fact has borne me some good results.

As to the *prognosis* of hyperacidity I find upon reviewing my cases, that where the diagnosis of neurotic hyperchlorhydric can be made, treatment was followed by better results (that is, immediate better results; whether these were lasting is a question I am not prepared as yet to answer in the affirmative) than in the catarrhal form. Prognosis, then, would be better in the neurotic than the catarrhal variety.

But how are we able to distinguish the two forms? Results in the treatment of such cases, and what is even more, the experience gained from "*juvantibus et noscentibus*," with sifting of objective and subjective symptoms, enabled me to come to the following conclusions, conclusions which I embodied in the following tables:

HYPERACIDITY.

NEUROTIC.	CATARRHAL.
LAVAGE, of little or no service.	Long continued, beneficial.
PEPSIN, of no service.	Of little value.
BISMUTH, allays burning pain.	Of no service.
NERVINES (assafoetida, bromides), massage, electricity, hydrotherapeutics, beneficial.	Negative result.
SYMPTOMATIC alkaline treatment, beneficial.	Beneficial.
NITROGENOUS diet (meat, eggs) well borne.	Gives distress, meat more so than eggs.
NEUROTIC form often part of other neuroses (hysteria, neurasthenia).	Catarrhal form not dependent upon neuroses.
APPETITE not decreased, but mostly increased.	Never increased, but often disturbed and lacking.
VOMITING absent.	Frequent.
TONGUE clear, moist, pale-red.	Coated with a thin fur, white and dry.
MUCUS in washwater, absent.	Present, mostly in large amounts.
SUBJECTIVE symptoms present, as burning sensation, sensation of cold (hyperaesthesia); a gnawing, empty sensation (bulimia).	Not much of a pain or burning sensation, but a feeling of fullness, pressure in epigastrium.
ERUCTIONS of odorless gases.	Of bad-smelling gases.

By way of illustration I add a few cases from my private practice.

CASE I. Case of hyperacidity with hypersecretion. J. E. I., twenty-six years old. Fair, ruddy complexion, blond. Thin muscles and gracile bones. Had always a weak stomach. Since a couple of years a burning at the pit of stomach, with an occasional regurgitation of food; the burning sensation is continuous and independent of food or drink. Appetite fickle, no vomiting. Drinking a glass of water produces easily a splashing sound, the limit of which is marked above the umbilicus.

February 18, 1896. Stomach contents examined after a test breakfast, with the following result:

Total acidity	120
Hydrochloric acid	3.6
Biuret test	+
Erythrodestrin	+
Rennet	-

February 20th. Tube introduced into fasting stomach. Escape of 150 c. c. of a yellow-greenish fluid. Afterwards lavage. Large amount of food remnants from preceding supper, taken some twelve hours before. No mucus. Tongue clean, pale-red. No eructation of gas, but some regurgitation of food.

February 26th. Breakfast, consisting of three raw eggs, white bread and milk, followed by no burning sensation. Only slight regurgitation of food. No

other signs of catarrh — a disagreeable pasty or salty taste in mouth. No dryness of lips; no coated tongue. Lavage. Bismuth. Stomach fairly empty.

March 3d. Burning pain has left patient. Still some little regurgitation of food, especially after eating soup. Stopped latter. External galvanism, bismuth, and an occasional pinch of bicarbonate. Ample nitrogenous food. Secretion of stomach about normal in quantity. Lavage.

March 10th. Feeling well. Some motor insufficiency still in evidence (atony). Hydrochloric acid .22.

November, 1896. Entirely relieved. This case is a fair sample of neurotic hyperacidity. The only symptom that could be claimed for the assumption of a catarrhal state (the slight regurgitation of food) is easily explained by the motor insufficiency. Ulcer could be excluded by the fact of the case yielding so readily to treatment and the independence of pain from taking nourishment. Whether the presence of a large amount of a yellow-greenish fluid found in the fasting stomach was the result of a real neurotic hypersecretion, or due to the retention of the normal secretions in the stomach as the result of a pyloric spasm, the latter caused in its turn by the abundance of hydrochloric acid, I am not prepared to decide. Lavage in this case seems to have been of good service, as it removed the hypersecreted fluid.

CASE II. October 7, 1895. Acid catarrh. C. S., age fifty-two. Was delicate in his tender childhood. From his sixth year on, never sick up to some five years ago, when he began to have symptoms of indigestion — a bad taste in mouth on getting out of bed, a fulness and pressure in epigastrium, slight nausea, constipation. All these symptoms still present, but constipation not so marked at present. Appetite was always good. Sleep at times disturbed. Flatulency. No eructations. Tongue thickly coated with white fur.

October 9th. Total acidity 100; hydrochloric acid .40106.

October 11th. Lavage. No remnants of food in washwater. Some mucus of greenish tint. Diet mostly nitrogenous. Bicarbonate in one-half-drachm doses, twice daily.

October 18th. Had some very bad days since last visit, but much more comfortable to-day. Tongue still covered thickly. Diet same. To clean tongue, a pill of two and a half grains of blue mass at night.

October 22d. Tongue still coated as heavily as before. Urine contains no sugar, no albumin. Splashing sound audible with stomach fasting. Subjective feeling much better; feeling of pressure gone for four days. Total acidity, 80; hydrochloric acid .29168, lactic acid, —; dextrin, +; biuret test, +; sugar indistinct. Apparently digestion of starch suspended or nil.

November 6th. No oppression in epigastrium; no flatulence. Appetite increased. Tongue still heavily coated, white, taste in mouth more natural. Lavage continued once a week. Occasional dose of blue mass. Nitrogenous food.

November 21st. Subjective symptoms still satisfactory, but tongue's appearance unchanged.

This then is clearly one of those cases of hyperacidity which, without assuming a catarrhal form, could hardly be accounted for. Even if there were some neurotic elements in the history of the case (tender,

delicate constitution, some nervous excitability) yet the decided catarrhal features, as mucus in the wash-water, the covered tongue, the perverted taste in mouth, militated against the assumption of a neurosis. Still there was the surplus of hydrochloric acid, that in its turn demolished the diagnosis of catarrh. The only solution of this puzzling problem is the assumption of a hyperacidity depending, not upon a neurosis, but on acid catarrh. This interpretation would, of course, place the above case under the head of the catarrhal variety of hyperacidity.

CASE III. Nervous hyperacidity. Miss M. T., fifty-two years old, felt a quivering and trembling in the epigastrium when a child. Menstruated the first time in her thirteenth year. Digestive troubles began eighteen years ago: pressure in epigastrium with little burning; abdomen distended; never vomiting; taste in mouth normal; tongue clean, moist, of normal color; lips moist; appetite fair; sleep disturbed; general weakness; works hard mentally (private teacher).

June 18, 1896. Total acidity 90; free hydrochloric acid .33750; biuret test positive.

June 19th. Lavage. No food remains.

June 20th. Lavage. No improvement.

June 21st, 22d, 23d. Same result.

As lavage was each and every time followed by nervous excitement (trembling, increased weakness) it was discontinued. Ordained bicarbonate of soda. Rest, cold ablutions, indirect galvanization.

July 2d. Some improvement, but had to stop the bicarbonate as it gave distress.

July 15th. Feeling much relieved. Sleep more quiet; but yet some oppression and heat in stomach region. Ordained ample mixed food. Galvanization continued. No more medication.

July 30th. Has not taken any drug since July 15th—only cold ablutions or a casual Prisnitz on epigastrium, ample food, continued daily application of faradic current (kathode in epigastrium). Patient feels herself strong. Appetite keen; sleep almost undisturbed; increase of bodily weight.

September 1st. In very good condition and fine spirits. Hydrochloric acid 2.2 per thousand. Still takes electricity and sponge baths; stomach bears almost all foodstuffs; weight still increased.

In this case lavage proved positively harmful; alkalies gave no relief; while roborant and electric treatment was of decided benefit.

A SIGN OF CARDIAC FAILURE.¹

BY HENRY JACKSON, M.D.

I wish to bring to your notice this evening a few charts illustrating one of the signs of cardiac failure which is of great import though it meets but little notice in the articles upon cardiac failure, namely, a discrepancy between the rate of the arterial pulse and the rate of the heart-beats. I have observed in many instances that in cases of extreme cardiac weakness the pulse was very slow, intermittent and irregular, while the heart was rapid, and I refer not to cases in which it is extremely difficult to count the pulse, as is always the case when the pulse is irregular, especially

when the rhythm of the pulse is irregular, but to cases in which the most accurate taking of the pulse by trained individuals does not show a rapid pulse-rate, yet examination of the heart shows that its action is extremely rapid.

The charts which I have to show to-night are charts taken from dilatation of the heart from chronic disease which may be called broadly disease of the myocardium. I have also seen the same phenomenon in acute dilatation of the heart and in acute degeneration of the heart in infectious diseases, namely, several times in diphtheria and once in typhoid fever. The typhoid fever case was one of a man who appeared very sick, and yet the chart did not indicate a rapid pulse. Examination of the heart with a view of determining if there were any acute process in the heart showed that the heart was rapid. With convalescence that phenomenon disappeared, and it has disappeared also in the acute heart failure following diphtheria in those cases that I have observed.

The first case which I saw was when I was house-officer at the Massachusetts General Hospital. A man came in with extremely irregular heart, a very nervous man in generally run-down condition. No organic lesion was discoverable, and it was supposed to be a functional heart trouble, due perhaps to excessive smoking, as he said he smoked all the time except when eating and sleeping. He went out after a few days and returned very sick, with an apex beat of 140 and a pulse of 70. There was then discoverable a slight dilatation of the heart; and in the course of two weeks there was a very rapid increase in the size of the heart, and with that increase there was the development of a diastolic, regurgitant murmur in the aortic region, which was supposed at the time to be due to an acute ulcerative process in the valves. Under digitalis the heart gradually became slower, and the man ended his stay in the hospital by becoming insane and was transferred to Danvers.

The other cases I will briefly detail. A man of forty; great alcoholic excess, no rheumatism. Had previously had pneumonia. Dyspnea. Edema several weeks. Heart increased two inches to the right of the sternum and one inch to the left of the nipple line. No murmur. Orthopnea. Under digitalis he got gradually better, but suddenly died.

Another man, forty-five; alcoholic excess. Six months' shortness of breath, edema; pulse irregular, intermittent. Heart dilated, systolic murmur at the apex. Gradual improvement under digitalis. Up and about the wards in a month; and when discharged was much relieved, the pulse and the apex-beat corresponding in rate. Diagnosis myocarditis, or I should rather say, some disease of the myocardium.

A man of forty-five. No alcohol. No rheumatism. Had been a laborer who had done excessively hard work. Arteries sclerotic. Came in for chronic bronchitis. Heart somewhat dilated. At first great improvement. Put in convalescent ward; and we were expecting to discharge the man soon, when he became much more sick. There supervened attacks of pulmonary infarction; little areas of fine râles scattered through the lung, with bloody, thick expectoration and acute rapid dilatation of the heart; excessive edema; death after several weeks in the hospital. At one time the pulse and the apex came very near together.

Man of fifty, brought to the hospital practically

¹ Read at the Clinical Section of the Suffolk District Medical Society, May 19, 1897.

moribund: extreme cyanosis, cold sweat, great dilatation, systolic murmur. Died in thirty-six hours. Apex-beat 170, pulse 50, and the respirations 60 to 70. He was practically dying, and there was no possibility of completing the diagnosis as to the cause of the pathological condition.

Man of forty; alcoholic excess, dyspnea and cough for several months; heart dilated; edema; systolic murmur at the apex; arteries sclerotic. Gradual improvement. Heart 120 on entrance, pulse 70, and they gradually came down until they met at 80.

The last case was a woman, sixty-five; short of breath several years. When I saw her she was in bed, cyanotic, heart dilated, systolic murmur at the apex. Gradual improvement. On December 18th, probable pulmonary infarction; December 20th, she died. On the 18th the respirations suddenly rose to 40, and continued so to the time of her death. At one time the heart and pulse came quite close together.

So far as I am acquainted with the literature, the only one who has drawn attention to this is Dr. Whittier in an article he wrote on cardiac failure, and in that he simply shows a chart quite similar to these I am passing about; but unfortunately he made no reference to the phenomenon, merely wrote under the chart, "Case illustrative of cardiac failure in discrepancy between the pulse-rate and the heart-beats."

DIGESTION LEUCOCYTOSIS AS AN AID IN DIAGNOSIS OF CANCER OF THE STOMACH.¹

BY J. A. CAPPS, M.D.,

Medical Intern at the Massachusetts General Hospital.

It has long been known that in most healthy individuals after a proteid meal there is an increase in the number of leucocytes in the blood, which comes on gradually and reaches its maximum in three or four hours. This normal variation may be further exaggerated by starving the subject for twelve or more hours previous to the meal; and under these circumstances the white count goes up on an average about 33 per cent. To this increase the term "digestion leucocytosis" has been applied.

The first practical use of the facts was suggested in 1890 by Müller,² who found digestion leucocytosis absent in five cases of gastric cancer, and considered it therefore of possible value as a diagnostic test.

No serious investigation was undertaken, however, until 1895, when Schneyer³ reported the invariable absence of digestion leucocytosis in 18 cases of cancer of the stomach, including both early and late stages, although in five of the number free hydrochloric acid was present. He found a marked digestion leucocytosis in seven of eight cases of gastric ulcer, the exception being a fatal case.

Hartung's⁴ results were equally positive, all of 10 cases of advanced cancer of the stomach showing an absence of digestion leucocytosis, whereas a marked increase in the number of leucocytes occurred in cases of malignant disease in other organs.

The accompanying table shows 30 cases from the Massachusetts General Hospital in the wards of Drs. F. C. Shattuck, Cutler and Vickery, by whose kind

permission this report is made. The series fairly represents that class of cases with gastric symptoms in which cancer of the stomach must be considered in the differential diagnosis.

In each patient the capacity of the stomach was estimated, and an analysis made of the gastric juice expressed through a tube about two hours after an Ewald test breakfast with the addition of a little finely minced meat.

The test for digestion leucocytosis was carried out in the following manner: After twelve hours' abstinence from food, the patient was given a glass of milk, two eggs (raw or cooked), and a sandwich of minced meat. Immediately before or after eating, the leucocytes were counted, and a second time between three and four hours after the meal. Care was taken to count the equivalent of the total ruled area with the Thoma-Zeiss white counter at least ten times and in two or three different drops.⁵ By this precaution the error of counting is reduced as much as possible.

An increase of less than 2,000 white corpuscles in a cubic millimetre of blood was not considered sufficient for digestion leucocytosis, since allowance must be made for mechanical errors. If an increase of 1,000 to 2,000 took place, the result was doubtful and the test repeated.

The higher the white count is, the greater is the absolute error in counting; hence, where the leucocytosis is very large, for example, 30,000 or above, it becomes very difficult to appreciate a variation of 3,000 or 4,000 from digestion, and the test loses most of its value.

In the series there are 17 cases of undoubted cancer of the stomach, as demonstrated by the subsequent course of the disease or by autopsy. Comparing some of the most constant signs of gastric cancer, that is, tumor, presence of lactic acid, and absence of free hydrochloric acid, with the digestion leucocytosis test, we see that in these 17 cases tumor was absent in four instances, hydrochloric acid present four times and lactic acid about four times, while digestion leucocytosis occurred but twice, for example, the digestion leucocytosis test was the most reliable of all.

Digestion leucocytosis was present in the three cases of ulcer and two of simple dilatation of the stomach, as well as in two cases of malignant growths of the liver and adrenal glands, where the stomach was not involved. It was absent, however, in three or five cases of chronic gastric catarrh.

Case 30 cannot be definitely classified, and for that reason a brief history is given:

A man of forty years entered the hospital March 4, 1896. No history of cancer in the family. Habits and health previously good. His present illness began six months before entrance, the chief symptoms being gastric distress after meals, anorexia, daily vomiting of small quantities of food, flatulence and considerable loss of flesh and strength. He had never noticed any "coffee grounds" in the vomitus, but the stools were often dark-colored without being tarry. He was often troubled with acid eructations and sharp pain in the epigastrium. Bowels always regular. When examined he was rather pale, but not emaciated nor cachectic. There was tenderness to pressure over the epigastrium; no tumor felt. Blood analysis showed

¹ Read at the Clinical Section of the Suffolk District Medical Society, May 19, 1897.

² Müller: *Pragm. med. Woch.*, 1890, Nos. 17, 18, 19.

³ Schneyer: *Zeitschrift für klin. Med.*, 1895, Bd. 27, s. 475.

⁴ Hartung: *Wein. klin. Woch.*, 1895, s. 697.

⁵ For a simple method of counting a large number of fields, see Cabot's "Clinical Examination of the Blood," 1897, p. 17.

Case.	Age.	Date.	Diagnosis.	Duration.	Capacity of Stomach.	Tumor.	Free Hydrochloric Acid.	Lactic.	Count after Fasting.	Count 3-4 hrs. after Prot. Meal.	Gain or Loss.	Digest. Leucoc.	REMARKS.
1	34	July 21, 1895	Cancer of stomach.	6 mos.	Normal.	Present.	Absent.	Present.	6,150	5,630	500 -	Absent.	OFFICE-GROUND'S vomitus, ecchexia. Aug. 1, 1895, died. No autopsy. Autopsy. Extensive cancer of pylorus and stomach. Visible peristalsis, resistance over pylorus. Jan. 14, 1896, emaciation, ecchexia. Feb. 5, 1896, Autopsy. Cancer of pyloric end of stomach. Later tumor and hematemesis, progressive emaciation, ecchexia. Apr. 5, 1896, died. No autopsy. May 31, 1896, died. Autopsy. Cancer of stomach. Later nodular enlargement of liver and ascites. Mar. 10th, marked emaciation and ecchexia. Operation. Cancer of stomach. Apr. 6, 1896, died. May 28, 1896, steadily losing flesh and strength, ecchexia. Tumor growing larger. Apr. 7, 1896, Autopsy. Cancer of stomach and liver. Tumor larger. Apr. 3, 1896, ecchexia, very emaciated. Later blood in vomitus and stools. Tumor grew larger. Aug. 1, 1896, died. No autopsy. Apr. 30, 1896, Autopsy. Extensive cancer of stomach and pylorus. Sept. 24, 1896, Autopsy. Extensive cancer of stomach. Cachexia, progressive loss of flesh, tumor grew larger. Nov. 20, 1896, died. No autopsy. Jan. 31, 1897, Autopsy. Cancer of stomach and liver. Feb. 20, 1897, emaciation, ecchexia, epigastric pain. Aug. 30th. Autopsy. Ulcer of duodenum and pylorus. Recovery. Feb. 1, 1897, well. Feb. 20, 1897, great improvement. July 21, 1896, Autopsy. Fibrous stenosis of pylorus, not malignant. Feb. 18, 1897, Operation. No cancer. Feb. 21, 1897, doing well. Feb. 1, 1897, improved. Mar. 11, 1896, much improved. Jan. 16, 1897, well. Feb. 15, 1897, improving. Feb. 1, 1897, improved. Large nodules on liver, chylous ascites. Jan. 30, 1896, much worse. Feb. 19, 1897, Autopsy. Stomach normal. Dec. 7, 1896, died of hemorrhage from stomach. No autopsy.
2	62	Nov. 25, 1895	" "	12 mos.	6 pints.	Absent.	Present.	Absent.	15,950	14,170	1,780 -	Absent.	
3	50	Dec. 26, 1895	" "	3 mos.	6 pints.	Absent.	Absent.	Present.	11,370	12,100	730 +	Absent.	
4	45	Jan. 28, 1896	" "	3 mos.	Normal.	Present.	Absent.	Absent.	14,870	18,700	3,830 +	Present.	
5	49	Jan. 28, 1896	" "	6 mos.	Normal.	Absent.	Absent.	Present.	6,290	7,305	1,100 +	Absent.	
6	59	Jan. 29, 1895	" "	12 mos.	Normal.	Absent.	Absent.	Present.	6,000	6,600	600 +	Absent.	
7	40	Feb. 25, 1896	" "	2 mos.	Normal.	Present.	Absent.	Present.	35,350	3,150 -	3,150 -	Absent.	
8	48	Feb. 25, 1896	" "	3 mos.	Normal.	Present.	Absent.	Present.	14,200	9,330	1,870 -	Absent.	
9	42	Mar. 14, 1896	" "	24 mos.	Normal.	Present.	Absent.	Present.	13,225	12,175	1,050 -	Absent.	
10	66	Mar. 16, 1896	" "	2 mos.	Normal.	Present.	Absent.	Present.	7,200	8,900	1,700 +	Absent.	
11	54	Mar. 23, 1896	" "	6 mos.	Normal.	Present.	Absent.	Present.	6,560	6,660	100 +	Absent.	
12	43	Apr. 3, 1896	" "	4 mos.	Normal.	Present.	Absent.	Present.	21,610	18,100	2,040 -	Absent.	
13	41	Apr. 3, 1896	" "	4 mos.	Normal.	Present.	Present.	Absent.	24,200	22,500	1,730 -	Absent.	
14	27	Sept. 15, 1896	" "	9 mos.	Normal.	Present.	Present.	Present.	10,180	8,880	1,300 -	Absent.	
15	60	Oct. 7, 1896	" "	7 mos.	4 pints.	Present.	Absent.	Present.	5,980	9,250	3,270 +	Present.	
16	42	Jan. 21, 1897	" "	5 mos.	Normal.	Present.	Absent.	Present.	15,280	15,020	260 -	Absent.	
17	45	Jan. 18, 1897	" "	24 mos.	Normal.	Present.	Absent.	Present.	5,606	6,500	900 +	Absent.	
18	47	July 24, 1895	Ulcer of stomach and duodenum.	24 mos.	Normal.	Present.	Present.	Absent.	12,300	11,800	500 -	Absent.	
19	44	Oct. 24, 1896	Ulcer of stomach.	8 yrs.	Normal.	Absent.	Present.	Absent.	13,000	11,500	1,500 -	Absent.	
20	58	Jan. 19, 1897	" "	6 yrs.	6 pints.	Present.	Present.	Present.	7,600	11,600	4,000 +	Present.	
21	49	Jan. 21, 1896	Simple dilatation of stomach.	20 mos.	6 1/2 pints.	Absent.	Present.	Absent.	6,100	9,200	3,100 +	Present.	
22	47	Jan. 18, 1897	Simple dilatation of stomach.	14 yrs.	6 pints.	Absent.	Present.	Absent.	6,006	9,200	3,200 +	Present.	
23	33	Oct. 31, 1895	Chronic gastr. catarrh.	2 yrs.	Normal.	Absent.	Present.	Present.	9,300	11,700	2,400 +	Present.	
24	27	Mar. 3, 1896	" "	6 mos.	Normal.	Absent.	Present.	Present.	9,550	12,800	3,250 +	Present.	
25	52	Nov. 6, 1896	" "	5 mos.	Normal.	Absent.	Absent.	Present.	6,300	7,400	1,100 +	Absent.	
26	54	Jan. 19, 1897	" "	20 mos.	Normal.	Absent.	Absent.	Absent.	11,200	12,150	950 +	Absent.	
27	34	Jan. 22, 1897	" "	21 mos.	Normal.	Absent.	Absent.	Absent.	6,740	7,600	920 +	Absent.	
28	35	Nov. 28, 1895	Cancer of liver.	4 mos.	Normal.	Absent.	Absent.	Absent.	7,350	13,000	5,650 +	Present.	
29	39	Jan. 12, 1897	Sarcoma of adrenals.	2 yrs.	Normal.	Present.	Present.	Absent.	5,600	8,200	2,600 +	Present.	
30	40	Mar. 12, 1896	Doubtful (probable ulcer of stomach).	6 mos.	5 pints.	Absent.	Present.	Absent.	36,300	40,200	4,100 +	Present.	
									7,100	9,270	2,150 +	Present.	
									12,270	14,300	2,030 +	Present.	

For report of Cases 2, 13 and 14, by Dr. Vickery, see Boston Medical and Surgical Journal.
For report of Case 19, by Dr. Cutler, see Boston Medical and Surgical Journal.



5,300,000 red and 10,000 white corpuscles, with 85 per cent. of hemoglobin. The stomach contents after a test breakfast contained free hydrochloric acid, no lactic acid and no blood. Total acidity 0.54 per cent. Capacity five pints. Digestion leucocytosis was present, but not marked.

The diagnosis at that time was "hyperacidity." Eight days later he was discharged, having been much benefited by lavage, frequent feeding, and especially by large doses of sodium bicarbonate. For the further history of the case the writer is indebted to Dr. G. Liebmann, of Boston, who had charge of it.

On April 7th the vomiting had ceased, but the patient was losing flesh. A distinct resistance was felt in the region of the pylorus.

November 12th. He had been suffering for six weeks from severe epigastric pain without much falling off in weight. Near the pylorus was a smooth, hard tumor, tender to pressure.

November 26th. Some improvement had taken place from daily washing. After a test breakfast the total acidity of the gastric contents were 0.8, hydrochloric acid 0.27 per cent., and lactic acid present in small amount.

December 7th. He died after several very profuse hemorrhages. Unfortunately no autopsy was made.

Probably the case was one of ulcer at the pylorus; and with this diagnosis the chemical analyses and presence of digestion leucocytosis perfectly accord, but the appearance a few weeks before death of a tumor which had previously not been present makes it impossible to rule out cancer. This case is therefore left out in all the conclusions hereafter to be drawn.

Examining the remaining group of 12 cases of non-malignant disease of the stomach, it is seen that in three tumor was present, in two hydrochloric acid was absent, in five lactic acid was present, and in three digestion leucocytosis was absent.

To summarize the 29 cases and compare the relative value of the various tests in the diagnosis of gastric cancer, we find that tumor was misleading in seven instances, hydrochloric acid in six, lactic acid in nine, and digestion leucocytosis in five.

Since hydrochloric acid is such an important factor in digestion, it might be supposed that digestion leucocytosis would depend upon its presence; but this is not always true, as illustrated by cases in which digestion leucocytosis is marked and hydrochloric acid absent, and, on the other hand, by cases in which hydrochloric acid is present and digestion leucocytosis absent. At autopsy the location and extent of the cancer in no way explained the occasional absence of hydrochloric acid or digestion leucocytosis.

As to the practicability of the digestion leucocytosis test, objection may be raised on the ground of danger to the patient from the proteid meal, especially in ulcer of the stomach; and of difficulty in the technique. In regard to the danger, the proteid meal is not much more irritating than the ordinary test breakfast; and, on the other hand, does not involve the risk of the tube. When there is fresh bleeding both measures are, of course, contraindicated. The difficulty in carrying out the test is that much more training and time is required than in the test for hydrochloric acid.

From this limited number of cases the following conclusions may be drawn:

(1) Digestion leucocytosis is absent in most cases

of cancer of the stomach, but not invariably so, as the results of Müller, Schneyer and Hartung would indicate.

(2) Digestion leucocytosis is present in ulcer and simple dilatation of the stomach.

(3) In chronic gastric catarrh digestion leucocytosis is frequently absent.

(4) The presence of digestion leucocytosis does not necessarily depend upon the presence of free hydrochloric acid.

(5) The presence of digestion leucocytosis is more against cancer of the stomach than its absence is in favor of that diagnosis.

(6) In spite of its limitations the digestion leucocytosis test seems of equal value with the hydrochloric acid test in the diagnosis of cancer of the stomach.

Clinical Department.

A CASE FOR DIAGNOSIS.¹

BY C. G. CUMSTON, M.D.

THE interest of this case I desire to report is marred because the microscopical preparation that I had to show has faded, and nothing can be seen. I thought it rather apropos to report it to-night on account of the present epidemic of cerebro-spinal meningitis. I will state briefly the case, and leave the diagnosis for you to make:

A lady about thirty-four I saw two years ago with pus-tubes. At that time she had tubes on each side about the size of lemons, and simple treatment with mercurial ointment was sufficient to cause them to break down and discharge through the uterus. From that time to the present illness there have been no symptoms in the genital organs. The husband had syphilis ten years before he was married, was treated by a specialist, and had seen nothing of the disease for five or six years before he was married. He had had several gonorrheas, which had left him with a gleet; and after having treated the manifestations in the tubes of his wife I examined with some difficulty a drop of mucus taken from the meatus in the morning and found one or two gonococci. Since then I have treated him surgically, and his gleet has stopped.

On the 10th of this month I saw the patient in question. She had last summer what might be called a slight sunstroke, was in bed four or five days. She was at Mt. Desert, had been rowing without her hat, and she had certain symptoms which led me to suppose that there was a slight overheating of the head. This winter she was down town when the explosion occurred, and the windows of her carriage were broken by the shock near the old Public Library. This added to her already excited nervous condition. On the 10th of this month I was sent for. I had seen the patient the day before, and she was seemingly very well. I found her in the afternoon with a temperature of 39.4°, chills, with the bright-red coloring of the face which you find in pneumonia, and, in fact, every appearance of pneumonia—pulse 130, hyperesthesia all over the skin of the trunk and arms, the legs apparently not being involved in this hyperesthetic condition and severe cephalalgia was complained of. At my even-

¹ Read before the Clinical Section of the Suffolk District Medical Society, April 21, 1897.

ing visit, about five hours later, the temperature had dropped to 37.8° and the pulse to 102, and she was feeling better. I had some of her sputum collected, but what the nurse gave me had not the rusty color of pneumonia. The next morning her temperature was 37.5°, the pulse had dropped to 86, and the respirations, which were 32 the day before, had dropped to 18. The hyperesthesia still continued, and the patient still complained of considerable headache in the frontal region. In the afternoon the temperature was 37.9°, the pulse had increased in frequency, the headache was more severe, there was pain in the muscles of the neck, and the patient then began to present the characteristic symptoms of a cerebro-spinal meningitis. In the lung, in consultation with Dr. Sumner, a focus of pneumonia in the left lower lobe about what might be covered by the end of the stethoscope was discov-

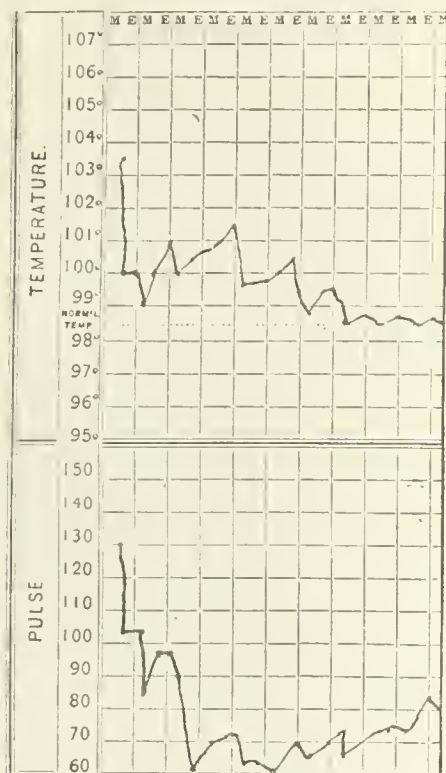
On the second day, when I examined the sputum, I found what I thought were gonococci; and I came to the conclusion that my glasses were not clean, and made more preparations and found the same organism. In looking over the *Boston Medical and Surgical Journal* of this week I found an editorial on the lanceolatus in the pus from cerebro-spinal meningitis. In examining carefully I could find these cocci were distinctly limited by a membrane, so that I came to the conclusion I was dealing with the pneumococcus lanceolatus.

Was I dealing with a case of cerebral syphilis, cerebro-spinal meningitis with a primary focus of pneumonia in the lung, or infection due to the former lesion in the tubes and ovaries? I cannot say; but my impression is that the case was one of infection of the envelopes of the brain and spinal cord, having for a starting-point the small focus of pneumonia in the base of the left lung produced by the pneumococcus lanceolatus from which the organism invaded the brain and cord, giving rise clinically to a cerebro-spinal meningitis.

The chart is shown herewith. It was taken by the nurse, and verified by me at each visit.

I would add that during the first week the patient received by inunction 75 grammes of iodol and 22 grammes of metallic mercury. No untoward effect was produced.

N. B. October 15, 1897. The patient has improved wonderfully during the summer. The tongue continued to be protruded to the left until September, but now is normal. Patient has gained four kilogrammes in weight and her head is perfectly clear.



ered, and that was the only lesion in the lung we could find. To be brief, the case went on in this way: The headache increased the second night so that it was intolerable; she protruded her tongue towards the left; pressure over the eyeballs was painful; and stiffness of the neck was complete. Blood examination revealed a slight leucocytosis. On the fourth day a labial herpes appeared and on the seventh the same eruption was present on the left labium majorum. The treatment I instituted was pomade of mercurial and simple ointments, equal parts, and to every thirty grammes of this five grammes of iodol were added. Chloral hydrate, one gramme, as often as required. The patient has begun to improve since she received this treatment, and is now convalescing. The pulse is normal, respirations have dropped, temperature normal. The headache gradually subsided and by the tenth day only soreness of the neck was complained of.

A CASE OF DIPHTHERIA OF THE VULVA.¹

BY W. P. COUES, M.D.

CORA L., age eight months, was admitted to St. Mary's Infant Asylum, April 6, 1897. A complete past history was not obtainable. The father lived in Boston, and had put the child out boarding before she entered St. Mary's.

On April 7th my attention was called to the child by the nurse, who informed me that the child had passed no water that day, and that there seemed to be something wrong with the vulva.

Examination showed a feeble, ill-nourished child of eight months. The labia minora were greatly swollen, of a deep-red color, with two patches of grayish-yellow membrane, the size of one's little finger nail, on either side. Temperature 99.5°, pulse 128. A hot bath was ordered, and a sulpho-naphthol poultice to the vulva, the child to be catheterized, if necessary.

On April 8th the general condition was about the same, the child had urinated without catheterization. The labia were less red and swollen; the membrane was the same.

The aspect of the case was clinically so like diphtheria that I decided to take a culture; and on April 10th the card came back positive.

The membrane by this time had spread somewhat over the labia minora, and two small spots appeared on either labia majora. The general condition of the child was worse. She was weak and fretful. Temperature 100.8°, pulse 130. An injection of five cubic centimetres of antitoxin was given in the left axillary line.

¹ Read before the Clinical Section of the Suffolk District Medical Society, May 19, 1897.

The child was then sent to the Boston City Hospital, South Department. She made a slow recovery, being discharged on May 7th, about one month from the time of her entrance.

When the child left St. Mary's the clinical examination of the throat was negative, but unfortunately no bacteriological examination could be made at that time. I am informed that after her admission to the City Hospital positive culture was obtained from the throat. There was at no time clinical diphtheria in the throat. I am inclined to think that the infection was carried there from the vulva by the child's fingers, but it is, of course, impossible to say positively which place was the primary seat of infection.

Medical Progress.

REPORT ON PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D., BOSTON.

THE DIAPHRAGM PHENOMENON OF LITTEN IN PULMONARY TUBERCULOSIS.¹

RUMPF has made a careful study of the diaphragm phenomenon in 70 cases of phthisis. He confirms Litten's statement that it is normally visible between the seventh and ninth ribs, and has an extent of six or seven centimetres; but he points out that even in normal chests it may be less extensive because the patient either does not know how to use the diaphragm in respiration or wilfully refuses to. It may also be less marked on one side than the other for similar reasons. As a result of his investigations, which are reported in considerable detail, he says that in tuberculosis of the lungs it has no real diagnostic value. All that one can say is that, as a rule, it is diminished on the affected side, yet a normal movement by no means rules out tuberculosis, and an abnormal one may be produced by other diseases or by accident. Neither can any positive conclusions be drawn as to the extent of the process, further than that, if the visible movement is present in its normal extent, no very considerable portion of the lungs has been invaded. It may, however, have a decided value in the diagnosis of subphrenic abscess or diaphragmatic hernia as well as in determining the effect of treatment, since in the author's experience an increase in the extent of the motion was always accompanied by an increase in the chest capacity as determined by the spirometer. It may also be sometimes useful in detecting malingerers. In conclusion, he says that since the phenomenon does not always correspond with the severity of the disease, and that diseases of other organs as well as other factors, such as sex, obesity, habit, intelligence and the inclinations of the patient influence its development, it is hardly to be expected that it will be widely used in practice.

MERCURY IN TUBERCULOSIS.²

At a meeting of the Paris Academy of Medicine, Dubois presented a communication in the form of a preliminary note on the use of mercury in the treatment of tuberculosis, in which he said that, relying on the activity of the drug as an antiseptic as well as on

its power to prevent tissue-waste he had prescribed it for the past five years, and that the results had surpassed his expectations. It was still too soon to speak of cures, but he had produced such improvement that patients had been able to take up their former occupations and mode of life with scarcely a thought of their pulmonary trouble. The early results were so striking that he had at first thought that he was dealing with cases of syphilis; but the frequent repetition of his success compelled him to abandon this idea and rather led him to think that many of the alleged cases of pulmonary syphilis cured by mercury were, in reality, tubercular. He employed a one to one thousand solution of bichloride of mercury made without alcohol. Half a cubic centimetre of this solution was injected in the subspineous or subclavicular region every second day, the dose being increased after a fortnight to one centimetre. These injections caused quite sharp pain, but not more than the patient could endure. If they had to be omitted for several days for any cause three or four grains of blue ointment were rubbed into the axillary region instead. No unpleasant accidents happened, and improvement was noticed in all stages of the disease, most marked, however, in the early cases. Laborde, to whom this note was submitted for investigation and criticism, gives in his report the histories of several cases, and says that the results were such as to encourage further trial of this method of treatment.

THE SIGNIFICANCE OF A PRESYSTOLIC MURMUR AT THE APEX OF THE HEART.³

Kasem-Beck says that a presystolic murmur at the apex of the heart is ordinarily a characteristic sign of mitral stenosis, but recently a number of cases have been reported where in spite of its presence the autopsy showed no narrowing of that orifice. In many of these cases aortic insufficiency and mitral stenosis were diagnosed during life, but section showed the presence of the former only. In another series of cases the presystolic and diastolic murmurs which were heard were found to result from an adhesive pericarditis and not from an aortic and mitral lesion. Phear has described a case where the only lesion was an enlarged left ventricle, and lately Picot has described a presystolic murmur in certain hysterical individuals which he ascribes to a contraction of the papillary muscles.

Kasem-Beck adds a case in which none of these causes were present. The patient, a man sixty-three years old, complained of severe dyspnea, and of pain in the chest extending into both arms. A venous pulse was present in the neck, the heart was greatly enlarged and the impulse so strong that there was a marked heaving of the intercostal spaces. The arteries were sclerotic. Auscultation revealed a loud presystolic murmur at the apex, and a muffled first sound. The first tricuspid sound was also muffled; the second was normal. The second pulmonic sound was accentuated. Autopsy showed no narrowing of the mitral orifice but a relative insufficiency of both that and the tricuspid. Near the apex there was an aneurysmal dilatation of the left ventricle as large as a medium-sized apple. It is probable that the presystolic murmur resulted from a deviation of the blood-current in the cavity of the left ventricle due to the aneurysmal dilatation.

¹ Berl. klin. Woch., February 8, 1897.

² Bull. de l'Acad. de Med., 1897, No. 5.

³ Centrblt. f. in. Med., 1897, No. 6.

SINUS-PLEURITIS.⁴

Koll describes a form of localized pleural inflammation under the name of "sinus-pleuritis," which appeared almost in the form of an epidemic, thirty cases being observed in the hospital at Würzburg between the fall of 1894 and the summer of 1895. In most of the cases the disease began suddenly, like an acute infection, with a slight rise of temperature and some constitutional disturbance, while in a few instances there was an initial chill. The subjective symptoms were such as to suggest the presence of an acute or chronic gastric affection, and consisted of more or less circumscribed pain in the region of the stomach or at the point of the ensiform cartilage, which was often increased by food or pressure — nausea and vomiting were fairly constant symptoms, and forced inspiration was often very painful. Palpitation of the heart was also common, the pulse rising in a few instances to 140. The only constant physical sign was a soft friction sound almost exclusively confined to the pleural sinus in the neighborhood of the heart and extending along the lower lateral border of the lung, but practically never overstepping it. It was sometimes heard, however, along the border of the right lung. Ordinarily the most severe symptoms soon passed, but a slight evening rise of temperature very frequently persisted for weeks, while the physical signs remained almost indefinitely. Relapses were frequent. Koll believes that this form of pleurisy is comparatively common, but is overlooked partly because the symptoms point rather to a gastric disturbance or some affection of the heart or pericardium, and partly because the signs are found in a portion of the chest which is rarely very carefully examined.

THE INFLUENCE OF MITRAL LESION ON THE EXISTENCE OF PULMONARY TUBERCULOSIS.⁵

From the statistics which Graham has been able to collect on this subject, embracing a very considerable number of cases, as well as from the observations of eminent physicians, he draws the following conclusions:

(1) That primary mitral disease and pulmonary tuberculosis rarely exist in the same individual. It would appear that in uncomplicated cases, namely, those in which the other valves are healthy, mitral stenosis occurs more frequently in combination with tuberculosis, whereas when the other valves are affected insufficiency is the more frequent condition.

(2) That pulmonary tuberculosis is a very frequent sequel to pulmonary stenosis.

(3) The presence of mitral disease acts as a preventive to tuberculosis, especially when the vital powers are at or near their normal standard, and the prophylactic agency is shown in those who have an hereditary tendency to the disease and whose surroundings are of a decidedly unhealthy character.

(4) In the small number of cases in which tuberculosis follows a mitral lesion during middle life, its evolution is very much delayed. When, on the other hand, from age or bad habits, the vital powers are on the decline, the process is often as rapid as in ordinary cases.

He attributes this immunity to the increased amount of blood in the lungs, the greater expansion of the apices and the increase of the involuntary muscular

fibres of the bronchial tubes and alveoli. In the opposite condition, where there is a diminished amount of blood in the pulmonary circulation statistics show a greater tendency to tuberculosis, for example, in cases of pulmonary stenosis.

From the practical side, as a therapeutic measure, it would be out of the question to induce passive hyperemia of the lungs, even if we knew how it might be brought about, but an active hyperemia would no doubt have a similar effect, and to this unquestionably the improvement produced by high altitudes and appropriate pulmonary gymnastics must in part be ascribed.

REMARKS ON WOUNDS OF THE HEART.⁶

The tolerance of the heart to penetrating wounds is well shown by two cases reported by Turner.

In the first a sewing needle had been driven into the heart of a child two years old. The whole needle had disappeared into the chest, but its head could be felt underneath the skin tapping against the finger with each beat of the heart. It was cut down upon and extracted without evident harm resulting.

In the second case, the patient, a young man, was admitted to the hospital in a state of extreme collapse, bleeding freely from a wound in the left side of the chest in the region of the heart, which had probably been made by a large knife. The cartilage of the fifth rib was penetrated longitudinally by a slit one and three-quarter inches long. Bright arterial blood in considerable quantity was issuing in jets synchronously with the cardiac contractions, and air also passed with a loud hissing sound with each respiration. The heart sounds were muffled and the pulse at the wrist was almost imperceptible. The whole left side of the chest was flat on percussion. A week later the patient's condition was still very critical. A sero-sanguinolent fluid was escaping in large quantities from the wound and a left pneumothorax had developed. A month later the fifth rib was resected posteriorly and thorough drainage of the pleural cavity secured. The immediate effect of the operation was satisfactory; and four months and a half later the patient was able to move about in a wheel-chair. One morning while sitting up to have his wound dressed, he suddenly threw back his head, had a convulsion, and died after a few hours. An autopsy showed that the immediate cause of death was cerebral hemorrhage. The pleura was adherent to the pericardium, the interior of which as well as the surface of the heart was granular. Some fluid was found in the pericardial sac. There was a cicatrix in the pericardium corresponding in position to the external wound, and immediately subjacent to it was discovered a cicatrix in the anterior surface of the heart itself. This was three-quarters of an inch in extent, horizontally placed, and was situated over the intra-ventricular septum about one and one-half inches from the apex. The wound was found to have penetrated to a depth of five-eighths of an inch into the muscular substance. The left coronary artery and vein had been cut across. Apparently the wound of the heart had only a remote influence in determining the fatal issue. It appears almost certain that after the infliction of the wound the pericardium must have been filled with blood from the division of the coronary vessels, and yet the heart's action was not thereby brought to a standstill.

⁴ Deut. Arch. f. klin. Med., vol. lvii, p. 597.

⁵ Montreal Medical Journal, September, 1896.

⁶ British Medical Journal, November 14, 1896.

A CASE OF POSITIVE CENTRIFUGAL VENOUS PULSE WITHOUT TRICUSPID INSUFFICIENCY.⁷

Futran reports the following case: The patient, a painter, forty-nine years old, had never been seriously ill up to four years ago, when he began to lose flesh and complain of cough, dyspnea and palpitation. For a year he had noticed occasional edema of the feet. The lips were cyanotic, the sclera somewhat icteric, and the feet and ankles edematous. In the neck a marked pulsation was noticed in the venous trunks as well as in the arteries. In the former the pulsation was not influenced by respiration and when compressed by the finger the veins continued to pulsate only on the central side. With the patient in a horizontal position a similar pulsation was visible in the cephalic veins and occasionally also in the basilic. It was only rarely seen in the median. The peripheral arteries were thickened and tortuous. A capillary pulse was not present. The area of cardiac dullness extended upwards to the upper border of the third rib, on the right a finger's breadth to the right of the sternum, and on the left a finger's breadth and a half outside the mamillary line. The apex beat was in the fifth space a finger's breadth outside the line of the left nipple. On auscultation a loud systolic murmur was heard in the mitral area with normal second sound. The first pulmonic sound was impure, the second accentuated. Except an accentuation of the aortic second and the tricuspid first, the sounds in the tricuspid and aortic areas were normal. A blowing systolic murmur was heard over the median vein of the neck with a *bruit du diable* over the jugulars. The double arterial sound of Traube and Duroziez's double murmur were both absent. The liver was considerably enlarged but did not pulsate.

In discussing the differential diagnosis Futran says that the fact that no change was noticed whether the patient breathed or not rules out respiratory alterations in the intrathoracic pressure as a possible cause, while the persistence of the pulsation on the central side of the point of compression and its cessation on the peripheral shows conclusively that it was primary and not produced by the movement of neighboring arteries, nor could it have been caused by a compression of the superior vena cava by the pulsating aorta. The so-called negative venous pulse could also be ruled out since the pulsation here was systolic in time. The possibility of the wave being transmitted through the capillaries could also be readily excluded, leaving a true centrifugal venous pulse alone to be considered, which, in the absence of a murmur in the tricuspid area, and the presence of an accentuated pulmonic second sound, could not have been due to tricuspid insufficiency. The only possible explanation would be found in the presence of an opening between the two auricles, perhaps through the persistence of the foramen ovale, by means of which the blood which was under increased pressure in the left auricle, owing to the mitral insufficiency, was forced backward into the veins. Reisch and Rosenstein have each reported a similar case, where the diagnosis was proved by an autopsy. In the present instance, the patient improved under treatment.

PROFESSOR VON ESMARCH has recently celebrated his silver wedding with his second wife.

⁷ Berl. klin. Woch., February 8, 1897.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, April 21, 1897, the President, DR. W. F. WHITNEY, in the chair.

DR. HENRY JACKSON read a paper on

A SIGN OF CARDIAC FAILURE.

DR. BARNEY: In the few cases in which digitalis was given in large doses at the Massachusetts General Hospital, it was noted when the heart-rate and the amount of urine were taken together in the chart, and digitalis given several days, the pulse-rate and heart-rate came together; and if digitalis were kept up, the pulse-rate and heart-rate would generally gain. It may be an indication that digitalis is needed or a toxic effect of digitalis.

DR. TOWNSEND: I remember very distinctly the case Dr. Jackson speaks of, and I have observed the phenomenon in other cases. I think it is something we must be on the lookout for where the pulse at the wrist is slower than we would expect from the general condition of the patient.

DR. JACKSON: My impression has been that it was ineffectual contractions of the heart which were too weak to transmit the blood over the system. I may be mistaken, but that is my feeling. In a good many of these cases you will see the apex was twice as rapid as the pulse, indicating that only half of the beats were transmitted to the wrist.

Recent Literature.

A Contribution to the History of Leprosy in Australia. By J. ASHBURTON THOMPSON, M.D., D.P.H. Pp. 238. London: Macmillan & Co. 1897.

This work has been prepared and published under the auspices of the National Leprosy Fund of Great Britain. The author has collected data showing that the original population was free from the disease up to a very recent period, since 1892 in fact. Leprosy appeared as early as 1855, introduced by the Chinese, no doubt, and has been confined mostly to those regions where such immigrants have settled. It prevails almost exclusively among them and the Kanakas, among the whites to a slight degree only.

In Tasmania, West Australia and South Australia there have been no cases, whereas in Victoria, New South Wales and Queensland, where there is a large Chinese population, there have been in the past forty years 146 cases observed. The disease is apparently not increasing rapidly.

The author is not a believer in the transference of leprosy by direct contact, but in the hypothesis that "the virus resides, not in man, but in his surroundings." The evidence he presents of its non-communicability by immediate association is wholly of negative character, just such as might be cited for a similar object with regard to the non-infective nature of syphilis or tuberculosis.

J. C. W.

THE BOSTON
Medical and Surgical Journal.

THURSDAY, NOVEMBER 4, 1897.

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YELLOW FEVER: SERO-IMMUNIZATION AND
SERO-THERAPY.

As long as the sub-tropical Hispano-American countries to the south of us neglect sanitary precautions, or administer their sanitation as faultily as is now the case, yellow fever will continue to be a disease of more or less acute interest to us in the United States. Just now the interest is of the more acute character, both with the general and the business community and with the medical profession. There are two problems claiming the immediate attention of the medical mind, from both of which much profit might legitimately be expected.

The first, that of a national quarantine system administered by a central bureau or board, is not new, but is none the less pressing on that account, as recent occurrences in the States and towns affected by yellow fever have once again amply and forcibly demonstrated. A bill has been prepared, endorsed by both the American Medical Association and also by the American Public Health Association, which it is proposed to submit to the next United States Congress. We hope to say something once more about this problem in a subsequent issue.

The second problem, that of a sero-immunization and therapy for yellow fever is a newer one, but of hopeful solution. Its resolution would be of immense service to a national bureau of public health, and its service to humanity best secured by such an organization.

In the JOURNAL of July 22d and July 29th some account was given of Professor Sanarelli's announcement in regard to his investigations, pursued at the lazaretto of the island of Flores and the Hospital of Saint Sebastian in Rio Janeiro, into the pathogenesis and pathology of yellow fever, and of his claim to the discovery of a specific micro-organism which he described and named the *bacillus icteroides*.

Under date of July 24th, he now communicates from Montevideo a third memoir, which is published in the September-October fasciculi of the *Annali di*

Medicina Navale, a Roman periodical just received, and also in *Il Policlinico* of September 15th. This memoir treats of his further work upon immunity and sero-therapy against yellow fever. This memoir is divided into three parts: the first treats of the serum derived from yellow-fever cadavers and yellow-fever convalescents; the second of the immunization of animals against artificially produced yellow fever, the animals experimented upon being guinea-pigs, dogs and horses; the third of the sero therapy of artificially induced yellow fever.

Experiments with the blood taken from the hearts of cadavers from yellow fever very soon after death showed that it had no preventive power in respect to the specific bacillus. The serum of a convalescent from the disease produced the Grüber-Durham reaction with great slowness, and manifested a weak protective action in animals in respect to the bacillus icteroides. The simultaneous injection of the serum and the virus did not prevent the death of the guinea-pig, but death did not occur in the greater number if the injection of the serum in a dose of at least two cubic centimetres was practised twenty-four hours before that of the virus.

In his experiments on the immunization of animals against experimental yellow fever Sanarelli found that rabbits, goats and sheep were so sensitive to the living virus that he was obliged to confine his experiments to guinea-pigs, dogs and horses. The mortality, even in guinea-pigs, was so great that the immunization had to be conducted very slowly, requiring six to eight months. The dog could be made immune to minimum doses of the bacillus icteroides much more rapidly than the guinea-pig, but never became accustomed to multiple doses of the toxin. Severe vomiting and prostration were always induced by the endovenous injection of both cultures.

He found that the ox tolerated subcutaneous injections of the icteroid culture without the swelling and superficial sloughing which so often occurred in the case of the horse, but that both the horse and ox did not tolerate without serious reaction endovenous injections of the sterilized toxin.

A description of the technique of immunizing a horse is given, by which it appears that small doses of filtered cultures are injected subcutaneously, and as soon as the reaction from these, which lasts several days, is over, endovenous injections of filtered cultures into the external jugular are begun in small doses. These are at first well tolerated; but when the dose is increased, or cultures sterilized with ether, which are much more active, are employed, the animal shows signs of grave reaction, and frequently its life is in danger. For this reason the injections can be repeated only at long intervals, depending upon the rapidity of the recovery of the animal after each injection.

After about two months of the treatment by means of the filtered cultures, cultures simply sterilized with ether can be used; but it is not until five or six months after the commencement of the treatment that the first

injection of a small dose of the living culture can be attempted. This first injection causes a general reaction, lasting for ten days. The injection may then be repeated and the dose cautiously increased. The immunizing substances are produced only very slowly by the bacillus icteroides in the animal organism.

Professor Sanarelli describes his results in the sero-therapy of experimental yellow fever with the serum of guinea-pigs, dogs and horses. The accounts of the results with horses are of interest.

The first horse, the treatment of which was begun on July 24, 1896, died suddenly on February 14, 1897, after having received altogether in the space of about seven months 760 c. c. of filtered culture, two litres of sterilized culture, and 240 c. c. of living culture, although it was in excellent condition and had never been bled.

The second horse was placed under treatment on October 1, 1896, and on March 3, 1897, the serum from the first bleeding was found to have a weak preventive action against the yellow-fever infection in guinea-pigs, but to save a guinea-pig from the consecutive injection of a mortal dose it was necessary to inject twenty-four hours before the enormous dose of at least five cubic centimetres of the serum. The serum was not sufficiently powerful to cure the disease when it had already developed.

The inoculations with broth and gelatine cultures were continued, except when they had to be omitted on account of severe reaction, till July 1, 1897, when a second bleeding was practised, and the serum was immediately tested on guinea-pigs against mortal doses of virulent cultures. This serum conferred immunity if given twenty-four hours before in a dose of half a cubic centimetre and succeeded in saving guinea-pigs already ill even when inoculated forty-eight hours after in a dose of two cubic centimetres. These doses are still very far from representing the preventive and curative powers of the anti-amarylligenous serum, above all if one takes into consideration that possessed by other preventive and curative serums prepared up to the present time. These results showed that to obtain a good vaccination against the bacillus of yellow fever in animals is much more difficult and requires a much longer time than is ordinarily required with other species of known virus.

Professor Sanarelli concludes by expressing the opinion that very probably this same serum which saves animals that are destined to succumb almost without exception to experimental yellow fever will be of use in the treatment of spontaneous yellow fever in man; but he adds that it will be possible to verify this fact only when the more intensive immunization of the horse, then undergoing advanced treatment, should have furnished a serum more active in quantities sufficient to warrant the sero-therapeutic method being tested on diseased man.

In a footnote Professor Sanarelli states that the mortality from yellow fever varies from 13 to 90 per cent. according to the different epidemics and places.

In a second footnote he states that in the institute he has a second horse and two oxen which have been undergoing treatment for some months but whose serum he has not yet tested on animals.

A telegraphic despatch from Montevideo announces that Sanarelli gave a lecture there on October 13th on the sero-therapy of yellow fever, and expressed the hope that serum obtained from vaccinated animals would be efficacious for the cure of yellow fever in human beings.

MEDICAL NOTES.

PHYSICIANS FOR BOMBAY.—The Indian government has asked for twelve medical men to be sent out from England to the Bombay presidency for duty in the plague-stricken districts.

YELLOW FEVER IN THE SOUTH.—The yellow-fever situation has not improved during the past week, the cooler weather, although bringing hopes of an early frost, having rather increased the mortality. From 30 to 50 cases per day have been reported from New Orleans.

THE GERMAN SOCIETY OF NATURALISTS AND PHYSICIANS.—The German Society of Men of Science and Physicians will hold its meeting next year at Dusseldorf, under the presidency of Professor Waldeyer, of Berlin. The secretaries of the meeting are Professor Mooren and Dr. Von Viehoff, of Dusseldorf.

EXPULSION FROM A MEDICAL SOCIETY FOR UNETHICAL CONDUCT.—The Cumberland County Medical Society, at its semi-annual meeting at Bridgeton, N. J., on October 12th, expelled from its membership Dr. S. M. Wilson, a graduate of the University of Pennsylvania and a practitioner of twenty-eight years' standing, for unethical conduct in acting as physician for a company engaged in the employment of a proprietary cure for alcoholism. — *New York Record*.

OUR LUCRATIVE PROFESSION.—There are nearly four hundred doctors in St. Louis who are practically starving, says Dr. Lamphear, and in Brooklyn physicians are said to be hiring as motormen. Dispensaries and patent medicines are the alleged causes. — *The Medical Examiner*. [The mortality resulting from the Brooklyn electric is so notorious that it would have been in better taste for unsuccessful physicians to have entered upon some less fatal calling.]

MENTAL TREATMENT AND MENTAL REMUNERATION.—The action recently brought by two faith-healers in Baltimore to recover payment for their services in the "absent treatment" of a patient with pneumonia, who recovered under hospital care, has its humorous side. It is reported that one of these faith-healers testified that she and her partner (who was also her husband) had cured the patient of pneumonia by removing from his head the "unhealthy notion that he had pneumonia, and that the work of the physicians and nurses at the hospital had rather retarded than

helped the cure." The faith-healers had been retained in the case by the wife of the patient, without his consent, and sued to recover twenty-five dollars for their services. The decision of the presiding judge that, having given no apparent service to the sick they were for that reason not entitled to remuneration, reminds us of a case in which the same answer was phrased somewhat differently in a reply to a well-known Boston Christian Scientist's request for payment of her account. The patient is said to have reminded her that she had told him to imagine himself well, and he would be well. He therefore politely said that she had only to imagine herself paid, and she would be paid.

PROGRESS AT CRAIG COLONY DURING THE PAST YEAR. — The Craig Colony for Epileptics, at Sonyea, Livingston County, N. Y., closed its fourth fiscal year September 30, 1897. There were at that time 214 patients in the colony, the majority of whom had been transferred from the various county houses throughout the State. New buildings are in course of construction which, when completed, will enable the colony to accommodate 140 additional patients, making the total population about 350. It is estimated by State charity officials that this number represents about one-third of the total number of epileptics now on public charge throughout the State. The Medical Superintendent, Dr. William P. Spratling, reports a great increase in the value of agricultural and industrial products of the colony over last year, so that the ratio of earnings of the patients to the cost of their maintenance is even larger than that of last year, which was a little over fifty per cent. A laboratory for the use of a pathologist and pathological chemist is being constructed. Dr. Christian A. Herter, of New York, has been appointed pathological chemist, and Dr. Ira Van Gieson, of New York, consulting pathologist to the colony. Dr. Frederick Peterson, of New York, was re-elected President of the Board of Managers. The managers, at their annual meeting, decided to ask the coming Legislature for \$200,000 for dormitory buildings in order that they may increase the residence capacity of the colony for patients.

PLAGUE IN INDIA. — Plague is increasing in India. It is feared that it will break out somewhere in an epidemic form, and the necessity for active intervention occur. A telegram from Madras, under date October 16th, reports: "Three fresh cases, one has terminated fatally." "The appearance of plague," says the *British Medical Journal*, "at Madras is interesting epidemiologically, as we have no previous record of plague there. The cases, as far as we can learn, are imported cases merely, and in accordance with what we now know of plague, we should not anticipate an outbreak there in an epidemic form. A telegram of October 19th from Jullundur, a town in the Punjab, states that 23 deaths have occurred there 'from what is believed to be plague.' Jullundur is directly in the track northwards from Bombay, of the course the plague has followed previously. In the hospitals of

Poonah 294 cases of the plague are being treated, and the physicians are attending 115 cases in the Bombay hospitals. Whilst Poonah is relaxing her efforts by as far as possible annulling the severe segregation rules enforced when plague first appeared, Bombay is strengthening hers by imposing quarantine upon new arrivals. The period of detention will extend to six days, and accommodation will be provided for about 6,000 people. With the quarantine arrangements surveillance tickets are issued, whereby well-known people can avoid the quarantine on the understanding that they present themselves for examination on the third and sixth days after arrival. As well-nigh a third of the cases occurring in Bombay are imported, these regulations have shown excellent results. The inspection is rigid, and no person passed out has been known to have become subsequently attacked."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, November 3, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 56, scarlet fever 25, measles 7, typhoid fever 24.

DEATH OF AN OLD ARMY NURSE. — Miss Rebecca Wiswell, who is said to have been the oldest army nurse of the Civil War, died in Plymouth, Mass., on October 29th, aged ninety-one. She was born in Provincetown, enlisted as army nurse in 1862, and served till the close of the war. She is reported to have made during her life 160 bed-quilts.

THE JOURNAL OF THE BOSTON SOCIETY OF THE MEDICAL SCIENCES. — The *Journal of the Boston Society of the Medical Sciences* has been enlarged to octavo size. By general consent of the Heads of Departments it will contain abstracts of experimental work carried on in the Medical School of Harvard University, the Experimental Laboratories of the Massachusetts General and the Boston City Hospitals, the Physiological and Biological Departments of the Massachusetts Institute of Technology and Clark University. It is proposed to issue the numbers of the Journal promptly after each meeting of the Society, and to give a rapid means of communication of the results of investigation. The intention is to publish at least ten numbers a year — running from October to June. The subscription price will be \$2.00 a year.

NEW YORK.

NEW BUILDINGS ON BLACKWELL'S ISLAND. — On October 28th Mayor Strong and the Commissioners of Public Charities celebrated the opening of eleven new buildings in connection with the almshouse on Blackwell's Island. Commissioner Faure said that at the time of his appointment over five hundred of the inmates were obliged to sleep on the floors, for lack of accommodation, and that many of those lodged in the top stories could watch the stars through holes in the roof which freely admitted the snow or rain in stormy

weather. There was no water in several of the buildings, and no lavatories, except makeshifts. Filth covered the floors until the physicians refused to enter one ward until it was cleaned. He then gave a report of the manner in which the Department have expended the million dollars which had been allowed them for improvements, stating that since January 1, 1895, no less than fifty-three new buildings had been erected. In addition to the eleven at the almshouse, these included fifteen at the Infants' Hospital on Randall's Island, five at Bellevue Hospital, four at City Hospital, Blackwell's Island, four at Fordham Hospital, the new Harlem and Gouverneur Hospitals, and the Lodging-house for Homeless Men. In delivering the keys of the buildings to the mayor, Dr. Stephen Smith, the new president of the Board, said: "Not one dollar of all that million has been spent for filagree or decoration, either on the interior or exterior." In contrast with the new kitchen was shown one of the old kitchens where soup, coffee, stews, potatoes and all other dishes were cooked successively in the same kettles; and a no less pleasing comparison was made between the new pavilion for blind women and the old one, the main floor of which rests directly on the ground, and the walls of which are of thin boards so loosely put together that in winter the inmates have always suffered greatly from cold.

A handsome and commodious new wing, erected at a cost of \$150,000, at St. Mary's Roman Catholic Hospital, on St. Mark's Avenue, Brooklyn, was recently dedicated. The new structure includes offices, a chapel, accommodations for Sisters of Charity acting as nurses, an operating department, and fifty additional rooms for patients.

The new Diphtheria and Scarlet Fever Hospital for pay patients, on the East River front at the foot of 16th Street, New York, has also been completed, and is now ready for service. The buildings consist of two brick pavilions, 88 by 28 feet, each of which contains ten wards and a department for convalescents, and is provided with a roof garden. The hospital cost \$100,000, which was contributed by a number of charitable ladies.

BEQUESTS.—In the will of Miss Caroline Talman, who died on October 20th, charitable bequests to the amount of over \$120,000 are made. Among the institutions named are St. Luke's Hospital and the Home for Incurables, each of which receives \$5,000.

THE LION INCUBATOR.—On October 24th a private reception for the medical profession was given at the Lion Institute, at Fifth Avenue and 18th Street, in order to afford an opportunity for the inspection of the ingeniously constructed incubator of Alexander Lion, of France, which seems to be by far the most perfect apparatus of the kind yet devised, and which has been approved by the Paris Academy of Medicine and the New York Obstetrical Society. It has been in use, with the most satisfactory results, in Nice since 1891, and the inventor has received for it a number of medals and prizes, the last being at the Nashville

(Tenn.) Exposition just closed. Among the special features of the incubator is the automatic regulation of the temperature, which can thus be maintained indefinitely at any required degree without the slightest variation. There are now at the Institute three seven months' children. The last of these was received on October 30th, and although it was born as long ago as September 7th, it weighed on admission only two pounds four ounces. Since the 25th the exhibition has been open to the public. No charge is made for the care of infants, but a small admission fee is charged for defraying expenses. At the present time the Lion incubator is being used for triplets at the Sloane Maternity.

ESQUIMAUX AND PULMONARY DISEASE.—It has been found necessary to remove six Esquimaux who were brought to New York by Lieutenant Peary a little over a month ago, and since then have been living in the building of the American Museum of Natural History, on Manhattan Square, to Bellevue Hospital on account of severe pulmonary disease. One of them, a woman forty-five years of age, has an attack of pneumonia which it is feared will prove fatal, and the others, three men and two children, are suffering from bronchitis. In Greenland, from where the patients came, such affections are said to be practically unknown.

DEATH FROM FOOT-BALL.—Andrew Hasche, a powerfully built young man of nineteen, died in the Astoria Hospital on October 26th from fracture and dislocation of the sixth cervical vertebra, the injury having been received in a game of foot-ball two days previous. Shortly before death delirium set in and his temperature went up to 112°.

MORTALITY AMONG CIVIC CANDIDATES.—During the recent municipal election canvass there has been a remarkable fatality among the candidates for office. The death of Dr. James P. Daly, candidate for coroner, has been already referred to. On October 29th Henry George died, and on October 30th Owen McGinnis, a veteran of the late war, who was a Democratic candidate for alderman. It is a curious fact, also, that all three deaths were due to cerebral apoplexy.

BIRTH OF A NEW PARTY.—While Mr. Joseph Choate was in the midst of an eloquent address at a large political gathering at Carnegie Music Hall during the campaign, he was interrupted by the chairman, General Swayne, who said to the wondering audience in the most solemn tones, "I am requested by the mayor to announce the birth of a new party." He then went on to explain that if a certain gentleman was in the hall his presence was particularly requested at home, where there had been an interesting addition to his family.

DEATH OF JOHN JONES, M.D.—Dr. John Jones, a prominent member of the Washington County Medical Association and a successful practitioner, died at his home at Middle Granville, N. Y., on October 23d, of

typhoid fever. He was graduated from the Albany Medical College with honors, and was thirty-three years of age.

Miscellany.

THE CLINICAL VALUE OF THE WIDAL TEST FOR TYPHOID FEVER.

DR. W. GILMAN THOMPSON, having gathered data regarding the Widal serum-test for the presence of typhoid fever from five of the larger New York hospitals, publishes his results in the *Medical News* (October 30th), and reaches the following conclusions:

(1) While the test is positive in the large majority of cases of enteric fever, and negative in the greater number of other diseases, there is a margin of error of 11 to 12 per cent. on each side of what might be called the normal line, between cases in which the test fails where it ought to succeed and succeeds where it ought to fail, in order to make it of real clinical value.

(2) This total of 23 per cent. of possible error includes unfortunately just those cases in which there is the greater doubt upon the purely clinical side.

(3) As a genuine diagnostic aid the test has about the value of the Diazo reaction in typhoid urine, or the study of leucocytosis in pneumonia; that is, it is confirmatory in connection with appropriate symptoms but misleading if positive reliance be placed upon it.

(4) The fact that an expert bacteriologist is required to make the test is offset by the ease of transportation of specimens of dried blood which long retain the power of reaction, and it is greatly to be hoped that a further possible improvement in technique may place this most ingenious test upon a firmer practical basis than can at present be claimed for it.

STARVATION OF RECONCENTRADOS IN CUBA.

DR. BRUNNER, medical inspector of the United States Marine-Hospital Service in Havana, writes in the latest report: "An inspection of a pest hole, known as Los Fosos, was made by me on Thursday, October 14th. This place has been set aside for the country people sent to Havana. Los Fosos consists of a large wooden building, about 150 feet in length and 60 in width. The building is situated in an inclosure which is used for the storing of carts of the municipality. There were 500 people found in and around this building, and of that number over 200 were found lying on the floor, sick and dying. I saw no child under ten years of age who could be considered in good health. They were invariably suffering from some form of enteritis or dysentery. The emaciation of their bodies was startling. This place is not a hospital, but simply a place of residence for these people, and a conservative estimate of the death-rate would be about 10 per day. The number is recruited by fresh accessions from the country. There were over 150 children below the age of ten years, and I did not observe one whose chance for living thirty days, under the existing conditions, was good. There are two other such places in the city where the same conditions exist."

The hospitals of the city are frightfully overcrowded, the death-rate is increasing; and the sanitary conditions, already bad enough, are becoming constantly worse.

ILLINOIS TO RAISE THE STANDARD OF ADMISSION TO PRACTICE.

At the regular quarterly meeting of the Illinois State Board of Health, held at the Great Northern Hotel, Chicago, October 5, 1897, the following resolutions were passed:

Resolved, that after May 1, 1898, all non-graduate applicants for license to practise medicine and surgery who are examined in accordance with the provisions of the Medical Practice Act, in addition to the requirements already exacted, must present as evidence of satisfactory preliminary education, either,

(1) A diploma or certificate of graduation from a high school.

(2) A certificate of having passed the matriculation examination to a recognized literary or scientific college.

(3) A certificate of successful examination by the faculty of any reputable university or college of arts or science (not members of a medical college faculty), by the State Superintendent of Public Instruction of Illinois, or by the principal of a high school in Illinois, in the following branches: English Grammar, Arithmetic, Elementary Physics, United States History, Geography and Latin (equivalent to one year in a high school).

Each candidate will also be required to present a certificate from a medical college in good standing with this Board, attesting that the applicant has,

(1) Pursued the study of practical anatomy in said college for at least one term, and has made dissections of the entire cadaver.

(2) Taken at least one full course in operative surgery and practical obstetrics.

(3) Personally attended six or more cases of labor.

Bacteriology has been added to the subjects of the non-graduate examination.

Correspondence.

BERLIN LETTER.

INTERNATIONAL CONGRESS OF LEPROLOGY.

BERLIN, October 16, 1897.

MR. EDITOR:—The International Leprosy Conference held its sessions here all this week. The management of it has been excellent throughout, and the interest shown in it by the German Government contributed greatly to its success. The members were received by the Chancellor on Tuesday evening, and by the Kaiser and Kaiserin at the New Palace in Potsdam on Friday evening. A reception of welcome was given by the President of the Organization Committee, Professor Lassar, and his wife, on Sunday evening, and the Dermatological Society invited the members to be its guests on Thursday evening. The Berlin Club asked the members to consider its rooms as their own during their stay, and tickets for the Imperial Opera House and Theatre were placed at the disposition of the members during the week.

It is said with a good deal of enthusiasm by the departing guests that Berlin is the place for International Scientific meetings, at least under such auspices as the Leprosy conference was held.

A number of prominent leprologists and dermatologists were present from all over the world: Hansen, from Norway; Arning, from Denmark; Neuman and Kaposi, from Vienna; Unna, Lassar, Neisser, from Germany; Petersen, from Russia; von Düring, from Constantinople; Carrasquilla, from Columbia; Besnier and Hallopeau, from Paris. The proceedings were of special interest, as being an index of the present state of medical knowledge as regards leprosy, and the trend of thought with regard to the solution of questions that are still *sub judice*.

Professor Virchow acted as president of the Conference,

and his contribution to the proceedings was a talk on the question of "Pre-Columbian Leprosy in America." He considers it almost demonstrated that the mutilations to be seen on certain pieces of pottery found in Peru point to the existence of leprosy in America before Columbus's time. He knows of no other disease that would cause the mutilations of the feet that are found in the figures, and while the facial mutilations are rather those of lupus than leprosy, yet he was able to show by comparison with certain figures in Professor Lassar's collection that such mutilations may occur in leprosy too.

With regard to the question of contagion or heredity, there was almost unanimity. A few of the Eastern leprologists still consider that heredity plays a great rôle in the etiology of leprosy; and one distinguished authority, Professor Zambaco Pacha, of Constantinople, insists that it is the important factor; but all other members of the Conference were frankly outspoken contagionists. There was another exception: a paper from Jonathan Hutchinson, of London (he was indisposed and unable to be present), insisted on the importance of fish, especially salt fish, in certain stages of decomposition.

Everybody admitted Hansen's bacillus as the cause of the disease, and some startling observations were published as to the enormous number of the bacilli that are given off by the patient, especially in oral and nasal secretions and in epidermal scales. Stricker, of Giessen, found bacilli in the nose of 140 out of 153 patients examined; and from Neisser's laboratory in Breslau it was reported that lepra bacilli have been found one and one-half metres from where a leper sat and talked for an hour, while thousands of them could be found on a cover-glass held some distance in front of the patient while he talked. Its power of infecting others is extremely limited, otherwise more frequent contagion would be noted. Association with lepers for years and very intimately is necessary to allow of the conveyance of the contagion. In fact, there would seem to be a special condition of lowered vital resistance necessary, and of this nothing is known. While the mediate cause, the bacillus, is admitted, the immediate personal reason why a particular person acquires leprosy is as much a mystery as ever.

As to the necessity for the demonstration of the bacillus for the diagnosis of leprosy, opinions were divided. Kaposi showed some colored plates of cases of papular leprosy which he thought so characteristic clinically that even though he was unable after repeated examinations of bits of excised tissue to find the bacilli, he considered the diagnosis of leprosy justified. Hansen, after an examination of the plates, pronounced the cases not to be leprosy. Arning considered them very doubtful. The French school agreed that they were not at all typical cases, and in the absence of the bacillus considered the diagnosis scarcely justified. Unna thought they were leprosy; and it is in these cases that the bacillus may be best found by his new technique. In general, it seemed to be thought that diagnosis should be very guarded until the bacillus is demonstrated.

As to the question of the bacillus of leprosy ever being found within the cells, Unna maintained, against the world, that it never occurred. A large number of preparations were shown in which the bacilli seemed to be within the cells, but he explained them as optical illusions, the bacilli really lying above in the lymph spaces. After looking at a number of the preparations, Virchow said during the recess that he considered it demonstrated that the bacilli were intra- and extra-cellular.

As to syringomyelia and Morvan's disease the opinion was very freely expressed on all sides that many of these cases are to be viewed with suspicion. Two cases were exhibited that had been under treatment in nervous clinics here in Berlin as syringomyelia, which distinguished leprologists pronounced lepra. Zambaco Pacha and the Eastern school generally insist that scleroderma and sclerodactyly and Raynaud's disease are also often manifestations of leprosy, and that in general sporadic cases of leprosy are constantly turning up in the West, which remain unrecognized because of unfamiliarity with the disease.

As to therapy, very little seemed to be hoped for from it. Injections of soluble salts of mercury and of iodine do good temporarily; and it was the thought that, as in syphilis, the application of the treatment whenever recurrences came on was the best that could be done pharmaceutically for the patient. None of the serums have given results except in their inventor's hands. The action of Dr. Carrasquilla's serum has been so different here in Europe from that which he has reported himself that he thinks some chemical change takes place in it during the long transportation. His own results and those of colleagues in Columbia continue to be good. It is not guaranteed to cure, but it greatly alleviates the symptoms and retards the course of the disease. Professor Dyer's (New Orleans) preliminary report of use of antivenine serum obtained from animals after inoculation with snake venom attracted a good deal of attention from its novelty.

In general, however, it was agreed that the thing that should occupy medical attention is the prevention of the further spread of the disease to others. This is best accomplished by isolation of the lepers; and Professor Hansen's resolution to this effect was adopted without a dissenting voice. Circumstances will alter the manner in which this will have to be accomplished; but absolute segregation would, it is thought, absolutely eradicate the disease in a generation or two. This is called to the attention of the government, and suggestions offered as to how it is to be carried out.

A committee to organize a leprosy society was appointed; and the next meeting will be held either at Paris or Berlin, in 1900, both places giving cordial invitations.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 23, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrhœal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,868,000	676	25	13.65	16.05	5.25	2.55	2.55	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	376	103	14.58	11.88	2.43	1.08	9.45	
Brooklyn . . .	1,160,000	326	144	10.00	10.50	2.00	2.00	4.50	
St. Louis . . .	570,000	155	56	20.15	13.00	3.90	3.90	10.40	
Baltimore . . .	550,000	212	60	11.28	15.04	4.23	2.72	2.35	
Boston . . .	517,732	106	—	4.60	—	—	1.88	2.82	
Cincinnati . . .	405,000	103	38	6.80	2.94	—	—	4.90	
Cleveland . . .	350,000	88	27	20.52	7.98	5.42	6.84	7.98	
Pittsburg . . .	285,000	91	30	14.30	20.90	7.70	2.20	2.20	
Washington . . .	275,000	—	—	—	—	—	—	—	
Milwaukee . . .	275,000	34	8	29.40	2.94	11.76	8.82	8.82	
Nashville . . .	105,050	31	12	22.61	3.23	—	12.92	6.46	
Worcester . . .	105,050	38	21	15.89	4.54	15.79	—	—	
Fall River . . .	95,919	30	15	16.66	3.53	13.33	—	3.33	
Lowell . . .	87,113	—	—	—	—	—	—	—	
Cambridge . . .	86,812	10	4	—	—	—	—	—	
Lynn . . .	65,220	11	11	14.16	9.44	9.44	—	—	
Charleston . . .	65,165	29	14	27.60	3.45	13.80	—	6.90	
New Bedford . . .	62,416	12	5	16.66	8.33	—	—	8.33	
Lawrence . . .	55,510	17	5	17.64	11.76	5.88	—	11.76	
Springfield . . .	54,790	—	—	—	—	—	—	—	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	7	0	—	14.28	—	—	—	
Salem . . .	36,062	6	2	—	—	—	—	—	
Brockton . . .	35,853	9	3	22.22	11.11	22.22	—	—	
Malden . . .	32,884	10	4	—	20.00	—	—	—	
Chelsea . . .	32,716	6	1	—	40.00	—	—	—	
Haverhill . . .	31,406	—	—	—	—	—	—	—	
Gloucester . . .	29,775	10	3	20.00	—	10.00	—	10.00	
Newton . . .	28,990	8	4	12.50	12.50	—	—	—	
Fitchburg . . .	27,812	7	1	14.28	14.28	—	14.28	—	
Taunton . . .	22,562	6	2	16.66	16.66	16.66	—	—	
Quincy . . .	21,891	—	—	—	—	—	—	—	
Pittsfield . . .	21,812	3	1	—	33.33	—	—	—	
Waltham . . .	21,675	6	3	—	20.00	—	—	—	
Everett . . .	17,448	—	—	—	—	—	—	—	
Northampton . . .	14,794	5	1	—	—	—	—	—	
Newburyport . . .	10,920	—	—	—	—	—	—	—	
Amesbury . . .	—	—	—	—	—	—	—	—	

Deaths reported 2,580; under five years of age 835; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrhœal diseases, whooping-cough, erysipelas, and fevers) 350, consumption 302, acute lung diseases

289, diphtheria and croup 124, diarrheal diseases 112, typhoid fever 60, scarlet fever 21, whooping-cough 13, cerebro-spinal meningitis 10, measles 6, erysipelas 3.

From scarlet fever New York 8, Philadelphia 3, Brooklyn, Baltimore and Pittsburg 2 each. From whooping-cough New York 3, Philadelphia, Brooklyn, Boston and Cincinnati 2 each, Baltimore and Washington 1 each. From cerebro-spinal meningitis New York 4, Boston, Washington, Worcester, New Bedford, Somerville and Woburn 1 each. From measles New York 4, Philadelphia and Brooklyn 1 each. From erysipelas New York 3.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending October 16th, the death-rate was 16.9. Deaths reported 3,566, diarrhea 127, measles 89, diphtheria 73, fever 51, whooping-cough 39, scarlet fever 36.

The death-rates ranged from 9.2 in Cardiff to 23.7 in Birmingham; Bradford 13.8, Bristol 16.2, Croydon 11.6, Gateshead 21.2, Hull 15.1, Leeds 16.6, Leicester 12.8, Liverpool 22.4, London 16.1, Manchester 28.8, Newcastle-on-Tyne 18.7, Nottingham 17.0, Sheffield 17.8, West Ham 12.0.

METEOROLOGICAL RECORD

For the week ending October 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches
	Daily mean:	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..17	30.20	58	74	40	60	46	53	N.W.	N.W.	19	15	F.	C.	.11
M..18	30.32	48	60	36	66	42	54	N.W.	W.	9	10	C.	C.	
T..19	30.12	51	68	46	56	38	47	W.	W.	8	6	F.	C.	
W..20	30.12	52	53	50	81	84	82	N.E.	E.	9	18	O.	O.	
T..21	30.03	47	51	43	96	66	81	N.E.	N.E.	17	16	R.	O.	
F..22	30.24	43	48	38	76	75	76	N.	N.E.	12	7	C.	O.	
S..23	30.34	44	51	38	69	66	68	N.	E.	9	6	C.	C.	
☞														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-ening; N., snow. † Indicates trace of rainfall ☞ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 23, 1897, TO OCTOBER 29, 1897.

MAJOR W. C. SHANNON, surgeon, sick leave of absence further extended six months.

LIEUT.-COL. CHARLES SMART, deputy surgeon-general, and CAPTAIN WM. H. ARTHUR, assistant surgeon, are detailed to represent the Medical Department of the Army at the twenty-fifth annual meeting of the American Public Health Association, to meet at Philadelphia, Pa., October 26 to 29, 1897.

FIRST-LIEUT. THOMAS J. KIRKPATRICK, JR., assistant surgeon, is granted thirty days' extension to leave of absence.

MAJOR ALFRED C. GIRARD, surgeon, is detailed as a delegate to represent the Government of the United States at the Ninth International Congress of Hygiene and Demography, to be held at Madrid, Spain, April 10 to 17, 1898.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING OCTOBER 30, 1897.

W. K. VAN REYFEN, medical director, detached as member of Board of Inspection and Survey and made chief of Bureau of Medicine and Surgery.

T. W. RICHARDS, assistant surgeon, detached from the "Maine," ordered home to Washington, and granted two months' leave.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE NINETEEN DAYS ENDING OCTOBER 26, 1897.

BAILHACHE, P. H., surgeon. To represent Service at meeting of American Public Health Association at Philadelphia, Pa. October 26, 1897.

IRWIN, FAIRFAX, surgeon. To represent Service at meeting of American Public Health Association at Philadelphia, Pa. October 26, 1897.

CARTER, H. R., surgeon. To proceed to Montgomery, Ala., for special temporary duty. October 25, 1897.

WHITE, J. H., passed assistant surgeon. To proceed to Camp Hutton, La., for duty. October 11, 1897.

SOCIETY NOTICE.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.—The tenth annual meeting will be held at the Southern Hotel, St. Louis, Mo., on November 9, 10 and 11, 1897. Members of the medical profession are cordially invited to attend.

W. E. B. DAVIS, *Secretary*, Birmingham, Ala.

BOOKS AND PAMPHLETS RECEIVED.

Lumbago. By Francis Reder, M.D., Hannibal, Mo. Reprint. 1897.

Twentieth Annual Report of the Managers of the Adams Nervine Asylum, 1897.

Stercorin and Cholesteræmia. By Austin Flint, M.D., LL.D., New York. Reprint. 1897.

Urinary Antiseptics in Cystitis. By Arthur R. Elliott, C.M., M.D., Chicago. Reprint. 1897.

Streptococcic Infection and Marmorek's Serum. By Geo. W. Cox, M.D., Chicago. Reprint. 1897.

The Value of Correct Sitting as an Exercise for Invalids. By Frank K. Hallock, A.M., M.D. Reprint. 1897.

Notes on the Pathology and Bacteriology of Appendicitis. By Chas. F. Craig, M.D., Daubury, Conn. Reprint. 1897.

Ueber Stercorin. By Prof. Austin Flint, New York. From *Hoppe-Seyler's Zeitschrift für Physiologische Chemie*. 1897.

Joseph Friederich Piringer; His Methods and Investigations. By Harry Friedenwald, A.B., M.D., Baltimore. Reprint. 1897.

Vaginal Hysterectomy; a Review of Sixty-six Consecutive Cases. By Charles Gilbert Davis, M.D., Chicago, Ill. Reprint. 1897.

Transactions of the American Dermatological Association at its Twenty-first Annual Meeting held at Washington, D. C., May 4, 5 and 6, 1897.

Karezza, Ethics of Marriage. By Alice B. Stockham, M.D., Author of "Tokology, Koradine, Health Germs," etc. Chicago: Alice B. Stockham & Co. 1897.

Massage, Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham, M.D., Boston, Mass. Reprint. 1896.

Remarks on Two or Three Points on the Technic of the Operative Treatment of Acute Appendicitis. By George E. Armstrong, M.D., Montreal. Reprint. 1897.

The Progress of Laryngology and Rhinology in the Sixty Years of the Victorian Age. By St. Clair Thomson, M.D., M.R.C.P., Lond., F.R.C.S., Eng. Reprint. 1897.

Notes of a Case in which Marked Enlargement of the Liver, Associated with Symptoms resembling those of Typhoid Fever, Occurred in a Young Child. By A. D. Blackader, M.D., Montreal.

Pathological Technique; A Practical Manual for the Pathological Laboratory. By Frank Burr Mallory, A.M., M.D., Assistant Professor of Pathology, Harvard University Medical School; Assistant Pathologist to the Boston City Hospital; Pathologist to the Children's Hospital and to the Carney Hospital, and James Homer Wright, A.M., M.D., Director of the Laboratory of the Massachusetts General Hospital; Instructor in Pathology, Harvard Medical School. With 105 illustrations. Philadelphia: W. B. Saunders. 1897.

Zur Aufklärung der Rolle, welche die Insekten bei der Verbreitung der Pest spielen. Ueber die Empfindlichkeit verschiedener Tiere für dieselbe. Eine experimentelle Studie. Von Dr. med. et phil. George H. F. Nuttall, z. Zin Berlin. From *Centralblatt f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten*.

A Further Case of Primary Tuberculosis of the Breast. Early Diagnosis and Mistaken Diagnosis in Cases of Tumor of the Breast. A Preliminary Comparison of Methods and Results in Operative Surgery at the Sea-Level (New York) and in Places of High Altitude (Denver). By Charles A. Powers, M.D., Denver, Col. Reprints. 1897.

A Manual of Medical Jurisprudence. By Alfred Swaine Taylor, M.D., F.R.S. Revised and edited by Thomas Stromson, M.D., Lond., Fellow of the Royal College of Physicians of London; Lecturer on Medical Jurisprudence and on Chemistry at Guy's Hospital; Examiner in Forensic Medicine in the University of London, etc. Twelfth American, edited with citations and additions from the twelfth English edition. By Clark Bell, Esq., LL.D., President of the American International Medico-Legal Congress of 1889, etc.; Ex-President of the Medico-Legal Society of New York, etc. New York and Philadelphia: Lea Brothers & Co. 1897.

Address.**SCIENCE IN MEDICINE.¹**

BY A. T. CABOT, A.M., M.D., BOSTON.

GENTLEMEN: — I shall not enlarge on the fact that you are entering on a noble profession. That statement is often heard and has a good deal of truth in it; but the important thing for us to remember is that our profession is as noble, for each of us, as we ourselves make it, and no more so. It behooves us then to carry with us the resolve that we will do our utmost to sustain the high ideals of the past and to reach still greater heights in the future. In carrying out this purpose we shall have to turn often from the promptings of self-interest, and shall have to make sacrifices to our love of truth and to our sense of duty. Let us not be too vainglorious, however, over our sacrifices, for they are usually only such in seeming. Our voyages of discovery, like those of the old Spaniards, lead us often to where gold is to be had for the delving; and the medical man who devotes himself to the cause of science reaps his reward in this world in the added prestige and lustre which his attainments lend him. His light then so shines that men are attracted to him, and they see that he does not want.

This may seem a sordid consideration; and if it is allowed to be the mainspring of action, it indeed becomes so. There are many better and more inspiring inducements than this to incline right-minded men to scientific pursuits; but every prudent man must consider his own support and that of those dependent on him; and such a man may well feel encouraged to give time to seemingly unremunerative research if he believes that the knowledge and habits of thought which such research brings him will have a market value at some later date and that the prestige of any good work that he may do will help him in his future career. A proper appreciation of these truths may encourage some of you to seek success by a devotion to science rather than by the pursuit of business. I venture to predict that few who are thus inclined will regret it.

It is about science in medicine that I wish to say a few words to you to-night, in the hope of emphasizing to you some of the gifts you have received from her and the duty you owe to her in return, and also with the desire of pointing out to you some of the ways in which you may serve her.

It is but as yesterday that medicine has become a hand-maiden of science and has escaped from the domain of inexact empiric art. So recent is this advance that the most important steps of it have occurred within the memory of one generation.

Do not understand me to belittle the achievements of past centuries nor to imply that we have already reached the goal of exact knowledge towards which men have always been striving. But I do assert that in the past fifty years advancing medical knowledge has taken up more new ground than all of that occupied before, since our earliest authentic records.

How has this come about? Have the men of the last half of the nineteenth century been so much superior in intelligence to their fathers as to accomplish this? No! But their powers of research have been increased many hundred fold; and this advance

tage they owe to the physical laboratory, for it is the microscope which has revolutionized medicine and has made it possible for us to stand where we now do.

It enables us to see clearly where all was once dark groping, and to penetrate mysteries before which past ages have stood blind and uncomprehending. Let us not forget our gratitude to the physicists, who have made this possible. They are busy people, these physicists, and their modern achievements have been so wonderful as to have almost exhausted our capacity for wonder.

A man sitting in his chair here in Cleveland talks with his friend in New York, and even recognizes that friend's voice over a thousand miles of wire. He reads each morning in his daily paper an epitome of what the human race has accomplished in the past twenty-four hours, a chronicle of the doings in the uttermost parts of the earth, and even shrewd suspicions of the happenings in some of the neighboring planets. Marvels which to a past generation would seem miracles are his daily bread, and he misses an accustomed stimulus if they are not constantly supplied and are not up to a high standard.

In an age of such enormous activity it is well to remember that our pioneers along the various roads of investigation have accomplished their results by concentration of effort and by the assertion of their own individuality. It is by the possession and exercise of these qualities that we must endeavor to carry forward their work. Every man must be more or less a specialist.

Even Bacon would hardly, at this time, claim all knowledge as his province; and we of lesser gifts must realize our limitations, and by attending strictly to labors that are within our strength, and by applying all of our powers to them, must endeavor to reach worthy results.

I do not use the term specialist as implying a narrow field. A man who practises surgery to the exclusion of general medicine is a specialist; and if his tastes and opportunities lead him especially into some branch, as gynecology or abdominal or orthopedic surgery, he still further specializes his work. This I regard as the best way to approach a specialty: beginning with the general and working gradually more and more into special branches. In this way one is more liable to take a large grasp of his subject and to acquire the habit of looking at his patient as a whole, before allowing his attention to be drawn to the close study of a particular organ or region.

The various fields of study touch each other at so many points that we cannot occupy ourselves in one without coming in constant contact with those about. The surgeon studying a brain tumor requires the services of a neurologist and perhaps of an ophthalmologist and aurist before he can arrive at the best knowledge of the case. It is well that we should get the habit of thus using each other to help us to greater accuracy and efficiency. While travelling thus our own road, we shall get and give many a lift if we are so minded.

The generation now growing old has, in this country, been the one which has seen the various specialties of medical practice evolved. Fifty years ago the general practitioner was the rule, the specialist was the rare exception. I remember many of those old "family doctors," learned, sagacious, observant, friendly advisers and confidants, with an academic dignity which has

¹ An Address to the graduating medical class of the Western Reserve University.

been almost lost in the hurry and bustle and matter-of-fact directness of the last half-century. To follow one of these men through his daily rounds would be a curious experience to a modern specialist.

The first case, perhaps, would be a broken leg, then a pneumonia or dysentery, an ophthalmia, a middle-ear inflammation, a confinement and a case of mania. To each of these various cases he would apply himself with trained powers of observation, often noticing and getting guidance from slight physical signs or movements of the patient which now pass unnoticed by the modern clinician. For the latter, with his instruments of precision, his clinical thermometer, his modern stethoscope, his stomach-tube, his specula, his blood-count and various other microscopical examinations, has more certain guides to a correct opinion, and does not need observation of the lighter straws to see which way the wind blows.

A student of to-day looking back at the generation of medical men who finished their work in the sixties is struck with the amount of empiricism that pervaded the best medical practice of those days. It was an empiricism not of choice but of necessity, for the field of vision was so limited for them that they had to do much blind groping among conditions but partly seen and imperfectly understood. The groper in the dark greatly sharpens his vision for what comes within the range of his sight, and it is surprising how many facts they discovered, the reasons for which were learned much later. Quinine, for instance, was given on correct principles in the treatment of intermittent fever long before the plasmodium was discovered; and subcutaneous tenotomy was put to valuable use for years before its immunity from harm was explained.

The discovery of vaccination and of surgical anesthesia are brilliant examples of the acute observation and the bold inductive reasoning with which the men of those days pushed out beyond the lines of safe navigation into the unknown, and brought back treasures from regions now somewhat explored, but then veritable *terra incognita* beset with dangers real and imaginary.

But a light was soon to break.

It was during this time that the foundations of modern medicine were being laid, not upon any therapeutic dogma but upon the firm bed-rock of cellular pathology and bacteriology.

Gentlemen, we owe much to the European Continent, from which we all came; and not the least of our debts is to the laboratory system of Germany and France in which this great medical revival of our day started.

In this country the facilities for scientific study and teaching were not then highly developed. Hospitals and laboratories were few, and the man wishing to pursue original investigations in the higher branches of medicine had to be first assured of an independent income; for salaried positions were scarce and the stipends were small.

Under the paternal governments of the Old World learning had secured more substantial appreciation and support. Great schools of medicine had grown up in the capitals and large cities of the European States, and the rivalry which existed among them had called into existence a great body of scientific workers striving for the high places and stimulated by the hope of advancement to put forth their best efforts along original lines. No man holding a professorship in

Inusbrück was content to fold his hands and accept a routine of teaching if he felt within himself the ability and force to win a place in Munich or Vienna, and these places were to be won only by brilliant individual achievement.

Such was the system under which men like Virchow, Billroth, Cohnheim, v. Recklinghausen and a host of others were reared. Under it they were encouraged to put forth their greatest strength in pushing their researches; they were stimulated by constant contact with other investigators working along the same or parallel lines. The very atmosphere in some of those old universities became so loaded with scientific impulses that to breathe it was an inspiration. The visitor there found himself acquiring habits of thought without knowing whence they came. Accustomed to well-trodden paths, he found himself seized with the irresistible impulse to plunge into hidden byways and to do some exploring for himself. Every one seemed to have adopted the motto of the mongoose family as set forth by Kipling, "Run and find out."

If Americans of that day could not manufacture for themselves equally favorable conditions for study in this country, they knew at least where to find them, and the foreign clinics were filled with young men who had crossed the sea to put their guessing and calculating faculties under better guidance than they had been able to find at home.

And when these young men came back they came filled with a reverence for scientific methods and thought in medicine which could not and did not fail to make an impression in the communities in which they afterwards lived; and this heaven thus introduced into our country has worked, and to-day we see the awakened sentiment for higher medical education causing laboratories, workshops of science, to spring up in every direction, and to-day we are just getting into shape to take our place shoulder-to-shoulder with our older brothers abroad.

This growth of laboratories in America has been mainly accomplished by benefactions and gifts to learning from private citizens who have shown their sagacity and intelligence, first, in the acquisition of wealth, and then in the wise disposal of a part of it so that it may contribute to the highest public good. It is by a wide demonstration of the value of the best scientific teaching that the public interest will be so aroused that these gifts shall flow to our colleges in still greater abundance, and shall enable us to establish ourselves on an even higher plane of usefulness. Each of us may help the public towards this appreciation of the value of science in medicine somewhat by preaching, but still more by our practice. Fortunately the scientific exactitude of the laboratory has begun to bear fruit in the practice of medicine that every one but the hopelessly color-blind can see. Every case of diphtheria saved by the judicious use of antitoxin is an object-lesson that cannot be overlooked.

The man, who, in a case of difficult diagnosis establishes the existence of malaria by the finding of the plasmodium in the blood, or of typhoid by the serum reaction, demonstrates the supremacy of scientific over empiric medicine and exerts a healthy influence on the minds of the surrounding community. Presently he will open their eyes to the immense importance of fostering a study which may have for them such beneficial results. Let us apply our shoulders to these wheels, that they may move forward.

These are some of the ways in which, under our democratic form of government, we may properly influence the public purse to open to the cause of medical progress in America and to supply the sinews which will enable us to keep well up in the race. This is a generous rivalry. The ground gained becomes common property: no one can get ahead without pulling the rest along after him, and those that cannot pull must push.

But this educational effect which may be exerted on the community by a physician using exact scientific methods in his practice is an incidental public advantage, less important, as far as he individually is concerned, than the effects produced upon himself.

There is a constant force acting on the body medical, impelling it to seek easy running grooves, or, if you will, ruts. A busy practitioner adopts a routine to save himself thought and the expenditure of force. While he may, in the majority of cases, correctly diagnose the disease and properly treat it according to established methods, he cannot hope under such a plan to make any substantial improvement in his practice or to add anything to the knowledge of the diseases that come under his eye. Unusual cases do not arouse his interest, and rare diseases are unrecognized, or classed with some more common ailment which has somewhat similar symptoms. To such a man much of the pleasure of medical practice is wholly lost, the joy of discovery is to him unknown. Even though his practice embraces the whole range of medicine and surgery, he remains essentially narrow.

You will hear much of the narrowing effect of a specialty; and it is true that a specialty selected for business reasons, because there seems to be an opening in it, and pursued in this spirit, will have a narrowing effect. But a special line of work into which a man grows because he has a taste for it, and which he pursues in a scientific spirit, will lead him into far wider fields of thought than those which open before the routine general practitioner.

Therefore, I say to you that your profession will be satisfying and absorbing in proportion as you pursue it as a science and not as a business; and it is also true that the same course will lead you forward into the front ranks of those "practising physic."

It will happen to many of you to be so situated that time and opportunity are lacking for microscopical and chemical work, and this may seem an adequate excuse for relaxing the exactitude of your study. But it is not so, if, within accessible distance, you can find any one who can help you out and do some of this work for you.

A young man, fresh from the laboratories, can in this way be of the greatest assistance to his busier brother; and the older man by thus employing the junior gives him opportunity and stimulus for further research. The laboratories, too, are greatly aided by this constant demonstration of the value of their training. Perhaps in no branch of medicine is this kind of help more needed or of more value than in surgery; and I can use it best in illustration, for of it I am most competent to speak.

A surgeon approaches a doubtful tumor of the breast. If it is of benign character it can be removed with comparatively little deformity, whereas if in any part of it a malignant change has commenced, the operation demanded is extensive, mutilating, involving not only the removal of the whole breast and per-

haps the underlying muscle, but also the dissection of the axilla and possibly of the supra-clavicular space.

For a wise decision in such a case as this, the prudent man requires the assistance of a trained microscopist versed in surgical pathology, who shall make careful search throughout the primary tumor to determine the presence or absence of any malignant part in it. Such a search, to be of the greatest use to the patient, must be made on the spot at the time of the operation, so that the information gained may be put to immediate use in determining the extent of the operative procedure.

The patient has a right to demand such care in a matter which may be for her a question of life or death; for an operation done thoroughly on a malignant growth so small that its detection is difficult offers considerable chance of a lasting cure, while an incomplete operation done at that time may leave a commencing glandular infection untouched until too late. In other forms of malignant growth a careful pathological supervision of the operation may detect the extension of the morbid process in unsuspected directions and enable the surgeon's knife to circumscribe it by the removal of parts seemingly healthy but in reality already infected.

Here is a field, then, in which surgeon and pathologist should work side by side; and the surgeon by insisting on this co-operation not only enhances the value of his own work but also brings into due prominence the work of his scientific brother.

A slight consideration of the debt that surgery owes to bacteriology will make plain the importance of the daily employment of the bacteriologist in the study of our surgical cases.

The practical application of the germ theory to the combating of disease has reached more tangible results in surgery than in any other department of medicine. "So great an influence has this theory had upon our successful practice that we are compelled to look upon the last quarter of the nineteenth century as the surgical golden age."

The discovery that the cause of inflammation in wounds is a preventable one has robbed surgery of the uncertainty and dangers that before prevailed, and has opened to the surgeon's knife regions and organs previously regarded as sacred. I well remember the time when an opening into the peritoneal cavity was regarded as a practically fatal accident, while now we open it without a thought of danger.

At present a knowledge of bacteriology enables the surgeon to test his antiseptic methods and his materials, and to thus keep a watch upon his technique, which is most necessary to his success. He also is often helped greatly in prognosis by an accurate knowledge of the organisms which are responsible for an inflammatory process that he is dealing with.

Whether a further study of acute inflammations will enable us to attack a process already started with an appropriate antitoxic serum cannot now be predicted, but the success attained in diphtheria must make us hopeful, and should lead us all to give close study to our cases. Even if we cannot hope to ourselves contribute to the advance in this direction, we shall at least accustom ourselves to an accuracy of mind in considering inflammatory conditions which will prepare us for making prompt use of any discoveries made elsewhere.

The man who is in the habit of watching the strep-

tococcus, the staphylococcus, the pneumococcus and other microbes, and of studying their various effects upon his patients, will also put himself in a position to make immediate and intelligent use of any new method of treatment directed against one or other of these organisms.

In the recognition and study of tuberculous processes the aid that the bacteriologist gives the surgeon is constant and valuable.

Whether future researches will put any of the malignant growths into the category of germ diseases cannot at present be told. There seems at least some reason for such a hope. Were this to prove true, the prophylaxis or cure of these dreaded conditions might be made possible. If such good fortune seems remotely possible, it is worth striving for with all the force that is in us, as it will only be reached by the combined work of the surgeon and the pathologist. Let every practising surgeon give what aid he can to the cause of scientific medicine, and so help towards this beneficent result. Who knows that we may not live to see cancer brought into the category of preventable diseases.

Any mention of the debts of surgery to laboratory research would be incomplete which stopped with an enumeration of the triumphs of the microscope that gives us such insight into dead tissues and enables us to read the histories within them, for we are still glowing with the enthusiasm awakened by the discoveries of Röntgen and his co-workers, who have taught the human eye to penetrate living tissues and to see, as by the light of day, conditions heretofore coucealed from us.

It is still too early to say how far-reaching the effect of this new power will be upon our surgical practice, but the results already obtained are of the greatest value, and the constant improvements in this method of research are opening up wider and wider fields of usefulness. It is well to notice that this again is a benefit which, like the microscope, has been conferred upon the physician by the students of pure science, and is a capital illustration of the manner in which scientific workers in wholly different fields constantly come to each other's aid in ways quite unexpected. Such is the brotherhood of science.

I have indicated very hastily and imperfectly some few relations of science to medicine and some of the duties we should perform in her behalf and our own. The particular illustrations I have used are but a few of those which will occur to you all; for the effort after accurate observation as a basis for medical practice has been a tremendous stimulus to human ingenuity and has called into existence innumerable devices to enable the senses to penetrate beneath the surface of the body. Chemistry has been called to our aid in the investigation of organic functions. Various optical devices enable us to inspect the interior of the more accessible cavities of the body; and the acoustical properties of other deeper cavities have been carefully observed and have been put to good use in diagnosis. The trained physician must have all of these methods of research under his control, and must put them to constant use.

In some practical applications of medical science America has already taken a place in the first rank. The Boards of Health in many of our American communities have done much good work in the prophylaxis

of disease. They have shown great intelligence in making efficient use of facts discovered in the laboratory. The value and methods of a proper quarantine, the isolation of contagious cases, the scientific study of the water-supply of towns great and small, the disposal of sewage, are all questions upon which our American investigators have made their mark. They are questions in which every practising physician should take a keen interest, and in which he should lend a hand, both by the continued investigation of them and by exciting and guiding an intelligent public interest.

Preventive medicine, much as it has accomplished, is in its infancy. Think of some of the problems just opening up to us in this field. Tuberculosis, typhoid fever, the eruptive fevers, diphtheria, are all diseases which love a crowd and which grow by what they feed on. The constantly increasing density of population favors their spread; and unhindered their devastations might be expected to increase in a rapidly accelerating ratio. To what extent this increase may be met and successfully combated is not easy to say. It is, however, certain that since the discovery of the microbic origin of these diseases we see reason to pluck up fresh courage and to hope that a clearer understanding of the conditions under which the organisms enter the body and of the forces by which the tissues resist their invasion will enable us to wage a more equal battle against them.

Every medical man in America should give all assistance in his power to the health authorities about him. If they are trying to carry out thorough systems of isolation of disease, he should aid them in making the isolation as complete as possible, and bringing all the contagious cases possible under their observation. It often becomes the duty of the private practitioner to investigate the cause of disease and the manner in which it has spread. When a man has made a diagnosis of typhoid fever and has put the patient upon a proper course of treatment, his duty to the patient is done, but his duty to the community is just beginning. He should first protect the family and the neighbors from a possible spread of the disease from his patient. After this has been provided for by thorough disinfection of the excreta and clothing in contact with the patient, he is still neglectful if he does not make every effort to discover and remove the source of the poison which brought his patient down.

When all of these duties are done, and not until then, can he claim to be a scientific practitioner of medicine. When such a man does all of these things habitually, the community in which he lives must be ungrateful if they do not recognize him, not only as the wise and skilful physician, but as the conscientious public servant and friend.

He is a man to whom the public will always turn in case of need, and whose power for good service to mankind will be limited only by his strength. Scatter such men broadly through this country, and the universities and schools that educate and inspire them with such aims will never lack for support. Scientific medicine will see friends and benefactors growing up on every side, eager to help in a cause where success means a constant gain in universal health and happiness.

DURING the first six months of 1897, 8,232 medical students were enrolled at the German universities.

Original Articles.

THE PUBLIC CARE OF THE INSANE IN MASSACHUSETTS.¹

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 State Board of Lunacy and Charity, etc.*

(Concluded from No. 19, p. 465.)

Of the management of the regular insane asylums, the Memorial makes no criticism. On the contrary, it mentions numerous instances of patients who had been temporarily committed to asylums with great benefit, and whose relapse on their return to the local jail or almshouse bore pitiful witness against the niggardliness which had occasioned it. "At Springfield, in the jail," says the Memorial, "is a lunatic woman, furiously mad, improperly situated both in regard to the prisoners, the keepers, and herself,—a case of extreme self-forgetfulness and oblivion to the ordinary decencies of life. She is much worse since leaving Worcester." At Newton, in the almshouse, in charge of a crippled, old negro pauper, quartered in a woodshed of which he occupied one small room and she the other, "a woman, not old, and furiously mad. Inexpressibly disgusting and loathsome was all, but the inmate herself even more horribly repelling. She rushed out, as far as her chains allowed, almost in a state of nudity, exposed to a dozen persons, and pouring forth such a flood of indecent language as might corrupt even Newgate. I entreated the man, who was still there, to go out and close the door. He refused; that was his place. The young woman was the child of respectable, hard-working patients. She became insane; the father, a farmer with small means from a narrow income, had placed her at the State Hospital. There she remained as long as he could by any means pay her expenses. Then, and then only, he resigned her to the town,—to those who are, in the eyes of the law, the guardians of the poor and needy: she was placed with the other town paupers, and given in charge to a man."

At Danvers was "a young woman exhibiting a condition of neglect and misery blotting out the faintest idea of comfort, and outraging every sentiment of decency. She had been at Worcester Hospital for a considerable time, and had been returned as incurable. The mistress told me she understood that while there she was comfortable and decent."

There are frequent references, also, to cases which might have improved under hospital treatment, if it could have been provided. At Dedham, in the almshouse, are noted, "two females in stalls situated in the main building, lying in wooden bunks filled with straw, always shut up, one of them supposed curable. Overseers of the poor, as I was informed, have declined giving her a trial at the hospital on account of expense."

With admirable forbearance and discrimination, Miss Dix points out that it is not so much the keepers of the local jails and almshouses who are to be blamed for the horrors discovered as the system which entrusts to their care those whom they have no proper facilities for housing, much less treating. She gives letters in abundance from wardens and sheriffs to prove that they regard the introduction of the violently insane as most demoralizing to their establishments, and would welcome any charge by which they could be relieved of them. "I would speak as kindly as possible,"

she says, "of all wardens, keepers, and other responsible officers, believing that most of these have erred, not through hardness of heart and wilful cruelty, so much as want of skill and knowledge, and want of consideration. Familiarity with suffering, it is said, blunts the sensibilities, and where neglect once finds a footing other injuries are multiplied. This is not all, for it may justly and strongly be added that, from the deficiency of adequate means to meet the wants of these cases, it has been an absolute impossibility to do justice in this matter. Prisons are not constructed in view of being converted into county hospitals, and almshouses are not founded as receptacles for the insane. And yet, in the face of justice and common-sense, wardens are by law compelled to receive, and the masters of almshouses not to refuse, insane and idiotic subjects in all stages of mental disease and privation. It is the Commonwealth, not its integral parts, that is accountable for most of the abuses that have lately existed and do still exist. I repeat it, it is defective legislation which perpetuates and multiplies these abuses."

To call attention to this "defective legislation" was the object of Miss Dix's Memorial. To take active steps to remedy it became the task of a notable band of co-workers, such men as Samuel G. Howe, Luther V. Bell, and Horace Mann (before mentioned), William Ellery Channing, and John G. Palfrey. Dr. Howe was the chairman of the legislative committee to which the Memorial was referred. The report of the committee fully endorsed Miss Dix's statements, urged the immediate enlargement of the State Hospital at Worcester, and pointed out the need of securing the benefits of this enlargement to those for whom it was designed, by raising the rate for private patients to a sum corresponding to that asked by private asylums. Public sentiment throughout the State had been so roused by Miss Dix's revelations that the efforts of a few politicians did not avail to prevent the passage of a bill for immediate relief, and accommodations were ordered at Worcester for two hundred additional insane persons. "Thus," says her biographer, "was ventured and won Miss Dix's first legislative victory."

I have dwelt at such length upon Miss Dix's work, not only because of its important place in the history of our subject, but because of its practical value in impressing upon us to-day the dangers of indifference and neglect, and the need of constant wise and authoritative supervision. I believe it to have been the most remarkable work ever wrought within our borders by a philanthropist; and I take a personal pleasure in recalling that Miss Dix was not only a Massachusetts woman, but the granddaughter of a Massachusetts physician,—a man notable in his day for the same indomitable energy that characterized his descendant.

We may be pardoned for noting, before we leave this topic, that the condition of the insane in Massachusetts at this time—shocking as it was—was no worse than in other States. Miss Dix's investigations in Rhode Island the following year brought to light facts equally revolting. Indeed, her work in New England was but the opening of a series of campaigns, "which," says her biographer, "involved nothing less than carrying the legislatures of Indiana, Illinois, Kentucky, Tennessee, Missouri, Mississippi, Louisiana, Alabama, South Carolina, North Carolina and Maryland, besides the establishment of two entirely new

¹ Delivered before the Middlesex South District Medical Society at its annual meeting, April 21, 1897.

asylums in the British Provinces, — one at Halifax, the other at St. John."

To-day Massachusetts is among the foremost States in the Union in her wise and thoughtful supervision of the insane class. We turn now to consider the legislation which has made her so.

In 1856 the Legislature created a Board of Commissioners to execute all the laws relative to alien passengers and State paupers. The supervisory authority of this Board was limited to State almshouse visitations, but it had large administrative powers over pauper and insane persons who were likely to become a public charge.

In 1863 a Board of State Charities was established in place of the Board of Alien Commissioners, and one of the duties especially devolved upon it by statute was the investigation and supervision of the whole system of the public and correctional institutions of the Commonwealth. In 1875 it was relieved of the oversight of the institutions for the instruction of the deaf, dumb and blind, that duty being transferred to the State Board of Education, and in 1879 the oversight of correctional institutions was transferred to the Board of Commissioners of Prisons. Since the date last mentioned, the Board has undergone two changes of name, and various statutes have been enacted restricting or extending its powers in different directions; but the net result of these changes is that the Board now, under the name of the Board of Lunacy and Charity, has essentially the same powers and duties that it had in 1879. From 1879 to 1886 the duties of the State Board of Health were combined with those of the Board of Lunacy and Charity, but the change did not yield satisfactory results, and in 1886 the Board of Health was reconstituted.

Prior to 1864, in which year the Board of State Charities began its work, all the institutions for the care of the insane, as well as all charitable and reformatory institutions, were under the immediate supervision of the Governor and Council. But the other duties devolving upon the chief magistrate of the State and his assistants were too many and too arduous to allow of adequate oversight of the public institutions; and, without disparaging the abilities or the intentions of the various governors, it may be said that the actual supervision of these institutions began in 1864 with the activities of the Board of State Charities, created by the Legislature of the preceding year.

Under the existing laws, the Board of Lunacy and Charity exercises a general supervision over the State Lunatic Hospitals, the State Almshouse, the State Farm, and the State Reform Schools. It is required at least once a year to visit all places where State paupers are supported, and ascertain from actual examination whether the laws regarding them are properly observed; to visit the State Almshouse and the Lyman School for Boys at least once a month; to visit and inspect every private asylum or receptacle for the insane at least once in every six months, and as often as once a year to visit all children maintained wholly or in part by the State, all who have been indentured or placed in charge of any person by any State institution or officer, and all minor children supported at the expense of any city or town. The Board may transfer pauper inmates from one charitable institution or lunatic hospital to another, or send them to any place where they belong; it may transfer inmates of the reform schools to the State Farm,

or return them from the farm to the schools; and, under certain conditions, may transfer inmates of other State institutions or private asylums, or the Boston Insane Hospital, to the State lunatic hospitals or to private asylums and from such hospitals to private asylums and dwellings. In the performance of these and other multifarious duties delegated to it by law, it is empowered to employ agents, and to assign their duties and compensation.

Not to enter fully into the description of the duties devolved upon the Board with reference to juvenile offenders, the care of neglected children, the oversight of infant boarding-houses, the enforcement of the bastardy laws, the supervision of paupers, and the maintenance of alien immigrants in distress, it may be said, so far as the insane are concerned, that its authority and supervision are complete. Wherever the insane are found, in private homes, in almshouses, in private asylums, in any of the State institutions and lunatic hospitals, they are the objects of the watchful care of the Board. The Board acts as a guardian to all these unfortunate children of the State; it investigates each case; endeavors to place each sufferer under the conditions which it believes to be best suited to his needs, and most likely to promote his recovery, if recovery is possible; and exercises constant vigilance to prevent improper or cruel treatment of the insane. It will be seen how much the oversight of all these matters, if faithfully done, means to these unfortunate charges, and to the welfare of the State as a whole.

The growth of the responsibilities of the Board in the oversight of the insane is indicated by the fact that the whole number of State, town and private patients in the public hospitals and asylums for the insane, including the McLean Hospital, on the 30th of September last, was 6,018. Thirty years before, the whole number was only 1,795. The aggregate to-day is almost three and a half times what it was in 1867. Last year the number of new cases, by which is meant the number of persons first admitted to any hospital, was 1,730, — almost as many as the total insane population of the institutions in 1867.

But these figures do not cover all of the insane who are under the supervision of the Board. There were last year seventy-three inmates of private asylums; 129 insane patients were boarded out in private families; and there were 865 insane persons maintained in almshouses, or boarded out in families, by the various towns and cities. Altogether, here is an insane population of about 7,000.

All private asylums are required to have a license from the Governor and Council before they can receive and care for insane patients; and when so licensed they have all the privileges that belong to any hospital, large or small. There are now twelve private asylums, with capacities varying from two to twenty-seven patients. Besides these there are 522 insane belonging to the city of Boston who are not inmates of State institutions, but are distributed among the city's institutions at the Pierce Farm, the Austin Farm, on Long Island, and at the Charlestown Almshouse.

Since 1885 the Board has had authority to place in suitable families insane patients of the quiet and chronic class. Experience has shown that convalescent cases receive the most benefit from this system. There are comparatively few patients who receive

more benefit than if they remained in a hospital. Neither the hospitals nor the Commonwealth have been very much benefited by the system, and there are obvious reasons connected with the welfare of the community at large which suggest that under the present laws the system should be extended very carefully, if at all.

Last year a special visitation was made of all insane inmates of the almshouses of the State by a physician skilled in diagnosis and in the care and treatment of the insane. The report of this special visitor, Dr. Lowell F. Wentworth, is incorporated in the report of the Board of Lunacy and Charity for the present year. It gives a detailed account of all the conditions found in the several towns; and although these conditions are not in every instance such as are in full accord with enlightened methods, to read his report in close connection with Miss Dix's report of her visit to the towns is to gain a vivid idea of the marvellous progress which has marked the last fifty years. The most serious complaints of last year's visitor relate to conditions which would hardly have been noticed fifty years ago. The visitor especially emphasizes the fact that devices for the close confinement of insane patients have almost wholly gone out of use. Only fifty-one cases were found that were subject to restraint or confinement; and in but few of these cases is mechanical restraint resorted to, and in most cases where seclusion is required it is resorted to only in emergencies and for short periods.

The chief defects of this system are negative, but they are important. The patients, as a rule, are fed, lodged and clothed with general sufficiency; but medical supervision is practically entirely lacking. There is a general failure to supply the discipline in regular habits that is regarded as so valuable at the asylums for the chronic insane; and in many cases the work which the patients actually perform is insignificant.

There were found in the almshouses 250 patients who had been removed from the hospitals by the overseers of the poor. The motive in these cases is economy. The cost to the towns of maintaining patients at the State hospitals is \$3.25 per week; while the average weekly cost of maintaining almshouse inmates is \$2.46 per capita, and in some towns, by the practice of strenuous economy, is reduced considerably below that figure. This explains the solicitude with which selectmen watch the condition of the town insane who have been committed to a State institution; and if the cases are of such a character as to warrant the expectation that they can be cared for at an almshouse, and especially if the patients are able to work, their transfer is asked for as soon as the law permits, namely, one year after commitment. One singularly unjust and deplorable working of this system is that really thrifty and worthy citizens, who have acquired a settlement in a town, if they become insane are likely to be transferred to the less favorable conditions of the almshouses; while the shiftless and worthless man, having acquired no settlement and being a pauper at large, if he becomes insane receives the better care, and is better fed and lodged, in the State institutions.

Of State institutions wholly devoted to the insane, we have at present seven.

The opening of the Worcester Insane Asylum, in 1833, has been already referred to.

The second State hospital was that at Taunton, opened in 1854; the third that at Northampton,

opened in 1858; then the Worcester Lunatic Hospital, opened in 1877, the original Worcester Hospital becoming the Worcester Insane Asylum devoted to chronic cases; then the hospital at Danvers, opened in 1878; next the Homeopathic Hospital at Westborough, opened in 1886; and last the Insane Asylum at Medfield, opened in 1896.

The Asylum Wards at Tewksbury were opened in 1866; and the Asylum Department at the State Farm, now known as the State Asylum for Insane Criminals, in 1887.

The cost of constructing and equipping these several institutions, and the number of inmates in each March 1, 1897, were as follows:

	Cost.	Inmates.
Worcester Insane Asylum	\$265,000	448
Taunton Lunatic Hospital	695,000	836
Northampton Lunatic Hospital	615,000	568
Worcester Lunatic Hospital	1,135,000	843
Danvers Lunatic Hospital	1,570,000	861
Westborough Insane Hospital	575,000	536
Medfield Insane Asylum	1,100,000	650
This asylum, when completed, which will be by the end of the year, will have about 1,000.		
The Asylum Wards at Tewksbury	38,000	496
And the Asylum Wards at the State Farm	50,000	304

Outside of Boston, no city has availed itself of the statute which permits cities with a population of more than 50,000 to establish and maintain a municipal asylum for the insane; but seven cities—Lawrence, Lowell, Lynn, Pittsfield, Salem, Springfield and Worcester—maintain separate departments for the insane at their almshouses.

Each of the State hospitals is under the supervision and control of a board of trustees appointed by the Governor and Council, who hold all the property in trust, and manage the affairs of the hospital in the same way that the directors of any corporation manage its affairs. They receive from the State treasury \$3.25 per week for the care of each patient, with the exception of the asylums at Medfield for the care of the chronic insane, where the payment for each patient is only \$2.80 per week. If the trustees can care for their patients for less than the sum paid by the State, they are at liberty to use the surplus in alterations, repairs and improvements. This they often do, diminishing by so much the appropriations which they ask from the State for such purposes.

In round numbers, the State institutions for the care of the insane have cost for construction up to the present time more than six million dollars, not including any interest account. Their total room and ward capacity, when Medfield is completed, will not be far from 5,000. The number in these hospitals, March 1st of the present year, was 5,543.

Now, if 350 of these are transferred to Medfield when it is finished, there will still remain, not making any allowance for the natural increase in numbers, nearly 200 who will have at night to occupy cots in corridors and halls that were never designed for sleeping apartments, and which during the day are used as sitting-rooms and passageways.

The method of distributing patients is simple: the State is divided into hospital districts, and the insane in each district are committed to the hospital belonging to the district, with the exception of the insane of the city of Boston not maintained in the city institutions. These are sent to whichever of the State institutions may be able to receive them, by the direction of the Board of Lunacy and Charity.

At this point I desire to say that, from many visits during the past two years to our several State hospitals, I have been, without exception, very favorably impressed with the character and earnestness of the men who have them in charge, as well as their assistants and helpers. They certainly are watchful and tender in their care of the unfortunates committed to them, and make the best possible use of the means allowed them by the State. At all the State hospitals I have found clean beds, well-aired rooms, and good food, together with proper amusements, arrangements for outdoor exercise and, as far as possible, suitable provision for the healthful employment of those who are able to do any kind of manual labor.

It seems fitting that I should close these fragmentary remarks by a reference to what is being done at the present time at the McLean and some of the State hospitals in the scientific study of the pathology and treatment of insanity.

The initiative in this important movement, as most of you know, was taken by him who addressed you one year ago. When Dr. Cowles began this work eighteen years ago, I am sure he could not have appreciated its full import or forecast its results. Any one who will read his annual reports of the asylum of the first part of these eighteen years will see that one of the constant inquiries was, What can be done in an asylum laboratory beyond the usual disappointing post-mortem investigations into the pathology of insanity? There were comparatively few asylums anywhere, and very few in this country, where even these inquiries were systematically attempted; and although in many of the better asylums the physicians had been abreast of the profession of their time in general therapeutics as applied to the treatment of the insane, and were alive to progressive measures in their care and management, it had been for half a century such a struggle against difficulties, often overwhelming, to provide them humanely with shelter and common comforts that the executives of the asylums were still largely engaged in problems of construction,—in striving for means to meet material needs, in house-keeping and farming, and organizing the details of administration. This work has brought, to the credit of the Commonwealth, in the last twenty years, a complete change in its asylums, with the three new ones, and the four old ones practically rebuilt, their capacity having been doubled and their comfort nowhere excelled in similar institutions. The remarkable transformation in the same period of twenty years that has taken place in the methods of the general hospital and in general practice is well known. It was the introduction of the hospital idea into the McLean Asylum—a name now changed to the McLean Hospital—that inspired the evolution of its clinical laboratory, which was new in the conception of the idea that laboratory investigations in the asylums for the insane should be based upon the principle that “the pathology of insanity begins before the insanity begins.” The difficulty was to combine with the treatment of insanity the results of other departments of scientific research; it was not only the problem of applying the new principles of physiological psychology to mental pathology, but to recognize, as in general medicine, the fact that mental symptoms may have relation to all the elements of vital activity, physiological and chemical.

Dr. Cowles also established a training-school for

nurses. The proper nursing of the insane has been one of the chief problems of the alienists, beginning with Pinel and Tuke; for nearly a hundred years the best of them have earnestly studied this question. Massachusetts claims the credit of solving this problem by the extension to the insane of this modern reform in nursing. Mr. Burdett, in his great work on “The Hospitals and Asylums of the World” (published in 1891), after recounting what had been done in Great Britain, writes: “We must, however, go to the United States of America to find a perfectly equipped and entirely successful training-school. To Dr. Cowles of the McLean Asylum, Massachusetts, belongs the honor of having instituted and brought to a high state of perfection the first complete training-school for attendants upon the insane.” The import of this cannot be better stated than in Mr. Burdett’s own words, which must find a cordial acceptance here. He says of Dr. Cowles’s work: “Realizing as we do the enormous importance which that work cannot fail to have in all its bearings upon the treatment of the inmates of the asylums all the world over, we feel that the nations owe him a debt of gratitude for the successful establishment of the McLean training-school, the usefulness of which will become more and more apparent as years roll by.” This prediction is beginning its fulfilment in the rapid spreading of these schools in the asylums of this and other countries. The founder of the first one foresaw that these schools are to be the first step in providing the means essential for the new method of careful scientific clinical observation.

The improved methods for clinical and pathological study introduced at the McLean Hospital—methods so new, valuable and inspiring—have been taken up by some of our State hospitals, notably those at Danvers and Worcester; and the time, I believe, is close at hand when every State institution for the care of the insane, including those at Tewksbury and Bridgewater, will have laboratories for investigation, and skilled pathologists to work in them. Besides this, I hope that we shall soon see each institution set apart a special hospital building as a reception ward where the newer patients can be kept by themselves for observation, and such special treatment as may be provided for them. Later, those that are regarded as incurable will be separated from the others, and given whatever care they may need; so that the physicians may concentrate the larger part of their energies upon the acute cases, in the hope that many of them may be permanently cured. In comparing the State hospitals with the McLean, it should be remembered that the latter is a private institution, with resources of its own, which permit it to do about what it pleases; while the State institutions are supported from the public purse, and the heads of them have to keep within their appropriations, and can make no improvements the necessity of which does not appear clear to the Legislature, which holds the purse-strings.

Concerning these newer clinical and pathological studies inaugurated at the McLean Hospital by Dr. Cowles, it may be asked what has already been accomplished in our knowledge of the pathology of insanity, and how much reason have we to expect that improved methods of treatment will follow. My answer is that good results must always follow scientific methods, and that we have a right to hope and expect that in due time the pathologists will throw

light upon forms of insanity that are now hidden mysteries, and will discover rational and effective methods of treatment for them. I do not forget that there are some alienists of good repute, and with deep interest in their professional work, who do not take so hopeful a view. I fully recognize also the difficulties that stand in the way of the solution of these problems in mental pathology; but if we remember what has been accomplished in medicine and surgery in the last quarter of a century, we may take courage, and hope that like results will follow like patient and painstaking methods in the study of mental disease.

It is too early yet to insist upon great results. It is the history of most of the great discoveries in science that a long and seemingly fruitless period of investigation is followed first by a glimmer of light, and then by one illumination after another, until some previously dark domain of unsolved mystery is flooded with light. Take the work of the great Pasteur as an example. What if he had been interrupted midway in his studies with the sharp challenge to produce some fruits of his toil? His establishment of the germ theory of disease led up to the discovery of antitoxin for diphtheria, a method of treating infectious disease which is destined to play such an important part in our future therapeutics. Pasteur spent his life in patient scientific investigations and died scarcely dreaming of the mysteries to which his partial discoveries would supply the key. Yet how rapidly one mystery after another has been unlocked as a consequence of his labors!

In the same way we may expect the study of the pathology of insanity to be fruitful. The new methods not only supply an incentive to study and discovery, but, as a consequence of closer personal attention, they insure a wiser and more humane treatment of patients. We do not need to go back as far as the time of Henry VIII and contrast his "Bedlam" with one of our modern asylums for the insane; we need only compare our institutions as they are now with what they were half a century ago, to see how great is the progress that has been made. The old, cruel forms of restraint have been done away; there is now the minimum of coercion. We have brought to bear upon diseased minds the healthful and recuperative influences of amusement, occupation, education and religion; discriminating treatment of individual cases has taken the place of the mere herding together of the insane; kindness has supplanted brute force; and the old hopelessness has yielded to intelligent and persistent remedial methods. In the near future we may hope that mental maladies will be looked upon by the community at large, not with an eye of suspicion and fear, but with the feeling that they are no more humiliating or disgraceful to those afflicted with them than a case of typhoid fever or pneumonia might be. There is ground, moreover, for the hope that fuller pathological knowledge may tend not only to the cure but even to the prevention of insanity.

THE PARIS HOSPITALS. — It is stated by the correspondent of the *Medical Press and Circular*, that the hospitals of Paris need the expenditure of at least £1,000,000 to make them habitable, and a further outlay of another £1,000,000 to make them what they really ought to be.

THE DIRECT TRANSPLANTATION OF MUSCLES IN THE TREATMENT OF PARALYTIC DEFORMITIES.

FIVE CASES OF TRANSPLANTATION OF THE SARTORIUS MUSCLE.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE fact that the tendons of non-paralyzed muscles can be attached to the tendons of those which are paralyzed with a marked improvement in the usefulness of the part, as well as correcting or diminishing existing deformities, has been definitely proved. During the past three years, since careful attention has been given to the subject, quite a large number of cases have been treated by different surgeons with very generally good results. Personally, of the thirty cases which have come under my care, the improvement, with one or two exceptions, has been very decided.

Until a year and a half ago these operations had been confined entirely to the re-attachment of muscles which had distinct and well-formed tendons; but as the results in these cases were so gratifying, it was natural to try the same principles in other parts in which the mechanical conditions were similar although the anatomical structures were unlike. It was found in a large number of cases of infantile paralysis, in which the thighs were involved, that the sartorius and the tensor vaginæ femoris frequently escaped the otherwise general paralysis. The latter, because of its small size and the limited range of its contractility, is of comparatively little importance either in producing or for use in correcting deformities. The former, however, is different; naturally a long and strong muscle, with its spiral position and the fact that between its distal and proximal attachments are two large joints, it is evident that, if not properly antagonized, it can produce undesirable results. The outward rotation of the leg, together with the flinging gait so often seen in infantile paralysis, is largely the result of the action of this muscle. The ilio psoas, and some of the deep rotators, do, of course, play a part; but from the better attachment, mechanically, the sartorius is undoubtedly the most important.

Normally, when the other muscles of the thigh are present, the sartorius by its contraction causes flexion, abduction, and outward rotation of the thigh, and also, to a limited degree, extension of the knee. In its normal position, resting as it does upon the strong anterior group of thigh muscles, it (the sartorius) in the middle of the thigh is raised at least an inch from the femur, so that in its contraction the quadriceps acts as the fulcrum over which the power of the sartorius is applied. It is this position or elevation of the sartorius upon the quadriceps that makes it possible for it to act as an extensor of the knee.

When, however, the muscles are affected as they are in poliomyelitis (acute anterior), the mechanical conditions change. The quadriceps extensor, instead of being an inch or more thick, becomes so much atrophied that it is represented by a thin fascia. The sartorius, as the result of this, practically rests upon the femur; and in changing its position it not only sinks down against the bone, but is drawn farther backward on the inner side, so that as the result it crosses the femur nearer the upper part of the thigh than is normal.

In the new position, together with the absence of

the muscles which normally antagonize it, the sartorius by its contraction causes an increase in the normal amount of flexion, abduction and outward rotation of the thigh; and at the knee, instead of causing extension, it becomes a flexor. This can readily be demonstrated by having the patient sit upon a table so that the legs from the knees hang freely. Upon contraction of the sartorius, with the flexion and rotation of the thigh, which is expected, the foot and leg are drawn backward, not forward, this being the most conspicuous part of the movement.

It is obvious from this, that with the muscle so situated its presence is in part a disadvantage, and as far as the control of the knee is concerned, it would have been better had it been involved in the otherwise general paralysis.

About two years ago I described an operation at a meeting of the Boston Orthopedic Club, and later showed a patient at the Surgical Section of the Suffolk District Medical Society in Boston in which the sartorius muscle was transplanted and attached to the quadriceps extensor just above the patella. When the operation was first planned it was with the hope that by giving this muscle, which normally possesses considerable strength, a better mechanical attachment, the undesirable deformity would be corrected and the usefulness of the leg be increased.

Since that time I have operated upon five patients for this purpose. In three the result has been a marked improvement, in two the result was a disappointment, the failure probably being due to imperfect methods of attaching the muscle. With the more perfect technique and with greater experience such failures should not result.

Of the three successful cases, one, a grown woman twenty years of age, has at the present time absolutely the normal amount of extension of the leg at the knee as contrasted with an entire inability to extend the leg before the operation. When sitting she is able to straighten one leg and hold it straight (thus supporting all of the weight of the leg) quite as well as the other. Upon standing, at the present time, the patient is able to bear all the weight of the body on the lame leg, without artificial support, the sartorius being strong enough in its new position to hold the joint stiff. Before the operation, there being no power in the extensors of the thigh, no weight could be borne upon the leg unless the knee was fixed in a brace, or supported by some artificial means. The flail, flinging gait, which was the only possible method of locomotion, has been entirely corrected, the leg being extended normally when the step is taken. The patient is, of course, still somewhat lame, but the lameness is due chiefly to the weakness of the foot and ankle, the mechanical difficulty at the thigh having been almost entirely corrected. No apparatus for the thigh is now necessary, and the patient has been employed doing regular housework for the past eight months. The paralysis in this case had existed since early childhood, and previous to the operation she had been dependent upon the constant use of a cane or crutch.

In the second of the three successful cases, the result will, I think, be quite as good as in the previous case. The patient, a boy twelve years of age, was first seen in consultation with Dr. C. S. Millett of Brockton, and at that time there was complete paralysis of all the muscles below the right knee, and no power in any of the anterior thigh muscles, except

the tensor vaginae, femoris and the sartorius. On sitting with the legs hanging, extension of the leg at the knee was impossible, as was also standing without support. On walking the thigh was rotated and the leg flung along.

When last seen, about five months after the operation, extension through almost the normal limit was possible. On sitting, the leg could be straightened completely, but the muscle was not strong enough to hold it fully extended for more than a moment. There has been such a steady improvement in his condition however, that I feel sure that the sartorius will strengthen enough to give quite as useful a leg as in the former case.

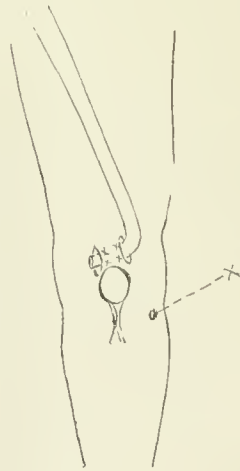
The flinging gait with the rotation of the leg has been entirely corrected.

The third case, a girl eight years old, had infantile paralysis of the right leg. All of the anterior muscles of the lower leg were completely paralyzed, and the anterior thigh muscles were much weakened, although they responded somewhat to voluntary effort. There was not enough power in the quadriceps, however, to completely extend the leg when the child was sitting.

The operation was performed about one year ago, with the idea of using the sartorius to help the weakened quadriceps. The result in this case has been a very decided improvement; the gait is better and the extension of the leg is likewise improved. This in some ways was a more favorable case, and the result is not so striking as in the two just reported.

The operation as illustrated consists in making a longitudinal incision about six inches long on the inner

side of the thigh, so that the middle of the incision is opposite the top of the patella. Through this the sartorius muscle is dissected out and cut off at the extreme lower end where it is attached to the tibia (x). This is then brought forward and attached to the muscular fascia just above the patella and a little to the inner side. The attachment must be made very firmly, and to accomplish this the fascia should be split and the muscle drawn through this so that it becomes adherent to both the outer and inner surfaces. For sutures, kangaroo tendon is by far the best material; catgut is not



strong enough, and is absorbed too quickly; while silk cuts out (one failure apparently being due to this). The wound should be completely closed and the whole thigh tightly bandaged with a compress bandage, with the idea of preventing the contraction of the muscles so far as possible. Over this a plaster-of-Paris bandage or a long splint should be applied to control the motion of the knee-joint. The patient should be kept lying down for two weeks at least, all attempts at sitting or even raising on to the elbows being avoided, so as to relieve the strain upon the thighs. Gentle motion at the end of three weeks should be commenced, and the plaster entirely omitted at the end of from five to six weeks.

The course of these cases after the operation has been interesting. Theoretically, from the histological structure of the sartorius muscle, made up as it is of long, slender, parallel fibres, one would expect comparatively little increase in its normal strength or size; nevertheless, as the work has been increased, the strength of the muscle has increased also, until it has been able to do quite perfectly the work of the quadriceps that would be required in walking or standing. In one case, in four months the circumference of the thigh, measured in two positions, increased one-half of an inch. This development or increase in strength has taken place, however, more slowly than would probably be the case in muscles with the fibres arranged differently.

About the time the operation was first described, a similar operation was performed by Dr. Milliken, of New York City. This case has been reported, together with a case in which an attempt was made to transplant a portion of the deltoid. Besides this, a case operated upon recently by Dr. F. B. Harrington, and another by Dr. G. C. Dolliver, at both of which operations I was able to be present, constitute, so far as I know, all the operations of this kind which have been performed. The results are most encouraging, and the improvement, especially in the first case here reported, has far surpassed my most sanguine hopes. The failures probably would not have occurred but for the newness of the operation, and the lack of perfection of the details.

The only other attempt at the re-attachment of the muscles directly, which has been made by me personally, is a case of infantile paralysis of the leg, involving chiefly the anterior tibial muscle, and resulting in a marked valgus position of the foot.

In similar cases it has been found that in attaching the tendon of the peroneus tertius, or the tendons of the common extensor, to the anterior tibial, that the tendons were so small that as the result of the suturing and necessary handling at the time of operation sloughing frequently took place, and not only was the healing delayed but the ultimate result more or less impaired. In the endeavor to avoid this, the following operation was performed:

Through a straight incision, three inches long, made longitudinally over the middle of the anterior surface of the leg, the muscle of the common extensor was dissected out and approximated to the anterior tibial muscle, and the two attached by means of quilted sutures. The attachment was made at the lower portion of the muscle, so that a portion of the tendinous expansion was included in the sutures; by doing this, none of the contractile fibres of the muscles were impaired.

The wound was then closed tightly, and the foot and leg treated with a plaster-of-Paris bandage, the same as when the tendons have been directly attached. In this way, the danger of sloughing is eliminated, and the contraction of the common extensor muscle necessarily exerts some of its power upon the inner side of the foot through the anterior tibial tendon. In this case there has been some improvement, although not as much as I had hoped; and the operation is reported as one of interest rather than as one which is wholly perfected, or for which much is claimed.

In conclusion, it has been found in a large number of cases of infantile paralysis, in which the thighs are involved, that the sartorius and tensor vaginæ femo-

ris are frequently unaffected when all of the other thigh muscles are destroyed. Without the other muscles, which assist and antagonize the sartorius in its normal action, this muscle, from its peculiar position and attachment, produces undesirable results in the use of the leg. To overcome this and to make the greatest possible use of the muscle, five cases have been operated upon by the writer and here reported, in which the sartorius was divided at its lower attachment, and re-attached to the aponeurosis of the quadriceps extensor above the patella.

The result in three of the cases has been a marked improvement, in one, almost the normal usefulness of the leg resulting. Of the two cases of failure, both were probably due to the failure of the stitches to hold, so that the desired union was not obtained.

One case is reported, in which the anterior tibial muscle and the common extensor of the toes were attached in the lower part of their muscular structure in order to correct the faulty position of the foot.

Clinical Department.

MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE STAFF.

J. COLLINS WARREN, M.D., SECRETARY.

REGULAR Meeting, Wednesday, April 14, 1897,
DR. C. B. PORTER in the chair.

A NEW AFFECTION.

DR. JAMES C. WHITE: In 1889 a case came under my observation here—an entirely new affection. In the same month of the same year a similar case presented itself in a clinic at Paris, and was studied and described by Darier under the title "*Psorospermos folliculaire végétante*." I called the affection "*keratosis follicularis*." Dr. Bowen made an examination of the affected tissue, and made out that it was a simple hyperkeratosis, a modification of the process of cornification consisting in heaping up of modified epidermic cells in the mouths of the follicles. The clinical appearances were very various, consisting in the beginning of small, horny papules closely resembling the keratosis of lichen pilaris of the arm. From these the process extended into larger semi-globular elevations, hard, and becoming somewhat discolored. These were all seated at the mouths of the follicles. By confluence there grew large, horny concretions here and there, one-third to one-half inch in height, and of about the same diameter. The disease at its highest point of development consisted of conical projecting horns resembling miniature cutaneous horns. In that case the whole surface of the body was largely covered, and in certain parts the process was enormously developed. The case in Paris, which I subsequently saw at the International Congress, had not advanced to this degree, but Darier and the other French observers asserted that it was a case of psorospermiosis, and that the peculiar cells found in the tissues were psorosperms, or coccidia, and the name psorospermiosis has remained from that time to this.

Since then other cases have been observed, but only a very few, in different parts of the world. I do not doubt it was in existence a long time before, and it is my opinion that so-called "porcupine men"

(*ichthiosis hystrix*) were cases of this disease. When I returned from Paris the first patient I saw on entering the clinic was this patient, and she presented the same affection. By one who had seen the disease it was immediately recognized by this peculiar appearance of the face. The disease has not advanced very greatly since that time. The whole forehead is occupied by a mass of horny papular growths. Behind her ear the process is much more fully developed. On other parts in the pubic region this process is still more highly developed. There is a little on the wrists. It extends down on the chest in front and in the rear about the same distance. There is a little scattered eruption on the arms and legs. The very peculiar bodies which are found in every one of these papules, large round cells, are not, it has now come to be believed, animal parasites, but are peculiarly modified epithelial cells. It is not a *coccydial* disease, and even Darier has given up that opinion. Although the French name remains, *keratosis follicularis* is the proper name, because it is a descriptive title and not misleading. We have a case here which is of medium grade, and my first case was this young woman's father. That does not indicate that it is a contagious disease, because this girl was less than a year old when separated from her father and never saw him afterwards, nor does it show necessarily a hereditary tendency to the affection, because it is only in one or two other instances that it has affected more than one member of a family.

POINTS IN OPERATIVE TECHNIQUE.

DR. A. T. CABOT spoke of three cases showing points in operative technique and illustrated them by diagram. The first case was one of intra-ligamentous cyst. This cyst, growing in the broad ligament, pressed down behind the uterus so as to fill the whole pelvic cavity and then projected upward into the abdomen. On coming down upon it from above, the peritoneum was split and the cyst shelled out readily over its upper part from the enveloping broad ligament. When, however, the edge of the pelvis was reached, the cyst became very adherent and the walls were extremely thin, tearing readily. As the separation of this part of the cyst was evidently going to be very difficult and accompanied by hemorrhage difficult to stop, it was decided to leave it *in situ*. The edges of the cyst were then stitched to the torn edge of the peritoneum around the edge of the pelvis, so that the cul-de-sac in the pelvis behind the uterus was lined with cyst membrane in the place of peritoneum. The appearance was the same as that of normal peritoneum and, in fact, the cells lining such a cyst are similar to those of the peritoneum, so that there seemed to be no reason why it should not act serviceably in place of the peritoneum which it had displaced. The patient made an uninterrupted recovery without fever, and left the hospital well a fortnight later.

The next case was one in which, after removing a pyosalpinx on one side, the Fallopian tube and ovary on the other side were found fixed behind the uterus close to the cervix by light adhesions. After these adhesions were separated, it was found that the Fallopian tube was pervious and the fimbriated extremity apparently uninjured. It was, however, impossible to prevent the ovary and tube from falling back into the former uncomfortable position behind the uterus whenever they were let alone. To prevent this tendency

for them to fall back into the pelvis the broad ligament close to the Fallopian tube was attached to the peritoneum at the brim of the pelvis by a single cat-gut stitch. This was quite sufficient to hold them in this new position and it seemed probable that the light adhesions that would form would hold them there long enough to allow the other organs in the pelvic cavity to assume their normal relations and fill the place in which the ovary had lain so that it could not afterwards fall in there.

The last patient was a man with a long sinus running up beside the rectum and rather behind it. This had been operated upon as a fistula, and in so doing the anal sphincter had been completely divided so that the patient had absolute incontinence of feces and was incapacitated for work. It was decided to try and separate the sinus from the rectum in such a way that the rectal sphincter could be restored. For this purpose the incision usual in the Kraske operation for the removal of the rectum was made on the right side, as the sinus lay to that side of the rectum. After dividing the bone the lower part of the long sinus was made easily accessible. An opening was found about an inch and a half or two inches up into the rectum and the bridge of tissue that was left was divided, thus throwing all of the lower part of the sinus and the rectum together. Careful dissection was then made of all the tissue involved in the sinus lying on the rectal wall until all of the parts in immediate contact with the rectum and with its sphincter had been thoroughly refreshed. This defect in the posterior rectal wall was then closed by a series of layers of buried stitches, making a very satisfactory perineum, as it were, and the sinus was brought out at the upper extremity of the Kraske incision. Careful search with a probe failed to detect the cause of this sinus, although it seems probable that it depended upon a disease of the bone somewhere near the sacro-iliac joint.

The result of this operation was the complete restoration of the sphincter and entire recovery of the continence of the bowels. The sinus is very much shortened and a good drainage provided for it.

EXOPHTHALMIC GOITRE.

DR. JAMES J. PUTNAM demonstrated eight cases of exophthalmic goitre, to show the variability of this affection in type, and to illustrate certain points in treatment. A further report will be made upon these cases at another time.

The question is much discussed at the present day, whether the symptoms of this affection are due to a toxic substance secreted by the diseased thyroid gland, or present in the circulation because the thyroid gland is diseased, or whether they are due to a disorder of the nervous system; or, finally, whether we should divide the cases, as Buschan suggests, into those of true Graves's disease, which Buschan considers to be of nervous origin, and false or secondary Graves's disease, which he considers to be due indirectly to various causes acting through the nervous system. Enlargement of the thyroid would then count as one of these latter causes.

In the opinion of the speaker, the difficulties in the way of making a classification of this sort are at present unsurmountable. It is impossible to state what constitutes true Graves's disease in terms sufficiently definite to command acceptance. Different types of

the disease obviously exist, but they shade into each other, and are not separated by sharp lines.

As regards the toxic (thyroid) theory we are not able to prove or to disprove it absolutely, but the great probability is that it is not true in the sense that the thyroid disease is the only essential factor in producing this malady. It is probable that certain peculiarities or "predisposition" on the part of the nervous system must be present, or is present in the majority of cases.

This factor of predisposition is studied to advantage by a careful comparison of the conditions obtaining in Graves's disease with those obtaining in health, or in strong emotion, which is a state of quasi-health. If this be done various points of resemblance are found, such as justify the designation of Graves's disease *from this point of view* as a "neurosis of emotion."

There is no doubt that the administration of thyroid preparations excites a condition more or less closely resembling Graves's disease, and the possibility supports itself that even in health the thyroid secretion may play a part as a nerve stimulant.

On the other hand, cases of unquestionable benefit from the use of thyroid preparations in Graves's disease are occasionally seen. It is difficult to predict beforehand which cases will be the ones to respond in this way. Perhaps, as a rule, those presenting the most marked symptoms of general nervous irritability are the most susceptible, but this cannot be asserted as an invariable rule.

Dr. Putnam's cases were used so far as possible to illustrate these statements, especially those with regard to the effect of thyroid preparations. It was also shown that many patients had been benefited considerably, especially as regards their nervous symptoms, from other kinds of treatment in the out-patient department of the hospital. A part of this improvement seemed attributable to long-continued faradism; another part, of undeterminable amount, to the moral encouragement of the treatment used, irrespective of its direct effect.

THREE CASES OF CONGENITAL HEART DISEASE.

DR. CHARLES W. TOWNSEND: These three cases shown here all have the characteristic cyanosis of congenital disturbance of the heart, due either to a malformation or to fetal endocarditis. The cyanosis is variously explained as due to insufficient oxydation of the blood, to the admixture of venous and arterial blood, or to passive congestion of the cutaneous vessels. It is possible that all these factors may exist in one case.

CASE I. Nellie M., ten and one-half years old. Family history negative. At birth, her finger-nails and lips were noticed to be blue. At the time of weaning, when fourteen months old, she became more blue, and the cyanosis has increased with age. The patient has had whooping-cough, measles and scarlet fever; has not had rheumatism. She suffers from dyspnea and palpitation on slight exertion, and occasionally from pain about the heart.

The patient is fairly developed and well nourished. Her face is dusky, the lips and finger-nails being markedly blue; the fingers are clubbed. There is no edema. An examination of the heart shows the apex beat in the fifth intercostal space in the mammary line. Cardiac dulness extends a finger's breadth to the right of the sternum, and to the left mammary line. There is a loud systolic murmur heard over the whole cardiac

area, loudest in the third left interspace. A slight thrill is to be felt and the pulmonic second sound is accentuated. The exact diagnosis of the lesion in these congenital cases is, of course, always difficult, and it is not uncommon to find several lesions associated. The signs in this case would rather indicate an open ductus arteriosus. With a weakened pulmonic second sound and the other signs as before, pulmonic stenosis or tricuspid regurgitation would be thought of.

CASE II. Mary G., twenty-three years old, born in Ireland, a waitress, and the eldest of twelve children, all living and well. Has always been blue from birth. She has had measles, and at times asthma, but never rheumatism, scarlet fever nor chorea. Slightly short of breath, and troubled at times by palpitation. These symptoms have increased in the last year although she is able to do her work as a waitress. The first catamenial period occurred at the age of twenty; she has never been regular, having had only nine periods in all, the last seven months ago.

On physical examination the patient is seen to be poorly developed, short, and shows cyanosis of face, lips and finger-nails. The apex beat is in the fifth space inside the nipple. There is no enlargement, and there are no murmurs.

CASE III. Ida C., twenty-six years old, born in Naples. Is said to have a blue brother living in Italy; four other brothers are well. The patient has been blue from birth, but has always been well, and she affirms that she is able to run fast and upstairs without getting any more out of breath than others. The catamenia began at the age of fourteen or fifteen and have generally been regular. She is married, and has had two children, the first born two years ago, the second last September. Both were still-born, the first two weeks premature, the other three weeks premature.

She is a well-developed and well-nourished woman, markedly blue, especially about the lips and finger-nails. The mucous membrane of the vagina looked almost black. The heart is not enlarged and there is generally no murmur to be heard. On one occasion a soft systolic murmur over the pulmonic area was detected. The hemoglobin was found to be 70 per cent.

To test her comparative ability to go upstairs quickly, I sent her and one of my assistants down stairs in the out-patient department with instructions to run up again as quickly as they could. The assistant's pulse went up from 90 to 124 or 34 beats, while the patient's rose only 24 beats, from 100 to 124.

The absence of cardiac murmurs in these last two cases of congenital heart disease is, of course, unusual, although Holt states they are absent in one-fifth of all cases. In 19 cases, most of which have come under my observation at the Lying-in and Children's Hospitals, five, or 26 per cent., had no murmurs. One of these cases without murmur was extremely blue, and died in seven days. The autopsy by Dr. Whitney showed an opening between the two ventricles, a much enlarged aorta and small pulmonary artery. Another case, seen in private practice, where the autopsy showed a much hypertrophied heart and large ductus arteriosus, there was no murmur heard till towards the last, when a faint systolic murmur developed.

DR. CUTLER: Was an examination of the blood made?

DR. TOWNSEND: The hemoglobin in this case was 70 per cent. I think a blood-count was not made.

She has recently had an attack of gripe, and looks paler than before.

DR. CUTLER: In the case which I had, the number of red corpuscles as well as the amount of hemoglobin was very much increased.

DR. TOWNSEND: As to the absence of murmur, I should like to speak of a case I had in private practice, where there was no murmur to be heard until towards death, in a child four or five weeks old, and then a faint systolic murmur at the apex. In that case there was a large ductus arteriosus and a good deal of cyanosis.

DR. C. B. PORTER reported the following case of

INTESTINAL OBSTRUCTION FROM BAND.

January 17, 1897. L. B. B., Jr., twenty-nine years old, cigar-maker, was brought to the accident-room by Dr. Chandler, of Medford, who kindly gave the following history of the case:

Family History. Sister died of phthisis. Father now phthisical.

Personal History. Scarlet fever, yellow fever, never typhoid. Four years ago had an attack lasting a few hours, similar to present one, the pain being in the same place. The attack was relieved by enema. Two years ago and since, more or less pain in region of right kidney and groin. Has passed sand in his urine; otherwise well until four days ago.

Present Illness. Bowels have always been regular, moving every morning. Four days ago ate a boiled dinner. About 10 p. m. an attack of pain from umbilicus to ensiform. Pain paroxysmal. Became more severe. At 3.30 A. M. sent for Dr. Chandler. Temperature normal, pulse 115. Examination of abdomen negative. Required a subcutaneous injection of morphia (gr. $\frac{1}{4}$). The next morning he was given salines, which he vomited. Retained some milk and lime-water. Was comfortable till evening, when the pain and vomiting returned. Temperature normal, pulse 100. Morphia subcutaneously (gr. $\frac{1}{4}$). Given an enema without result. Passed a fairly comfortable night. Next morning (two days ago) had more pain and vomiting. An enema gave no relief. Required several injections of morphia. Yesterday comfortable all day. Evening temperature 101°, pulse 96. Last night more pain, not relieved by three one-eighth grain tablets of morphia by mouth. At 3.30 A. M. required a one-quarter grain subcutaneous injection. Since then no pain. Seen this morning by Dr. Richardson. The examination of the abdomen has always been unsatisfactory and has never shown anything definite. Two days ago took some tea and cracked ice, and yesterday some tea and milk, which is practically all patient has taken and retained. On entrance pulse 111, of good quality, temperature 100.4°. Examination made by Dr. Porter, and case discussed by Drs. Porter, Richardson and Chandler. Decided to put patient to bed and wait for results. Nutritive enemata every four hours. Milk and lime-water, drachm doses; calomel (gr. $\frac{1}{10}$) every half-hour for six doses.

Physical examination made in the afternoon. Rather thin, fairly well-developed and nourished young man. Perfectly comfortable. Abdomen tympanitic all over; somewhat distended; umbilicus not quite flush with surface; slightly more rigidity over right iliac fossa than over left; some tenderness on deep pressure from region of spleen down to left iliac

fossa. Gurgling sounds heard by stethoscope all over abdomen. Rectum empty, ballooned out. Nothing definite made out. After the calomel, patient has felt as though he might have a movement. Passed only a little gas. No nausea. Blood: 1 P. M., whites, 14,000.

January 18th. Passed fairly comfortable night. Took milk and lime-water, without nausea. Enema this morning passed in part with some gas. Milk and lime-water increased. Patient in considerable pain. High oil enema followed in an hour by soap-suds and glycerine with two drachms turpentine and fifteen grains aloes. Had a good movement. Pain still continued. Knees drawn up. Suppository (morphia, gr. $\frac{1}{2}$) of no benefit; finally, a quarter grain subcutaneous injection. Patient began to have bile-stained vomitus. Previous to this, and after movement of bowels, had been put on to liquid diet. Seen by Dr. Porter. Enema without result. Blood: 8 A. M., whites, 12,000. Urine: albumin, trace of sugar, 1.027, acid, color +. The sediment contained abundant pus, a few large and medium-sized round cells, with fat, one granular cast of large diameter, questionable hyaline casts.

Transferred to Ward E. for operation.

Incision from a little above umbilicus on right to mid point between umbilicus and pubes. Fibres of right rectus separated. Peritoneal cavity opened. As soon as opened coils of intestine immediately forced out on to abdominal wall. Hand introduced. Presenting coils covered with warm towels. Intestines in upper part of abdomen distended, those in lower part empty. Intestines somewhat congested. Small intestine, which had forced its way through the incision and which was distended, followed down. Finally, the mark of a constriction was found about the lumen, reducing it perhaps to half its size. Further examination found a short, thick band joining two loops of the small intestine, lying in the right iliac fossa. The bowel, with the constriction, had been caught by this band, and during the systematic examination of the intestine had been pulled free of the band before the latter had been discovered. Band clamped with two hemostatics and cut between. Ends tied with braided silk and allowed to fall back into abdominal cavity. The coils of intestine lying on abdominal wall too distended to permit of reduction into abdominal cavity. Everything covered up except about six inches of gut. Small incision then made, and intestinal contents pressed out from coils above. Incision in gut closed by continuous Lembert suture and then reinforced by several interrupted ones. Area washed off with peroxide and then drenched with sterile water. Intestines could then be easily replaced. Abdominal incision closed without drainage. Dressing, swathe.

During the operation the rectal tube had been put in, and a small amount of fluid escaped, possibly the remains of an enema, which had been given only a short time before the operation.

Patient in pretty good condition. Strychnia hypodermically. Enema: black coffee, brandy, digitalis, salt solution. Seen by Dr. Porter in the late afternoon and evening. Enema every four hours. Shaved ice and brandy by mouth.

January 19th. First day after operation. This morning enema not retained, passed with much gas. Enemata omitted. During the night vomited occasionally. Diet increased gradually to milk and lime-

water. To-day somewhat distended. Has passed a great deal of gas by rectal tube, unable to pass wind unaided. As the gas accumulates causes much discomfort, which is immediately relieved by its passage. Milk and lime-water nauseates, hence oatmeal gruel.

For a number of days difficulty with gas, requiring rectal tube and enemata. Soft solids on fourth, and house diet on sixth day after operation. Except for slight infection of stitches convalescence uninterrupted, and patient discharged on the sixteenth day after operation, with abdominal support, bowels moving daily with a mild laxative; no pain.

CLEFT PALATE.

DR. C. B. PORTER also presented a number of operations for cleft palate.

CASE I. This young man had cleft palate and had also been operated upon for hare-lip, the result of which certainly was not as good as that following my operation. The cleft in the palate is closed completely and he has had a bridge made in front to fill up the hiatus of the teeth gone so that it makes a most presentable lip and mouth. He is twenty. I did the first operation eighteen months ago.

CASE II. This young man is now undergoing some elocutionary gymnastics and his speech will undoubtedly improve a good deal though it is now much better than before operation. He has only been operated a few months, and the day after he was operated he developed diphtheria together with my assistant who was present at the operation, and that delayed his recovery, although the palate has united entirely. He is twenty-two.

CASE III. I operated on this patient five years ago. This case is really very successful indeed. I think if he had the small hiatus in front filled with teeth like Case I he would get rid of the slight whistle heard at times as he can carry his palate close back against the posterior wall of the pharynx. It seems to me when he gets this little fissure closed he will speak perfectly plain.

I would like to say a few words in regard to the operation, and that is that the angle made by the two halves of the hard palate is usually very acute. Instead of having an arch the two sides come in at an angle and when the soft parts are dissected off from the hard palate it is difficult to pass the sutures in the anterior part of the fissure and in the last two operations I have cut the soft parts free in front so that the two flaps hang down into the mouth, then the sutures are placed with ease. I use silk sutures soaked in compound tincture of benzoin, which prevents them from slipping when tied. I also insist on an obturator like a plate for artificial teeth, to protect the wound from pressure of the tongue in swallowing, that means that I never operate unless there are teeth enough to which to fasten the obturator. I operate under ether and in the Rose position.

ATONIC DILATATION OF STOMACH: GASTRORRHAPHY.

DR. F. C. SHATTUCK: The patient, a Gloucester fisherman, forty-seven years old, entered the Massachusetts General Hospital, January 18, 1897.

Brother died of heart disease.

Had used no alcohol or tobacco. Denied venereal disease. Had usual children's diseases, measles at twenty-four, "slow fever" at nineteen, for three months, no cough.

The present illness began in 1883. Had, about once a year, periods of vomiting, with nausea and inability to retain food on stomach. These lasted for a week to two months, and kept him from work. Attack preceded several days by gastric distress and water-brash. Would usually lose twenty to fifty pounds, which was quickly regained after stomach symptoms subsided. Each attack was worse than the one preceding, both in severity and duration.

For the last five years the attacks have come twice a year and usually last a month. A year ago he was ill three months, and lost forty pounds in weight, which he regained in the next two months. After this his health was very good until last May, when the old trouble again returned. Since then he has vomited daily, and pain and distress in stomach have increased.

Ten weeks ago, while out in a fishing schooner, the vomitus for a fortnight was like coffee grounds. From that time he has done practically no work, but has not been confined to bed. Recently, as a rule, he is comfortable during the day, but toward evening is taken with a gnawing pain in the epigastrium which gradually increases until he vomits in the middle of the night. The pain gradually wears away.

Vomitus varies in quantity from a pint to a gallon, yellow or dark colored, very sour smelling, often containing undigested food.

Patient has marked constipation: he may have no movement for a week. The dejections are occasionally black and tarry, usually not.

There are eructations of gas and acids. Borborygms. Appetite is fairly good.

His best weight was 200 pounds; he now weighs 148 pounds.

Physical Examination. Large skeleton; cheek-bones prominent. Tongue pale, flabby, heavily coated. Pulse strong, voluminous and forcible. Lungs negative. Heart: small area of dulness; no murmurs. Liver: fifth rib, no edge felt. Inguinal glands of good size. Epitrochlear glands enlarged. Knee-jerks active. Urine: normal color, alkaline, 1.018½, no sugar, no albumin, no diazo, sediment heavy, amorphous phosphates. Blood: reds, 3,536,000; whites, 9,400; hemoglobin, 48 per cent.

Diet: Liquids and soft solids.

January 19th. This evening vomited 37 ounces of yellow fluid. Vomitus contained hydrochloric acid. Digestion leucocytosis present. At 1 P. M., proteid meal: whites, 9,550; at 4.30 P. M., whites, 12,800; gain of 3,250.

January 20th. House diet with care. Liquids limited to one pint daily. Stomach washed after test-meal. Capacity, 3,000 c. c. Hydrochloric and lactic acids present, the latter in small amount. When inflated, lower border nearly reaches to pubes. No tumor to be felt. Daily washing of stomach before breakfast showed average residue of 15 ounces.

February 3d. Owing to dilatation of stomach, presence of hydrochloric acid, absence of tumor, and variations in weight, a diagnosis was made of atonic dilatation of the stomach; and after consultation with Dr. Porter the operation of gastrorrhaphy was advised, the patient to return if operation was decided upon.

Patient entered the Surgical Ward for operation on February 15, 1897. Examined again by Dr. Shattuck. Stomach washed out. Dilatation same as before.

February 18th. Stomach washed out in morning.

Washings clear; slight greenish tinge; vomitus contained hydrochloric acid, no lactic acid. Transferred to Ward E, for

OPERATION BY DR. PORTER.

Incision along border of ribs on left side, which reached from middle line just below ensiform cartilage to angle of ribs. Peritoneal cavity opened. Hand was introduced, and stomach found immediately below incision. Pylorus palpated, and a thickened mass felt in connection with it. Stomach pulled up to the incision. Some adhesions about pylorus and some about cardiac end made this very difficult. The stomach wall very slippery — scarcely to be held ex-

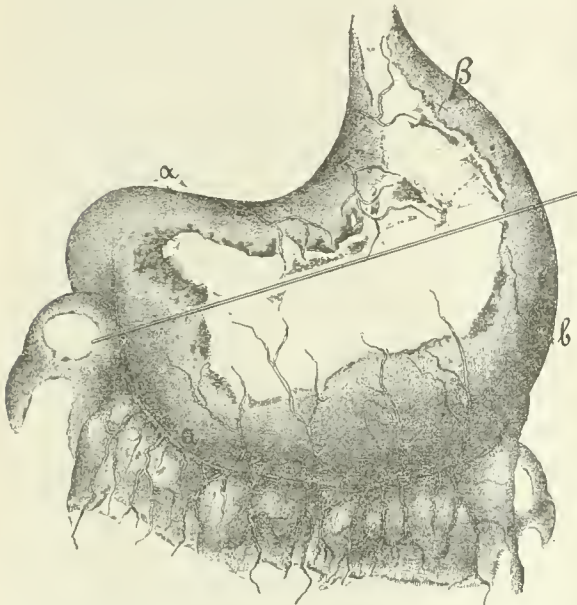


FIG. 1. — Dilated stomach, showing line of fold; *a* to be sutured to *a* and *b* to *b* with intermediate sutures.

cept with gauze — owing to the violent muscular contractions induced by the manipulation. When the stomach was at last delivered through the incision, more careful examination showed that the mass before felt was apparently behind the pylorus, and not a thickening or growth in its walls. Few enlarged glands found. One, size of large bean, removed from the omentum. Was examined immediately by Dr. Whitney and pronounced non-malignant, simply hyperplastic.

As there was some doubt about the mass near the pylorus, an incision was made through anterior wall of stomach, which was somewhat thickened. Index finger was introduced easily through pylorus, the mass lying behind and not connected with it. The incision in stomach was closed by two rows of catgut sutures through the mucous and muscular walls, a third row of Lembert silk sutures in the peritoneum; surface washed off with sterile water, and the gauzes which had been placed about this part of the stomach before the incision changed. The cardiac end of stomach was next pulled down as much as possible and one or two Lembert sutures placed in such a way that when drawn tight a part of the wall would be folded in. This was accomplished by making the space between the places where the suture passed into the wall of the stomach as wide as possible. A few similar

sutures were then placed about the middle of the greater curvature. The pyloric end of the stomach was then pulled up as far as possible and the same sutures passed. These were to be used as guides, and were so placed that when tied they would bring the line of the greater curvature as high up towards the lesser curvature as possible — perhaps one and one-half to two inches below it. These guide sutures were then tied, and the fold thus made was held invaginated while its edges were caught all the way along by a row of interrupted Lembert sutures. Holding the stomach during the last part of the operation was extremely difficult, as its muscular action seemed to have been excited by the manipulations. After the suturing, stomach allowed to retract into the abdominal cavity. No bleeding. Abdominal incision closed. Dressing, swathe. In good condition.

As soon as in bed, an enema of coffee and brandy,

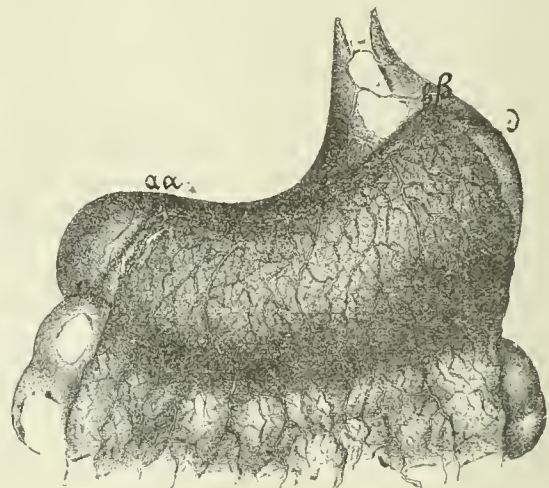


FIG. 2. — Completed operation.

each two ounces. Salt one pint. During afternoon, a subcutaneous injection of strychnia (grain $\frac{1}{16}$). Patient to have absolutely nothing by mouth, nutritive enema every six hours. Beef-juice; peptonized milk, two ounces; egg albumin, one ounce; whiskey and salt solution, each one-half ounce. Soap and glycerine enema every forenoon to clean out rectum.

February 19th. Morphia (grain $\frac{1}{4}$) by subcutaneous injection last night. Patient fairly comfortable to-day. No vomiting; little pain.

February 20th. Second day. Complains of feeling nervous. Has had no vomiting since operation, not even during recovery from ether. Spits up a little to-day. Morphia (grain $\frac{1}{8}$) subcutaneously, and 30 grains of bromide in 9 p. m. enema. Seen by Dr. Porter in the evening. As patient seems to have lost ground a little, decided to start with mouth feeding. Half-drachm doses every one-half hour of albumin and water, beef-juice, whiskey, soda water, black coffee. Nutritive enemata every three hours.

February 21st. Took nourishment well during night. Nauseated but slightly on two occasions. This morning doses increased to one drachm every half hour. Enemata continued, with laudanum, five grains.

February 22d. No nausea. This morning, at 9 A. M., enema not retained, interval increased to six hours.

February 23d. During the night feeding gradually increased, so that this morning he is getting two ounces of liquids every hour.

February 24th. For a short time has been raising yellow and extremely foul-smelling sputum. Seen to-day by Dr. Shattuck, who finds trouble in bases of both lungs behind. Dulness and whispered bronchophony. One ounce of whiskey every three hours. Abdominal wound looks all right. Codeia (grain $\frac{1}{8}$) every four hours p. r. n. for cough.

February 26th. Nine days after operation. Says he feels much better to-day. Expectoration about the only thing of which he complains. Scrambled

perhaps forty-five years of age. In the anterior abdominal wall a recently healed wound, with suture marks, about 14 cm. long, extending from a point $1\frac{1}{2}$ cm. below and from a point $1\frac{1}{2}$ cm. to right of ensiform cartilage toward the left, running parallel to, and one or two centimetres below, costal margin.

No rigor. No scars or pains. Subcutaneous fat small in amount.

Abdominal wound apparently completely healed. Some adhesions of omentum in neighborhood. Peritoneal cavity free from fluid. Intestines, especially colon in its upper portions, widely distended with gas. Serosa of intestine smooth and shining. No injection.

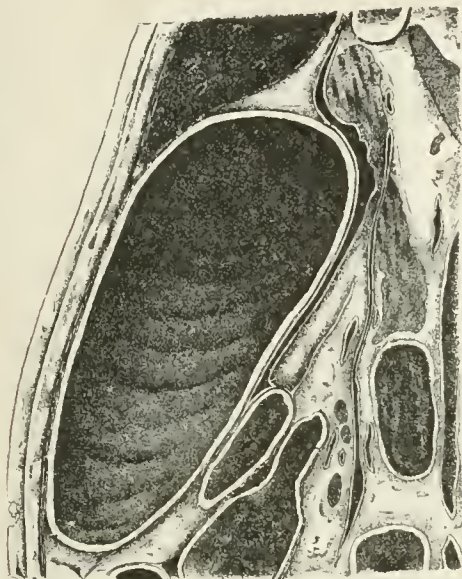


FIG. 3. — Vertical section of dilated stomach.

eggs and scraped beef added to diet list. Liquid increased to three ounces every hour.

February 28th. Eleven days after operation. Examined by Dr. Shattuck, who finds bronchial breathing in bases of both backs, more marked on right than left. Raw oysters and gruels added to diet list. Sputum has become dark colored, and rusty.

March 1st. Temperature subnormal in A. M., quite high in P. M. Whiskey increased to one and one-half ounces every three hours. Dip toast, rice boiled, thin Irish moss blanc mange added to list, according to patient's taste. Blood: whites, 14,100.

March 3d. Sputum decreasing somewhat in amount. Still rusty. Dr. Shattuck finds that consolidation is unchanged. Whiskey increased. Some distinctly bloody expectoration. Blood: whites, 4 P. M., 23,900.

March 4th. Temperature going up. For some days evident that pulse is steadily rising. To-day probable that patient will die. One-half grain morphia every four hours to keep patient comfortable. In the evening oxygen and increased stimulation. Gradually failing.

March 5th. Fifteen days after operation. Died at 10.40 this morning.

AUTOPSY BY DR. JAMES H. WRIGHT.

The body is that of a tall, slenderly built man of

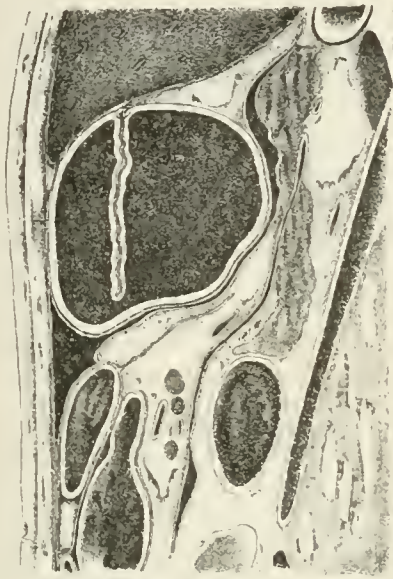


FIG. 4. — Vertical section of stomach after operation showing infolded wall.

Stomach adherent to liver and to diaphragm by a thin fibrinous exudate. The lesser peritoneal cavity not obliterated.

Liver adherent to diaphragm by fibrinous-like strings. In the neighborhood of gall-bladder old adhesions with colon.

In anterior wall of stomach there is a row of sutures along the long axis of the organ 13 cm. long. Near pylorus a second row of sutures about 3 cm. long. No evidence of suppuration. No escape of gas or fluid on pressure.

In both thoracic cavities a very small amount of fluid containing yellowish shreds.

Left Lung. Superior lobe extremely pale. On section, contains a moderate amount of a frothy, slightly reddish fluid. Inferior lobe largely collapsed. Its inferior portion, over an area corresponding perhaps to one-fourth of the lobe, near pleura, is broken down into dirty, grayish, stinking diffuent material, rather sharply marked out from lung tissue in neighborhood. The pleura of the inferior lobe and of the posterior inferior portion of the superior lobe covered with a fibrinous exudate which in places is yellow, several millimetres thick, elastic and infiltrated with fluid. The pleura in these situations firmly adherent to visceral pleura, on which a similar exudation is present, most marked over the diaphragm, apparently opposite

to the gangrenous area of the lower lobe. Just beneath the parietal pleura near the junction of the lower ribs with the spinal column there is a half-dollar-sized flattened elevation with circular outline covered with fibrinous exudate and on section composed of a red-black material resembling clotted blood. There was no perforation of diaphragm. The fibrinous exudate of pleura in places on the lung shows numerous minute vessels extending into it from the pleura.

Right Lung. In superior lobe a chestnut-sized area just beneath the pleura in which the lung tissue is broken down into a brownish-gray diffuent stinking material rather sharply marked out from surrounding lung tissue. In inferior lobe on pleura are two circular areas covered with a dirty, yellowish-gray exudate, rather sharply defined and varying in size from a half-dollar to a dollar. These circular areas seem to correspond to similar circular yellow elevations beneath parietal pleura, which on section are made up of a dirty gray diffuent purulent-looking necrotic material. They are situated in the posterior portion of the thoracic wall. A rib passing beneath one of them was excised and gave no evidence of suppuration in the intercostal or osseous tissue beneath. The areas in the pleura correspond to extensive areas of lung tissue transformed into a brownish-gray stinking diffuent gangrenous material. The areas are sharply marked off from surrounding lung tissue. The inferior lobe is markedly collapsed; its pleura and the pleura of the posterior and inferior portions of the upper lobe covered with a fibrinous exudate which in places is yellow, thick and infiltrated with fluid. The tissue of the superior and middle lobes is extremely pale, not consolidated and contains a small amount of fluid. In lower lobe there is apparently some consolidation in the neighborhood of one of these gangrenous areas, the tissue being resistant, grayish and homogeneous. The pulmonary arteries leading to the inferior lobes of both lungs were dissected, but no good evidence of embolism could be made out. Bronchi injected, and contain a considerable amount of a dirty grayish opaque fluid.

Stomach. The long row of sutures corresponds to the infolding of the stomach wall, the short row to a wound in the stomach wall with inversion of the edges and coaptation of the sound edges. At the pylorus there is a distinct loss of substance in the mucous membrane in the form of an oval ulcer, five centimetres long by two centimetres wide and perhaps four or five millimetres deep. Its margins smooth, to a considerable extent undermined and the mucosa projecting over. The floor fairly smooth with three to four small polypoid projections. The edge of the ulcer reaches to within one or two millimetres of the pylorus. The tissue in the neighborhood of the ulcer not especially indurated nor is the stomach wall especially thickened about it. The pylorus admits the index finger. The stomach, as it appears with the pleat in its wall, is of moderately large dimensions. The stomach contents show no evidence of hemorrhage. The mucosa not remarkable. Other organs not remarkable.

Anatomical Diagnosis. Ulcus ventriculi, with dilatation of stomach; gastrorrhaphy; gastrotomy; circumscribed fibrinous peritonitis; gangrene of lungs; fibrinous pleuritis.

Bacteriological report. Cultures in blood serum; spleen, liver, kidneys, and left side of the diaphragm

sterile; heart: one medium-sized, round, whitish, shining colony made up of staphylococcus pyogenes albus. Right pleura: Four colonies of staphylococcus pyogenes albus, and one of staphylococcus pyogenes aureus. Gangrene of lung: A fairly large number of colonies of staphylococcus pyogenes aureus; also numerous small, round, moist, colonies made up of streptococci.

DR. SNATTUCK: It seems peculiarly hard that this patient above all others should have succumbed to deglutition pneumonia because his stomach was washed out the morning before operation.

DR. WRIGHT: The autopsy showed that the cause of death was gangrene of the lungs. The stomach itself presented the greatest interest. I have here the specimen, hardened in formaline. This is the anterior aspect of the stomach wall. Here is the esophagus; here is the pyloric end. Along here you see a row of sutures, and at this point another row of sutures near the pylorus. When we open the stomach we find that the long row of sutures corresponds to an invagination of the stomach wall along this line, and at the pyloric end of the stomach we see a round ulcer about the size of a quarter-dollar, with smooth margins, a rather indurated base, and no extensive thickening of the stomach wall; in other words, a simple ulcer of the stomach situated exactly on the margin of the pylorus. At the autopsy I could find no evidence of stricture of the organ, but it seemed to me very probable that this ulcer might have interfered very materially with the working of the pylorus. The bacteriological examination of the various organs showed infection which proceeded from the lungs.

TWO CASES OF AORTIC REGURGITATION AND TABES DORSALIS.

DR. H. F. VICKERY: I desire to show two patients who came to me in the Out-Patient Department. The first one who appeared was the father of the second one. Two years ago, at the age of thirty-six, he complained of some stomach trouble. Incidentally, in examining him, it was noticed that there were enlarged glands in the neck and at the elbows, and that the pulse was of high tension, with the aortic second sound sharp and accentuated, without any cardiac murmur. He now presents the well-marked symptoms of an aortic regurgitation and of tabes dorsalis. With regard to the origin of the trouble, we have no history of any primary lesion. He acknowledges venereal exposure.

The little girl, who is now approaching fourteen years, is perhaps rather small for her age. She was the result of the first pregnancy; and since then two children have been still-born very near term. She was brought for a choreiform condition; she was nervous and fussy, and would drop things. She has improved a good deal. Other things to be noticed about her are as follows: around the angles of the mouth there is a scar-like condition; as her profile is seen, the bridge of the nose shows an abnormal depression, the frontal bone is large and the frontal eminences are well-marked; the upper central incisors are distinctly peg-shaped; there is evidence of a former keratitis.

All these things exist without a history of primary or secondary lesions in the family. As is often the case, the importance of the late manifestations are

entirely disproportionate to what seems to be the importance of original lesion.

DR. F. C. SHATTUCK reported briefly cases of

ACUTE CEREBRO-SPINAL MENINGITIS,

and showed one or two patients from the wards.

DR. WRIGHT: Cerebro-spinal meningitis is a disease characterized by a purulent infiltration of the meninges of the brain and cord. The pneumococcus and various other organisms have been found associated with this condition. It has long been believed that the pneumococcus was the most common cause of all forms of cerebro-spinal meningitis and of purulent lepto-meningitis. In 1887 Weichselbaum, and later others, called attention to a certain organism in certain epidemic cases. These observations were confirmed in 1895 by Jaeger, who maintained that this organism is the cause of the epidemic form of the disease. This idea I do not think is altogether borne out by the facts, but it seems very probable that a large proportion of cases of the epidemic form of this disease are due to the infection by this organism of Weichselbaum.

The present epidemic is apparently due to infection with Weichselbaum's coccus. The organism has no special difference from other cocci in its morphology. It is found inside the pus cells of the exudate and the appearances on direct microscopical examination of the exudate reminds one of the gonorrheal pus as seen under the microscope. In cultural peculiarities this organism differentiates itself from the gonococcus by the fact that it grows on ordinary culture media. It is entirely different from the ordinary pyogenic cocci. In some cases it grows readily, in other cases it is difficult to cultivate. In our autopsies here the exudate was very slight in amount and the microscopical examination showed extremely small numbers of this diplococcus in the pus cells. In one case the microscopical examination of the brain showed infiltration of the cortex with leucocytes in addition to extensive infiltration of the meshes of the pia. The cultures from both cases gave unsatisfactory results. Anatomically these two cases were remarkable by reason of the small amount of exudation on the surface of the meninges, by the coincidence of pericarditis in one and of areas of softening in the frontal lobes in the other. There was an endocarditis in the other case.

The experience of other pathologists in Boston who have made cultures from these cases is very much like ours here. They have found the organism extremely difficult to cultivate from the autopsy. From spinal punctures, however, for some reason or other the attempts have been more successful and I saw not long ago a spinal puncture in which there was an enormous amount of leucocytes present and many of them filled with this organism. From the fluid thus obtained Dr. Wentworth obtained numerous colonies of the characteristic organism. It is rather difficult to explain this negative result of autopsy culture. It may be explained by the fact that the organism has a certain slight vitality in the tissues, causes the trouble and dies out much in the same way that the gonococcus infects the Fallopian tubes, causes suppuration and dies out and the tubes are found sterile.

DR. TOWNSEND: In one case that occurred in my private practice the inversion of the thermic curve was very well marked for several days, the temperature being normal at night and 103° to 105° in the morning. In another case I saw in consultation the tem-

perature remained normal nearly all the time. The patient was a small child, had frequent convulsions and retraction of the neck, but at no time apparently was the temperature elevated.

INTERMITTENT HYDRONEPHROSIS.

DR. MAURICE H. RICHARDSON showed a patient upon whom he had operated for intermittent hydronephrosis. The cause of the dilatation of the renal pelvis was an obliquely inserted ureter. The principle followed was that of the Heinecke-Mikulicz operation for stricture of the pylorus. Fenger had adapted this principle to strictures of the ureter and to him Dr. Richardson was indebted for the suggestion of this method for the relief of an obliquely inserted ureter.

The patient, a nurse of twenty-eight, had had intermittent pain in the region of the gall-bladder. Exploration showed a tumor of the kidney, evidently a hydronephrosis. Further observation proved this to be intermittent. It was determined to explore, and if possible to remedy the obstruction. The kidney was exposed, and the ureter found so attached that dilatation of the renal pelvis compressed the ureter. The insertion of the ureter was altered and its calibre enlarged by first making a longitudinal cut through both pelvis and ureter, and by then closing the cut transversely.

The patient made a complete recovery, and was exhibited in perfect health.

Recent Literature.

Hysteria and Certain Allied Conditions. By GEORGE J. PRESTON, M.D. Small 8vo; pp. 298, with three plates and thirteen illustrations. Philadelphia: P. Blakistoun, Son & Co. 1897.

It is somewhat singular that, with the exception of chapters in the recent systems of medicine, which sometimes have almost attained the dignity of monographs, we should have in English no work upon hysteria which embodies the modern investigations upon this disease. Dr. Preston's work, giving, as it does, a clear and concise summary of the recent French treatises, is therefore a welcome and useful publication. Dr. Preston has not only made a careful study of such recent treatises as those of Pitres, Gilles de la Tourette and Richer, but he has also made a survey of the earlier literature, so that he gives an interesting sketch of the earlier theories as to the nature of the affection. In two hundred and twenty pages he gives a history of the disease and the essential facts in regard to symptomatology and diagnosis. To do this in so limited a space is something of an achievement, and he has contented himself in the main with giving a synopsis of the recent French work with only an occasional addition from his own personal experience. In this we note two rather serious omissions. In the chapter on etiology he scarcely speaks of the importance of trauma in producing hysteria, although occasional reference to it is made elsewhere in the book. He says nothing, furthermore, as to the theories of Janet as to the psychical nature of the various symptoms of the disease, theories, which, although somewhat abstruse, are nevertheless of importance in explaining the anomalous character of certain symptoms and in prov-

ing that many supposedly feigned symptoms, such as unilateral amblyopia, may be real. Like the majority of the French authors, too, Dr. Preston in his chapter on diagnosis does not commit himself definitely upon the question whether contracted visual fields, hemianesthesia, and like stigmata can be accepted as definite proof of hysteria, and he makes only a brief allusion to the importance of the differential diagnosis between hysteria and multiple sclerosis, quite neglecting the English work upon this point. We look in vain in this, as in most of the French treatises, for any definite statements as to the prognosis of hysteria. Such omissions, however, may be accounted for by the necessity of condensing the material into so limited a space and by too exclusive dependence on French models, and they can readily be corrected in a future edition. The chapters on treatment, which take up the last seventy-five pages of the book, are based more upon personal experience and are excellent. The author is no follower of new fads, but his advice is clear, concise, and full of good judgment, and the various fashionable panaceas which have arisen from time to time for the treatment of hysteria receive their just deserts. The book is a very useful manual for all who wish to have in English a summary of our present knowledge of hysteria.

Water and Public Health. By JAMES H. FUERTES, C.E. Pp. 75. New York: John Wiley & Sons. 1897.

Water-Supply, considered principally from a Sanitary Standpoint. By PROF. WILLIAM P. MASON. Pp. 504. New York: John Wiley & Sons. 1897.

Water and its Purification. By SAMUEL RIDEAL, D.Sc. (Lond.). Pp. 292. London: Crosby Lockwood & Son. 1897.

The work prepared by Engineer Fuertes consists mainly of a comparative study of the mortality statistics of different cities with reference to their public water-supplies, typhoid fever being taken as the principal sanitary index of the purity of such supplies. The work is fully illustrated with very clear and well-executed diagrams and tables, together with appendices giving the death-rates from typhoid fever in different cities during the six years 1890-95, brief descriptions of the sources of supply in different places, etc.

The character of Professor Mason's excellent work is indicated by the following titles of subjects treated in the different chapters of the book: Introductory, containing a valuable historical sketch of the subject; Drinking-water and Disease; Artificial Purification of Water; Natural Purification of Water; Rain, Ice and Snow; River Water; Stored Water; Ground Water; Deep-seated Water; Chemical Examination of Water; Bacteriological Examination; Quantity per Capita; Action upon Metals. The volume is fully illustrated with maps, cuts and diagrams, including a copy of the normal chlorine map of the State Board of Health of Massachusetts. The book will prove valuable to all physicians, engineers and chemists, and all others who are studying the important problem of water-supply.

Mr. Rideal's work treats the subject in a similar manner with that pursued by Professor Mason, with the addition of a valuable chapter on the Softening of Water, which will prove especially useful to those who live in limestone districts. The style is clear and simple, and the book is well illustrated. It is, how-

ever, surprising to find in a modern work of this character some countenance given to the old superstition of the divining-rod, in the following statement on page 75: "It is perfectly possible that a rod in the hands of a specially sensitive individual may move under the 'indication' of running water."

The success of this utterly empirical and unscientific practice, which is still resorted to in the rural districts of Great Britain and to a less extent in America, for the discovery of water, is due to the almost universal distribution of water beneath the earth's surface and the consequent ease of finding it. Just as the arrant quack usually meets with success because the majority of all cases of illness recover under any form of treatment, whether rational or irrational.

Compressed-Air Illness; or, So-called Caisson Disease.

By E. H. SNELL, M.D., B.Sc. (Lond.). Pp. 251. London: H. K. Lewis. 1896.

In this book the author treats the subject of illness due to compressed air mainly from a clinical standpoint and in consequence of his large experience as a medical officer employed by the authorities who were empowered to build the Blackwall Tunnel under the Thames. Among the chief factors which influence the incidence of this form of illness are —

(1) The pressure itself, and in general terms it may be stated that the severity of the symptoms corresponds with the degree of air-pressure.

(2) The length of stay in the compressed air.

(3) Ventilation. The author believes that thorough ventilation of caissons should be practised, and presents tables which show that the frequency of illness bears a direct relation to the insufficiency of the air-supply.

(4) Prominence is given to the practice of decompression, with the view of preventing the workmen from emerging too suddenly from an atmosphere of forty or fifty pounds' pressure to one of only fifteen. A graduated series of air-locks is employed for this purpose.

(5) Personal idiosyncracies. Young men endure the hardships due to compressed air better than old men; moderately lean men better than stout men; and temperate men better than heavy drinkers.

The symptoms have been multifarious, and include pains in limbs, paralysis, anesthesia, hyperesthesia, auditory vertigo and other serious aural symptoms.

The author concludes with a chapter on the Preventive and Curative Treatment, and adds a full bibliography of the subject.

About twenty years since, Dr. R. T. Davis, of Fall River, presented a valuable paper on this subject at a Counsellors' meeting of the Massachusetts Medical Society.

A System of Medicine. By Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., etc. Regius Professor of Physic in the University of Cambridge. Vol. II. New York: The Macmillan Company. 1897.

The second volume of this System of Medicine treats of Infective Diseases of Chronic Course; Diseases of Uncertain Bacteriology — (a) not endemic, (b) topical or endemic; Infective Diseases Communicable from Animals to Man — (a) of certain bacteriology, (b) of uncertain bacteriology; Diseases due to Protozoa — Intoxications; Internal Parasites. Ad-

denda — Sero-diagnosis of Typhoid Fever; Supplement to article Plague. Addendum to Yellow Fever.

The issue of this volume has been delayed for several months on account of the late appearance of the Report of the Royal Commission on Vaccination. The three sections on Vaccination take cognizance of this report. The delay has also permitted a reference in the Addenda to the Sero-Diagnosis of Typhoid Fever, by Delépine; to Yersin's Serum-Therapeutics for Plague; and to Sanarelli's Bacillus of Yellow Fever.

The statement on the title-page, "By many Writers," is amply justified by this volume, there being no less than thirty-one contributors. The important subject of Vaccinia is dealt with in three separate articles: one by Dr. T. D. Acland, one by Dr. Monckton Copeman, and one by Mr. Ernest Hart — all very competent authorities. Malarial Fever is dealt with by Dr. William Osler, and Amebic Dysentery by Dr. Henri A. Lafleur. The other contributors are equally well known and equally well selected. In further support of this statement, we may mention that the article on Tuberculosis is by Dr. Sidney Martin, and that on the Climate and the Fevers of India by Sir Joseph Fayrer.

There are seventy-seven illustrations, well chosen and well executed, and half-a-dozen charts. We recommend this volume to the thoughtful medical man.

A Clinical, Pathological and Experimental Study of Fracture of the Lower End of the Radius, with Displacement of the Carpal Fragment toward the Flexor Surface of the Wrist. By JOHN B. ROBERTS, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic, etc. Seventy-six pages and thirty-three illustrations. Philadelphia: P. Blakiston, Son & Co. 1897.

This interesting brochure is a contribution to the subject of special fractures, and has been written by the author after an extended investigation. He has classified the subject into a study of Cases and Specimens, Experimental Observations, Causes and Mechanism, Symptoms, Diagnosis and Treatment. The lesion is described at length, and its nature accurately shown by the accompanying illustrations taken from bony specimens, clinical cases and skiagraphic prints. The book is of value and interest, especially to surgeons liable to be called upon to treat injuries to the wrist.

Incompatibilities in Prescriptions. For Students in Pharmacy and Medicine and Practising Pharmacists and Physicians. By EDSSEL A. RUDDIMAN, Ph.M., M.D., Adjunct Professor of Pharmacy and Materia Medica in Vanderbilt University. New York: John Wiley & Sons. 1897.

This work contains much useful information for the readers to whom it is addressed and presents in a convenient form the reasons why certain substances are incompatible. It will have its widest use among pharmacists and students of pharmacy; but to physicians also, especially those who have some familiarity with chemistry, it will be of service in the composition of prescriptions and will likewise be of use in other ways. An indication of the solubility of substances in water or alcohol would add to the value of the book or at least some general rules in regard to this question, such as the solubility of gums in water and their insolubility in alcohol, the insolubility of resins in water and their solubility in alcohol.

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A DEPARTMENT OF PUBLIC HEALTH.

THE JOURNAL has more than once expressed the opinion that no very good prospect existed for legislation at Washington upon the subject of a department of public health until the medical profession and the various State sanitary authorities came to some agreement upon the broad outlines of a plan for that purpose.

This desirable result seems now to have been accomplished. The American Medical Association, at the Philadelphia meeting of this year, adopted a draft for a bill to establish a department of public health, and the American Public Health Association, at its recent meeting in the same city, voted to accept the measure and to do all it could to secure the passage of the bill by Congress.

It is significant that the President of the Public Health Association for this year was Dr. Horlbeck, of South Carolina, who brought all his native eloquence and his large experience as quarantine officer of Charleston to the hearty support of the proposed legislation. Whatever questions South Carolina may have had as to the general doctrine of State rights, she evidently is too wise to now revive them in the presence of a pestilence that knows no State boundaries and has not yet been compelled to recognize the frontiers of the country.

The proposed bill embodies almost all the provisions which experience in this and other countries has shown to be necessary.

The attempt to make the head of the department a member of the cabinet has been abandoned, and the commissioner of public health is to be appointed by the President for a period of six years, with a salary of \$6,000. He is to have suitable assistants and authority to employ such scientific experts as may be necessary for sanitary investigations. The various powers and duties of the Marine-Hospital Service are to be transferred to the new department, which will henceforth be charged with the supervision of national

and interstate quarantine, and the preparation of the necessary rules.

The friction which has always existed between the general government and the States upon the matter of quarantine would be much diminished, if not wholly removed, by the creation of an advisory council consisting of one member of each State board of health. This council would meet in Washington at least once in each year, and oftener if the President so directed, for the purpose of advising with the head of the department upon the question of quarantine and other matters requiring the co-operation of the States.

Provision is also made for the much needed vital statistics relating to communicable diseases, a branch of sanitary administration not even in existence for the country as a whole, though a few cities and towns and fewer States have done some creditable work in this direction.

Such, in brief, is the new bill. To a citizen of Massachusetts it seems absurd that there should be any doubt about the passage of this measure by Congress, for about everything which is required in the proposed law has been done in this State for more than a quarter of a century. The subjects of the inquiries and experiments of her board of health have been so extensive as to reach beyond the bounds of the country itself, and she may now justly demand that the United States should do a share at least of the work which every other civilized government in the world is attempting. The latest contribution to the knowledge of yellow fever does not, it should be remembered, come from our own country, which has suffered so severely from this preventable pestilence. There is no lack here of those skilled in the investigation of the communicable diseases, and it is not to the credit of our government that this skill should not be applied to the diseases of man as well as to the diseases of animals.

Whatever health bill is prepared, even by a body of competent experts, will, of course, be much changed in the course of legislation; and, if the main features of this latest attempt at sanitary legislation are adopted, we shall feel that a pestilence has, once again, as in 1879, been the awful teacher of a foolish generation, though we may well hope that the lesson will not be so soon forgotten as it was when the National Board of Health was done to death in the house of those who should have been its friends.

MEDDLESOME MIDWIFERY.

THE obstetricians of a former generation were very chary in the employment of the obstetric forceps, using it only in desperate cases, or cases not likely to terminate without artificial help. Dewes in 1826 protests against the frequent use of this instrument (to which even then practitioners were resorting oftener than he thought there was any warrant for), and declares that in his own practice he had not employed forceps oftener than once in three hundred and fifty

cases.¹ Davis considered the proportion of one in 53, which was approved by Professor Burns, as at least 400 per cent. too great, and was of opinion that the forceps is not required more than once in 300 or at most in 250 cases.² Deuman in 1807 (the highest authority of the time) laid down a rule "that the head of the child shall have rested for six hours as low as the perineum";³ and Churchill, while thinking this a very practical rule, qualifies it by advising a resort to the forceps "when the second stage has lasted so long as to prove the inadequacy of the natural powers, or at all events so soon as the symptoms of a prolonged second stage make their appearance (quick pulse, dry tongue, fever, etc.)."⁴

In 1835, Dr. Robert Collins published his "Practical Treatise on Midwifery," in which he lays down rules for the use of the forceps: "In tedious labors when the mouth of the womb is fully dilated, the soft parts relaxed, and the head so low in the pelvis as to bring the ear within reach of the finger, if there be a necessity for interference, the forceps may be used with advantage." In 16,414 deliveries, he met only 14 answering to this description.

With the introduction of anesthetics into surgical and obstetrical practice, there has come a reaction against this conservatism, and a readiness not only to save suffering to the parturient woman, but *time* for the medical attendant, by an early application of the forceps. We have heard at medical meetings junior members of the profession boasting of the frequency with which they have applied forceps both long and short. We find even able obstetrical authorities, like Dr. Swayne of Bristol, England, expressing approval of the practice of using the forceps during the first stage of labor. He quotes Denman's injunction: "The first stage of labor must be completed before we think of applying forceps," and declares that "in no branch of obstetrics have we departed so much from the precepts and practice of our forefathers as in this."⁵

Dr. W. Jepp Sinclair, like his predecessor Dewes, calls a halt in this forwardness for instrumental delivery.⁶ The midwifery practice of the present day, especially among the working classes of England, is, he says, something to wonder at and deplore. The young practitioner sees a woman suffering under the pangs of labor; he can relieve these by anesthetics; normal labor is a process which requires time; the practitioner does not like waiting, and he has appliances by which he can abridge the process of normal labor; he knows that he may produce injuries, but these are in his eyes trifling compared with the injuries which he has been accustomed to see treated successfully by the surgeon with the aid of anesthetics, and a laceration can always be sutured if it appears to be of sufficient importance. Why, therefore, should he permit suffering to his patient and waste his own time?

¹ System of Midwifery, Philadelphia, 1826.

² Elements of Operative Midwifery, 1812.

³ Denman: Introduction to the Practice of Midwifery, 1807, p. 241.

⁴ Theory and Practice of Midwifery, Am. ed., 1863, p. 346.

⁵ Medical Press and Circular, January, 1876.

⁶ British Medical Association, Section Obstetrics and Gynecology, September 2, 1897 (Daily Journal of the Association, September 30).

He does not know enough of gynecological practice to be impressed with the importance of a laceration of the cervix or vagina, or a dislocation of the uterus, that is to say, of the remoter consequences of his well-meant interference. The current practice is, Dr. Sinclair thinks, vastly too meddlesome and mischievous, and some reform is urgently required.

In many of the manufacturing towns the proportion of cases in which the forceps is applied amounts to 25 or 30 per cent. and even more. The highest figure mentioned is 75 per cent. It is a common practice for physicians in the case of multipara to allow half an hour to an hour for the second stage of labor, and if the case does not show signs of immediate spontaneous completion, to put on forceps. He declares that among the gynecological cases at the Manchester Southern Hospital, it is by no means a rare thing to find a young woman suffering from a dislocation of the uterus, and lacerations of the cervix and perineum whose first labor was terminated by forceps within four to six hours of the onset of regular pains. In contrast with the high percentage of forceps cases in the obstetrical practice of many of his *confrères*, he cites the relatively low percentage at the Manchester Maternity Hospital: nine per cent. among the in-patients, 1.4 per cent. among the out-patients. The higher percentage of the in-patients is explained by the fact that the hospital beds are understood to be retained for cases of difficulty and danger; hence a large proportion of the women admitted have a history of difficult or operative labor in the past. The statistics of Bela-Von-Walla comprehending cases delivered with forceps in the University *Klinik* for Obstetrics at Buda-Pesth, from September 1, 1882 to December 31, 1895, give a proportion of 1.04 per cent. over the whole time, and in 1895 of only 0.32 per cent.

Wahl's account of the forceps treatment of labor in the Dresden Hospital deals with the cases delivered within the hospital from 1889 to the end of 1895, six years. The whole number of cases was 9,061; forceps were used in 232 cases, that is, two-fifths per cent. It is insisted, at this hospital, that the cervix shall be completely dilated, the membrane ruptured and the sagittal suture as nearly as possible in the antero-posterior diameter of the pelvic outlet. There were only 17 cases in the whole 9,000 in which the forceps were applied while the head was at the pelvic brim. The final indication for resorting to forceps was always danger to the mother, to the child or to both, and three to four hours was the period allowed for the second stage of labor.

Sinclair, who cites these statistics, calls attention to the number and extent of the lacerations and injuries which are attributable to the forceps under conditions in which observations could be exactly made. Munchmeyer reports 85 per cent. of lacerations, including all tears both trifling and severe. Schmidt found 84.6 per cent. of lacerations of the vagina and perineum, two of the latter complete in 132 forceps operations at the *Klinik* of Basel. Wahl, at Dresden, found 81.4

per cent. of injuries in 342 cases. There were lacerations of the cervix which required immediate suturing to stop the hemorrhage, and there were six complete lacerations of the perineum. Only 18 per cent. of the cases were uninjured. "Munchmeyer," says Sinclair, "may well refer to the application of the forceps as the bloodiest operation in medical practice, and Wahl quotes with approval the opinion of Von Winckel that even in the hands of an experienced operator the forceps is an instrument by no means devoid of danger."

Sinclair concludes that all we see and all we read seems to point to the fact that we have replaced the one great injury of parturition of former generations — vesico-vaginal fistula — by a host of others, vesico-vaginal fistula by laceration instead of by sloughing, and in addition to the lacerations are displacements which may come from them. There are numerous other acute and subacute troubles, such as parametritis and cicatrization.

MEDICAL NOTES.

DEATH OF THE DUCHESS OF TECK. — The Duchess of Teck, who it will be remembered was successfully operated upon last April for strangulated hernia by Dr. Herbert W. Allingham, has recently died as a result of the recurrence of the trouble.

THE PARASITE OF TRACHOMA. — The *London Daily Chronicle* recently announced that Dr. Leopold Müller, a professor at the University of Vienna, has succeeded in discovering the bacillus of the so-called "Egyptian eye disease." The affection meant can only be trachoma, since the micro-organisms of other contagious affections of the conjunctiva have been already identified. If true the discovery is important.

CLINICAL RECORDS. — A hedge doctor (a quack) in Ireland was being examined at an inquest on his treatment of a patient who had died. "I gave him ipecacuanha," he said. "You might just as well have given him the *aurora borealis*," said the coroner. "Indade, yer honor, and that's just what I should have given him next, if he hadn't died." — *St. Thomas's Hospital Gazette*.

YELLOW FEVER DECLINING. — On November 8th only fourteen new cases of yellow fever and six deaths were reported in New Orleans; and the reports from Memphis, Mobile, Montgomery and other points also showed a marked decline of the disease, which is doubtless due to the recent cooler weather in the stricken region. The raising of the shotgun quarantine has allowed the resumption of trade, and the situation has markedly improved in every respect. The sudden decrease from the recent average of fifty new cases daily in New Orleans is to be noticed.

LITTRÉ VS. THE VERNACULAR! — One winter's morning in Paris, thirty years ago, M. Depaul was making his visit in the *Cliniques* at eight o'clock. On approaching the bedside of a young woman in the lying-in ward, he said, "Bon jour, ma fille." — "Bon

jour, m'sieur." — "Avez-vous dormi bien?" — "Oui, m'sieur." — "Est ce que vous-avez uriné?" — "Je ne sais pas, m'sieur?" — "Avez-vous pissé?" — "Mais, oui, m'sieur, beaucoup."

DATES OF APPEARANCE OF FROST IN NEW ORLEANS. — In the *Public Health Report* for October 23d is published a table of the dates of the first killing frosts in New Orleans for the years 1873 to 1896. The earliest killing frost occurred in 1877, on November 11th, and the latest in 1887, on December 29th. The average date was December 7th. In Memphis the earliest frost occurred in 1876, on October 2d, and the latest in 1889, on November 29th, the average being October 26th. In Mobile the average date of the first killing frost is November 22d, in Montgomery, Ala., November 12th, and in Galveston, Tex., December 18th. In Vicksburg, Miss., the average date is November 10th. The figures are furnished by the United States Weather Bureau, and, as will be seen, furnish a fair indication for Edwards and vicinity.

YELLOW FEVER IN THE SOUTH. — The following statistics concerning yellow fever have been received in the office of the Supervising Surgeon-General of the United States Marine-Hospital Service during the week ended November 6, 1897:

		Cases.	Deaths.
ALABAMA:			
Mobile,	Oct. 30-Nov. 5,	74	5
Montgomery,	Oct. 30-Nov. 3,	25	3
Selma,	Oct. 30-Nov. 4,	1	1
Wagar,	To Nov. 3,	45	3
Whistler,	To Nov. 1,	25	2
LOUISIANA:			
Baton Rouge,	Oct. 22-31	3	1
New Orleans,	Oct. 30-Nov. 5,	266	54
MISSISSIPPI:			
Bay St. Louis,	Oct. 29-Nov. 5,	42	2
Cayuga,	Nov. 5,	1	..
Clinton,	Oct. 31,	2	..
County Farm,	Nov. 5,	1	..
Durant,	Nov. 1,	1	1
Edwards,	Oct. 30-Nov. 4,	4	..
McHenry,	Nov. 2,	1	..
Nitta Yuma,	Oct. 30-Nov. 4,	9	..
Pascagoula,	Oct. 30-Nov. 3,	6	..
Serauton,	Oct. 30-Nov. 4,	35	3
West Pascagoula,	Nov. 2 and 3,	8	..
TENNESSEE:			
Memphis,	Oct. 30-Nov. 5,	19	10

THE POLICEMAN AND THE EMPEROR. — A good (and true?) story is going the rounds which shows to what extent the violent ebullitions and caprices of the German emperor are regarded in his own country. An English gentleman, it appears, was walking with a friend in Unter der Linden, and in the course of a discussion on the kaiser's conduct committed a grievous error of Majestäts-Beleidigung. "The emperor's a — fool," he exclaimed, whereupon an English-speaking police officer tapped him on the shoulder and said, "You must come mid me to ze police station." — "What for?" asked the Englishman. — "Mein herr did call ze kaiser a — fool," replied the man. — "No, no," urged the acute Briton, "it was the Russian emperor I was talking about." — "Dat vill not vash," went on the constable, "dere is no em-

peror a — fool except the German emperor." After which, Dame Rumor has it, the police officer and the Englishman agreed to keep each other's secret, and parted on good terms. — *Westminster Gazette*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, November 10, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 60, scarlet fever 25, measles 8, typhoid fever 14.

DEATH OF A CENTENARIAN. — Mrs. Cynthia Sewell, reported to be the oldest inhabitant of Bucksport, Me., died recently, aged one hundred years and two months.

BERI-BERI AT NEW BEDFORD. — The whaling barque *Greyhound* arrived at New Bedford November 4th after a five years' voyage. The crew were stricken with beri-beri about a month ago, of so grave a type that three of the number died and five others were brought into port still suffering from the disease.

NEW YORK.

ENTERTAINMENTS IN AID OF HOSPITALS. — On the occasion of the opening of the gorgeous new Astoria Hotel, on November 1st, entertainments were given in the afternoon and evening, under the auspices of a number of fashionable women, in aid of the Saturday and Sunday Woman's Auxiliary Hospital Fund, the Loomis Sanitarium for Consumptives, the Babies' and Mothers' Hospital, the Babies' Ward of the Post-Graduate Hospital, and two day nurseries, and it is said that over five thousand dollars was realized for these institutions.

POISONING BY JAMESTOWN WEED. — Three little boys, one aged four years and the other two six, while enjoying their Saturday holiday recently ate the seeds of some Jamestown weed growing on a lot at the corner of Riverside Drive and 79th Street, under the impression that the seed-pods were chestnut-burrs. As a result, one of them died and the lives of the other two were saved only with the greatest difficulty.

THE OLDEST VOTER. — The oldest voter at the recent Greater New York election was a hale and hearty old gentleman who will celebrate his 101st birthday on the 14th of December next. He is Prof. Emanuel Schwab, a native of Frankfort-on-the-Main, and this is the fifty-third time that he has voted in America, where he came in 1840. He was a member of the Bar in Germany, but in New York has kept a school, which he did not relinquish until he was ninety-six.

DEATH OF DR. CHARLES H. AVERY. — Dr. Charles H. Avery, for many years Corresponding and Recording Secretary of the Medical Society of the County of New York, died at his residence in New York on November 2d, at the age of sixty-three. He was born in Perryville, Madison County, N. Y., and was graduated from the Long Island College Hospital in 1865. At

the time of the death of the late Dr. Wesley M. Carpenter, he was assistant secretary of the County Society, and then succeeded Dr. Carpenter in the office of secretary.

DEATH OF DR. JOSEPH E. CULVER.—Dr. Joseph E. Culver died at his home in Jersey City, N. J., on November 1st. He was seventy-four years old, having been born in Groton, Conn., on February 9, 1823, and was one of the best known physicians in Hudson County. He was graduated from the College of Physicians and Surgeons in 1849. He aided in organizing the Hudson County Medical Society, and had been superintendent of schools and treasurer of Hudson City before its consolidation with Jersey City. Four sons, two of whom are physicians, survive him.

THE LOW DEATH-RATE.—The mortality in the city has of late been very small, representing an annual death-rate of only about 16 per thousand of the estimated population. During the week ending September 25th the total number of deaths reported was 664. In October the highest mortality for any one week was 721, and the lowest 676. In the week ending November 6th there were 669 deaths. For the year 1867 the death-rate was 32.27, for the year 1871, 28.6, and for the year 1892, 24.26. Comparing some of the causes of death in the weeks ending respectively October 23d and November 6th, we find that the deaths from measles increased from 4 to 13, those from scarlet fever decreased from 8 to 7, those from diphtheria increased from 16 to 24, those from pneumonia increased from 73 to 77, and those from pulmonary tuberculosis decreased from 107 to 99. During the week ending October 23d there were two deaths from influenza, but none have been reported since. In the week ending October 23d there were three deaths from malarial fever, and in the week ending November 6th but one.

Miscellany.

MEDICAL EXPERT TESTIMONY: A PROPOSED LAW.¹

AFTER a conference with Judge L. A. Emery, of Maine, Regent Foster, Esq., of New York City, has drawn up the following proposed law intended to correct the abuse of Medical Expert Testimony in New York.

"An Act, in Relation to Expert Testimony," passed the — day of —, 1897.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. When in any civil or criminal proceeding it appears that the testimony of skilled experts may aid in determining any issues of fact, any justice of the Court in which such proceeding is pending may upon the application of either party and after reasonable notice and hearing appoint one or more skilled experts, who shall make such reasonable examinations and tests in relation to the personal thing or subject-matter involved as either party may request.

¹ Medico-Legal Journal.

SECT. 2. Such expert may be examined as a witness at the trial by either party or by the Court, and shall receive for his services and for his attendance at court a reasonable sum, to be fixed by the Court and paid by the party making the application, and be taxed in his costs if he recover.

THE MAIDSTONE EPIDEMIC OF TYPHOID.

THE number of cases of typhoid fever in Maidstone, England, had reached 1,748 by October 27th, and thus this epidemic only finds one parallel in the modern sanitary history of England. That parallel, according to the *Lancet*, October 30th, is the case of Worthing, where, during an epidemic period of seven months, from May to November, 1893, as many as 1,411 attacks were recorded; and both in Maidstone and in Worthing the vehicle of the disease has been a public water-supply. It might be difficult to hold the Worthing Corporation directly responsible for the distribution of the enteric fever poison by means of their water-supply, because the infection that reached the water in that case was the result of accidentally meeting a fissure in the chalk during works carried out to improve, or at least augment, the water-service. But after the event it became clear that the wells sunk as they were in so fissured a stratum as the chalk, had become surrounded by houses, sewers and drains, as the result of the extension of the town, to such an extent that the supply ought to have been looked on with suspicion. Anyhow, a terrible object-lesson was afforded of the results liable to ensue on the infection, whether as the result of neglect or by accident, of a public water-supply.

THE SEPARATION FOR DIAGNOSTIC PURPOSES, BY A NEW METHOD, OF TYPHOID BACILLI FROM THE STOOLS AND URINE.

THE Health Department of the City of New York issues a circular of information regarding the separation for diagnostic purposes, by a new method, of the typhoid bacilli from the stools and urine in cases of typhoid fever, to the following effect:

The examination of specimens of blood from cases of suspected typhoid fever for the Widal reaction has been of great assistance in diagnosis. Occasionally, however, the agglutinating substances do not develop in the blood at any time, or only very late in the course of the disease, or an earlier infection cannot be excluded, owing to the lack of a reliable previous history. In these instances the Widal test fails to give the information desired.

Bacteriologists have long sought for a rapid and certain method of obtaining and identifying in pure culture the typhoid bacillus from the stools and urine in cases of typhoid fever; but hitherto without satisfactory results. Dr. Hiss, Assistant Bacteriologist to the Health Department, has devised a method, by which it is believed it will now be possible to recover and identify the typhoid bacilli within less than forty-eight hours, from specimens of feces and urine containing them. The Health Department desires to thoroughly test this method and is prepared to undertake these examinations, if proper specimens are furnished.

While definite knowledge is lacking as to the number of typhoid bacilli usually present in the stools of typhoid patients, and as to the time of their appearance and disappearance, it is believed that they are generally present in the discharges, not only during the height of the disease, but also, though to a less extent, at its commencement and

for a considerable time during convalescence. The appearance of the bacilli in the urine is usually later than in the feces. The experience thus far obtained seems to indicate that the bacilli may be obtained from about 50 per cent. of all cases on the first examination, and from about 90 per cent. after repeated examinations. The Health Board hopes that these examinations will prove of value, not only for diagnostic purposes, but also in solving important sanitary questions relating to the presence in and time of disappearance of the bacilli from the stools during convalescence.

Physicians are requested to send specimens of intestinal discharges and urine from well-defined cases of typhoid fever, and also from all doubtful cases in which the Widal test has failed to give definite information.

It must be understood that, as yet, these investigations are largely experimental; but that when the typhoid bacilli are isolated in culture an absolute diagnosis of typhoid infection is obtained.

Care should be taken to send, if possible, a specimen obtained from a natural movement, or one following a simple enema. No disinfectants, of course, should be employed. If the movement is formed, the portion from the part last passed, that is, the portion coming from highest up in the intestine, should be selected. In cases complicated by colitis, care should be observed to avoid, if possible, the selection of a specimen composed largely of mucus.

The specimen is collected by seizing a small portion of the discharges between the two slips of wood accompanying the outfit, and placing this in a bottle. The top of the bottle is replaced and the specimen returned to a culture station or to the laboratory.

Specimens of urine should be received directly into the bottle accompanying the outfit, or should be collected in an absolutely clean vessel and immediately transferred to this bottle, which is then returned to a culture station, or to the laboratory.

The necessary outfits, with directions and blanks, may be obtained at the various Health Department depots, where diphtheria culture tubes, antitoxin and other products are supplied. Blanks which should be fully filled out in every case accompany the circular.

THE WIDAL TEST FOR THE DIAGNOSIS OF TYPHOID FEVER.

THIS same department also issues another circular of information regarding the Widal test for the diagnosis of typhoid fever, in which we find these statements:

The results of a very large number of examinations made here in New York and elsewhere show, that if the blood contains agglutinating substances in sufficient amount to cause a prompt and marked reaction, when one part of serum or blood solution is added to *ten parts* of a broth culture of the typhoid bacillus, the presence of a previous or existing typhoid infection may be considered as probable, and that if these substances are present in such an amount as promptly to produce the reaction, when one part of serum or dried blood solution is added to *twenty parts* of the culture, the presence of a previous or existing typhoid infection may, for diagnostic purposes, be practically considered as established.

In estimating the diagnostic value of a negative result from this test, we must remember that the reaction is rarely, if ever, present until at least four days after the appearance of symptoms; that it is occasionally absent in cases of typhoid fever until the third or fourth week, or even until convalescence is established; that when developed it may disappear after a few days, and that no definite relation between the severity of the disease and the degree and time of development of the substances causing the reaction has been established. For these reasons a single negative result in any suspected case only renders

doubtful the existence of typhoid fever. In those cases in which the reaction is absent after the sixth day, it may be reasonably assumed that the large majority will not prove to be typhoid fever, and the absence of the reaction in all of several different cases of a suspected group, or after repeated examinations in any single case, affords evidence of very decided value in excluding the diagnosis of typhoid fever.

Either dried blood or the serum obtained from a blister may be sent for examination. The serum can be more accurately tested than the dried blood, and whenever possible this should be furnished for test. Outfits for preparing both kinds of specimens may be obtained at any of the Health Department depots.

There follow directions for preparing specimens of blood, and directions for obtaining specimens of serum from blisters.

FRACTURE OF PATELLA BY A SURGEON DURING FORCIBLE FLEXION.

ARTHUR POWELL, B.A., M.CH., reports in the *Indian Medical Gazette* the case of a Mussalmani woman, aged twenty-eight, who was admitted to hospital for stiffness ("fibrous ankylosis") of the right knee-joint, caused by synovitis two years previously, and in whose case this accident occurred.

A slight amount of passive movement existed; the patella could be moved laterally, showing no adhesion to the tibia or femur. The patient was well-proportioned, taller and stronger than most of her race.

There was no evidence of syphilis, scrofula, rickets, mollities, scurvy, malignant or other disease to account for fragility of the bone.

Chloroform was the anesthetic. Manual force alone was employed, and no snap was heard other than is ordinarily caused by the rupture of fibrous adhesions.

A peculiar dimpling over the patella was noted, and examination showed that the bone had been broken into three fragments. This was very clearly made out by palpation immediately after the accident, before any effusion took place.

This case is reported by the writer as unique; but, as he remarks, "it is possible that similar cases are not infrequent, though the surgeon is too bashful to record his experience for the warning of others."

The case is the more remarkable, as no pulley or apparatus of any kind was used. The writer adds that he is at the best of times of weak muscular development, weighing only nine stone, and on that occasion was weak with influenza.

APHORISMS.

(A LONG WAY AFTER HIPPOCRATES.)

Ὁ βίος βραχύς, ἡ τέχνη μακρὰ, ὁ καιρὸς ὀξύς,
ἡ πείρα σφαιερὴ, ἡ κρίσις χαλεπή.

(1) LIFE is short, the curriculum long; examiners treacherous, tips fallacious; fees exorbitant, diplomas valueless.

(2) Of making many treatises there is no end, and a superfluity of lectures causeth ischial bursitis.

(3) Whoso seeketh appointments seeketh grief and heart-burning, for the thyrsis-bearers¹ are many but the inspired few.

(4) The art consists in three things: the disease, the patient, and the house-physician.

¹ A term applied to the general body of worshippers in a Greek [Bacchic] temple.

(5) He that would acquire a competent knowledge of medicine ought to be possessed of the following advantages: Natural ability, competent instructors, favorable conditions for study, early tuition, idomitable perseverance, ample capital.

(6) General practice is harassing, specialism lucrative, midwifery laborious, life assurance responsible, hospital measures radical.

(7) Dentistry is golden, ophthalmology cleanly, throat-work sanguinary, otology circumscribed, pessary practice debasing, hygiene elevating, clubs demoralizing.

(8) Whoever would prosper in private practice must first master all these: must possess presence of mind, gentlemanly manners, true sympathy, an iron constitution, an even temper, a head for figures, knowledge of human nature, a devoted wife.

(9) The successful practitioner understands three things: the digestion of infants, the nervous organization of women, the infirmities of age.

(10) The physician is a frequent worshipper in the temple of the dead, but the surgeon's memory for mortal cases is ephemeral.

(11) The physician recognizes the limits of his art, but the surgeon discredits himself by attempting the impossible.

(12) A scientific operation requires three conditions: accurate diagnosis, carefully-planned details, patient nursing.

(13) The most acute cases are those which are suitable for the surgical wards; the next most acute are suitable for the septic wards; after these come cases suitable for clinical; then those suitable for the medical wards; cases more chronic than these are cases suitable for another hospital; and if there be any others yet more chronic than these, they are eminently fitted for a parish infirmary.—*Guy's Hospital Gazette.*

THERAPEUTIC NOTE.

A NEW LOCAL ANESTHETIC.—A. Einhorn and Heinz¹ describe the new synthetic local anesthetic, orthoform. This body is a white, light powder, without smell or taste. It is only partially soluble in water, but enough is brought into solution to make the fluid anesthetic. It combines with hydrochloric acid, forming a very soluble compound, which cannot however always be used, as it irritates some mucous membranes, such as the conjunctiva. Anesthesia is only induced in the places with which the orthoform comes in contact. Orthoform acts as an anesthetic wherever it comes into contact with nerves, and thus it has no effect when applied to the unbroken skin. If it be applied to a burn of the third degree, the anesthetic effect is remarkable. It also allays the pain of ulcers, whether cancerous or other. In one case as much as 50 gm. was sprinkled on a wound within a week, showing that it is quite harmless. It is strongly disinfectant, hindering decomposition and fermentation. Orthoform was also useful in ulceration of the larynx; after some of the powder was blown in the pain was relieved for twenty-four hours. In gastric ulcer and carcinoma it was also of service, but much less so in chronic gastric catarrh. For external use the free orthoform is the best, but for internal use the soluble acid salt. Further observation is needed in regard to its action on the mucous membranes of the mouth, nose, and naso-pharynx. As it is non-poisonous, it can be applied to large ulcerating surfaces. Internally, $\frac{1}{2}$ to 19 of the hydrochlorate has been given several times in the day. Orthoform is stable, non-hygroscopic, and can be added to other remedies.

Münch. med. Woch., August 24, 1887.

METEOROLOGICAL RECORD

For the week ending October 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..24	30.24	44	50	39	83	89	86	N.	N.E.	7	8	O.
M..25	30.02	52	57	47	77	75	76	N.E.	N.E.	8	8	O.
T..26	30.15	52	57	46	80	83	86	N.	N.E.	13	7	C.
W..27	30.21	48	56	40	89	94	92	N.	E.	8	5	C.
T..28	29.86	53	58	48	98	94	96	N.	S.W.	6	2	G.
F..29	29.63	50	60	40	83	82	82	W.	N.W.	7	8	O.
S..30	29.99	41	48	34	66	61	56	N.W.	N.W.	10	5	C.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; ealing; N., snow. † Indicates trace of rainfall. 83—Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, OCTOBER 30, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and group.	
New York	1,868,060	698	342	12.74	13.86	4.62	.70	2.38	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	349	107	17.69	10.73	3.33	1.45	12.47	
Brooklyn	1,160,000	369	136	10.89	12.96	3.36	1.62	4.32	
St. Louis	570,000	166	63	16.20	8.40	3.00	1.20	9.00	
Baltimore	550,000	187	63	15.90	12.19	4.77	3.18	7.42	
Boston	517,732	182	57	8.80	15.40	1.10	2.75	3.85	
Cincinnati	405,000	98	—	8.16	10.20	—	1.02	4.08	
Cleveland	350,000	90	37	4.44	5.55	2.22	1.11	—	
Pittsburg	275,000	84	21	23.80	2.38	4.76	5.95	8.53	
Washington	277,000	87	32	9.20	12.65	2.30	3.45	2.30	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	21	8	3.08	9.52	14.28	4.76	4.76	
Worcester	105,050	31	15	25.84	—	19.35	—	3.23	
Fall River	95,919	35	13	17.16	8.58	—	2.86	2.86	
Lowell	87,133	38	20	5.26	2.63	2.63	—	2.63	
Cambridge	86,812	26	6	3.85	11.55	—	—	—	
Lynn	65,220	21	9	4.76	9.62	—	—	—	
Charleston	65,165	28	7	14.28	7.14	10.71	—	—	
New Bedford	62,416	6	—	83.33	—	50.00	—	33.33	
Lawrence	55,510	24	13	20.80	4.16	4.16	—	16.64	
Springfield	54,790	26	6	15.40	—	7.70	—	3.85	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	7	1	—	—	—	—	—	
Brockton	35,853	5	2	40.00	20.00	40.00	—	—	
Malden	32,884	5	2	20.00	—	20.00	—	—	
Chelsea	32,716	10	4	20.00	20.00	10.00	—	10.00	
Haverhill	31,466	5	2	60.00	—	—	20.00	40.00	
GloUCESTER	29,775	—	—	—	—	—	—	—	
Newton	28,990	11	5	18.18	18.18	9.09	—	—	
Fitchburg	28,392	5	1	—	—	—	—	—	
Taunton	27,812	7	0	14.28	—	—	—	14.28	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	1	—	—	—	—	—	
Everett	21,575	6	3	16.66	—	—	—	16.66	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	6	3	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,726; under five years of age 912; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping cough, erysipelas, and fevers) 384, acute lung diseases 357, consumption 306, diphtheria and croup 147, diarrheal diseases 109, typhoid fever 46, scarlet fever 29, whooping-cough 17, cerebro-spinal meningitis 9, measles 9, erysipelas 4.

From scarlet fever New York 14, Philadelphia, Brooklyn and Cincinnati 3 each, Boston, Cleveland, Pittsburg, Providence, Cambridge and Newton 1 each. From whooping-cough New York 9, Brooklyn 4, Pittsburg 2, Washington and Charleston 1 each. From malarial fever St. Louis 5, Brooklyn and Nashville 3 each, New York 2. From measles New York 7, Philadelphia and Pittsburg 1 each. From cerebro-spinal meningitis New York 4, Baltimore, Boston, Worcester, Lynn and Somerville 1

each. From erysipelas Philadelphia 2, Providence and Springfield 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,982,524, for the week ending October 23d, the death-rate was 16.9. Deaths reported 3,572, measles 91, diarrhea 82, diphtheria 81, fever 79, scarlet fever 49, whooping-cough 47.

The death-rates ranged from 11.6 in Derby to 22.7 in Wolverhampton; Birmingham 20.0, Bradford 13.1, Cardiff 13.8, Gateshead 12.4, Hull 15.3, Leeds 19.0, Leicester 14.6, Liverpool 20.5, London 16.8, Manchester, 19.5, Newcastle-on-Tyne 17.1, Nottingham 13.4, Portsmouth 13.1, Sheffield 18.5, Sunderland 16.9.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 6, 1897.

ADRIAN R. ALFRED, passed assistant surgeon, detached from waiting orders at his home, Jeddo, Mich., and ordered to Marine Recruiting Rendezvous, San Francisco, Cal.

P. FITZSIMONS, surgeon, ordered to duty as a member of the Board of Inspection and Survey, Washington, D. C., November 8th.

G. D. COSTIGAN, assistant surgeon, detached from the "Lancaster" and ordered to the "Indiana."

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOVEMBER 4, 1897.

MURRAY, R. D., surgeon. To resume command of Service at Mobile, Ala. November 2, 1897.

KALLOCH, P. C., surgeon. To rejoin station at Cairo, Ill. November 4, 1897.

CARRINGTON, P. M., passed assistant surgeon. To relieve Passed Assistant Surgeon B. W. BROWN as acting chief clerk of Bureau. November 4, 1897.

COBB, J. O., passed assistant surgeon. Upon completion of duties at Camp Fontainebleau, Miss., to rejoin station at New York, N. Y. November 3, 1897.

BROWN, B. W., passed assistant surgeon. Relieved from duty as acting chief clerk of Bureau, and directed to report to the director of the Hygienic Laboratory for duty. November 4, 1897.

CLARKE, TALIAFERO, passed assistant surgeon. Upon being relieved by Surgeon P. C. KALLOCH, to rejoin station at Chicago, Ill. November 4, 1897.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 490 Boylston Place, on Monday evening, November 15th, at 8 o'clock. Drs. A. L. Mason and H. L. Burrell: "Hydatid Cyst of the Liver."

Dr. J. L. Morse: "A Study of Thirty-seven Fatal Cases of Cirrhosis of the Liver."

Dr. A. Thorndike: "Spina Bifida Ruptured during Birth, Recovery."

Dr. J. P. Clark: "Complete Congenital Occlusion of the Posterior Nares, with the Report of a Case."

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will hold a regular meeting at the Medical Library, 19 Boylston Place, Wednesday evening, November 17th, at 8 o'clock.

At 8 P. M. Short communications: Drs. Cheney and J. L. Morse.

At 8.30 P. M. Dr. W. W. Gannett: "Yellow Fever"; Dr. W. T. Councilman: "Pathological Anatomy of Yellow Fever."

E. W. TAYLOR, M.D., *Secretary*, 416 Marlborough St.

BOOKS AND PAMPHLETS RECEIVED.

Twelfth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. Printed by the State. 1897.

Transactions of the American Surgical Association, Volume XV. Edited by DeForest Willard, A. M., M.D., Ph.D., Recorder of the Association. Printed for the Association. Philadelphia: W. J. Dornan. 1897.

Wounds in War, the Mechanism of their Production and their Treatment. By Surgeon-Colonel W. F. Stevenson (Army Medical Staff), A.E., M.B., M.Ch., Dublin University; Professor of

Military Surgery, Army Medical School, Netley. London, New York and Bombay: Longmans, Green, & Co. 1897.

Incompatibles in Prescriptions for Students in Pharmacy and Medicine and Practising Pharmacists and Physicians. By Edrel A. Ruddiman, Ph.M., M.D., Adjunct Professor of Pharmacy and Materia Medica in Vanderbilt University. First edition. First thousand. New York: John Wiley & Sons. 1897.

Lectures on Physiology. First series. On Annual Electricity. By Augustus D. Waller, M.D., F.R.S., Fullerian Professor of Physiology at the Royal Institution of Great Britain; Lecturer on Physiology at St. Mary's Hospital Medical School, London. London, New York and Bombay: Longmans, Green, & Co. 1897.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume XII. Mental Diseases, Childhood and Old Age. New York: William Wood & Co. 1897.

Practical Diagnosis; The Use of Symptoms in the Diagnosis of Disease. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital, etc. Second edition, revised and enlarged. Illustrated with 201 engravings and 13 colored plates. Philadelphia and New York: Lea Brothers & Co. 1897.

Lippincott's Pocket Medical Dictionary, including the Pronunciation and Definition of Twenty Thousand of the Principal Terms Used in Medicine and the Allied Sciences, together with many Elaborate Tables. Edited by Ryland W. Greene, A.B., Editor of Lippincott's Medical Dictionary. Philadelphia and London: J. B. Lippincott & Co. 1897.

A Text-Book of the Diseases of Women. By Henry J. Garrigue, A.M., M.D., Professor of Gynecology and Obstetrics in the New York School of Clinical Medicine; Gynecologist to St. Mark's Hospital in New York City, etc. Containing 335 engravings and colored plates. Second edition, thoroughly revised. Philadelphia: W. B. Saunders. 1897.

Text-Book of Nervous Diseases, being a Compendium for the Use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous and Mental Diseases in Bellevue Hospital Medical College; Visiting Physician to Bellevue Hospital. Fourth edition, revised and enlarged. With 246 illustrations. New York: William Wood & Co. 1897.

A Manual of Clinical Diagnosis by Means of Microscope and Chemical Methods, for Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D., Late Assistant Resident Physician, Johns Hopkins Hospital, Baltimore; Fellow of the American Academy of Medicine. Second edition, revised and enlarged. With 133 illustrations and 14 colored plates. Philadelphia and New York: Lea Brothers & Co. 1897.

A Handbook of Midwifery. By W. R. Dakin, M.D., B.S. (Lond.), F.R.C.P., Obstetric Physician and Lecturer on Midwifery and Diseases of Women to St. George's Hospital; Physician to the General Lying-in Hospital; Late Examiner in Midwifery and Diseases of Women in the Conjoint Board of the Royal Colleges of Physicians and Surgeons in England. With 400 illustrations (nearly all of which are original). London, New York and Bombay: Longmans, Green, & Co. 1897.

A Treatise on Gynecology, Medical and Surgical. By S. Pozzi, M.D., Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien de l'Hôpital Broca; Membre de l'Académie de Médecine. Second American edition. Translated from the third French edition under the supervision of Brooks H. Wells, M.D., Editor of the *American Journal of Obstetrics*; Adjunct Professor of Gynecology at the New York Polyclinic; Fellow of the New York Obstetrical Society and the New York Academy of Medicine. With 600 illustrations. New York: William Wood & Co. 1897.

Remarks on the Use of the Buried Permanent Suture in Abdominal Surgery. A Clinical Report on the Course of Pregnancy and Labor as Influenced by Suspensio Uteri. Some Further Observations Concerning Movable Kidney. Ectropion of the Cervix in Nulliparæ resembling Laceration of the Cervix. A New Method of Suturing the Abdominal Wall in Celiotomy. A Contribution to the Technique of Operations for the Cure of Laceration of the Pelvic Floor in Women. Vaginal Incision and Drainage of Suppurating Hematoceles due to Ectopic Gestation. The Development and the Present Status of Hysterectomy for Fibromyomata. By Charles P. Noble, M.D., Philadelphia. Reprints. 1896-97.

The Practice of Surgery; A Treatise on Surgery for the Use of Practitioners and Students. By Henry R. Wharton, M.D., Demonstrator of Surgery in the University of Pennsylvania; Surgeon to the Presbyterian and the Children's Hospitals; Assistant Surgeon to the Hospital of the University of Pennsylvania; Fellow of the American Surgical Association, and B. Farquhar Curtis, M.D., Professor of Clinical Surgery in the New York Post-Graduate Medical School and the Woman's Medical School of the New York Infirmary; Surgeon to St. Luke's Hospital and the New York Cancer Hospital; Fellow of the American Surgical Association. Profusely illustrated. Philadelphia: J. B. Lippincott Co. 1898.

Lecture.

FRACTURES OF THE LOWER JAW AND THEIR TREATMENT.¹

BY DR. P. W. MORIARTY,

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GENTLEMEN:—In the treatment of fractures of the lower jaw it is important that the members of our profession should be thoroughly informed upon the subject. Many of you after leaving the school may never meet with a case, but a dentist, especially in the smaller cities or towns, is liable to be called upon at any time to treat a fracture, either in co-operation with the surgeon or alone.

The surgeon finds that fractures of the lower jaw are the most troublesome to treat; he is not able to apply a splint in the same manner as in fractures of other bones. He finds that the numerous muscles which control the movements of the jaw tend to displace the fragments. The muscles which govern the tongue, larynx and the neck, when used, also tend to displacement.

The displacement is produced primarily by the force which caused the accident, secondarily by muscular contraction. If the fracture be at the median line, there will be little or no displacement, as the muscles of the one side have no advantage over those of the other side.

The muscles which are most active in causing displacement are the masseter, the internal-ptyergoid, the mylo-hyoid, the genio-hyoid, and the genio-hypoglossus.

Any decided movement of the head, either rotary or otherwise, will have a tendency to displace the fragments. The simple acts of deglutition and speaking also tend to do the same. In the act of swallowing the larynx is elevated by the contraction of the hyoid muscles, which are attached to the tongue and the styloid process of the lower jaw. Before the contraction can take place the lower jaw must be fixed to the upper by the muscles which fix the mouth, when the act may be accomplished.

I have not time this morning to go further into the action of the muscles in the various kinds of fractures.

The inferior maxillary, from its exposed position, its shape, and its office, is more subject to fracture than the superior maxillary.

There is a wide difference as to the most frequent location of fractures of the jaw.

Ehrichsen claims it occurs more frequently at the symphysis than at any other point, while Boyer makes the statement that it never occurs there, but at the weakest part of the bone, that is, on each side of the symphysis, but as long ago as Hippocrates, fracture at the symphysis was known and recognized.

Garretson says the weakest part is on a line with the roots of the cuspid, with an unbroken dental arch, but where the teeth have been removed the weakest part may be at the point of their removal.

Gibson claims that age has much to do with location, and that in the young it is commonly at the symphysis.

From my experience, I have found that the location of the fracture depends upon the direction of the force

necessary to cause a fracture, and the position of the teeth remaining in the jaw.

Fractures of the ramus are rare. This exemption may be accounted for by the protection given by the muscles and the integument, and the natural strength of the bone, also the force of the blow is often broken by the joint slipping out of place. Fracture at the ramus is more liable to occur in patients whose upper teeth are all missing or who wear a poorly fitting upper plate.

Many cases of fractured neck of the condyle are recorded, and, as a rule, are most serious, as you may get fatal brain complications.

Fractures of the alveoli are common, but are not considered serious unless unusually extensive.

Fractures are simple when the bone only is divided without piercing the integuments.

Fractures are compound when the injury is accompanied by laceration of tissue through which there is a communication between the external air and the fracture. This form is most common, and the laceration exists upon the lingual side; or when the integument is lacerated, it is most generally from gunshot wounds.

Fractures are comminuted when the bone is broken or crushed into several pieces at the same point, and communicating with each other.

Fractures of the jaw are unmistakable, the prominent symptoms being pain, swelling, drooling and crepitus, with but little hemorrhage unless the fracture is compound. There is also displacement of the fragments, which the irregularity in the line of the teeth plainly shows. You may also have increased salivation. Of course, the loss of function is apparent when the patient is unable to use the jaw.

If the inferior dental nerves and vessels are injured you may get paralysis, facial spasms, etc. Drs. St. George, Holmes and Ehrichsen, who have had some experience in such cases, never met with any paralysis connected with the injury to the soft parts; whilst Boyer, Berard, Heath and Chelius in their works claim the opposite.

When any doubt exists as to the location of a fracture of the lower jaw, grasp the bone on each side with the forefingers introduced into the mouth and resting upon the teeth; you will then have no difficulty in recognizing the false point of motion or crepitus between the fragments.

Fractures of the lower jaw are of quite frequent occurrence and are generally the result of direct violence. In men a fall, a kick from a horse or a blow from a policeman's club or from the fist being the prominent causes. In women a blow from the husband has been the cause in every case we have had at the school.

In my opinion, the dentist and not the physician or surgeon is the proper person to treat all fractures of the jaw. Dentists should emphasize this fact, and impress it upon the public and the physicians. That the hospitals are recognizing this fact is proven by the number of cases we have had here during the past few years.

In the early days various methods of treatment were resorted to. The teeth were not considered as essential to the health, comfort and good looks of the patient as now. It did not matter if the contour of the face was marred by the displacement of the fragments. If the parts grew together fairly well it was

¹ A Lecture delivered at the Dental School of Harvard University.

of little consequence if the articulation was good, bad or indifferent. If one or more teeth were prominent and made the displacement noticeable, the forceps in the hands of the surgeon soon remedied that, and the patient was thankful to get through alive.

The physician treats a case of fracture of the jaw by applying a four-tailed bandage, or by wiring the parts together. The dentist treats one by means of a dental splint nicely constructed and properly applied, which is far superior to bandaging or wiring. Physicians seem to be unaware that the comfort and interests of their patients would be better served by calling in the services of a dentist.

The application of a correctly made splint does not interfere with the functions of the jaw, and in a great many cases the patient can masticate with comfort, being able to open and close the mouth. This they cannot do when bandages are used.

The best treatment requires the readjustment of the fractured parts, and fixation, and that the fixation of the bone shall not interfere with its functions, nor with the required dressing of an associated wound.

When a patient with a fractured jaw comes to us we



FIG. 1. Simple vulcanite splint, with boxes vulcanized on each side.

thoroughly wash the mouth with an antiseptic solution, any very loose teeth are removed, and the teeth cleansed from tartar.

An impression of the upper jaw is taken in modelling composition, and one of the lower or fractured jaw in modelling composition or plaster. No attempt is made to put the fragments in proper position.

Plaster casts are made, on which the lines of fracture are clearly indicated. With a fine saw the cast is cut on these lines, and the lower teeth are articulated with the plaster cast of the upper jaw. Plaster is run around to hold the severed portion in position, and then both upper and lower casts are put upon an articulator.

The process of waxing up and making a vulcanite splint is similar to that of making a vulcanite plate, and is familiar to you all.

I find that for fractures at the symphysis the simple dental splint is sufficient (Figs. 1, 2 and 3).

I always vulcanize on the sides of the splint boxes, into which wire arms can be inserted. These wire arms are bent at the corners of the mouth and extend back towards the ears; a bandage from each arm and under the chin gives the pressure required to hold the parts in position (Fig. 4).

If the jaw is fractured in the region of the molars,

considerable pressure is required to get the parts in position. This I obtain by the addition of a mental splint or chin-piece (Fig. 5).

This is well padded and by a number of screw-bolts attached to the wire arms; and the pressure is gradually increased until the fragments are in the correct position (Figs. 6, 7, 8).

In one case that I had during the past year, the patient, who wore an upper and lower set of artificial teeth, had the lower jaw fractured on the right side at the cuspid, and on the left at the first molar. Using the lower plate for a splint, boxes were vulcanized on the side, the arms and chin-piece attached, and a good result was obtained.

In another case in which the patient did not have any teeth (Fig. 9) the fracture was at the ramus. As can be readily imagined, this case necessitated a bandage; but in order to maintain the correct relationship between the upper and lower jaw, an interdental splint, with an opening for the reception of food, was inserted, and the patient bandaged.

Fourteen days later the splint was replaced by an upper and lower set of teeth, and ten days later the patient was dismissed, the union being complete.

That the best constructed splint may be a failure was forcibly brought to my attention in the case of one patient who came to the infirmary with a fracture between the left lower cuspid and bicuspid, and at the angle of the jaw on the right side. Considerable pus exuded from a sinus on the left side. A vulcanite splint with metal chin-piece was applied, and at the end of a week the flow of pus had apparently ceased.

On the ninth day the splint was not in position, the mouth was foul, and pus freely flowing again. Believing that the patient did not properly cleanse his mouth, and being unable to explain the failure of the splint, I removed it and applied a four tailed bandage.

Annoyed and perplexed, I made inquiries, and was informed by an acquaintance of the patient that he with a pair of pliers had loosened the appliance after leaving the infirmary and tightened it again before coming to see us.

The patient at first stoutly denied doing this, but finally admitted that he did, as he could not see why it was necessary to keep such pressure on his jaw.

The great disadvantage that we as dentists labor under in the treatment of some of those cases is that we have no place where patients who are in need of nourishment can be attended. For instance, a homeless patient, or one who boards out or in a café, cannot very well sit down to table with this appliance on his jaw. Or the patient may be feverish and need constant attention; this he cannot get except in some place where he will be looked after.

I have in the cases of some private patients used a modification of the Angle system, but prefer wider bands. I do not approve of banding the lower to the upper teeth except in a few cases, the objections being that in order to feed the patient it would often be necessary to extract a tooth, and that you do not give the patient any use of the lower jaw.

There are many ways of treating a fracture of the jaw other than bandaging, which is the natural device of the sufferer. Barton's, Gibson's, Hunter's, and the four-tailed bandage have done excellent service.

In several cases where the fracture was at the symphysis, with but little displacement, I have used a continuous cap of gold or aluminium cemented onto the



FIG. 2. Fracture at the symphysis, showing splint on the lower teeth. Mouth closed.



FIG. 4. Splint, arms and bandage.



FIG. 3. Shows mouth open, with the splint on the teeth, allowing patient to masticate food with but little discomfort.



FIG. 5. Splint, arms and chin-piece. Pressure is obtained by tightening the screw-bolts which run from the arms to the chin-piece.



FIG. 11a. Plaster model, showing articulation of a fractured jaw before treatment.

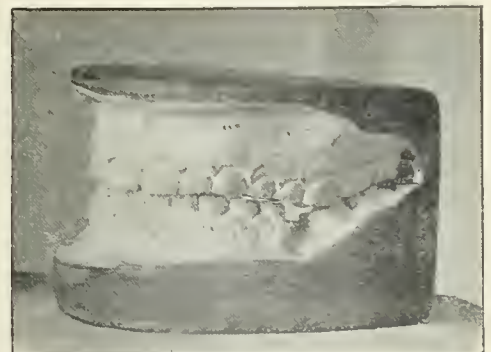


FIG. 11b. Plaster model of same jaw, showing articulation after treatment.



FIG. 6. Side view of splint, arms and chin-piece in position.



FIG. 8. Appliance on, showing how the mouth can be opened to enable patient to eat, drink, etc.



FIG. 7. Front view.



FIG. 9. Fracture of the ascending ramus. Patient without any teeth. Inserted an interdental splint to maintain correct relationship between upper and lower jaw, also bandage and small chin-piece.



FIG. 12a. Plaster model of jaw, showing displacement before treatment.



FIG. 12b. Plaster model, showing articulation after treatment.

teeth. The cap is struck up by die and counter-die from a reconstructed plaster cast of the fractured jaw. This is very neat, is not noticeable, and gives excellent results (Fig. 10).

Wiring the parts together has been tried frequently and often successfully. Wiring the teeth has often been a dismal failure.

Metal plates and ligatures have been used with more or less success.

I have not perhaps given you anything new, but I want to impress upon you the fact that the dentist can do this work better than any surgeon.

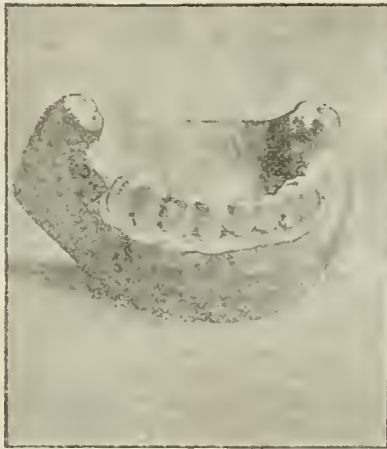


FIG. 10. For simple fracture a continuous capping of gold, aluminum or other metal cemented onto the teeth.

We utilize the work of our predecessors, and perhaps simplify it.

I believe that the time is coming when the treatment of fractures of the jaw will be so systematized and simplified that any dentist will be able to handle the most difficult cases.

During my eight years' service at the school I have found that the average student, under proper instruction, quickly grasps the methods to be pursued in the treatment of any deformity, many of which are more complicated than the treatment of a fracture of the jaw.

I have here models of 28 cases showing condition before and after treatment, which I invite you to inspect.

To conclude, I am firmly convinced that the best treatment of a fractured jaw requires the services of a dentist who can make a splint or appliance adapted for each case (Figs. 11, 12).

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—At the seventh annual meeting of this society, held at Harrisburg, Pa., the following officers were elected: President, Dr. Charles R. Dickson, 343 Sherbourne Street, Toronto, Ontario; First Vice-President, Dr. Frederic Schavoir, 8 Atlantic Street, Stamford, Conn.; Second Vice-President, Dr. Caleb Brown, Sac City, Iowa; Treasurer, Dr. Richard J. Nunn, 119½ York Street, Savannah, Ga.; Secretary, Dr. John Gerin, 68 North Street, Auburn, N. Y. The next meeting will be held in Buffalo, N. Y., on September 13, 14 and 15, 1898.

Original Articles.

THE "SKIN-HEART" AS A FACTOR IN THE HUMAN CIRCULATION: WITH SPECIAL REFERENCE TO THE BRAND AND SCHOTT TREATMENTS.

BY WOODS HUTCHINSON, A.M., M.D.,
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IN tracing the pedigree of our mammalian vascular system, from its earliest ancestral form, as well as through its embryonic stages, we have solely to deal with the familiar process of division of labor and centralization of power. Beginning originally with the network of irregular "chinks" between the cells, which become walled by a simple, flattened, protoplasmic tissue, and this, as the surrounding cells lose to some degree their powers of contraction, developing into circular bands of muscle-cells, each ring of which drives the blood onward, vernicular-fashion, we find this universal contractile power gradually concentrating itself, in one or more regions, with the result of the formation of a heart or hearts in these localities. So that, finally, in the mammalian circulation we have the result of one large, thick-walled dilatation of the original tube, known as the heart, guarded by an elaborate series of valves, propelling the blood through an apparently comparatively passive system of blood-tubes. We say "apparently passive," because even the briefest study reveals the fact that these tubes are highly elastic and to a degree which could only be possessed by living tissues, and that this elasticity plays a most important part in the circulatory mechanism. Secondly, that the calibre of the arteries and arterioles, particularly the latter, varies very considerably from time to time, so as to markedly influence the flow of blood to the part supplied by them. The reactions are obviously carried out by the presence of the elastic coat which forms the chief bulk of the wall in the aorta, and gradually diminishes in importance down to the arterioles; and the changes of calibre are equally obviously brought about by the vital contraction or relaxation of the firm and powerful muscular wall, which extends from the largest arteries down to the mouths of the very capillaries themselves.

This much of actual vital contractility is unanimously granted by all physiologists to the muscular cells of the arterial walls; but here their power apparently abruptly stops. And, while fully realizing that we are in a position to little more than raise the question, we wish to emphatically challenge this position, and assert not only the possibility, but also an apparent high probability, that these muscle-cells are possessed of far wider powers than those with which they are usually credited. In the first place, no one questions the fact that they are as thoroughly alive, responsive and capable of vigorous action as any other unstriated muscle-cell in the body, and it certainly is against all the analogies of what we know of muscular action everywhere else that they should be capable only of such mechanical changes as will merely regulate the calibre of the tubes which they surround. We know of absolutely no form of muscle which is capable of that form of sustained and uniform contraction; everywhere else muscular action is rhythmical—very slowly so in some cases, it is true, but still emphatically rhythmical; and only in a few tetanic, spasmodic conditions is it capable of maintaining a uniform contraction-level for more than a very brief period

of time. And yet this theory presupposes the extraordinary power on the part of the muscular cells of coming to a given point and retaining their contraction practically unchanged, not only for hours, but for days and even weeks. The position becomes still more untenable upon *a priori* grounds when we remember the extraordinarily active part which is played by this very same muscular wall throughout the entire circulatory system of the higher invertebrates and the lower vertebrates, and that the heart is nothing under heaven but a simple localized aggregation of these very same muscular fibres. That this heart-forming tendency is not limited to any one locality, but may occur in two, four, six, or even eight different places in the body, that we still have, even in some of the highest mammals, those singular pulsating, spongy net-works known as *retia mirabilia*, such as are found upon the collateral branches of the carotids in the horse, and which unquestionably appear to act as local balance-wheels of the circulation. It would also seem not improbable that our own elastic, muscular and highly-pulsating spleen performs some such pressure-regulating function for the portal circulation. In fact, we cannot resist the conviction that this extraordinarily universal and vigorous muscle-coat in our arteries and veins has a higher vital function than merely that of mechanically narrowing the calibre of the vessels. As Wesley Mills aptly expresses it, "An inherent tendency to rhythmic contraction, all through the vascular system, including the vessels, must be taken into account."¹

While this dissatisfaction with the usually accepted view of human physiologists was manifesting itself at the comparative end of the line, upon the extreme opposite wing of the army of medical progress, among the clinicians and the therapists a similar though less articulate feeling was developing itself. We have long been conscious of the utter inadequacy of most of the explanations of the extraordinarily tonic and beneficial effects of bathing, or splashing the surface of the body, with cold water. The familiar "reaction" theory has been growing more threadbare every year; for, if it simply consists in throwing more work upon an already exhausted or overloaded central organ, its ultimate effects would necessarily be that of our boyish attempts to lift ourselves by our boot-straps. Not that this element does not play some part in the result, but that it is utterly inadequate to account for the general glow of satisfaction, the feeling of comfort and permanently tonic effect which is brought about by this simple but wonderfully effective means. Why the blood should remain for not merely minutes, but even hours, in the superficial vessels, with less effort on the part of the heart than before the plunge or splashing is, of course, hardly to be accounted for simply by any tonic effect upon the heart or central nervous system; but when this remedy began to be systematically applied in therapeutics, the gap between the theory and the results became wider still. In the Brand treatment of typhoid fever, for instance, while we were at first inclined to regard almost the whole of its beneficial effect as due to a mere mechanical lowering of the temperature and quickened escape of abnormal bodily heat, one after another our clinicians have come to the conclusion that this is one of the least of its beneficial effects, and that the singularly tonic effect which is produced upon the heart and nervous system and the renal excretion is the central factor in its

wonderful power. All the leading authorities upon this method of treatment—Baruch, Osler, Seiler, Stockton—have expressed themselves most definitely to this effect. In the words of the last: "It is not simply a question of reducing the temperature, for it cannot be too strongly insisted that while the temperature is an extremely important and constant accompaniment of these states and changes it is far from being the most serious or the most important of them. In fact, it is to be regarded, both in its rise and reduction, as only an index of the more important and active conditions which are going on deep in the interior of the body. So far as the mere reduction of temperature is concerned, the Brand method offers probably little advantage over the antipyretic drugs, but its remedial superiority lies chiefly in the effect it has upon the underlying factors. Authorities are agreed that the chief factor in its curative effect is not the mere mechanical reduction of the temperature, as such, but the marked improvement in tone, first in the peripheral cutaneous and then in the general vascular system. This it is which drains and empties the engorged lymph-spaces of their poisoned food materials, that relieves congestion in the hepatic and pulmonary circulations, that throws the full volume of blood through the anemic, paralyzed kidneys."

Still more recently, in a widely divergent realm of therapeutics, this method has been applied, and with even more surprising results: first, in the treatment of the toxic heart-failure of pneumonia; and, second, in the so-called Schott method in the treatment of valvular heart-disease. In the latter of these the effect upon the vascular mechanism is much the same as before—the application of cold or cool water to the body surface. This, however, is rendered more stimulating, first, by the addition of considerable quantities of salt, chiefly such as will be found in sea-water; and, second, in the later stages by the introduction of that unrivalled stimulant to unstriated muscle fibre, carbonic acid. In this last case we have obviously the temperature factor completely eliminated, and the nervous system as such almost equally so; for these patients are usually in a fairly good state of equilibrium, with but the one defect, the inadequacy of their great heart-pump. So marked is the effect of this skin-heart tonic, that in severe cases of dilatation the almost incredible result is attained, of causing the apex to retract three-quarters of an inch towards its normal position in a single bath. Not only are the pulsations of the heart greatly lowered in frequency, but apparently increased proportionally in power, so that the work, which was previously altogether too much for it, is performed with comparative ease and comfort. In fact, the results obtained from this simple remedy sound almost too good to be true, and would hardly be believed, if the repeated experience of competent clinicians did not almost unanimously verify them.

Now, it seems to me that on no possible theory which regards the heart as the sole motive-force of the circulation, and the heart-muscle as the only muscle in the vascular system possessing powers of rhythmic, propulsive contraction, can more than the merest fraction of any of these three great classes of results be explained. But, suppose we recognize the power already suggested, of constant rhythmic contraction upon the part of the muscular tissue *wherever found* in the vascular system,—grant this, and it seems to us that

¹ Animal Physiology.

the problem in all three cases is wellnigh solved. The voluminousness and functional importance of the great mesh of blood-vessels in the skin and subcutaneous tissue, its importance as a heat-regulating and excretory factor, have been insisted upon by all physiologists; and if, in addition, we have the right to regard this enormous mesh, capable of containing nearly thirty per cent. of the entire blood of the body, as endowed with the power of independent contraction in its muscular walls, we have at once a factor in the circulation which could be depended upon for the production of some most striking results. In fact, we venture to claim that in the blood-vessels of the skin and underlying tissues we have in the higher vertebrates, just as everywhere in the lower forms of life, a great "skin-heart," which plays an important part in the circulation, not only in health, but also in disease. For instance, in the effect of the Brand baths, the fact that the local stimulant effect upon the vessels of the skin is promptly followed by a rapid reactionary dilatation is as familiar as the alphabet; but just why this reaction should so immensely improve the quality of the heart's action and relieve the toxic condition of the whole nervous system is as yet hardly accurately explained. It is usually accounted for simply on the ground that it relieves the work of the heart by dilating the skin-vessels and diminishing peripheral resistance.

But Winternitz observes, what a glance at the flushed skin of the fever patient would immediately suggest to the eye, that we have already a distended condition of the peripheral blood channels due to paralysis of the vessel walls, and insists, in flat contradiction to the other explanation, that the heart's action is improved by the *restoration of resistance* in the peripheral circulation. But let us once admit that the fundamental element in this so-called "improvement of the tone" in the superficial vessels, the appearance of which all investigators agree upon, is really an active and not a passive one, a local rather than a reflex change, and the problem is solved. In other words, the normal condition of the muscles in the walls of the arterioles, and of the amoeboid contractile endothelium of the capillaries is not one of rest, either in contraction or dilatation, but of constant rhythmic activity, and that the restoring of this active contractivity in the vast mesh of vessels in the skin, by the contact of the cold water and by friction, is the essential element in the improvement of the circulation. The heart itself is nothing but a special local aggregation of these same muscular fibres, and like them, its action is intrinsic and merely *regulated* by the so-called cardiac nerves; and, when we recall that the great contractile mesh of the cutaneous vessels is capable of containing over thirty per cent. of the entire blood of the body, and that the whole of this surface is affected by the cold bath, it hardly seems impossible that the stimulation of this great, diffuse "skin-heart" may be a factor of the greatest importance in improving the entire circulation. Once this active addition to the total force of the circulation has been effected, the relieving of the lymph toxin-stagnation in all the tissues and organs follows rapidly. The nervous system, rid of the torturing poisons with which it has been saturated, most rapidly feels the relief. Sleep now becomes possible, and is simply the beginning of the benefits which will flow from this gain. The digestion is distinctly improved by the relief of the portal stagnation,

and another important line of connection with the relief column is opened up. The marked improvement in the nerve, determination and courage of the patient is but a striking symptom of the similar change which is taking place throughout the whole organization, and is of itself an immense gain in the struggle back to health. The kidneys are flushed by an abundance of blood, which both nourishes and stimulates them to increased excretory efforts. The glands of the skin, freed from the singular choking effects produced upon their spinal excretory ducts by the lymph stagnation in the surface tissues, resume their activity, and, according to Quirolo, the toxic properties of the sweat of fever patients are almost as well marked as those of their urine, and so the entire situation is modified in the right direction.

Now let us see of what assistance this hypothesis would be in explaining the remarkable effects of the Schott-Nauheim treatment. Upon what would these cool baths, with a high percentage of saline constituents in them, rendered still more stimulating by the addition of carbon dioxide, and prevented from depressing or chilling the system by passive movements and gentle friction, be most likely to act? Obviously, upon the great skin-mesh. And, when we remember that we are practically plunging the cells of this entire skin-heart into their old, ancestral medium of sea-water, and adding to it the one remedy which most powerfully increases peristaltic action on the part of any of the unstriped muscles of the body — as seen in animals poisoned by it — carbon dioxide, could we imagine anything which would be much more likely to stimulate to its highest degree of vigorous contraction, and restore to its molluscan and crustacean, long-swinging, tireless rhythm, the great skin-heart?

The first shock of the cold stimulates the whole mesh to contract forcibly and drive on the stagnant blood, not merely through the arterioles, but, by acting upon the unquestionably contractile epithelium of the capillary walls, through the capillary system, by a similar stimulation of their linings and walls through the lymphatic and venous systems, the lymph which has become poison instead of food to the tissues. This, when thrown into the right side of the heart, provides the greatest stimulus for contraction of the ventricular muscle, namely, active dilation by an abundance of blood. The lungs do their part in purifying, and return it to the left side of the heart, from which it is driven in abundant flow through the kidneys, thus accounting for the marked increase of urinary secretion after this treatment. But if the action ended here, we would only be a little better off than before, for upon the principle usually accepted, the superficial blood-vessels, having contracted, would remain for a considerable length of time in the same condition, and the heart would simply have to overcome on the arterial side precisely the same amount of force which had been added to it upon the venous. Suppose, however, that the contraction has been a rhythmic one, and that the vessels have dilated in readiness for this increased supply of purer blood. The moment they have received it they again promptly, no matter how slowly, contract and drive it on again into the great veins. That this rhythmical contraction, as evidenced by a healthy flush of the skin, is steadily increased by the continued restoration of ancestral conditions, the vigorous sea-bath which the vessels are receiving, is evident; and it seems to me

that we really have a new force added to the circulation, something like an adequate explanation of how the weak and distended ventricle can succeed in retracting its apex half or three-quarters of an inch toward the median line during a single sitting.

We would again insist upon the fact that neither in typhoid nor in cardiac inadequacy can these effects, or anything like them, be produced by cold alone (for that has been thoroughly tried in both cases), by the temporary application of water alone, of whatever temperature, or by either dry saline, gaseous or mechanical irritants. It is absolutely necessary that not merely cold, but cold water, should be used; that the surface should be literally soaked in this for a considerable length of time; while the effect is markedly increased by the addition of the sea salt, and still further by carbonic acid, such as would result from abundant processes of oxidation in the water. In fact, fauciful perhaps as the suggestion may seem, it is by a precise and accurate imitation of our most ancient ancestral surroundings, in cool sea-water of high degree of salinity and a considerable percentage of carbon dioxide—in short, precisely the condition which we find in the shallow sun-warmed lagoons in which life probably originated—that we reach the maximum of curative effect.

I have been greatly pleased to learn upon writing to our leading American authority upon hydrotherapy, Dr. Simon Baruch, that his experience has led him to an almost identical view; that, as he expressed it, the cold bath gives rise to an "active dilatation" of the skin-vessels, an "active hyperemia, by reason of which the blood is propelled more vigorously through them;" that "the Almighty himself could not have created an apparatus possessing sufficient force to propel a viscid fluid like blood through the fine vessels of the skin, did not the latter possess propulsive powers," and that some such hypothesis as the "skin-heart" could be of great value in explaining some of the perplexing points in hydrotherapy.

Now let us see for a moment what basis of probability exists for the presence of this factor in the present state of our physiological knowledge. Although, as I confessed at the beginning, little more than suggestions of its possibility can be given, yet there are several of these. In the first place, all observers for the last thirty years have reported from time to time the appearance of rhythmic contractions in certain groups of the vessels of the lower forms, not merely in the invertebrates, but also in the lower vertebrates, even in mammals. The further we go down the scale, the more frequent this becomes. In fact, in the invertebrates it may be regarded as the rule. Among the lower vertebrates the vessels in the wing of the bat, in the fin of the eel, in the fins of various fishes, and in the foot-web and mesentery of the frog have been seen repeatedly to possess the power of constant though slow rhythmic contraction. In many cases this has been reported without any apparent suspicion of its real nature—as, for instance, when the arterioles of the frog are reported to seem to "vary spontaneously," and when, as Curtiss states, in watching the capillary area in a rabbit's ear, "capillaries not noted before may suddenly spring into view," and shortly after disappear. Among mammals almost every observer has commented upon, with varying resultant opinions, the singular rhythmic contraction frequently observed in the ear of the rabbit, and

occasionally in the mesentery of the same animal. Curtiss also admits that the capillary walls are evidently "living cells and possibly contractile." Porter declares that there has been much discussion over the rhythmic contractions present in some of the vascular areas of mammals; and these are but a few of dozens of admissions of at least the existence of such contractility (or occasional signs of it) in the mammalian blood-vessels.

Of course it hardly needs to be said that it is only very occasionally that the opportunity for observing this process in the mammalian tissues can be obtained; and with the single exception of the ear of the rabbit, in which every observer has noticed it, the placing of the tissues in a position to permit of this change being noted, if it occurred, would necessitate a very serious disturbance of the normal relations and even of vitality. It is, to my mind, significant, to say the least, that in the only places in the mammalian kingdom in which this phenomenon might readily be studied with the parts in their normal condition—the wings of the bat and the ear of the rabbit—it has been noted, and in some cases quite extensively speculated upon, by almost every observer. In fact, as Mills sums up the discussion of this phenomenon, "Such facts lend some color to the view that the return of vessels to their previous size after distension by the cardiac systole is aided by the rhythmic contractions of the muscle cells in the walls."² But we must also admit that nearly every investigator who takes the trouble to definitely pronounce upon this question expresses himself practically in the words of Morraut Baker: "There appears to be no reason for supposing that the muscular coat assists to more than a very small degree in propelling the onward current of the blood."³

Finally, are there problems in the physiological aspects of the circulation which remain conspicuously unsolved, and in which this factor might play a part? There are three at least. One of them is the much disputed question of the dicrotic wave in the pulse, which has usually been explained as a reaction wave upon the part of the elastic coat of the vessels, as an oscillation reflected from the periphery, as a percussion wave from the closing of the aortic valve, and upon a variety of other grounds. Upon closer examination, this wave is usually found in reality to consist of a low pre-dicrotic and a higher dicrotic curve; and we cannot resist the suggestion that we have here precisely the condition which would be accounted for by supposing that the first return of the blood-vessel to its normal calibre was carried out mechanically by the elastic tissue in its walls producing the predicrotic oscillation, while its return was completed by the active muscular contraction of the muscular coat producing the dicrotic wave proper. Moreover, this condition of affairs is exaggerated and retarded by lowered arterial tone; by which is meant a relaxed condition of the muscular coat, and consequently a free and complete distention, followed by a slow contraction of wider range, corresponding to the degree of distention. In conditions which increase the arterial tone, in which the distention from yielding is slight, and the reaction so prompt as to practically coincide with the recoil of the elastic tissue, not only are the two waves merged in one, but their beginning is so nearly synchronous with the cessation of

² Animal Physiology.

³ Kirk's Physiology, p. 207.

distention that the downward curve is practically uninterrupted, and the dicrotic wave almost disappears in high arterial tension.

I have been assured by my colleague, Dr. Hopkins, that he became convinced some years ago, as the result of an extensive study of sphygmographic tracings in the wards of the Buffalo General Hospital, that some active participation in the propulsion of the blood upon the part of the arterial wall was absolutely necessary to in any way adequately explain the phenomena of the dicrotic wave, and all physiologists are agreed with Porter that, "although the origin of the dicrotic oscillation has been much discussed, it is not yet satisfactorily settled, important as the bearings of such a decision would be."

And, last of all, there are certain reactions in the wonderfully complex and interesting problem of the maintenance of the blood-pressure which still lack anything like satisfactory explanation on the usually accepted hypothesis of the passive relation of the arterial walls—for instance, the familiar increase of general arterial pressure where an increased amount of blood is being driven through a part—precisely the opposite of what would be expected by one on *a priori* grounds, from the action of the vessels were they mere passive conducting tubes. This has usually been lamely explained by calling into play that mythical power of the long-suffering heart of increasing the work done by it in direct proportion to the resistance offered to it; which, if true (except for a very limited period), would place it upon a perfectly abnormal pinnacle of virtue. Suppose, however, that this increase of the arterial pressure is due to the active propulsive pressure which the muscle wall is exerting upon the blood, and that its contractions occur at the same rate with those of the heart, but in the intervals between them, and we can at once see how the blood-pressure may be distinctly raised and yet the work of the heart not only not increased but diminished thereby.

In fine, we would venture to submit these conclusions, as a basis for further investigation and discussion:

First, that the existence of active contractility upon the part of the muscular wall of the arteries and arterioles and in less degree of the veins and lymphatics, and of the capillary epithelium, is something which we have the strongest reason to expect upon ancestral grounds in even the highest mammals.

Second, that the beneficial effects upon the circulation of cold water, particularly of a high degree of salinity and accompanied by friction, first in health, second in the Brand method, and third in the Schott-Naheim method in cardiac disease, are only adequately to be explained upon the ground of the persistence of such a power in our mammalian skin-heart.

Third, that the occurrence of this sort of contraction is almost uniform in invertebrates, and has been observed in the vascular area of many of the lower vertebrates—frogs and fishes, and in those positions in which it could be readily seen under normal conditions in the higher vertebrates, namely, the wing of the bat and the ear of the rabbit. So that we have abundant grounds for the possibility and some even for the probability of its occurrence in our own species.

Fourth, that in the behavior of the vessels in health, as noted by physiologic investigators, there are again conditions which are confessedly unexplained, and yet which may be accounted for on this supposition—the rhythmic pulsation of the vessels in the rabbit's ear,

the restoration of normal tone on the part of the vessels of any area after recovery from section of the vaso-motor nerves, the persistence of contraction in the ventricle in lower vertebrates and auricle in all forms after the section of all the cardiac nerves, the phenomena of the dicrotic wave, and the anomaly of an increase in the rapidity of the circulation and amount of blood in a given part, coinciding with marked increase of the arterial resistance.

NOTES UPON DENVER WEATHER.

BY CARROLL E. EDSON, A.M. M.D., DENVER, COL.

Miss —, aged seventeen years, came to Denver in March, with a history of tubercular invasion of the right lung, complicated with a recent serous pleurisy which had been aspirated a few weeks before. The right chest moved but slightly on respiration, and over the lower two-thirds was flat on percussion, with faintly heard breathing only on forced inspiration, slight tactile fremitus, and increased voice transmission. Over the upper third there was marked dullness, prolonged expiration and many moist râles. There was some cough, with about two drachms of expectoration in the morning. Tubercle bacilli present. The girl was pale, lips slightly cyanotic. There was marked anorexia and lassitude. The temperature was 101°, the pulse 120.

One month later my record reads: "Right side expands well. Percussion still very dull, but respiratory murmur of fair quality, heard to the base. Above, a few clicks after cough; the cough is slight and occasional. There is no expectoration. Temperature 99°, pulse 96. Color good. Appetite excellent. Has gained four and one-half pounds."

I do not report this case even thus briefly because the patient has improved so much more than was to be expected—there are frequently cases which happily correct our prognosis, and many which, with every promise of recovery, grow steadily worse—but because of another incident in the history. She was advised by a most competent consultant not to come to Colorado at that time, but to postpone her residence here until autumn, for the reason that the spring was the worst period of Colorado's year—rainy and windy.

There was certainly, in view of the history and condition of the patient, a grave doubt as to her improvement even in Colorado; but there is implied in the reasons for delay in coming a great misunderstanding of Colorado weather, a misunderstanding which, from frequent expression among the invalids sent to us, is apparently widespread.

The meteorological data of Colorado have been carefully tabulated and set forth for comparison with other places; but, as Mr. Ward has well said in a recent paper,¹ "A medical man ought to know how to interpret climatic tables. . . . It is not enough to know the mean annual rainfall. This should be supplemented by data as to the kind of rainfall, whether general rains lasting for some hours at a time, or thunder-storms, giving a heavy precipitation in an hour." Such details are not readily tabulable, and are too frequently unmentioned in the formal discussion of climate. I wish to supply a few comments, marginal notes as it were, to the more elaborate articles previ-

¹ Teaching of Climatology in Medical Schools, Boston Medical and Surgical Journal, February 4, 1897.

ously published and accessible, to describe that part of our climate which affects the patient as "weather," and influences his daily life and spirits. Simple as some of my statements may appear, they have yet proved surprisingly novel to many new-comers.

Denver is a high altitude station, situated just one mile above sea-level. It is not, however, *in* the mountains, or even among the foot-hills, as so many suppose before coming, but lies open upon the plains, fifteen miles from the first line of hills. Its open situation frees it from the diurnal up-and-down draught of a mountain valley, and its long day of sunshine is unbroken by the shadows of surrounding peaks. This distinct advantage in the matter of sunshine has a very practical relation to the daily life of an invalid. In Davos, which lies at the same elevation as Denver but in a valley sheltered from the winds by surrounding mountain heights, the sun does not rise on January 1st till 10.03 A. M., and sets at 3 in the afternoon. As Dr. Wise says, "An additional hour's sunlight during the short days of December and January is an inconceivable delight." Denver stands out from the mountains on the slope of the plains to the east. The sun has no high peaks to climb, but the first rays which tinge the snowy summits of Rosalie, or of Long's, are the immediate heralds of his rising. Up over the level eastern horizon there is no delay in the warm cheering of the daylight. On January 1st the sun rises at 7.19 A. M.; on December 1st at 7, and February 1st at 7.07. The sun is up before the invalid is awake, and a cheerful sunny sky greets his first vision. By 8 or 9 the air is warm, so that by the time he is up and dressed he can be out of doors. Over two hours of warming sunlight at the very first of the day without waiting—it is like waking in a warmed room instead of having to get up and make a fire first. Nor is the day shortened in the afternoon. The fifteen miles "set-out" from the mountains distinctly lengthens the day. Even Colorado Springs suffers in the comparison. On January 1st the sun does not set till 4.49 P. M.; nine hours and a half of sunshine.

This early sunrise with its invigorating cheery opening of the day cannot be valued too highly. With the morning depression so common in tuberculosis, the sense of effort in getting under way, a brilliant, sunny sky and a warmed air are of great mental as well as physiological benefit to the patient.

The promise of a sunny day is well kept, 70 per cent. of the possible sunshine being realized, while the partly-clouded days are by no means unsuited to an outdoor existence, and are often a grateful change to the patient from the intensity of cloudless blue sky. Patients often come here with an idea firmly impressed on their minds that we have but forty cloudy days in a year, a popular fallacy not easy to trace, and if there is the least little cirrus cloud to be seen, exclaim that they have been lured here under false pretenses. We do have cloudy, stormy days. No habitable region of the globe has none. There are as few here as in any place accessible to an invalid. The past winter has been considered as cloudy a one as we have had for several years, certainly the least pleasant of the last three; yet in December there were but seven days when the sun did not shine at all, only two when it rained or snowed, and the percentage of sunshine was 69. January had five all-clouded days, five only with rain or snow, and 65 per cent. of sunshine. February had seven completely clouded days and but

nine with any precipitation at all; its sunshine was 64 per cent. It is not a bad region where during the three winter months the sun shines on four out of every five days!

The marked diathermancy of the air, due to the altitude, with its barometric pressure of 24.74, and the great dryness (an absolute moisture of but 1.89 grains to the cubic foot) renders the sunshine very intense and penetrating. Conversely, the air from this same dry clear tenuity has little heat-holding capacity. Denver is not a warm place; its winter climate is distinctly cool. Its mean annual temperature is 49° F.; that of Boston is 48° F. In no other feature does the Colorado climate so often prove disappointing to the newcomer, or is it so misrepresented to the prospective sojourner as in this of the winter temperature. He is not coming to, nor should he expect to find, a tropical climate. The mean January temperature for twenty-five years is 28° F. This, of course, includes the night temperatures, which are always very low. The invalid, however, is not affected by these night temperatures, and the daytime averages are the important ones. The air in winter is clear, sharp and cold; but its great dryness makes it easily borne and even very pleasant. Its tonic effect upon nutrition and metabolism is from this very coolness the more marked and the more desirable in early tuberculosis. In the shade there is the tingle of northern cold, and the heaviest clothing is none to warm. The sunshine, however, tells another story. Its direct, unrefracted rays burn strongly, and the temperature of the sunshine ranges nearly 60° higher than the air. It is this glory of warm sunshine which is so much praised in Colorado, and which is so often misunderstood to refer to the air. The patient sent to Colorado for a winter is not coming to a soft, balmy warmth, but to a far better, sharp, bracing cold, flooded during two-thirds of the daytime with a blazing sunshine.

This tremendous difference between sun and shade, day and night, has been objected to as making a trying climate for an invalid. The night temperature may be neglected as the patient is indoors. The day changes between sun and shade are much mitigated by the extreme dryness of the air, which renders the extremes of heat and cold less noticeable. It does necessitate explanation to the inexperienced, and an intelligent conduct of living. A change from sun to shade must be met by extra wraps. As heavy clothing, that is, underwear and suiting, should be worn in winter here as in Boston; but the summer overcoat need never be put away. The changes of temperature are best met by the outer garment. In winter one who is in active outdoor life finds great convenience in three overcoats—a thin summer coat for noontime (though frequently none is needed), an ordinary winter coat for early morning and afternoon, and, for any long or night ride the heaviest of ulsters or fur coats.

Precipitation and humidity statistics are the favorite tables of climate papers. Attention should be called to one factor in their interpretation. Denver has an annual precipitation of a trifle over fifteen inches, about one-third that at Boston or New York, less than half that at Chicago, and three-tenths that at Jacksonville, Fla. But the total amount of rainfall is not alone a true measure of the dampness. In Colorado, especially on the eastern slope of the mountains and on the plains, it falls upon a dry and porous soil thirsty for any moisture. It is absorbed with great rapidity,

and in a few hours the ground is dry and hard again. About Denver there are some areas of clayey soil which for a day or two after a *heavy* rain are muddy — not thin and sloppy, but a good, stiff, gluey mass which clings to boots and clothing with more than brotherly closeness. There are no standing puddles, and often forty-eight hours after a rain the dust will be blowing on the roads. In winter when the precipitation is in snow, the advantages of the dry soil and air are especially marked. There is no accumulation of snow at Denver; a few days, rarely a week, and all traces of it are gone, save on the northern side of banks or walls. There is never any sleighing here. The wind from the south or west licks up the snow with visible rapidity without its melting into slush or icy pools. Indeed, it evaporates rather than melts. It does not house the invalid save while it is falling; and a few days gives dry, bare roads again. As there is no accumulation, there is no melting season in the spring to be avoided, as in Davos or Saranac. There is sunshine enough without a heavy mantle of snow to give reflected radiation, and its absence allows greater opportunity for outdoor exercise in winter, and offers no threat in spring.

Objection is frequently made to Denver as a residence for invalids on account of its wind: a curious example of the popularity of a fallacy. A study of the very full statistics of the Weather Bureau for over five years shows that of the sixteen largest cities of the United States Denver has a less total wind movement than any of them, with one exception. The mean annual movement of the wind here in Denver is 62,000 miles. Boston shows 101,000, New York 96,000 and Chicago 136,000. A study of these records, the details of which I propose to discuss in another paper, shows that the wind movement here is very regular, and has an average velocity of 7.2 miles an hour. With this must be taken into account the greater lightness of the air at this elevation — but fifteen-nineteenths of that at sea-level — a decided factor in the apparent force of the wind.

The occasional dust-storms are unpleasant, but are much less frequent and severe than popular accounts would indicate. They are becoming less frequent, too, as more of the land comes under cultivation. Moreover, they do not depend upon the velocity of the wind, but apparently upon some peculiarity of angle at which the air current strikes the ground, enabling it to pick up the fine soil. This must be remembered, as it is too often thought that every high wind means a dust-storm, which is by no means the case. This winter we have had but two worth considering, both of comparatively short duration — a few hours only. In 1895 there was a period of four days of almost continual dust — an exceedingly trying time, necessitating an invalid being housed. This was an unusual occurrence. The ordinary dust-storms last but an hour or so, and are no worse than some of the March days in Boston, and without the cold, piercing wind. The storm, so-called, is usually but a limited period of extremely dust-filled air, in the midst of an often cloudless, sunny day.

The common impression that Colorado climate is seasonal is erroneous. What little bad weather we have is fairly evenly distributed throughout the year. Indeed, a common remark of residents is that we miss the sharp contrasts between summer and frosty autumn, or winter and the balm of spring. There is no

well defined spring, as in the East. There is no accumulated snow to melt and uncover the fresh earth. The winter weather gradually becomes less cold, then distinctly warm; the days are longer and one wonders when the buds will be out. The sun is very warm by day, but the nights are still cold. Suddenly, in a day or two, the trees are all in leaf, and it is summer. Similarly the summer passes into winter without the frosty crisp of a New England autumn. The air is too dry to be snappy. It may almost be said that one is on the watch for the cold and roughness of winter, and is at last aware by the return of birds and summer that the winter he expected has already passed.

As in other parts of the country, there is, of course, more uncertainty in the weather during the spring months. About one-third of our total precipitation occurs in the three spring months; but it does not come as a prolonged rainy spell, but from short, sharp showers, or in thunder-storms of brief duration. There is never the long, cold drizzle. The mornings during April and May are almost invariably pleasant, with clear blue sky dotted with rising white clouds and fragrant with the delicate perfume of the new alfalfa. The afternoon or early evening often brings a short, brisk rain, but the ground is hard and dry again by morning. The short, curly buffalo-grass of the plains does not stay wet, as the long, heavy grass of New England.

The three spring months show an average of twenty-four clouded days, or but eight a month. Nor do these mean a day indoors for the invalid; for it must be distinctly understood that an overclouded day does not mean rain of necessity or a blustery storm. The heat of the sunshine is removed, and the invalid may need an extra wrap. Many speak of these clouded days with gratitude, as being a restful change to the eyes from the unbroken blue intensity of the sky. These all-clouded days are not lost to the invalid's recovery — as the tables are too often interpreted, as though when the sun were not out no one else could be. To many, they bring a pleasant refreshment in a sense of lessened nervous tension. Those of us who are long here often speak of the restfulness of a day of clouds. That they do not mean storm or wet, an interpretation of published figures will show.

This spring (1897), as I have said, has been considered unusually cloudy. In March there were 23 cloudy days; yet there were but nine on which .01 of an inch of rain fell, and the total fall was but .9 of an inch. The actual sunshine was 64 per cent. of the total possible. The unyielding skeleton of figures in columns must be clothed with intelligent features to be recognized as a friend.

The summer is hot but pleasant. The sun is strong and direct; but while the solar heat registers not infrequently 140°, the mean temperature of the air at 1 P. M. is but 85° in July, 81° in August, and but 72° in September. This temperature is rendered even less apparent by the dryness of the air — even the sunshine being endurable, while the shade is always comfortable. The relative humidity of the summer months is but 45 per cent. as against 71 per cent. in Boston, 74 per cent. in New York and 76 per cent. in Chicago. Collars do not wilt, and the dryness of the air may be realized by the fact that there is no dew deposit on soda-water fountains or ice-pitchers except rarely, just after a shower or rain. Sunstroke is unknown in Colorado. The nights are always comfort-

able, and the refreshing sleep renews one for the next day. You do not start exhausted.

When autumn comes by the calendar, it is known only by a more delightful charm of air. From September to Christmas there is an almost unbroken period of delicious, sparkling days. There is not the snap or zest of a New England fall—a beauty which it alone possesses—but there is the delight of warm, dry air dancing full of sunshine. The foliage does not turn to the brilliant hues of the East, but shows a beauty of dull reds and yellows and soft deep browns, which must be seen to be appreciated. The mountain slopes and uplands appear as if spread with the richest of Persian rugs.

Winter shows the dull expanse of gray, brown plains occasionally blanketed for a day or two with snow, just long enough to give zest to a rabbit chase. With its clear, sunny, blue sky and cold, dry air, it is little more than an expectancy between summer and summer.

Taking the year round, a few facts of such ordinary interest that they are rarely mentioned will show how evenly good the weather is. In the year 1895—an average year—a friend went with his bicycle club upon its weekly Sunday run fifty-two times; not once was that excursion prevented by storm or snow or impossible roading. The open street-cars run all the year round, and the days are few when they are too exposed for riding.

NOTES ON SURGICAL GAUZES.¹

BY HERBERT J. HALL, M.D., MARBLEHEAD, MASS.

THE study of textile fabrics, of their capillarity and other purely physical characteristics, in relation to surgery, is a department which at present receives less attention than it deserves.

It will not be considered an unreasonable supposition that the success or failure of certain operations in surgery may depend upon the speed or slowness of capillarity in the gauze used as a dressing. The surgeon knows all about his patient, all about his asepsis: pathology and bacteriology are his allies. He knows practically nothing about his dressings, beyond the fact that they are sterile and absorbent.

Sterilization is carried on under personal supervision. It is not trusted to a stranger. Absorbency—a no less important faculty of gauze—is left in a general and trusting way to a manufacturer who knows nothing about surgery and whose principal aim is profit.

It is the object of this paper to consider with some care, from the surgeon's standpoint, the capillary power of the various commercial gauzes. Gauze and drainage are so closely associated that some reference must necessarily be made to the latter subject. We may be confident that we are using good gauze, or we may not consider at all whether one gauze is better than another. At any rate, if we have no definite knowledge of the capillary power of the gauze which we use, we are trusting rather too largely to the honesty and intelligence of the manufacturers of cotton cloth. If the gauzes are uniformly excellent, it will be a comfort to know it. If they vary in any marked degree, we should not be long in choosing the best.

Taking a one-hundred-yard roll of absorbent gauze,

such as is furnished by any dealer in surgical supplies, we will see if throughout it possesses an even and rapid capillarity. Probably the most practical way of doing this, and the one least likely to error, is to determine by weight, the amount of water absorbed in a given time, under given conditions, by a strip of gauze of given dimensions. A little frame of wire has been devised, to which the strip of gauze can be attached and an equal degree of immersion obtained in each case.

A piece of gauze six inches long and one-half inch wide, containing in most fabrics fifteen longitudinal threads, is found to weigh, for example, two grains. When it is stretched double on the little frame we have a wick of thirty strands. The double end of the gauze is immersed in water, to the depth of one-quarter of an inch, for a period of sixty seconds. Taken from the frame, its new weight is found to be three and one-half grains. The difference between these figures equals one and one-half grains, and is the amount of water absorbed by this wick, under our chosen conditions. This is the principal method used in testing the various gauzes.

For convenience, when we have made a number of such tests in a given gauze, we will strike an average of the weight of water absorbed by the different strips and call that figure the average capillarity of the gauze in question.

Returning to our one-hundred-yard roll, we select three samples, not containing selvage, from remote parts of the gauze, and we find, after a number of tests, that the wicks vary a good deal in capillarity. If now we cut strips, side by side, from the same width of gauze, we shall see like differences in absorbency.

Plain, unsterilized gauzes from four hospitals were examined in the above manner, and certain rather striking averages obtained. It was believed that sterilization, especially the baking process, would make some difference in the absorbent power of the gauzes. Therefore, the hospital gauzes were tested, after being sterilized, by the two common methods—baking and steaming. The averages showed in some instances increase in capillarity by steam, and in others a diminution. A like result was obtained with the baked gauzes. All these differences, it was believed, might fall within the limit of initial variability in different parts of the same sample of gauze.

Disregarding the sterilizing and taking the results of nine immersions of each plain gauze, we make the average capillarity of

Massachusetts General Hospital plain gauze	4½
Children's Hospital, Boston,	4½
Carney Hospital, South Boston,	4
Salem Hospital	3
A gauze submitted by Sampson & Padelford, of Allston, gave an average of	3½

It is a common belief that a perfectly dry gauze will not absorb so well as a moist gauze. An apparent proof of this assumption is seen when we throw a dry gauze sponge into a basin of water. Such a sponge will float for some time and we say it does not readily absorb water. It is true that a moist sponge will sink at once, but this, as will presently be granted, is because, being moist, it already contains nearly water enough to make it sink. If a dry strip of plain gauze, like those described, absorbs, for example, three grains of water under the given conditions, we have shown by repeated trials, that the same strip of gauze, thoroughly

¹ Read at the February meeting of the Essex South Section of the Massachusetts Medical Society.

moistened, will again absorb three grains — no more and no less.

In further corroboration of the statement that neither method of sterilization affects materially the capillarity of a gauze, the identical test strips have been given the regulation immersion, first unsterilized, then sterilized by steam, and lastly by dry heat. No appreciable difference in capillarity is observed under these conditions.

For reasons to be stated later, the selvages in each sample were cut and tested. A selvaige contains an average of twenty-two longitudinal threads lying closely together in pairs. Doubled in the little frame, the selvaige makes a wick of forty-four threads. It will be observed the bulk of this selvaige wick is very small as compared with that of the open gauze wick, containing the same number of strands.

The selvages, according to the number of threads, do not absorb quite so much water as the open gauze wicks. But, as will be seen later, they carry the fluid farther and faster.

The Massachusetts General Hospital open gauze, thirty threads, absorbs an average of three and one-half while the selvaige absorbs two and one-half. The proportions are similar in all the different gauzes under consideration. It is only fair to suppose that, owing to its small bulk, the selvaige does not hold so much water in the lower turn of the wick as does the open gauze, and is therefore placed at a disadvantage in these experiments.

There is in the profession at the present day a strong reaction against the use of the various medicated gauzes. Iodoform gauze especially has lost much favor as a drainer of cavities. Although the other gauzes except corrosive are little used by surgeons of experience, a study of their absorptive values may be of interest.

Five different samples of iodoform gauze from as many sources were examined. The gauze used at the Massachusetts General Hospital had an average of two and one-half against four and one-half, the standard of plain absorbent gauze used at the same institution.

The Children's Hospital iodoform gauze showed an average of three against four and one-half, the average of plain gauze.

Sampson & Padelford, of Allston, submitted an iodoform gauze, which held an equal average with the plain gauze, three and one-half in each instance.

The other gauzes — from Seabury & Johnson and Johnson & Johnson — showed respectively averages of two and one-half and four, with no plain gauze for comparison.

These figures are useful in a general way as showing that the iodoform gauzes in common use in our hospitals and those of commerce are relatively poor in capillarity. To prove beyond peradventure that iodoform really diminishes the absorbency of a gauze, it is necessary to take gauze strips of known capillarity and to impregnate them with iodoform. When this is done, we find in every instance that the capillarity is lowered. Children's Hospital strips, with capillarity of four, registered three, after being drugged with iodoform. Conversely, an attempt was made to raise the standard of the various iodoform gauzes by washing in ether. The results, however, were incomplete and unsatisfactory.

Dr. Thayer, of Waterville, Me., says, in a recent article on "Gauze as a Means of Drainage," "So

far as capillarity is concerned, it makes but little difference practically, whether the gauze is plain or medicated. For in a series of experiments I have observed that a plain gauze wick will drain seven ounces of fluid, while a ten-per-cent. iodoform gauze drains six and one-half ounces, both drains being of the same size and number of strands, and all conditions identical."²

The medicated gauzes furnished by the different manufacturers gave averages as follows:

Johnson & Johnson (corrosive)	4
Grosvenor & Richards (corrosive)	2
Carbolic gauze by Johnson & Johnson	3
Borated	4
Naphthol	4
Salicylated	2
Double cyanide Hg-Zn	2½
Eucalyptol	2½

Special averages were made of the selvages in each case, and they were found in general to absorb about two-thirds the amount taken up by the open gauze wicks.

These experiments are again of value only in a general and broad way. The initial value of the gauze determines its value after medication.

To supplement the method of examination which has been described a set of color tests was devised. Similar strips of gauze were placed on a rack, with their lower ends in a reservoir of analine dye solution. As the supply of dye was unlimited the rise of color in the strips indicated fairly well the speed of absorption. This procedure was repeated with acids — litmus paper being used to time the rise of the fluid. The results were found to correspond in a general way, but the uncertain absorption in strips from the same sample, robs the experiment of accuracy.

A ready test of a gauze, however, may be performed by placing a drop of dye in the centre of a square of the gauze to be examined. The test is only very roughly approximate, but in the unbleached gauze there is no spread of color, while in the highly absorbent pieces the spread is rapid and extensive. The coarse-meshed gauzes spread the color somewhat wider, because the supply of dye is limited, and in the finer gauze there is more cloth to the square inch to take up the color.

A curious and suggestive phenomenon is observed in the strip color-tests when the selvaige is included in the strip. The color runs up the selvaige much more rapidly than elsewhere in the gauze. During the last service of Dr. F. B. Harrington at the Massachusetts General Hospital, the writer, as his house-officer, was frequently requested to cut the selvaige from the gauze and to use it in draining small suppurating cavities. These color experiments fully justify Dr. Harrington's preference for the selvaige.

The reason for this advantage which the selvaige has over open gauze is probably that the longitudinal threads lie closely together and that the proportion of transverse threads is small. It is easy to see, and not too theoretical to suppose, that each transverse thread proves a little obstacle to the upward progress of fluids. Before the fluid can progress in a wick, it must saturate not only the longitudinal but the transverse threads. In each transverse thread the fluid spreads laterally

² It would seem to the writer that this conclusion might be open to question, when we consider the variability of capillarity in different parts of the same gauze. Inspection of a piece of gauze, with an ordinary hand magnifying-glass, will reveal the reason for these inequalities. The threads vary markedly in size at different points.

and so out of the line of progress. In the open gauze the transverse threads are long and, having quite as much capillarity as their longitudinal brothers, they carry far in the wrong direction large amounts of fluid. In the selvage when the drainage strikes a transverse leader, its lateral excursion is short and frequently intercepted by longitudinal threads, so that progress is almost uninterruptedly upward.

A homely, but convincing demonstration of the soundness of this reasoning can be made with ink, a medicine-dropper and a piece of blotting paper. Cut a piece of blotter one-fourth of an inch wide and the length of the width of an ordinary insurance blotter, and place five drops of ink in the middle of the strip. There are practically but two directions in which the ink can travel. The color will run along the strip for about two inches. Place in the middle of a broad piece of blotter the same number of drops, and you have a circular blot, with a diameter about half the length of the first blot. The first part of this simple experiment illustrates the action of the selvage in absorption. The second part is analogous to the action of the open gauze.

In this connection we should mention wicking or cordine, which, according to this principle, has a decided advantage over ordinary gauze wicking, as it contains in small compass a maximum number of longitudinal threads. In proportion to its bulk it is, perhaps, the best wick we have, as it will absorb, even when drugged with iodoform, thirty-three grains against perhaps eight grains, by a gauze wick, which would fully occupy the same space.

Dr. Thayer says further in his article: "It was also observed that the same number of strands as contained in the other drains, with the warp removed and the woof made into a wick, possessed no advantage over either the plain or medicated gauzes as to its power to drain fluid."

The wicking, or cordine as it is called, and also the selvages which have been considered, can scarcely be compared to a fabric with its woof removed, because they are more compact in structure, and the close proximity of the threads must be an advantage. In these structures, if there are any spaces they are tubular and capillary. If one thread ceases to absorb, its neighbor can quickly take up the work.

A study lamp which burns a pint of oil in an evening may teach a lesson in drainage. In most lamp wicks the threads all run as nearly longitudinally as is consistent with stability of the fabric.

We are now confronted with some plain facts about surgical gauzes. The commercial product is not only uneven in capillarity, but the very weave of the stuff makes it unsatisfactory for drainage purposes. We must bear these things in mind when we apply our dressings.

Steps have already been taken toward securing the manufacture of an absorbent tape on the principle of the selvage. Such a tape, it is hoped, will supplant the faulty gauze drain. Where walling off is necessary, a gauze woven with twice or three times the number of threads running longitudinally would help in making a safer dressing.

In the light of what we have seen, the most appropriate place for the ordinary absorbent gauze is in the so-called receiving mass, where lateral distribution is rather an advantage.

However high the index of absorption may be in an

iodoform gauze, we may safely say that it would be higher, if the iodoform were left out. Therefore, if we need rapid drainage, we should not use iodoform gauze.

It is a comfort to know, experimentally, that dry sterilization does not lessen the absorbency of gauze.

Whether we are able to better ourselves or not, we should not, in such a field as surgery, be ignorant of our limitations in any direction. If we have gone over the ground, if we know where we stand, we shall be able to make more intelligent use of a faulty material, until we are supplied with something which will serve our purpose better.

New Instruments.

A NEW ELECTRICAL NASAL SAW.¹

BY FREDERIC C. COBB, M.D., BOSTON.

In presenting a new electrical nasal saw it is of importance to recapitulate the work already done in this direction.

The first mention I have found of such a saw is in the "Transactions of the Laryngological Association" for 1887. Dr. Roe, of Rochester, exhibited a saw of this kind having a somewhat elaborate and expensive mechanism. In the following year these defects becoming evident to him, he modified the saw, making its mechanism more simple. This saw had a vertical driving-wheel and was connected to the flexible by a spring. To this saw the main objections seem to me to be the liability to kinking or "buckling" of the spring when resistance is put on the mechanism. Its lateral attachment to the flexible also tends to throw it out of plumb.

Next came the chain saw of Veeder.² This was a saw intended to cut vertically. The great difficulty in keeping such a complicated mechanism clean and aseptic will, I think, be evident to any one examining it carefully.³

Black followed this by a description of a saw very similar in many respects to the one shown by me, the main difference being in the lack of ability to stop and start it from the handpiece.

Scheppegrell, in April, 1897, exhibited a saw⁴ improving upon that of Black's in this respect, but one which seems to me more complicated in its mechanism.

The great disadvantage of all electric saws has been the lack of power to control them. Such a saw should be strong, and not too light, so as to give as little vibration as possible, offering a firm grasp to the hand, and so arranged that it can do no damage if it gets beyond control.

The saw shown in the cut is very strong, and its mechanism is simple, consisting only of a wheel with piston attachment connected with the saw. The length of the stroke is altered by turning a screw on the driving-wheel. It is easily cleaned and oiled, the cap on the driving-wheel being hinged so as to be easily removed for that purpose. A friction clutch on the handle, as suggested by H. M. Sweet, of Boston, enables the operator, by removing the little finger from a spring, instantly to stop the action of the saw while

¹ Read before the Laryngological, Rhinological and Otological Society, at Washington, May 2, 1897.

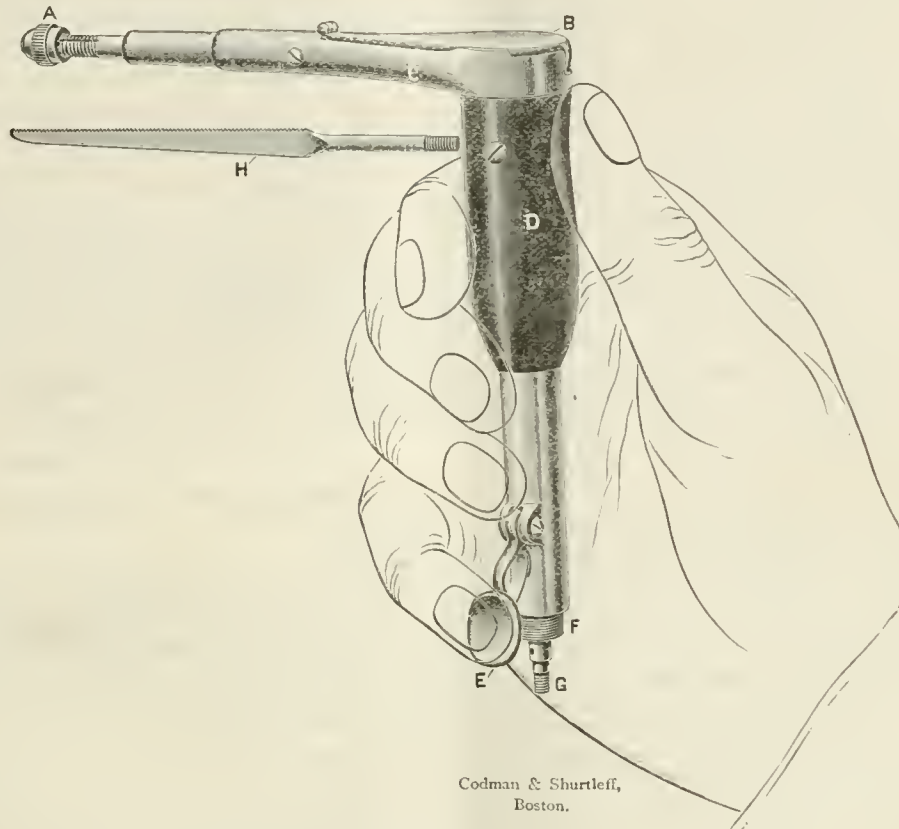
² New York Medical Journal, February 21, 1891.

³ Laryngoscope, July 1, 1896.

⁴ Loc. cit., vol. xi.

the motor still continues at full speed. Pressure on this spring at once starts the saw, whatever the position of the motor. Every operator in nasal work knows the strain of arm and hand to which one is subjected in removing a long, thick and bony spur. In the use of this saw attention need only be given to the direction and the work is accomplished much more quickly than is possible with the hand saw.

bedding of passengers — those portions of it which are not regularly laundered — blankets, mattresses and pillows, saying they should be freely exposed to the air and, if possible, to the sunshine after each trip. The somewhat common usage on inland steamboats of having the dining-room on a deck below the water-line was not to be commended. Such a position renders proper cleanliness and ventilation more difficult, and



This saw has been used by me at the Throat Department during the larger part of last winter, and has given very good results. It was made for me by Codman & Shurtleff.

Reports of Societies.

AMERICAN PUBLIC HEALTH ASSOCIATION.
TWENTY-FIFTH ANNUAL MEETING, HELD IN PHILADELPHIA, OCTOBER 26-29, 1897.

FIRST DAY. — MORNING SESSION.

THE Association met at Hotel Walton, and was called to order by the President, DR. HENRY B. HORLBECK, of Charleston, S. C.

After the transaction of some routine business, the reading of reports and papers was begun.

REPORT OF COMMITTEE ON STEAMSHIP AND STEAM-BOAT SANITATION.

This was read by DR. FREDERICK MONTIZAMBERT, General Superintendent of Quarantine of the Dominion of Canada, in which he directed attention to the

tends to unwholesomeness. Reference was made to the all-important matter of the exposure of the traveling public on steamboats, as elsewhere, to the danger of contracting diseases from fellow-travellers suffering with consumption, who, in their expectorations, scatter infectious material broadcast. Objectionable and indefensible as it is at all times, with steamboat saloons closed and artificially heated the expectorator's filthy habit becomes especially dangerous to other passengers. The sputa drying on the decks rises as dust, to be inhaled, and to add to the great list of the victims of this fell destroyer of mankind. All spittoons should contain water or a disinfectant, which should be frequently changed. With the advancing education of the general public in the knowledge and belief in the contagiousness of consumption, and the methods to be employed to limit and prevent its spread, an ever-increasing degree of success may be confidently hoped for.

DR. EDUARDO LICEAGA, President of the Supreme Board of Health of Mexico, sent a paper entitled

A STUDY OF YELLOW FEVER FROM A MEDICO-GEOGRAPHICAL POINT OF VIEW,

which was read by Dr. Gihon, in the absence of the author.

The author said in part that in the port of Vera Cruz, which, as had already been shown, could be considered one of the sources in which the yellow-fever germ obtains a spontaneous growth, yet only three cases of the disease have appeared during the period under study, and these three cases occurred within the month of June. With respect to other points on the Gulf Coast, and especially the ports, it could safely be asserted that during the period covered by this report not a single case of yellow fever had presented itself.

Passing to the Pacific Coast, and bearing in mind the terrible epidemic that in the year 1884 desolated the coast, the Supreme Board of Health of Mexico had taken especial care to prevent the disease from being imported from the Central American countries, where unfortunately it now prevails in an epidemic form. Difficulties were still encountered in making an exact diagnosis between yellow fever and certain forms of paludic infection that in hot countries assume a very similar aspect and the serious character that is generally borne by that disease, so much so that even persons who are accustomed to observe the two affections are often uncertain as to the diagnosis. These doubts, the speaker hoped, would be dissipated in the future by the discovery of the yellow-fever microbe by Sanarelli. A knowledge of the cause of the disease will not only allow us to make an exact diagnosis, but will doubtless facilitate the means for attacking it in a certain manner.

DR. SAMUEL H. DURGIN, of Boston, spoke of the importance of closer and more careful bacteriological work in the study of yellow fever.

THE DRAINAGE, PLUMBING AND VENTILATION OF PUBLIC AND PRIVATE BUILDINGS.

A paper on this subject was read by MR. J. W. HUGHES, of Montreal.

The author confined himself to the ventilation of the plumbing system of a building, or, more correctly, that part of a plumbing system which serves for the conveyance of the house wastes known as sewage, and that are to be finally disposed of, as far as any particular building is concerned, when they reach the public sewer. It was no more possible to lay down rules covering every possible contingency called for in scientific plumbing and ventilating than it was to apply fixed rules to the practice of medicine. The principles of scientific medicine and plumbing were fixed, but the application of these principles called for the intelligence acquired by education and developed by practice. Much injury had been done by attempting to frame plumbing by-laws which would apply to every case. If the Association would make a study of the general principles covering this question and embody them in a code having its endorsement, leaving the practical application of those principles to those whose special duty it is to apply them, much good would result.

FIRST DAY. — AFTERNOON SESSION.

DR. JOHN L. LEAL, Health Officer of Paterson, N. J., followed with a paper on the same subject, in which he emphasized three points bearing upon the question of ventilation: first, that every building intended for occupancy should have some special means of ventilation; second, that these means should be commensurate with the requirements of any particular building; third, that the more simple and uncompli-

cated the means used the more successful was likely to be their operation. The object of plumbing is, first, the immediate withdrawal from a building of certain waste products of life, the presence of which would prove detrimental to health; and, second, to prevent harm to the inmates of the said building arising from these products after removal, through the means of their removal. Not only were we threatened by the presence of these substances, but we were also threatened by certain dangers inherent in the best system at our disposal for ridding ourselves of them.

REPORT OF THE COMMITTEE ON CAR SANITATION, by Prof. S. H. Woodbridge, of The Institute of Technology, Boston, was read by Dr. Durgin, in the absence of the author.

The author stated that something like interstate agitation and regulation were requisite to any legislative advancement in this field of hygienic improvement. For this reason it seemed the better way that the movement should originate within, or be fostered by, some strong railroad corporation which shall set the pace for other railroads to eventually put themselves in step with.

The writer described a new type of improved parlor and sleeping car which had been devised.

FIRST DAY. — EVENING SESSION.

At this session the public were invited. Prayer was offered by REV. WILLIAM N. MCVICKAR, D.D., of Philadelphia.

DR. BENJAMIN LEE, in the absence of Governor Hastings, welcomed the members and visitors on the part of the Commonwealth, and MAYOR WARWICK extended to them the hospitality of the city. The Mayor referred feelingly to the life-work of the late Dr. William H. Ford in the cause of municipal sanitation, after which the

ADDRESS OF PRESIDENT HORLBECK

was delivered.

Speaking of the progress made in the study of disease, President Horlbeck said that the theory based upon the humors of the blood had given place to a knowledge of the denizens of the blood, which were being recognized as surely as the flora and fauna of our fields. The microscope gave us the keynotes of our temporal welfare.

He then gave a history of the Association from its organization, in 1872, which he said had grown until there were now 1,844 names enrolled in its membership. During its existence some of the most important discoveries in the domain of medicine and surgery had been made, and the science of bacteriology had had its birth and development. Since the last annual meeting in Buffalo the method of diagnosing typhoid fever, as discovered and described by Widal, of Paris, had been elucidated by Dr. Wyatt Johnston, of Montreal.

During the twenty-five years of the life of the Association the processes of taking care of contagious diseases had entirely changed. It was now an essential feature of practice in all communities to confine all such cases to the individual affected. He next dwelt upon the necessity for a pure water-supply, and then passed on to the consideration of quarantine methods. He recommended a government commission on yellow fever. It is estimated that over 95 per cent. of all the yellow-fever cases that had reached our shores had

come from Havana. A committee of the Association had been appointed to bring the vital question before the government of this country, and urge the governments of the countries interested to prompt action in this matter. This would seem to be the occasion when not only the recommendations of the committee on yellow fever should be carried out, but that the Association should make a demand on our general government to the effect that a commission of expert bacteriologists be sent to Havana and Rio, and be kept there until the *materies morbi* have been discovered, until the secrets of this dread disease have been unfolded. The examples of other countries in the solution of the problems involved in cholera, tuberculosis, bubonic plague and leprosy were noted; and why should we not solve the problems of yellow fever? He recommended that a committee from the Association be appointed to wait upon the President of the United States to carry out this idea.

Finally, reference was made to the experiments carried on by the State Board of Health of Massachusetts at Lawrence on the utility of filtration of water-supply with reference to the removal of typhoid germs, the average result being the removal of 98½ per cent. of the germs. A diminution of 60 per cent. in typhoid cases at Lawrence had been the result of sand filtration.

SECOND DAY.—MORNING SESSION.

DR. CHARLES SMART, of Washington, D. C., read the

REPORT OF THE COMMITTEE ON POLLUTION OF WATER-SUPPLIES.

The report stated that the committee had been chiefly engaged in perfecting the stand and methods of bacteriological research. The committee feels that it should be discharged from its duties, and that a new one should be appointed, which shall consist of a couple of men who are practically acquainted with municipal water-supplies, a couple more who know effectively the chemical aspects of the subject, and finally a like number who know as it should be known the bacteriology of the subject. The committee had, however, announced the bacteriological formulæ for use in laboratories.

In accordance with the suggestion the committee was discharged.

PROF. FRANKLIN C. ROBINSON, of Maine, spoke on the subject of

DISINFECTANTS.

He said he could not help noting how rapidly the knowledge and use of formaldehyd had spread. Only one year ago it was practically unknown in the United States. There was no apparatus for generating it in quantity except the one that was exhibited then. Now probably most, if not all, of the members had used it. He ventured to predict that we were far from knowing all about it, and that a year from now greater progress would be seen than during the past year.

DR. E. A. DE SCHWEINITZ, of Washington, D. C., followed with a paper on

THE DETERMINATION OF THE AMOUNT OF FORMALDEHYD YIELDED BY THE FORMALDEHYD LAMP.

PROF. S. BURRAGE, of Lafayette, Indiana, made some remarks on fumigation experiments with formaldehyd.

DR. FRANK W. WRIGHT, of New Haven, read a paper entitled

DIAGNOSIS OF SMALL-POX.

He said an early diagnosis of small-pox was of great importance. Next to vaccination this is the most essential factor in preventing the disease from spreading. If all cases of small-pox were typical, it would not be difficult to make a correct diagnosis; but in these days of general vaccination typical small-pox is seldom seen, the great majority of the attacks being modified by former vaccinia and commonly spoken of as varioloid; but we will call them modified small-pox. If by chance a health-officer should fail to recognize a case of small-pox and the disease should spread, he would be subjected to very severe criticism and would likely be removed from his position in disgrace. On the other hand, if he should declare some disease that resembles modified small-pox as that disease and future events prove that a mistake had been made, he would be just as severely criticised, and would probably have to defend himself in a suit for damages.

SECOND DAY.—AFTERNOON SESSION.

DR. A. WALTER SUITER, of Herkimer, N. Y., read a paper entitled

THE BARBER SHOP AS A MENACE TO THE PUBLIC HEALTH.

It seems that the time has arrived when the attention of public health authorities should be called to that part of hygiene which applies to the barber shop. The first attempt of modern times to regulate sanitarily the operations of the barber shop was recently made in the city of Paris. As a public regulation and by direction of the sanitary authorities an order has been promulgated requiring that specific rules of asepsis and disinfection shall be observed in all shops for the protection of the public.

One evening, several years ago, a sheepish-looking individual shuffled his way into the author's waiting-room and requested a prescription. He was observed to be suffering from disease and presented a most unattractive appearance; his face was literally covered with eruptions and his mouth and lips were ulcerous in high degree with mucous patches. The man's case was disposed of, and he was gladly dismissed. Having to take an early train, Dr. Suiter shortly afterward proceeded to the barber shop to prepare for his toilet. His barber's chair was occupied and he sat down to await his call. As the occupant was about to arise he was startled to observe the very patient for whom he had prescribed an hour before. It is needless to say that he took his departure. Then and there he resolved that his face should never again be shaved by a barber.

PROF. LEONARD PEARSON, of Philadelphia, discussed the subject of

MEAT INSPECTION.

Reference was first made to the amount of meat consumed by the various peoples of the world and to the methods of inspection followed in Europe and America. Since the bacterial origin of many diseases has been demonstrated, and the close relationship of many of the diseases of man and animals has been established, the importance of rational meat inspection has been greatly emphasized.

DR. EDWARD JACKSON, of Philadelphia, spoke of eye-strain from poor window-glass, and said the bad influence of defective window-glass was intensified by the eye having to look through different parts, causing different kinds of strain, so that the eye could not adjust itself so as to work with the best advantage. Even if the defects in the glass are comparatively slight, at a certain distance they will cause serious strain, similar to that of astigmatism.

DR. E. P. LACHAPPELLE, of Montreal, followed with the

REPORT OF THE COMMITTEE ON TRANSPORTATION OF DISEASED TISSUE BY MAIL,

in which he said that the postal authorities of Canada had lately given their consent to the use of the mails for this purpose, this result being largely due to the valuable help received from the newly appointed deputy postmaster-general, who, being a physician, was quite *au fait* as to the importance of the demand. As regards the United States, it may be said that since the use of the mails have been granted, the State Board of Health, of New Jersey, at least, which has fully availed itself of the privilege, has not detected any case of infection traced to the circulation through the mails.

THIRD DAY. — MORNING SESSION.

THE REPORT OF THE COMMITTEE ON HEALTH LEGISLATION

contained a proposed bill to establish a Department of Public Health, the latter to be under the control and management of a Commissioner of Public Health, who shall be a regularly educated physician, appointed by the President of the United States, and whose term of office shall be six years.

SURGEON-GENERAL GEORGE M. STERNBERG, of Washington, talked on the

BACILLUS OF YELLOW FEVER.

DR. J. E. MONJARAS, of San Luis Potosi, Mexico, spoke on

THE NECESSITY FOR ADOPTING AN INTERNATIONAL CLASSIFICATION OF THE PROFESSIONS.

DR. PETER H. BRYCE, of Toronto, read a paper in which he emphasized the view that in dealing with

TUBERCULOSIS

it is the duty of the State to do whatever can be done so well by the individual.

DR. SAMUEL W. ABBOTT, of Wakefield, Mass., followed with a paper on

CONSUMPTION AS AN INDOOR DISEASE,

saying that no form of infection had been studied with greater interest during the past quarter of a century than that of tuberculosis. As proofs that consumption is an indoor disease, he first called attention to the evidence shown by occupations, and secondly, to evidence presented by the conditions of age and sex.

At the close of the morning session the members visited the Medico-Chirurgical College and Hospital of Philadelphia, where they were entertained at a luncheon, and were afforded an opportunity of inspecting the splendid new amphitheatre and the various appointments of the institution.

THIRD DAY. — AFTERNOON SESSION.

This session opened with the reading of a paper by DR. S. A. KNOPP, of New York, on

THE URGENT NEED OF SANATORIA FOR THE CONSUMPTIVE, POOR OF LARGE CITIES.

The question what to do with the thousands of tuberculous patients who inhabit the tenement districts of our large cities, unconsciously disseminating the germs of their diseases among their own kin, friends and neighbors, or who crowd the wards of our general hospitals to the detriment and danger of the patients suffering from acute diseases, has become for the sanitarian one of the vital issues of the day. A number of well-known sanitarians were quoted as expressing the belief that the only solution of the question is the erection of special sanitariums under municipal control.

Two other papers were read on the subject of consumption. One dealt with bovine tuberculosis in its relation to the public health, and the other with tuberculosis and our milk-supply.

DR. LAWRENCE L. FLICK, of Philadelphia, in discussing the papers, said that no hope of accomplishing great results could be looked for until the public was educated on the subject of the infectiousness of the disease. This education was going on, and in Philadelphia in the last ten years there had been a reduction of the disease by one-third.

DR. LYDIA RABINOWITSCH, of Philadelphia, told of the experiments which she had made in the past two years with butter and milk. In milk she had found from 20 to 30 per cent. of tubercle bacilli. In 18 samples of butter from different stores she had not found the bacillus of tuberculosis, but a micro-organism which very much resembled it.

DR. E. F. STEWART, of East Orange, N. J., presented a paper entitled

A PLAN OF PURIFYING WATER.

MR. F. H. NEWELL, of Washington, D. C., followed with a paper on

INVESTIGATIONS OF WATER-SUPPLY BY THE UNITED STATES GEOLOGICAL SURVEY.

He said it had been demonstrated again and again that purification of sewage by filtration or by irrigation was practicable and could be conducted at reasonable expenditure, and it was to be hoped that the time was rapidly approaching when public sentiment would be aroused to the degree of compelling such filtration whenever public health or comfort were imperilled.

H. W. CLARK, chemist in charge of the Lawrence Experiment Station, gave

A BRIEF REVIEW OF THE WORK OF SAND FILTERS IN LAWRENCE, MASS.

In 1887 the deaths from typhoid fever at Lawrence were 12 per 10,000; in 1889, 18.75; in 1890, 13.33; in 1891, 12.20, and in 1892, 11.11. During 1893 the filter was built, and hence during a portion of the year filtered water was being used. In 1894 filtered water was in use during the entire year, and the death-rate from typhoid fever was 5 per 10,000; during 1895 it was 3.07; during 1896, 1.86, and the rate for the present year promises to be exactly the same as for 1896.

FOURTH DAY. — MORNING SESSION.

MR. RUDOLPH HERING, C. E., of New York, read
THE REPORT OF THE COMMITTEE ON DISPOSAL OF
GARBAGE AND REFUSE.

The report stated that it was expedient to make original researches, and the work of the committee had been confined to the collection of statistics and the inspection of plants.

A REPORT OF THE COMMITTEE ON THE TRANSPORTATION AND DISPOSAL OF THE DEAD,

was read by DR. CHARLES O. PROBST, of Ohio.

Among other things this report favored the preparation of bodies for shipment by "licensed embalmers."

DR. HENRY MITCHELL, of Asbury Park, objected to this on the ground that it sought to create a special class of workers, to whom all the business would be restricted.

Several other papers were read and discussed.

The following officers were elected for the ensuing year: President, Dr. Charles A. Lindsley, of New Haven, Conn.; First Vice-President, Dr. Benjamin Lee, of Philadelphia; Second Vice-President, Dr. John C. Schrader, of Iowa City, Io.; Secretary, Dr. Charles O. Probst, of Columbus, O.; Treasurer, Dr. Henry D. Holton, of Brattleboro, Vt.

The Association will hold its next meeting in Ottawa, Canada, 1898.

Recent Literature.

Pathological Technique. By FRANK BURR MALLORY, A.M., M.D., Assistant Professor of Pathology, Harvard University Medical School; Assistant Pathologist to the Boston City Hospital; Pathologist to the Children's Hospital and to the Carney Hospital; and JAMES HOMER WRIGHT, A.M., M.D., Director of the Laboratory of the Massachusetts General Hospital; Instructor in Pathology, Harvard University Medical School. Philadelphia: W. B. Saunders. 1897.

This work, as its title states, is devoted entirely to the methods of pathological examination. It is especially designed for practical use in the laboratory and by the general practitioner. Only those methods are given which have been tried and found satisfactory by the test of everyday use. Great attention is given to details, and the individual steps of each method are clearly and fully described. In fact, it would be hard to go astray in any examination if the directions given were carefully followed. The work cannot but prove indispensable to the student, invaluable to the practitioner and most useful to the specialist.

The arrangement of the book is novel, being based on the fact that the study of the pathology of disease only begins with the post-mortem, and is not complete without bacteriological and histological examinations. On this basis three main divisions are made: post-mortem examinations, bacteriological examinations and histological methods.

The steps of post-mortem examinations, both in hospitals and private houses, are fully detailed, and the points to be especially noted emphasized.

The division on bacteriological examinations is uniformly good. The section on clinical bacteriology will prove extremely useful to the clinician. The

preparation of media is described in detail as well as the usual bacteriological methods. The almost universal applicability of blood serum as a culture medium is emphasized and the authors' own rapid method of preparation and new "blood-serum coagulator" described.

In the division treating of histological methods the various methods of hardening and cutting tissues and the special usefulness of each are described. The preparation and use of stains, as well as the principles of their action, are fully gone into. Among the original methods are those for actinomyces in sections, ameba coli, neuroglia fibres and elastic fibres. The section on examination of the blood has many practical hints, and that on clinical pathology is excellent.

On the whole the book reflects credit on the progress of medicine in Boston, and is worthy to rank with the other works recently published by the teachers of the Harvard Medical School.

The Living Substance as Such and as Organism. By GWENDOLEN FOULKE ANDREWS. 8vo, pp. 176. Boston: Ginn & Company. 1897.

This beautifully printed work is issued as a supplement to the *Journal of Morphology*, and is, we believe, the first unscientific article issued by that valuable journal. It does not report any definite original observations of the authoress, although she informs us that the work was "assisted by exceptionally farsighted eyes, having great range and swiftness of accommodation." Although the structure of protoplasm has been the topic of numerous painstaking researches by some of the ablest of living investigators — a recent review by Von Erlanger enumerates 53 new researches published on this subject within two years — our authoress considers it unnecessary to make any allusion to any of these writers, except Bütschli, whose foam theory she adopts, and of Bütschli she cites no articles. As regards the general ideas in the article we have found nothing sufficiently new and important to deserve even passing notice.

The authoress's language is, however, very original, and at times striking and picturesque. She has apparently taken George Meredith as her chief model, and her rhetorical terms are steadily surprising. On page 72 she says: "Pellicles open almost everywhere, and under very adverse physical conditions, as one would think. The interalveolar substance seems to be irrepressible." And this is a description of an observation! It is all there is at this point, the animal, the tissue, the cell, the part of the cell; the conditions at the time are left to the reader's imagination. The whole essay is in this manner. But the tone is of one infallible, and speaking *ex cathedra*. Professor Leidy described the unicellular Rhaphidiophrys, individuals of which coalesce with others to form a wandering colony; whatever the number of individuals coalesced, pseudo podia are formed only at the periphery of the whole mass. That is clear and plain, but Mrs. Andrews's rhetorical longings are not so easily satisfied; and she paraphrases it in several sentences, of which the first reads: "That is, each Rhaphidiophrys lays aside for the term of its union with the others the habit of close formation at all those portions of its mass, which, though still peripheral to itself, are not peripheral to the colony as such," etc. This is not thought, it is verbiage; and the proper recompense for the publication is oblivion.

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A NEW METHOD FOR THE RADICAL CURE OF INGUINAL HERNIA.

Of the invention of new methods for the radical cure of inguinal hernia there seems to be no end, and the constant occupation of surgical ingenuity upon this subject may be taken as an indication that no perfectly satisfactory method has so far been devised.

The latest contribution in the way of a new method of operating comes from Dr. George Ryerson Fowler, Professor of Surgery in the New York Polyclinic, who, in an instructive and well-illustrated article published in the *Annals of Surgery* for November, 1897, argues that the methods of operation now in vogue, namely, those which bear the name of Bassini, with its modifications devised by Halsted and others, leave a weak spot in the abdominal wall at the internal ring, owing to the funnel-shaped protrusion of the ligatured sac, and the emergence of the cord at this point, which invite the recurrence of the hernia.

McEwen's method of avoiding this defect, by fixing the folded sac under the internal ring, Fowler criticises as difficult to execute satisfactorily. Kocher's method of drawing the displaced sac outward through an opening in the aponeurosis of the external oblique toward the anterior spine of the ilium, and attempting to close the canal without incising its anterior wall, is only applicable in cases without pathological alterations of the sac, and is mechanically a faulty method. Attempts to modify Halsted's operation, by directing the cord upward and outward for a short distance on its emergence from the abdominal wall and fixing it by sutures, have proved unsuccessful, as the weight of the testicle soon proved sufficient to drag the cord down into its normal direction.

As a result of recent experiences in which herniæ have recurred in adults after operations which followed the essential feature of the Bassini operation, namely, the displacement of the cord directly forward through the internal ring and muscular parietes, Fowler has devised a method the essential feature of which

consists of an intra-peritoneal, or backward displacement of the spermatic cord, allowing the complete closure of the internal ring by sutures. The essential features of the operation are the following: (1) a curved incision of the skin, allowing a flap to be turned upward and exposing the canal, the anterior wall of which is incised; (2) separation and isolation of the sac and cord; (3) cutting away the sac at the level of the abdominal wall; (4) isolation of the deep epigastric artery and vein, and their division between ligatures; (5) incision of the posterior wall of the canal, including the transversalis fascia and peritoneum, upon the finger inserted through the neck of the sac. The operation is then completed by placing the spermatic cord within the peritoneal cavity, and uniting the transversalis fascia and peritoneum by broad approximation sutures in front of it until the lower end of the gap in the posterior wall of the original inguinal canal is almost reached. The cord is then brought forward through the newly formed external ring.

The canal is now closed by sutures of kangaroo tendon which include the conjoined tendon and the aponeurosis of the external oblique upon the inner margin, and Poupart's ligament upon the outer, and the new point of emergence of the cord is strengthened by the displacement outward of the pubic attachment of the corresponding rectus muscle.

Fowler commends his method as the only one which allows obliteration of the internal ring and inguinal canal, and has employed it in six cases, which, however, are of too recent date to allow of any estimate of permanent results. Although this method has certain features to commend it, the simpler operations of Bassini and Halsted with their modifications have of recent years met with such pronounced success that there can be no doubt of their efficiency in a large proportion of cases, and in those which present no extraordinary difficulties, there would seem to be no reason for discarding them for a method which is complicated by the additional steps of tying the deep epigastric artery and making an extensive incision into the peritoneum.

The conditions presented to the operator by different cases of hernia vary so greatly that no one method can promise success in every case. Experience may prove that in certain cases of large and long-existing herniæ in adults in which the whole posterior wall of the inguinal is stretched and protruded forward, and in which there is marked stretching and atrophy of the muscular and aponeurotic structures, Fowler's method will have distinct value.

The operation is certainly ingenious, and is devised to meet certain well-known faults of the older procedures as applied to this class of cases.

Up to the present time no perfectly satisfactory method of disposing of the cord in these cases without the extremely undesirable alternative of castration has been devised. If Dr. Fowler's method shall prove to have solved this problem, it will have very definite value.

THE MICHIGAN MONTHLY BULLETIN OF VITAL STATISTICS.

THIS monthly bulletin forms a new and commendable departure in medical journalism, inaugurated under the provisions of a recent statute of Michigan, which requires the issue of monthly bulletins, "showing the mortality of the State in detail, the prevalence of important causes of death, and such other information as shall be of public interest and sanitary value."

The State of Michigan has for many years had a system of registration of vital statistics, the value of which was much impaired by the fact that the returns were defective, a very considerable portion of the population not being embraced in the reporting districts. But as a result of the commendable zeal and progressive spirit of the medical officer in charge of this department (Dr. Wilbur) legislation has recently been secured which will undoubtedly place Michigan in line with the New England States so far as the efficiency and completeness of registration are concerned.

By this first report, for the month of September, 1897, it appears that returns of death were received from a total population of 2,061,616, which is 93.4 per cent. of the total population of the State. A small portion of the population living in sparsely settled districts and amounting to 33,000 persons is exempt from the operation of the new law. The total number of deaths in the registering population was 2,370, which is equivalent to an annual death-rate of 13.4 per 1,000. The deaths under one year were 603, and those from the principal infectious diseases were as follows: from consumption, 201; typhoid fever, 51; scarlet fever, 8; diphtheria and croup, 45; pneumonia, 57; diarrheal diseases (under five years), 432; cerebro-spinal meningitis, 25.

These returns appear to indicate, as a result of the operation of the new law, an increase in accuracy of the registration, amounting to 50 per cent. over the preceding years, as well as an increase in the promptness of the returns, and of their early publication.

The *Bulletin* furnishes valuable suggestions to the registering officials of cities and towns, and proposes an organization of the registrars of vital statistics throughout the country, with the view of adopting uniform methods of classification, and the estimations of populations and of death-rates.

MEDICAL NOTES.

A COLORED WOMAN PHYSICIAN.—A colored woman physician, a graduate of the Woman's Medical College in Philadelphia, recently applied for a license to practise medicine at Atlanta, Ga.

SUSPENSION OF A HOUSE PHYSICIAN AT BELLEVUE.—A member of the house staff of Bellevue Hospital, New York, has been suspended, pending the investigation of the charge of kissing one of the nurses in that institution.

IMPROVEMENT IN THE YELLOW FEVER SITUATION.—The occurrence of more or less severe and extensive frosts has put a new face upon the yellow fever situation, and the quarantines are being gradually abolished, greatly to the relief of trade.

YELLOW FEVER AND PHYSICIANS.—Several young practitioners have been stricken with the prevailing fever. Fortunately we have no fatality to record for October. Drs. J. Barnett, M. J. Magruder, H. Olliphant, Otto Lerch, E. P. Lowe, C. J. Miller, S. G. Kreeger are among those who have been attacked, but we are happy to state that they have all made good recoveries. — *New Orleans Medical and Surgical Journal*.

THE ANNUAL ADDRESS BEFORE THE CHICAGO PATHOLOGICAL SOCIETY will be delivered on the evening of Friday, December 3d, by George M. Sternberg, M.D., Surgeon-General of the United States Army. The subject of the address will be "Yellow Fever, its Etiology and Pathology."

HYSTERICAL LEGISLATION.—Hysterical is the adjective which fits such legislation or attempted legislation as we hear of in Georgia, where the House of Representatives has passed a bill making it a misdemeanor to engage in a game of football where matches have been arranged or gate money demanded.

FOOT-BALL NOTES.—The City Government of Chicago has refused to prohibit the game of foot-ball within the city limits by a vote of 56 to 7. President Fetterhoff, of Girard College, Philadelphia, has forbidden foot-ball playing by the students of that institution owing to one of the students having recently broken his leg in a practice game. The death of a boy named Bucknam, of Stoneham, Mass, from injuries received during a game of foot-ball has been recently reported.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, November 17, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 46, scarlatina 29, measles 9, typhoid fever 15.

A MEETING IN AID OF NEGRO EDUCATION.—There will be a Sunday evening meeting in the Old South Church, Boston, December 5th, in the interest of Negro Education as carried on at the Tuskegee Institute in Alabama. The Principal, Booker T. Washington, and other prominent persons will deliver addresses.

DEATH AT AN ADVANCED AGE.—Mrs. Mary Hollister Pitkin died November 14th, in Amherst, aged ninety-nine. She was one of the oldest persons in western Massachusetts and was the fourth person over ninety years old who has died in Amherst this year. Mrs. Pitkin was born in South Manchester, Conn., August 30, 1798. Mrs. Pitkin's father served in the Revolutionary War as a soldier and was with General Washington at Valley Forge.

SUFFOLK DISTRICT MEDICAL SOCIETY.—At a stated meeting of this Society, on October 30th, the President, Dr. Francis H. Brown, appointed the secretaries of sections as follows: Section in Clinical Medicine and Hygiene, Dr. E. W. Taylor; Section in Obstetrics and Diseases of Women, Dr. C. H. Hare; Section in Surgery, Dr. Paul Thorndike. A committee for preparing a list of candidates for officers of the Society was also chosen, consisting of Drs. J. Collins Warren, G. W. Gay, F. W. Draper, S. H. Durgin, J. H. McCollom.

NEW YORK.

INSANITY NOT INCREASING.—The report of the State Commission in Lunacy for the year ending September 30, 1897, for the first time shows a decrease in the number of original commitments to the State Hospitals for the insane. The apparent increase in insanity indicated by their previous reports would seem to be probably due to the fact that during the period since these hospitals have been established many insane persons have been committed to their care who were previously neglected or cared for in private.

COMPLETE AND UNIVERSAL ANESTHESIA.—Dr. Charles E. Nammach recently presented to the Neurological Section of the New York Academy of Medicine a case of complete and universal anesthesia, in the person of a young woman twenty one years old, which is believed to be unique. The anesthesia is constant, not simply present when she is hypnotized, but so sensitive is the patient to hypnosis that she can be readily thrown into a state of profound catalepsy by a glance of the eye or at the hypnotic suggestion of any one.

APPENDICITIS DELAYS A TRIAL.—A new sensation has been created in the sensational Guldensuppe murder case by the seizure, on the third day of the trial of Martin Thorn for the crime, of one of the jurors with appendicitis, rendering necessary an operation on the following day, the dismissal of the other jurors, and a new trial altogether. The incident will probably be regarded also as an illustration of the prominence which appendicitis would seem to have attained as a factor in modern life.

THE NEED OF THE PROPOSED DEPARTMENT OF PUBLIC HEALTH.—The New York Board of Trade and Transportation, at a meeting held November 10th, adopted a resolution declaring the health of the people of far more importance than the proposed enlargement of the navy or other preparations for war, and calling for the appointment of a committee to consider the desirability of the establishment of a national department of public health.

THE AMERICAN ORNITHOLOGICAL UNION.—The fifteenth annual meeting of the American Ornithological Union was held last week at the American Museum of Natural History, on Manhattan Square, and there were more than a hundred delegates present. Dr. C. Hart Merriam, of the Department of Agriculture, Washington, presided at the sessions, and among

those in attendance were Drs. Elliott Coues, of the Smithsonian Institute, Jonathan Dwight, Walter Saxon, of Cambridge, Mass., and Albert K. Fisher, of the Department of Agriculture.

THE GROWTH OF COLUMBIA UNIVERSITY.—There are this autumn enrolled in the various departments of Columbia University 2,017 students, a gain of about 250 over last year. This is the highest number ever reached, and it is expected that by Christmas it will be increased to 2,150.

AN ANTHROPOMETRICAL BUREAU.—In order to maintain the physical condition of the men on the force in the greatest efficiency possible the Board of Police have established an Anthropometrical Bureau. All applicants for positions as policemen have been required to pass a rigorous physical examination, but after they have once been admitted to the force little or nothing has hitherto been done to keep the men in good condition. The new bureau will have charge of the matter and will see that gymnastic apparatus and other appliances are placed in the various station-houses. At its head will be Dr. A. H. Brown, an expert on physical training, who during the last three years has passed on the condition of more than ten thousand applicants. For this purpose he has been transferred from the Civil Service Commission to the position of police surgeon. The Anthropometrical Bureau is also to have charge of the measurement of criminals by the Bertillon system, which has up to the present time been conducted by the detective department.

THE FORCE OF HABIT.—The force of habit is strikingly shown in the case of the foreman of one of the city engine companies, who, while on duty at a fire, received a bad fracture of the ankle, and was admitted to the Manhattan Hospital for treatment. One night shortly after the accident a gong in the hospital struck one of the numbers to which his company was accustomed to respond, and being suddenly awakened from sleep by the sound, he sprang from his cot to the floor with such force as to cause another fracture.

NEW PARKS RECOMMENDED.—The advisory committee appointed by Mayor Strong has handed in a report in which is recommended the opening of a number of small parks and children's playgrounds. Fourteen new sites in crowded sections of the city are recommended, two of which, the mayor states, will be acted on at once; the rest as soon as practicable. The report compliments the Dock Department for providing recreation piers, and the Board of Education for opening out of school hours the playgrounds which are required by law in connection with all new school-houses. It also recommends the establishment of a park on Randall's Island, in the East River, as soon as the necessary legislation can be obtained.

A SUCCESSFUL SYMPHYSEOTOMY.—A symphyseotomy, with successful results, was performed at the Kings County Hospital, at Flatbush, on November 9th, by Dr. Robert L. Dickerson, of Brooklyn.

Miscellany.

TRAINED ATTENDANTS FOR CHRONIC CASES.

It is perhaps not generally known among physicians in Massachusetts that the Massachusetts Emergency and Hygiene Association maintains a Department of Instruction to Attendants, in which women are trained for the position of attendant in the care of convalescents, feeble or elderly persons, and subacute and chronic cases, and for other cases which do not require the skill of a trained nurse. These attendants are taught to take temperature, pulse, etc., make and change sick-beds, and perform the duties of a nurse where there is not great responsibility or where serious emergencies are not likely to arise. They are taught how to serve meals to the sick and how to prepare many articles of an invalid's diet. Attendants are intended for mild cases of sickness and chronic invalids and for other cases where a trained nurse cannot be afforded, to intelligently assist the family in caring for the sick.

Attendants receive for their services, during their first year after graduation, seven dollars a week, and after the first year may charge ten dollars a week, but never more than twelve dollars.

The course of study lasts but nine weeks, whereas a regular training-school requires two years; and it has been found that there are many persons who cannot afford to pay for a trained nurse, but can afford to pay the price an attendant charges; and there is at the Directories for Nurses a constant demand for persons occupying the position which the attendant, as trained by this Association, is intended to fill.

During their course of instruction the pupils are under the constant observation and instruction of a trained nurse, and it has been found that surprisingly good results are attained considering the brevity of the period of instruction. Those graduated last year have been nearly constantly employed; a good per cent. of those of earlier date have been well employed and many of them have been in the same place for years.

The diplomas of the Association permit the holders to register as attendants at the Directory for Nurses, 19 Boylston Place, Boston.

Pupils not wishing to become attendants and to be registered as such, can take the lectures and class work, and receive a special certificate for the work done.

The Association desires to find cases among the needy to which it can send its pupils to care for the sick and so gain for them the necessary experience and training. Physicians who know of cases suitable for the care of pupil attendants may obtain the services of pupils and thus benefit both their patients and the Department of Instruction, by applying to the instructor, Dr. Anna G. Richardson, for the services of a pupil attendant.

The following are the rules under which pupil attendants are furnished:

(1) The case must be suitable and the instructor must have a suitable attendant to send.

(2) The attendant can remain with the patient as long as necessary, except during the time of class work and a proper time for rest each day.

(3) This department is under the supervision of a

trained nurse, who must be allowed to visit the case at any time to direct and instruct the attendant.

(4) It must be understood by the attending physician that an attendant is not a trained nurse and cannot assume the responsibilities of one, but requires explicit directions.

MARRIAGE BY CAPTURE IN ARABIA.

EDWARD S. HOLDEN writes to *Science*, September 15, 1897:

"Antar" is a Bedonin romance reputed to have been written by Asmai, one of the learned men of the court of Haroun-al-Raschid, shortly before the beginning of the ninth century. From the translation by Terriek Hamilton (London, 8vo, 1820), Vol. iv, pp. 388-89, the following description of an early Arabian marriage custom is quoted. The custom is a well-known one. Asmai's explanation of it is new to me.

"Now, there was a certain curious custom current among the Arabs at that period. The night on which a bridegroom should wed his wife, they brought a quantity of camel pack-saddles and heaped them one upon another, decorating them with magnificent garments. Here they conducted the bride, and having seated her on high, they said to the bridegroom, 'Come on, now, for thy bride!' And the bridegroom rushed forward to carry her off, whilst the youths of the tribe, drawn up in line, right and left, with staves and stones in their hands, as soon as the bridegroom rushed forward, began beating and pelting him and doing their utmost to prevent his reaching his wife. If a rib or so were broken in the affair it was well for him; if he were killed it was his destiny.

"But should he reach his wife in safety, the people quitted him and no one attempted to approach him. 'I inquired about this circumstance,' says Asmai, 'and what it was they were about.' 'Asmai,' they answered, 'the meaning of this is to exhibit the bride to the warriors, that should her husband die, any one else might take a fancy to her and take her off.'")

So far as my reading goes, the explanation of marriage by simulated capture, which is given in the last sentence, is entirely novel.

LAYING OF THE CORNER-STONE OF BELLEVUE HOSPITAL MEDICAL COLLEGE.

THE corner-stone of the new buildings of the Bellevue Hospital Medical College, New York, was laid with appropriate ceremonies on Saturday afternoon, November 13th. They are situated on 26th Street, adjoining the Carnegie Laboratory and opposite Bellevue Hospital. It is expected that they will be completed in time for the opening of the next college session, and the cost of erection will be about \$200,000. The building committee consists of Dr. Edw. G. Janeway, President of the School, Dr. Austin Flint, Secretary, and Drs. H. M. Biggs and F. S. Dennis, members of the Faculty.

The exercises were presided over by Mr. D. O. Mills, President of the Board of Trustees, and the corner-stone was laid by the venerable Dr. Lewis A. Sayre, now Emeritus Professor of Orthopedic Surgery, who was the only representative present of the founders of the college. Among the deposits in the stone was a small package of antitoxin and a sealed glass tube of living specimens of the bacillus *arogenes capsulatus* cultivated in the Carnegie Laboratory. Accompanying the latter was a written description stating that these were the oldest identified spores of this species of bacterium. Dr. Sayre in

his address gave the following interesting account of the origin of the college:

"One day I had an exceedingly interesting clinic, and the amphitheatre (Bellevue) was so crowded that there was not standing room in the aisles or gallery. After my clinic, while walking up 26th Street with Dr. Stephen Smith, who was then one of the surgeons of the hospital, he said to me that while the students attended the different colleges to get their diploma, or legal license to practise, yet they had to come to the Bellevue Hospital clinic to get the actual knowledge which enabled them to practise their profession. Dr. Smith then and there suggested that a medical school be formed in connection with the hospital, so that students could receive the advantage of more thorough practical teaching, instead of being limited to one hour's clinical instruction in a day. This was the first suggestion I ever heard of establishing a medical school in connection with Bellevue Hospital. Soon after this conversation the Commissioners of Charities and Correction requested Dr. Isaac E. Taylor and myself to go to Albany and secure a charter for a college to be connected with the hospital and empowered to grant medical degrees. This we did in April, 1861, and the Bellevue Medical College was thus founded—the object of the school being to combine practical clinical demonstration with didactic teaching, in accordance with its motto, *Clinica Clinice Demonstranda*. In 1885 the Carnegie Laboratory, devoted to bacteriological and scientific research, was given to the college by the generosity of Mr. Andrew Carnegie. This was the first institution of the kind connected with any medical college in this country. . . . Since its organization Bellevue has sent out 4,745 alumni, who can be found in almost all parts of the civilized globe, and last year had 715 matriculants."

The remaining exercises were held in the large lecture-room of the Carnegie, and Dr. Landon Carter Gray, President of the Alumni Association of the College, was the first speaker. In his address he made the following reference to the old Faculty: "Austin Flint, with his massive head and benign face, which was once compared to that of Fénelon; James R. Wood, the incomparable operator, eagle-eyed, rubicund of visage, spotlessly attired, even in the morning in his dress suit, which was invariably adorned with a buttonhole nosegay; Van Buren, grand of manner, with an easy flow of simple words, and his high head knocking the stars; Frank Hamilton, erect in his military bearing and precise in language; Fordyce Barker, husky of voice, but of strikingly commanding presence; Isaac E. Taylor, a tremendous man, as I recently heard him called; Sayre, now living in a ripe age, with the satisfaction that is rarely vouchsafed to a man of genius, of seeing his own original ideas universally accepted; and Austin Flint, the younger, whose lectures are to-day as lucid and charming as of yore."

The Rev. Roderick Terry, D.D., spoke briefly on the behalf of the Trustees of the College, and Dr. John S. Billings then made an address as the representative of the medical profession in general. In the course of it, he said: "It is now fifty years since the medical profession made an organized effort to improve medical tuition in this country. When I was a student we attended two courses of lectures which were just alike. There was no laboratory work, and there might not be any clinical work. The time has

long gone by when a lecturer was considered a sufficient equipment for a medical school. The lecture-room is becoming the least important part of the college. The clinic is what characterizes modern medical education.

MAN AND MEDICINE.

DR. J. F. GOODHART, one of the prominent London consultants, delivered, October 13th, the inaugural address at the opening of the York Medical Society.¹ It contains so much shrewd sense tempered by a liberal kindliness, and so much wisdom controlled by experience in regard to the relations between the laity and the medical profession, between the man in the street and the regenerate, as Dr. Goodhart puts it, that we commend the entire address to those of our readers who may have access to it. Others will thank us for the closing paragraphs:

Patients and medical men look upon their mutual relationship from different points of view. The man in the street in this instance takes a business view of his association with his adviser. He considers that the payment of the bill is the just equivalent, the *quid pro quo* that settles all claims—indeed, he has been known to think that the *quid* was more than the *quo* and to grumble thereat—and that he can henceforth try, if he is so minded, the latest fashion—the young man who has just come to town, and who is "so clever" (it is only the young that are "so clever"). But the medical man looks at things very differently. He feels, and rightly feels, if it be kept within due limits—but I think we are inclined to push it too far—that in the great majority of cases he undertakes responsibilities, undergoes sacrifices, and enters into delicate relationships by becoming in large measure a partner in other people's anxieties and sorrows as well as having to bear all his own, for the wear and tear of which no money payment is an equivalent. The only payment that we accept as payment *in full* is gratitude, and gratitude for imperderable service such as medicine renders to mankind is too often a stream with full head which rapidly gushes itself out. There is much truth as well as humor in "Gratitude is a lively expectation of favors to come." No medical man could be such and conduct his business on purely business principles. I will not claim for the profession of medicine that it is more righteous than any other calling in life, but I should always maintain that, however much the public might think and wish to have it otherwise, the larger half of the practice of medicine is, and must be, pure philanthropy. Not a case comes before one probably but that much more is done for it than ever the patient supposes. He supposes that he comes for an opinion and he gets it, and that that is the whole of the transaction. If that were all one had to do, medicine would be much simpler, perhaps, but it would be much less entralling. But before forming an opinion you probably have to throw yourself into the position in life of the patient, as far as possible, to realize yourself his hopes and his fears, his troubles here and his ties there, and numberless things that have nothing to do with the disease, but everything to do with the treatment and with your power to give the very best advice that the circumstances of the case admit of. And when you have come to an opinion, there is then again the necessity of entering into the man's feelings and shaping your words in accordance therewith. Thus at the end of any investigation the larger number of items in the bill cannot possibly be discharged by any equivalent in gold. You have been obliged, even though willingly, to become the friend and confidant of a family, and friendship and sympathy cannot be bought or sold. It is often said, "You doctors are hard men." I have even heard it said of the ladies who have taken to the practice of physic that they, too, upon occasion are not too conspicuous for the exhibi-

¹ Lancet, October 30th.

tion of sympathy. Well, a medical man cannot wear his heart upon his sleeve. I sometimes reply, "If you could but join as you would know that it is scarcely possible to be hard in the practice of medicine." The outsider knows nothing of the storms of anxiety, born entirely of sympathy, that sweep through the mind of the medical man when harassed by a critical case. Have I done the best possible thing? is present night and day, perhaps for many days together, upon such occasions, and the relief that is experienced when the sick one emerges from danger is so keen that it can only be compared to the feelings of the convalescent himself when he returns to the pleasure of living.

"Can naethin' be dune, doctor? Ye savit Flora Cammil and young Burnbrae, an' yon shepherd's wife Dunleith wy' an' we were a' sae prood o' ye, an' pleased tae think that ye had keepit deith frae anither hame. Can ye no think o' *somethin'* tae help Annie, and gie her baek tae her man and bairnies?" and Tammas searched the doctor's face in the cold weird light.

"There's nae pooer in heaven or airth like Inve,' Marget said to me afterwards. . . . 'Oor herts were as water afore Tammas's words, an' a' saw the doctor shake in his saddle. I never kent till that meenut hoo he had a share in a body's grief, an' carried the heaviest wecht o' a' the Glen. A' peeted him, wi' Tammas looking at him sae wistfully as if he had the keys o' life an' deith in his hands.'"

Thus there does grow up in the medical man's being a sense of a peculiarly close interest in the life that in God's good providence he has helped to steer through the quicksands of illness, and he comes to look upon his patients as in some sort his children, and to claim from them an allegiance in all matters pertaining to their health, which they at the most but very imperfectly recognize, and the binding nature of which they cannot therefore understand. But this relationship between men and their family practitioner is a very valuable one, and should be tenderly cherished. For I think there can be no doubt that the tendency in modern life is to change this old, and, as I think, salutary order of things. But, as I have already said, you may go to the great man in the town, but you still have a constitution or a temperament, of which you know little, and he may see nothing in one short interview. The three orders of medicine — medicine, surgery and general practice — are still as necessary as ever they were. You may do without the last-named when there is nothing the matter with you, you may go to the specialists in town for an opinion on an obscure case, or to settle a moot point in treatment; but when one is really ill, then it is that you want, and cannot do without, the man with the cheery voice, the kindly smile, the deft hand, the many-sidedness of resource for easing pain born of long experience in many fields, and with it all the ready self-sacrifice that at times like these makes the medical man almost seem to be "He that sticketh closer than a brother."

But I must stop. I have even now hardly more than indicated a few of the many points that my subject admitted of, but which were difficult to harmonize within the scope of the interest of an hour. Briefly put, my dominant idea is that man remains much too ignorant at the present day of the rudiments of the workings of his various parts. Thus it happens that at one time there is still a too blind faith in the power of the medical man, and at another time an equally blind intolerance and questioning of the restrictions and regulations that he, in his wisdom, feels called upon to impose. It would be much better for both parties concerned, and much more helpful to the art of healing, if medical man and patient could meet upon some common ground, and if the layman were able to follow the trains of thought that we may wish in some measure to make him understand, to realize in some small measure the great responsibility that medical men have to undertake. I do not suppose that this can be done to any great extent; in the case of the illness of those who are dear to us the issues involved are so tremendous to us that to think on anything, much more on unfamiliar lines, becomes well-nigh impossible. Nevertheless, we should be better off if everyone had learned in some slight fashion to think upon the

functions of their various parts and on the way in which those functions are conducted. There would then be less ignorance of the extreme intricacy of the subject; it would be more freely admitted that doubts must arise on all sides; and that watchfulness on the part of the medical man, and patience on the part of the sick man and of his relatives, are often the most important elements in successful treatment. The *Spectator* wrote the other day that "modern medicine discards more and more the old remedies of specific drugs, and relies more and more on the natural agencies, striving to reduce to a minimum artificial devices." And yet how much we see of the old order of things. The mass of mankind does not seem to me to have adequately kept up with this march of medical knowledge, and thus one is still too much in the seethe of excitement over the last new specific; the absolutely impossible is still deemed to be within the range of actual accomplishment; a medicine is still swallowed more as a charm than as a direct means to an end; and ignorance and shrewdness and the chances of life which happily mostly seem to make for health are together able to compete successfully with real knowledge. While this is so it can hardly be wondered at, life being so precious and tenacious as it is, that when common-sense advice is tendered it is too likely to be met in the same spirit as of old. "Are not Abana and Pharpar, rivers of Damascus, better than all the waters of Israel? may I not wash in them, and be clean?" And the medical man, out of the depths of a yearning disappointment at the apparent hopelessness of his contest against the competing forces, is too often driven reproachfully to respond, "If the prophet had bid thee do some *great* thing, wouldest thou not have done it?"

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 6, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,868,060	669	221	14.70	13.20	3.90	1.35	4.05	
Chicago . . .	1,619,226	405	122	14.75	21.25	6.50	2.75	4.00	
Philadelphia . .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . . .	1,160,000	327	88	9.90	10.80	1.50	1.50	4.80	
St. Louis . . .	570,000	—	—	—	—	—	—	—	
Baltimore . . .	550,000	190	54	12.72	9.54	3.18	1.06	5.83	
Boston . . .	517,731	192	0	5.72	15.08	.52	2.08	2.60	
Cincinnati . . .	405,000	—	—	—	—	—	—	—	
Cleveland . . .	350,000	89	32	8.96	13.44	2.24	1.12	—	
Pittsburg . . .	278,000	80	27	23.75	11.25	7.50	5.00	1.25	
Washington . . .	277,000	85	28	11.80	11.80	1.18	3.54	5.90	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	105,050	33	6	1.18	27.27	3.03	3.03	3.03	
Worcester . . .	105,050	32	9	19.38	8.69	3.23	3.23	9.69	
Fall River . . .	95,819	27	10	3.70	18.50	3.70	—	—	
Lowell . . .	87,133	31	11	12.92	19.38	9.69	—	3.23	
Cambridge . . .	86,812	19	8	15.78	15.78	—	—	—	
Lynn . . .	65,220	—	—	—	—	—	—	—	
Charleston . . .	63,165	36	5	5.54	2.17	—	2.77	—	
New Bedford . .	62,416	21	4	23.80	4.76	4.76	9.52	9.52	
Lawrence . . .	65,510	27	13	7.40	5.10	—	—	7.40	
Springfield . . .	54,790	17	7	11.76	17.64	5.88	—	5.88	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	9	4	22.22	11.11	—	—	11.11	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	7	2	—	14.28	—	—	—	
Chelsea . . .	32,716	12	1	—	16.66	—	—	—	
Haverhill . . .	31,406	14	4	21.42	7.14	14.28	7.14	—	
Gloucester . . .	23,775	—	—	—	—	—	—	—	
Newton . . .	28,980	6	1	33.33	—	16.66	—	16.66	
Fitchburg . . .	28,382	5	1	—	—	—	—	—	
Taunton . . .	27,812	7	1	14.28	14.28	—	—	14.28	
Quincy . . .	22,562	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	4	2	—	—	—	—	—	
Everett . . .	21,575	7	3	14.28	—	—	—	14.28	
Northampton . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	2	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 3,427; under five years of age 750; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas, and fevers) 302, acute lung diseases 326, consumption 305, diphtheria and croup 103, diarrheal diseases 89, typhoid fever 49, measles 18, scarlet fever 13, malarial fever 12, cerebro-spinal meningitis 9, whooping-cough 7, erysipelas 2.

From measles New York 13, Pittsburg 5. From scarlet fever New York 7, Chicago and Brooklyn 2 each, Baltimore and Salem 1 each. From malarial fever Brooklyn 5, Nashville 3, Baltimore 2, New York and Charleston 1 each. From cerebro-spinal meningitis New York 3, Cambridge 2, Baltimore, Boston, Worcester and Somerville 1 each. From whooping-cough Pittsburg 3, New York, Cambridge, Washington and North Adams 1 each. From erysipelas New York and Baltimore 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending October 30th, the death-rate was 17.6. Deaths reported 3,716, measles 117, diphtheria 98, fever 76, diarrhea 74, scarlet fever 55, whooping-cough 43.

The death-rates ranged from 9.5 in Cardiff to 25.7 in Wolverhampton; Birmingham 19.2, Bradford 12.0, Brighton 10.7, Gateshead 19.1, Hull 16.5, Leeds 16.0, Leicester 10.5, Liverpool 21.3, London 17.7, Manchester, 21.1, Newcastle-on-Tyne 19.9, Nottingham 14.1, Sheffield 22.2, Swansea 15.6.

METEOROLOGICAL RECORD

For the week ending November 6th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *th'r.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...31	30.18	42	53	32	56	63	60	N.W.	S.W.	4	10	C.	F.	
M...1	29.40	52	61	44	81	100	90	S.	N.E.	12	8	O.	R.	.42
T...2	29.78	50	58	43	97	74	86	N.E.	N.W.	13	15	R.	C.	1.74
W...3	29.83	51	59	43	92	64	78	W.	S.W.	5	9	O.	C.	.09
T...4	30.26	52	61	42	75	85	80	W.	S.E.	6	8	C.	O.	
F...5	30.17	52	60	43	92	57	74	S.W.	W.	9	18	C.	C.	
S...6	29.87	55	66	44	84	63	74	S.	W.	8	12	O.	C.	.16
														2.41

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 6, 1897, TO NOVEMBER 12, 1897.

Leave of absence for one month is granted CAPTAIN ISAAC P. WARE, assistant surgeon, Fort Grant, Ariz.

Leave of absence for two months and twenty-six days, to take effect when, in the opinion of his department commander, his services can be spared, is granted MAJOR LOUIS W. CHAMPTON, surgeon, Fort Meade, S. D.

Leave of absence for two months, to take effect when his services can be spared, is granted CAPTAIN ROBERT S. WOODSON, assistant surgeon, Jackson Barracks, La.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 13, 1897.

JAMES R. WAGGENER, surgeon, relieved from the "Marion" and ordered to resume duties at Mare Island Navy Yard.

C. BIDDLE, surgeon, detached from duty at the Navy Department 12th inst., and ordered to the "Newport" 13th inst.

C. H. T. LOWNDES, passed assistant surgeon, detached from the Washington Navy Yard 12th inst., and ordered to the "Newport," 13th inst.

J. E. GARDNER, surgeon, detached from the "Dolphin" and ordered home on waiting orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOVEMBER 11, 1897.

WHEELER, W. A., surgeon. When relieved by Passed Assistant Surgeon W. P. MCINTOSH, to rejoin station at Cincinnati, O. November 10, 1897. Granted leave of absence for one month from November 15, 1897. November 11, 1897.

WASDIN, EUGENE, passed assistant surgeon. Detailed by the President for special duty at Habana, Cuba, for bacteriological investigation of yellow fever. November 11, 1897.

MCINTOSH, W. P., passed assistant surgeon. When relieved by Passed Assistant Surgeon G. B. YOUNG, to proceed to St. Louis, Mo., for temporary duty. November 10, 1897.

MAGRUDER, G. M., passed assistant surgeon. To resume command of Service at Galveston, Tex. November 10, 1897.

GUIERAS, G. M., passed assistant surgeon. To rejoin station at Key West, Fla., not later than November 20, 1897. November 11, 1897.

GEDDINGS, H. D., passed assistant surgeon. Detailed by the President for special duty at Habana, Cuba, for bacteriological investigation of yellow fever. November 11, 1897.

YOUNG, G. B., passed assistant surgeon. To resume command of Service at Memphis, Tenn. November 10, 1897.

NYDEGGER, J. A., passed assistant surgeon. To proceed to Brunswick Quarantine, Ga., for temporary duty, arriving there not later than November 30, 1897. November 10, 1897.

GREENE, J. B., assistant surgeon. Upon being relieved by Passed Assistant Surgeon G. M. GUIERAS, to report at Bureau preparatory to detail as medical officer of the Revenue Steamer "McCulloch." November 11, 1897.

RECENT DEATHS.

HARRISON ALLEN, M.D., emeritus professor of comparative anatomy in the Medical School of the University of Pennsylvania, died suddenly on November 14th. He was born in Philadelphia in 1811, graduated from the University of Pennsylvania in 1831, and soon after entered the regular army. He was stationed at Washington, and in 1835, at the age of twenty-four years, was called to the chair of comparative anatomy and zoology, which he held until May, 1895. He was the author of numerous monographs, papers and books in many departments of medicine and natural science. At the Columbian Exposition Dr. Allen was one of the judges on anthropology. He was president of the Pathological Society in 1877; president of the American Laryngological Association in 1886; president of the Association of American Anatomists from 1891 to 1893.

DR THOMAS W. EVANS, the famous American dentist, died suddenly at Paris, November 12th. He was born about 1823 in Philadelphia. His father was a soldier of the War of 1812.

Dr. Evans began the practice of dentistry in Lancaster, Pa., but, after a few years, having been called to Paris for a consultation, he established himself there and rapidly rose to the head of the dental profession in Europe. He was employed by the King of the Belgians, Louis Napoleon, and later by most of the royal families of Europe.

Sent by the Emperor during the Crimean War to study the sanitary condition of European camps and hospitals, he was so impressed by the misery and suffering there presented to him that on his return he secured the interest of the civilized world in important measures of reform. His record during the late Civil War in the United States will be found in the history of the United States Sanitary Commission, of which he was an active organizer in Philadelphia. During the Franco-Prussian War he was at the head of the ambulance service. His last service to the ill-fated Imperial family of France, was his co-operation in the removal in secret of the Empress to England out of Paris. Since the death of the Emperor he has been living in quiet retirement in Paris.

He is supposed to have left a very large fortune, a part of which, there is reason to believe, will be devoted to the founding and maintenance of educational institutions in this country.

BOOKS AND PAMPHLETS RECEIVED.

Vade Mecum of Ophthalmological Therapeutics. By Drs. Landolt and Gyax. Philadelphia: J. B. Lippincott Co. 1898.

Fifteenth Annual Report of the Trustees of the Soldiers' Home in Massachusetts, at Chelsea, for the year ending June 30, 1897.

A Text-Book of General Botany. By Carlton C. Curtis, A.M., Ph.D., Tutor in Botany in Columbia University. New York: Longmans, Green, & Co. 1897.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series. Vol. II. B.—Bywater. Washington: Government Printing Office. 1897.

Text-Book of Materia Medica for Nurses. Compiled by Lavinia L. Dock, Graduate of Bellevue Training School for Nurses. Third edition, revised and enlarged. Eleventh thousand. New York: G. P. Putnam's Sons. 1897.

Comparative Frequency of Stone in the Bladder in the White and Negro Races. Acquired Umbilical Hernia in Adults. Value to the Public of State Medical Societies. Symptoms and Treatment of Hepatic Abscess, with Report of Seventeen Cases. By George Beu Johnston, M.D., Richmond, Va. Reprints. 1895-97.

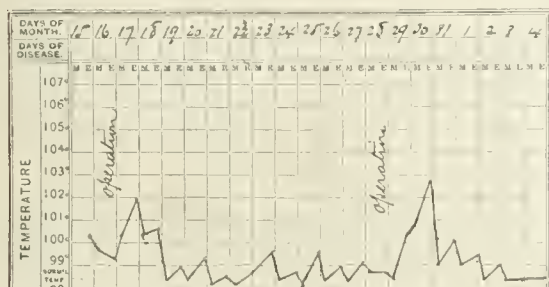
Original Articles.

THREE CASES OF EXTRA-DURAL ABSCESES;
OPERATIONS AND RECOVERIES.

BY J. ORNE GREEN, M.D.,
Clinical Professor of Otology in Harvard University.

CASE I. Fracture of the skull, infection and extra-dural abscess.

M. E., an unusually strong, healthy man, aged twenty-seven, about November 1, 1895, jumped from a rapidly-moving electric car, received a scalp wound over the left parietal bone, and was unconscious for a short time. The scalp wound was stitched at the time. Shortly after the accident there was bleeding from the left meatus, followed by a serous discharge for two or three days only. Two weeks after, he began to have pain in the ear; and at the end of another fortnight an edematous swelling appeared above the auricle and extended so far forwards as to close the left eye. There was no dizziness, no nausea and no headache, the pain consisting of occasional sharp shoots from the ear into the left temple. The tests were, W. I. c/100, V. I. 1/25 and Weber, localized in the affected side; by Valsalva's inflation there was no perforation whistle.



He entered the infirmary on December 15th. There was a diffuse swelling of the upper wall of the osseous meatus, and below this granulation tissue which completely concealed the deeper parts. The external swelling was entirely above the linea temporalis and zygoma; was edematous and extended forwards to the eye and upwards half-way to the vertex to the cicatrix of the original wound; it was most prominent two inches above the auricle, where a distinct crater with fluctuation could be felt. There was no sensitiveness of the mastoid. Under ether the swelling was incised freely at the crater, over the original cicatrix and over the temporal fossa; no collection of pus was found, but there was bare bone at the crater and in the temporal fossa. The three openings were connected by drainage-tubes and dressed daily with douching with sublimate 1-3,000, and the meatus was similarly treated.

December 21st. The bare bone had covered with granulations except one small spot at the crater; the ear was dry, and all swelling had disappeared; the drainage-tubes were removed and iodoform gauze substituted. All pain had ceased.

December 28th. A probe was found to enter a small carious hole in the bone at the position of the crater; under ether the bone was fully exposed, and two fractures of the temporal bone were seen, one beginning just above the zygoma, running upwards and backwards, and one from the squamous suture downwards and forwards; at the junction of the two was a

carious perforation three-sixteenths of an inch in diameter, filled with exuberant granulations from the dura. The opening was enlarged with rongeurs to nearly an inch in diameter, evacuating some three drachms of inodorous pus. The anterior edge of the fracture was depressed about one-sixteenth of an inch below the posterior edge, but attempts to raise it were futile; the upper fracture extended into the parietal bone but was not exposed, as a probe passed beneath the periosteum showed a perfectly smooth surface. The area of granulating dura did not extend beyond the opening in the bone, as was seen by pushing the dura inwards; the dura itself was pulsating distinctly. The granulations were not removed, the whole wound was douched with corrosive solution, 1-5,000, the upper portion sutured and the rest packed lightly with iodoform gauze. Convalescence was uninterrupted; the wound was septic, was dressed daily, then every second, then every third day. It gradually closed by granulation, and on February 26th was entirely healed. The inflammation of the ear was confined to the meatus, and was healed within a few days after the first operation. More than a year afterwards the patient was in perfect health.

CASE II. Infection of the tympanum, caries of the antrum-roof and extra-dural abscess.

J. H., a strong, healthy man, aged forty, from a cold in April, 1896, had earache, for which he applied at the infirmary, where a paracentesis was done, and the ear discharged purulent fluid for one week, and then the discharge ceased. The earache returned; another paracentesis was done; the discharge continued for about a week, then ceased from closure of the perforation. This history kept repeating itself: earache, complete relief from a paracentesis as long as the discharge continued; with closure of the perforation, gradual return of the pain. Between April 14th and November 1st, ten paracenteses were required.

On November 10th he began to have the old symptoms, five days from the cessation of the last discharge; the left membrana tympani was swollen and injected so that all landmarks had disappeared, but there was no localized bulging. He complained of pain in the ear and over the side of the head; there was no tenderness of the mastoid, but distinct sensitiveness over an area two inches in diameter on the squamous bone, just above the linea temporalis, and another sensitive spot two and a half inches upwards and backwards from the auricle over the parietal bone. A paracentesis evacuated a sero-purulent fluid, and a culture taken from within the tympanum showed infection with the staphylococcus aureus (Dr. Daley). The temperature was 99° F. Arguing that, from the history, there was some focus of inflammation not yet reached which was continually re-infecting the tympanum, I advised exploration of the mastoid.

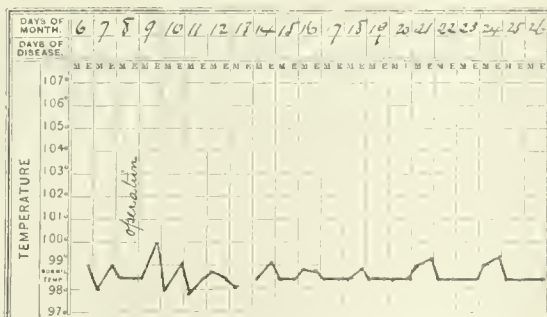
November 13th the mastoid was opened; the cortex was not inflamed; the interior was partly pneumatic and partly hyperostosed, inflamed, but without any large collection of pus. The roof of the antrum was destroyed by caries, and about a drachm of pus was evacuated from between the dura and the squamous bone. The opening was enlarged upwards, exposing the dura for about half an inch, or as far as the pus seemed to extend. All carious bone was curetted away, the cavity cleansed by wiping and packed with iodoform gauze.

November 17th there was some oozing on the dress-

ing, which was changed; and on account of eczema of the auricle, sterile gauze was substituted for iodoform gauze.

November 18th the perforation of the drum-membrane had healed; the dural cavity was discharging slightly, and was dressed daily. It gradually filled up by granulations. All pain had been entirely relieved from the day of the operation, and the patient was about the ward, but a slight discharge continued from the dura.

On January 7th he again complained of pain in and about the ear, but without any return of pus in the tympanum; and at the spot of sensitiveness over the parietal bone, first noticed on his admission, was an area of edema about three-quarters of an inch in diameter. Under ether the tissues were incised, the periosteum reflected, and a fistula through the bone three-eighths of an inch in diameter exposed; this was enlarged with rongeurs and the dura found covered with granulations nearly half an inch in height. The bone was then removed in every direction with rongeurs till the opening extended beyond the area of dural granulations, making an opening in the skull about two inches in diameter. The granulations were covered with pus, but no marked collection was found except



in the extreme posterior portion of the wound, where two drachms were evacuated, which I at first thought came through a fistula in the dura; but on removing the granulations with a curette, the dura was found to be unperforated, and the collection of pus was evidently a pocket in the granulation tissue. The galvano-cautery was used to check obstinate oozing in the scalp, the upper parts of the wound were united by sutures and the rest packed with aseptic gauze.

From this time there was no further pain; the wound remained completely aseptic and was dressed about every fifth day; convalescence and healing were rapid. On January 13th he was allowed his clothes; and on February 1st went home, returning for occasional dressing. On March 17th both the dural and mastoid wounds were entirely healed; the tympanic swelling had been subsiding gradually, but had not then wholly disappeared; the hearing for the voice was 3/25; the general condition perfect. No signs of the cranial opening could be felt; it was apparently closed firmly by bone.

The temperature chart is interesting in that it gave no indication of the serious condition within the skull, 99°F. being the highest record just before operation, when there was extensive suppurative pachymeningitis going on. The aseptic condition attained in the wound I attribute entirely to the very thorough removal of the granulations by the curette. The case is further

interesting, not only in showing the insidious character of some of the otitic brain complications, but also the value of thoroughly exposing the ear-cavities and following the disease inward wherever it may lead.

CASE III. Chronic suppuration of the tympanum, caries of the antrum-roof and extra dural abscess.

J. McG., a woman, aged twenty-one, with a chronic suppuration of the left tympanum of eight months' duration entered the infirmary on November 6, 1896, complaining of pain in the ear for the last four days. The lower half of the drum-membrane was destroyed, and through the perforation a medium-sized polypus projected, which was removed with the snare, and bare bone was felt on the promontory. The mastoid, antrum and tip were slightly sensitive to pressure, but without external swelling.

Under the use of Leiter's ice-coil to the mastoid and hot douching of the meatus, both the pain in the ear and the sensitiveness of the mastoid improved until November 11th, when she waked at 1 A. M. complaining of severe pain in the ear, which was soon followed by a severe chill lasting half an hour; after this she slept well, and the next day appeared as usual till 3 P. M., when she had another severe chill with a temperature of 107.4° F. The temperature fell six degrees in the next hour but the patient was delirious, vomiting and very restless, and once there was distinct twitching of the right hand for two or three minutes. Examination of the eyes by Dr. Carleton showed no marked changes in the optic nerves. Dr. James J. Putnam saw her with me, and although the delirium had passed into unconsciousness and the pulse was very weak, it was decided to operate.

Before etherization one-thirtieth of a grain of strychnia was given hypodermatically. On exposure of the mastoid, the cortex was apparently not inflamed; but on opening it with the gouge and mallet, about two drachms of very offensive pus was evacuated, but pus continuing to appear from the upper posterior portion of the mastoid, the roof of the antrum was fully exposed and found to be carious over a spot about one-quarter of an inch in diameter, and pus was exuding from within the skull through a carious fistula. The dura of the cerebrum was exposed by removing the entire roof of the mastoid and for half an inch up the squamous bone through the linea temporalis; it was covered with red granulations over the carious bone and red, but smooth, for about half an inch around the granulations. The entire amount of pus within the cranium was only a few drops. The wound was cleansed by wiping, and packed with iodoform gauze. The pulse improved steadily from the time the bone was opened, and four hours after the operation consciousness returned and she recognized her father. Strychnia, one-thirtieth of a grain, was given after the operation.

November 12th. She was perfectly conscious and free from pain.

November 13th. The dressings were changed; there was a small amount of offensive pus in the depth. Dr. Daley reported streptococci and a bacillus, single and combined, in the culture from the operation; the bacillus resembling somewhat, but not absolutely, the tubercle-bacillus.

November 14th. Very comfortable, taking nourishment well.

November 15th and 16th. About the same, but some pain in the ear.

November 17th. Involuntary urination six times, and a convulsion lasting three minutes, with limbs rigid, head thrown back, eyes staring and frothing at the mouth, followed by dulness of intellect and wrong answers to questions. A change of dressings and evacuation of about three drops of pus seemed to give relief, and she became perfectly rational again.

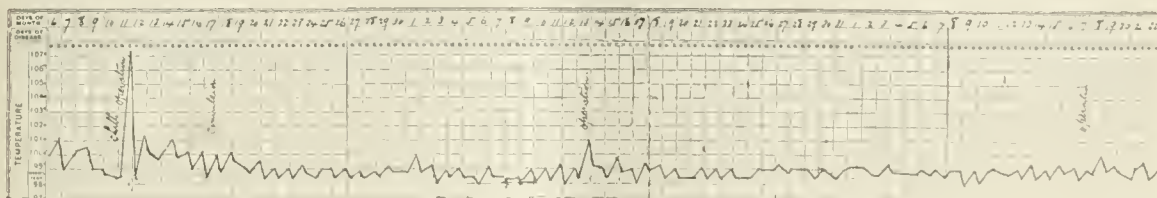
For the next three weeks the patient gained steadily; there were no more convulsions, very little pain, no return of delirium; most of the time she was bright and cheerful, although occasionally fretful, but every night the urine was voided involuntarily during sleep. The wound was dressed daily, the pus became more abundant and more offensive, and as carious bone could be felt in the wound another operation was advised.

December 13th. Under ether the squamous bone was exposed, a part found loosened, and a semilunar sequestrum one and a quarter inches long and seven-

patient was then discharged to the out-patient department.

As the swelling of the drum-membrane disappeared, a large perforation of Schrapnell's membrane was seen, through which carious bone could be felt within the epitympanum in the region of the head of the malleus; and on March 19th an operation for carious ossicles was done, and the drum-membrane and malleus removed, together with a large quantity of granulations from the fissure of Rivini. The entire head of the malleus had been lost by caries and the neck was still carious; the incus was not found, and had probably been destroyed. The tympanum was syringed every three days, kept packed with aseptic gauze, and in three weeks all discharge had ceased.

One of the most interesting features of the case is the temperature chart, which shows such a slight variation from the normal between the first and second



eighths of an inch broad, was removed, evacuating about an ounce of yellowish-green, very offensive pus. The dura was covered with granulations. The sequestrum was eroded externally, but its inner surface was smooth and showed the groove of the middle meningeal artery.

For the next five weeks, although the general condition steadily improved and the patient was about the ward, the discharge continued abundant and very offensive, both from the mastoid and from a pocket between the dura and the squamous bone, and any retention of pus in this pocket produced headache. Examination of the blood by Dr. Putnam showed leucocytosis.

As carious bone could be felt in the mastoid and was suspected again in the squamous, on January 17, 1897, a third operation was performed by an incision upwards and backwards from the previous cut, which revealed newly-formed bone with pus exuding from beneath it; this was removed by the rongeur, and the greater portion of the squamous found to be a loose sequestrum, which was removed, evacuating two drachms of very offensive pus. The dura was covered with soft granulations, which were entirely removed with the curette, leaving the membrane smooth. The second step of the operation consisted in thoroughly clearing out the mastoid, where at the depth of an inch and a half forwards, a second sequestrum was felt and removed; this proved to be the posterior portion of the labyrinth including two of the semicircular canals. The entire field of operation was doused with distilled water and packed with iodoform gauze. There were now three wounds: one to the dura, and one to the labyrinth and a purulent tympanum. The two first continued aseptic, granulated rapidly, and in three days the communication between the mastoid and tympanum had closed. By February 5th the dural wound had healed and the mastoid was granulating well, and by March 1st was healed also, but there was still offensive discharge from the tympanum. The

operation, from November 12th to December 13th, notwithstanding a considerable collection of pus on the dura. During this time the only symptoms were one convulsion on November 17th, and constant involuntary urination during sleep only.

This case shows well the complicated nature of these suppurations within the bone; for there were practically three foci of disease, the caries of the antrum-roof with the extra-dural abscess, the necrosis of the labyrinth and the caries of the ossicles, all of which had to be got rid of before the disease was cured.

Four months after the healing the patient remained well and the ear was absolutely dry and free from all swelling.

THE CHEMICAL ANALYSIS OF THE GASTRIC CONTENTS.

- I. METHOD OF ANALYSIS FOR USE IN CLINICAL WORK.
- II. RECORD OF THE ANALYSES OF THE GASTRIC CONTENTS OF FIFTY HEALTHY INDIVIDUALS.

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I. METHOD OF ANALYSIS FOR USE IN CLINICAL WORK.

To the physician who would utilize the investigation of the products of gastric digestion, as an aid to the diagnosis and treatment of his cases, there are two requisites. These requisites are (1) a reliable method of investigation; (2) a series of results for comparison, obtained by the application of this method to the product of the normal gastric digestion.

The development of a systematic method of investigation is dependent upon the collected knowledge of the subject of gastric digestion in health and disease. This knowledge is, stated briefly, as follows:

The digestion of food in the stomach occurs through the agency of a mineral acid (hydrochloric acid), a proteolytic ferment (pepsin), and a coagulating ferment (rennin), all produced from the glands of the mucous membrane of the stomach. Under the com

bined action of these physiological agents the proteid elements of the ingested food are digested.

The secretion of the hydrochloric acid begins immediately upon the ingestion of the food. The secreted acid at once combines with the native proteids of the food, forming acid proteids. It also acts upon the pepsinogen in the gastric glands forming pepsin.¹ The secretion of the acid continues until the affinities of the native proteids for acid being satisfied, a certain amount of superfluons (free) hydrochloric acid obtains in the stomach.

Coincident with the appearance of this free hydrochloric acid the activity of the pepsin ferment begins.² Under the influence of this pepsin in free HCl, the acid proteid products are converted with increased rapidity to albumoses and peptones. The rennin ferment is produced from the beginning of digestion, in part existing preformed in the cell of the mucous membrane, in part being formed by the action of the secreted acid upon the rennet zymogen. Under its influence the casein of food is digested to a coagulated and a soluble proteid.³

The products of digestion are in part absorbed, in part expelled in small quantities during the process of digestion. The greater part of the contents is, however, expelled *en masse* into the duodenum at the completion of digestion (Richet and Kühne). Whatever products are absorbed are replaced by water secreted by the stomach.

The mixed contents of the stomach will contain in the earlier stage of digestion —

(1) The elements of the ingested food, proteids, albuminoids, carbohydrates, fats, mineral and organic salts and extractives.

(2) The acid proteids and acid salts, the products of the combination of the secreted hydrochloric acid with the proteids and mineral salts of the food.

(3) The ferments, pepsin and rennin and the rennet zymogen.

(4) The products of the action of rennin upon casein. The principal proteids present are the native proteids and the acid proteids.

In the later stage of digestion the contents will contain the above substances except the organic salts, and, in addition, free hydrochloric acid and certain organic acids due to the action of the free HCl upon the organic salts of the food.⁴

The principal proteid substances present are albumoses and peptones.^{5, 6}

In pathological conditions of the stomach we may find absence or diminution of one or more of the physiological agents of digestion; and in addition the presence of certain abnormal substances not produced in the normal organ. These last substances are principally certain organic acids, lactic acid, butyric acid, acetic acid.

These substances are present in the normal contents only in the amount in which they or their salts are contained in the ingested food. In pathological conditions of the stomach they may be produced in considerable amounts as a result of the fermentation of the foods, principally the carbohydrate foods.

The particular fate of the different food elements in the stomach is as follows:

The native proteids are transformed in turn to albuminates, albumoses and peptones.

The albuminoids are to some extent digested, to some extent remain unaltered: thus gelatin is transformed to gelato-peptone, keratin is unchanged.^{7, 8}

The carbohydrate food is not digested by the agents of gastric digestion. The hydrochloric acid of the gastric juice has the power of inverting cane sugar, but aside from this the gastric secretions exert no influence upon the carbohydrates.⁹ A certain amount of amylolytic digestion does, however, occur in the stomach under the influence of the ptyaline of the saliva brought into the stomach with the food. The digestion of cooked starch goes on in the stomach through the influence of this ptyaline until inhibited by the increasing acidity of the contents.^{10, 11}

The fats are not digested in the stomach. The proteid envelopes of the fat cells are digested away, allowing the fat globules to run together and thus preparing the fat for the action of the intestinal digestion.¹²

The duration of digestion in the stomach, the rapidity of the appearance of free hydrochloric acid in the contents and the quantity of the secretion of the physiological agents necessary for complete digestion are directly dependent upon the quantity and quality of the food.¹³

Thus 100 gm. of raw beef *plus* 300 c. c. of water are digested in two hours.¹⁴ The same amount of beef roasted takes three hours. The duration of the digestion of an Ewald test breakfast (1 roll, wgt. 35 gms., and 300 c. c. of water) is from two to two and one-half hours. The digestion of a Leube meal (soup, meat and bread) is from six to seven hours.¹⁵

Free hydrochloric acid appears in the normal stomach from 15 to 20 minutes after the ingestion of 35 gm. of bread with water, 25 to 35 minutes after the ingestion of twice this amount (70 gm.). 25 to 35 minutes after 60 gm. of meat, 60 to 90 minutes after egg albumin, 45 minutes after a mixed meal of bread, meat and vegetables. The addition of fat to a meal delays the appearance of free HCl. The replacing of a certain amount of meat by a potato delays the appearance of the HCl.

The total amount of the free hydrochloric acid may rise after a light meal (Ewald meal) to 2.2 gm. per mille, after a full meal (Leube) to 3.3 gm. per mille.¹⁶ This maximum mark is reached from one to one and one-half hours after an Ewald meal, from two to three hours after a Leube meal.

Upon the facts contained in this review of the function of gastric digestion is based the method of investigation. It is clear from this review that the important points to be investigated are: the presence and amount of the physiological agents of digestion; the

⁷ Tatarinoff. *Centralbl. f. d. med. Wissenschaft*, No. 16, 1887.

⁸ J. de Bary: *Hoppe Seyler's Untersuchung*, H. 1, p. 75.

⁹ Leube: *Virchow's Archiv*, Bd. 88, s. 222.

¹⁰ Ptyaline digests cooked starch to dextrin and maltose at the body temperature in neutral, alkaline or faintly acid solutions. Chittenden, *American Chemical Journal*, vol. iii; *Studies from Yale Laboratory of Physiological Chemistry*, 1884-85.

¹¹ The action of ptyaline is inhibited in an acidity of .14 per cent. free HCl, .27 percent. combined HCl. Langley, *Journal of Physiology*, vol. iii.

¹² Cash, *Archiv. f. Anat. and Physiol.*, 1880, claims that small quantities of the fats are broken up by the action of the HCl to fatty acids.

¹³ Ewald and Boas: *Virchow's Archiv*, vol. ci, s. 3, 5.

¹⁴ Lassen: *Zeitschrift f. Biologie*, vol. xix.

¹⁵ Leube: *Deutsches Archiv*, Bd. xxxii.

¹⁶ Ewald: *Klinik der Verdauungskrankheiten*, vol. ii.

¹ Langley: *Journal of Physiology*, vol. iii and vol. vii.

² Boas: *Diagnostik d. Magenkreiten*, Leipzig, 1890, s. 118.

³ Hammarsten: *Maly's Jahresbericht*, vol. ii, p. 118; vol. iv, p. 135; vol. vii, p. 158.

⁴ Richet: *Le Suc Gastrique*, Paris, 1878. Gangee: *Physiological Chemistry*, vol. ii, p. 158.

⁵ Boas: *Zeitschr. f. klin. Med.*, B. 12, s. 241.

⁶ Cahn: *Zeitschr. f. klin. Med.*, B. 12, s. 34.

evidence of their action upon the food; and the presence or absence of certain abnormal products. We have found that the time of the appearance of these agents and the amounts of them secreted vary according to the quantity and quality of the food ingested. To judge of the status of these agents in a given case therefore, we must obtain the contents of the stomach in that case at a given time after a definite meal, subject these contents to a systematic examination, and compare the results of this examination with standard results obtained from an investigation of the contents of the normal stomach in a series of cases under the same conditions.

The first step in the development of the method is the choice of the meal. This test meal should contain the ordinary elements of mixed food, that is, proteids, albuminoids, carbohydrates, and fats. It should also contain none, or as small amounts as possible, of those substances the production of which is peculiar to the pathological conditions of the stomach, that is, lactic, butyric and acetic acids.

Of the meals which have been proposed as test meals we may mention those of Ewald¹⁷ of Leube and Riegel,¹⁸ of Reichman,¹⁹ of Jaworski,²⁰ of Klemperer,²¹ of Boas.²² Two of these only are in common use for general work, that of Ewald and that of Leube and Riegel.

The Ewald test breakfast consists of one baker's roll, weight about 35 gm. and 300 c. c. of water, or of tea without milk or sugar. According to König's analysis, such a roll contains seven per cent. of nitrogen, one-half per cent. of fat, four per cent. of sugar, and 52.5 per cent. of non-nitrogenous extractive substances, to which one per cent. ash must be added.²³

This meal thus contains the various nutritious ingredients, albuminoids, starches, sugars, plant albumins, salts and fat.

The Leube meal consists of 400 gm. of soup, barley or flour soup, 60 gm. scraped beef, 50 gm. of wheat bread and 200 c. c. of water.

The use of both these meals may be necessary—in some cases one, in some the other, in some both. In a majority of cases, however, but one meal has to be resorted to; and for this general work the Ewald meal is the superior. This superiority of the Ewald meal is based upon the following comparative data:

(1) The Ewald meal contains lactic acid, if at all, in amounts too small to react to the ordinary approved tests.²⁴ The Leube meal, on the other hand, contains a considerable amount of lactic acid.²⁵ As the production of lactic acid in the stomach is a symptom of pathological conditions, we have thus in the presence of this acid after the Ewald meal positive evidence of abnormal conditions, which evidence cannot be obtained by the use of the Leube meal.

(2) The quantitative results in regard to the amount of the hydrochloric acid secreted and the period of the appearance of the free hydrochloric acid vary

within much more extended limits in the normal after a Leube meal than after an Ewald.^{26 27}

The considerable amounts of organic acids and acid salts which may be present in the Leube meal make rough estimations of the hydrochloric acid less reliable and accurate estimations more laborious than with the Ewald meal, with its insignificant amount of these substances.

A fourth advantage of the Ewald meal lies in the fact that it can be taken by patients with disordered digestive functions, with much less difficulty than the Leube.

It is true that the Ewald meal is not as strong a test of the digestive function as the Leube. A patient might have sufficient digestive capacity to completely digest an Ewald meal, and yet not sufficient to digest the ordinary mixed meal taken by a person of health and vigor. If this is the case, the deficiency will appear in the quantitative results obtained after the Ewald meal. And where such a condition is suspected or indicated, a Leube meal can be given after the Ewald test has been applied.

The Ewald test breakfast is given on a fasting stomach. Thus the meal may be given at 8 A. M., the patient having fasted since the dinner of the night before.

One hour after ingestion of the meal, the stomach tube is passed and the contents expressed.

The choice of one hour as the period of elapsed digestion before expression is founded upon experimental research. The most complete information can be secured if the contents be obtained at the period when all the physiological agents of digestion are present and active, and when the quantity of these approaches the maximum. This period has been found to be practically one hour after the ingestion of the Ewald meal.

As it is impossible, in ordinary clinical work, to obtain the contents in each case at exactly one hour after ingestion, I have this year made an investigation for the purpose of determining the effect of a longer interval than one hour upon the results in regard to the important conditions investigated.

The investigation consisted of the examination of the contents expressed one hour after an Ewald meal in fifteen normal cases, and an examination of the contents expressed one and one-half hours after this meal in fifteen cases. The results may be seen in the following table of averages:

TABLE I.

	1 hour.	1½ hours.
Average quantity of mixed contents .	120 c. cm.	100 c. cm.
Average total acidity	2 gm. p. m.	2.01 gm. p. m.
Starch present	2 cases	2 cases
Erethrodextrin present	8 "	6 "
Albumin present	15 "	15 "
Free HCl present	15 "	15 "
Lactic acid present	0 "	0 "

The conclusion to be drawn from these results is, that the conditions, the estimation of which is of importance in clinical work, do not vary in the period between one hour and one hour and a half after ingestion of the food, to an extent sufficient to affect the significance of the results.

For practical work, then, the contents may be expressed at a period between one and one-half hours after ingestion of the meal.²⁸

²⁶ Rosenheim: Pathologie u. Therapie—Speiseröhre in Magens-krankheiten.

²⁷ Einhorn: Berlin klin. Woch., 1-88, No. 32. In a series of investigations of the normal digestion with both the Ewald and Leube meals found the results obtained by the Ewald meal much more constant.

²⁸ Cases of excessive activity of digestion are reported with disappearance of contents within one and one-half hours.

¹⁷ Klinik der Verdauungskrankheiten, vol. ii, s. 14.

¹⁸ See below.

¹⁹ Reichman's meal: meat fonder 30 gm., 1 roll, water 200 c. c., salt 2 gm.

²⁰ Zeitschr. klin. Med., Bd. xi, s. 275.

²¹ Ewald: Berl. klin. Woch., 1886, No. 3.

²² Deutsch. med. Woch., No. 39, 1893.

²³ Ewald: Loc. cit.

²⁴ The finding of lactic acid in the normal contents as reported in many cases by old methods is of no account, as the methods have been proven inaccurate (Rosenheim: Zeit. klin. Med., Bd. xxviii, 1895).

De Jong: Archiv. Verdauungskrankheiten, Bd. ii, H. 1.

Langruth: Archiv. Verdauungskrankheiten, Bd. i, s. 305.

²⁵ Langruth: Loc. cit.

The tube used is a soft rubber tube, 75 to 90 cm. in length. The end of this tube is introduced to the pharyngeal end of the esophagus and swallowed by the patient. When the tube has reached the stomach the contents are expressed.²⁹

The simplest method of expression is that suggested by Ewald. This consists of pressure of the hand upon the epigastrium and forced vomiting by the patient. The end of the tube is moved up and down in the stomach during the expression. As a rule, practically all of the contents can be obtained by this method. I have repeatedly tested its efficiency by following the expression with siphonage by the introduction of water.

Another excellent method of expression is aspiration. An aspiration bulb with a short rubber tube on each end is attached to the stomach tube. By alternate compression and expression of the bulb, under the control of appropriate stopcocks, the contents may be successfully aspirated.³⁰

The expressed contents are measured, mixed thoroughly and subjected to the chemical analysis. The aim of this analysis is —

(1) The detection of the presence of the physiological agents of gastric digestion — the hydrochloric acid, pepsin and rennin.

(2) The determination of the quantity of these agents.

(3) The detection of certain abnormal products peculiar to definite pathological condition, if present — as lactic acid.

(4) The testing of the digestive capacity of the contents as removed.

The reason for these determinations and their value is clear from the consideration of the digestive function which has preceded. The integrity of the function is dependent upon the presence and sufficient amount of the physiological agents.

The failure of any agent, or of its normal amount, may at the same time point to the malady in a given case, and suggest a treatment.

The presence of the abnormal substances not produced in the normal stomach is itself an indication of a pathological process, and to some extent of the nature of this process.

Of secondary value may be the determination of the separate products of the proteid and carbohydrate digestion in the stomach.

Some writers ascribe considerable importance to these tests, especially the tests for starch and dextrin in the gastric contents; but recent works and my own observations, given later in this paper, tend to show that very little if any useful information can be obtained by these tests.³¹

In detail the chemical analysis includes the following determinations:

The reaction.

The presence of free acids.

The qualitative determination of free hydrochloric acid, lactic acid, butyric acid, acetic acid, pepsin, rennin and the zymogen.

The quantitative determination of the total acidity, and of the total hydrochloric acid and of its factors, the total free and total combined HCl.

The determination of the digestive capacity of the contents.

In certain cases the following determinations may be useful, in addition to the above test:

The qualitative determination of starch, erethodextrin and achrodextrin.

The qualitative determination of native proteids, acid albumin, albumoses and peptones.

The quantitative determination of the total organic acids.

The quantitative determination of the total acid salts.

The determinations of the hydrochloric acid of the contents include:

(1) The detection of free hydrochloric acid.

(2) The quantitative estimation of the total free hydrochloric acid.

(3) The quantitative estimation of the total combined hydrochloric acid.

(4) The quantitative estimation of the total secreted hydrochloric acid, that is, the free *plus* the combined hydrochloric acid.

The hydrochloric acid secreted by the stomach during digestion is disposed of in four ways. One portion combines with the inorganic bases of the food or of the saliva.

As the Ewald meal is in infusion acid, the amount of acid used in this way in cases examined by this method is practically that necessary to neutralize alkaline salts of the saliva.

This portion of the hydrochloric acid is not adaptable for the digestion of the food and does not appear in the quantitative determinations of acidity.

A second portion combines with the proteid or albuminoid substances either normal in the stomach, as mucin, epithelial cells, pepsinogen, rennin zymogen, or produced there in pathological conditions.

A third portion combines with the organic bases of the food, the proteid elements — to form acid proteids.

A fourth portion, which appears only when the first three portions are completed, exists as free acid.

These last three portions make up the total acid adaptable for purposes of digestion. They all appear in the quantitative determination of the hydrochloric acid — the first two as combined acid, the third as free acid.

The purely digestive function of the hydrochloric acid is, then, (a) to completely combine with the proteid food elements; (b) to combine with the pepsinogen and rennin zymogen, to liberate the ferments; (c) to serve as free acid, as a menstrum for the action of the pepsin upon the acid proteid combinations.

The object of our analysis in a given case is to determine if a sufficient amount of hydrochloric acid is secreted to perform this function.

From what has been said concerning the action of the acid, it is clear that this object is in some measure attained by the determination of the presence in the contents of free hydrochloric acid. Free acid present, we have the proteid affinities saturated, the ferments liberated and the conditions for peptic digestion present.

Even with free acid present, however, a more definite knowledge of the comparative vigor of the digestive function in a given case can be obtained by the determination of the total hydrochloric acid. Thus, of two cases, both containing free acid, one may contain only enough acid to give a small amount of free acid, the other enough to give a large amount. The second condition is, within certain limits, indicative of a more vigorous function and greater reserve force.

In cases where no free hydrochloric acid is present

²⁹ The distance from the incisor teeth to the fundus of the stomach is about twenty-three to twenty-six inches.

³⁰ Boas: Magenkrankheiten, s. 104.

³¹ See Ewald: Klinik der Verdauungskrankheiten, vol. ii, s. 51.

a quantitative estimation is our only method of determining how great a degree of hyposecretion is present.

For satisfactory work, therefore, both a qualitative test for free hydrochloric acid and a quantitative estimation of the total hydrochloric acid are necessary.

For the determination of the presence of free hydrochloric acid there are four good tests suited to practical work: these are Gunzburg's phloroglucin-vanillin test, Boas's resorcin test, Töpfer's di-methyl-amido-azo-benzol test, and the 00 Tropeolin test.

Gunzburg's reagent consists of phloroglucin 2, vanillin 1, absolute alcohol 30.⁸² One drop of the contents is heated on a white dish over a water-bath, and one drop of the reagent added. If free hydrochloric acid be present, a red zone of crystals is formed.

Boas's reagent consists of resorcin 5, sacch. alb., 3, spiritus dil. ad., 100. The test is performed in a manner similar to that described for the Gunzburg. Free hydrochloric acid gives a purple-red color.⁸⁸ These two reagents, the Boas and the Gunzburg, give no reaction whatsoever with organic acids, and are not interfered with by peptones or acid salts.

The 00 Tropeolin test consists of the addition of one drop of a saturated alcoholic solution of 00 tropeolin to one drop of the contents over a water-bath. Free hydrochloric acid gives a deep bluish-purple color. Organic acids give an orange color; acid salts a tawny yellow.

Töpfer's reagent consists of a half-per-cent. alcoholic solution of di-methyl-amido-azo-benzol. One drop of this reagent is added to a portion of the contents in a test-tube. If free hydrochloric acid be present a carmine-red color appears. This reagent gives a brownish-red color with organic acids.⁸⁴

All four tests are of about equal delicacy in testing straight solutions of hydrochloric acid. Where the acid is mixed with other substances, particularly with organic acids, as in the gastric contents, this equality of the different tests does not hold. In cases where considerable amounts of organic acid are present it is impossible to make an accurate reading from the Töpfer test. In other cases, owing to conditions not thoroughly understood, the Gunzburg test will react while the 00 Tropeolin fails, or the Töpfer test work where the Boas fails, or *vice versa*. It is my custom in general work to depend upon all four reagents. The Gunzburg test I have found the most satisfactory for the varying conditions. I therefore test the contents first with this test. If it reacts, free hydrochloric acid is present. If it fails, the Boas, Töpfer and 00 Tropeolin tests are tried in turn. It is only when a positive test is lacking with all four that free hydrochloric acid is recorded absent.

The methods for the quantitative determination of the hydrochloric acid are of several kinds. Three type methods serve to illustrate the different principles employed in the various methods:

(1) Methods based upon the determination of the total hydrochloric acid by precipitation and estimation of the total chlorine present.

(2) Methods based upon the determination of the total HCl by estimation of the acidity of the ash.

(3) Methods based upon the determination of the total HCl by the reaction of color reagents.

The precipitation method is best represented by the

method of Martius and Luttke, which is the most accurate of all the methods of this class.⁸⁵ This consists of the estimation of the total hydrochloric acid by determination of the total chlorine of the ash not present as in the form of chlorides. This method, as all the accurate methods of this class, is too difficult for clinical work.

The second type of method is represented by the method of Seeman.⁸⁶ This method consists of (a) the neutralization of the total acidity of the contents with soda solution, in known amount; (b) the reduction of the contents to the ash, thereby driving off all the organic compounds; (c) the estimation by titration with decinormal acid solution of the acidity lost by this reduction; (d) the estimation of the total hydrochloric acid by subtraction of the lost organic acids total from the total acidity. This method is very simple. It is not, however, absolutely accurate, since the total acidity due to acid salts is contained in the total recorded as total hydrochloric acid.⁸⁷

A review of all these precipitation and ash methods produced up to 1891 may be found in Martius and Luttke's "Magensaure d. Menschen."

The method of the estimation of the total hydrochloric acid by color analysis includes the following determinations:⁸⁸

(a) The determination of the total acidity by phenothalein.

(b) The determination of the total acidity due to free acids and acid salts by alizarin or Congo red.

(c) The determination of the total combined acids by subtraction of b from a.

(d) The determination of the total free hydrochloric acid by phloroglucin-vanillin or di-methyl-amido-azo-benzol.

(e) The determination of the total hydrochloric acid by the addition of c and d.

This color-analysis method has not the absolute accuracy of the precipitation methods.

It is, however, of sufficient accuracy for comparative work, and has the advantage of a simplicity fitting it for ordinary clinical work.

The details of this color-analysis process are as follows: The estimations are all made by titration of the contents with a decinormal solution of sodic hydrate.⁸⁹ Each cubic centimetre of this soda solution is capable of neutralizing 0.00365 gm. of hydrochloric acid. The estimation of the total acidity (a) is made by titration against an indicator phenothalein. This reagent gives a red color in an alkaline solution, no color in acid solution. Ten cubic centimetres of the mixed contents are diluted with water, and two or three drops of a one-per-cent. alcoholic solution of phenothalein added. To this mixture the decinormal soda solution is added from a graduated burette until a definite red color appears and remains after shaking. The presence of the red color shows that all the acid present has been neutralized.

By multiplying the number of cubic centimetres of decinormal soda solution used (x) by 0.00365 gm., we obtain the total acidity, in equivalents of hydrochloric acid, of the ten cubic centimetres of contents, and from

⁸² Centralblatt f. klin. Med., No. 40, 1887.

⁸³ Boas: Diagnostik, 2d Auflage, 1891, s. 134.

⁸⁴ Töpfer: Zeitschr. f. Physiol. Chemie, 1894, Bd. xix, H. 1, s. 104.

⁸⁵ Martius u. Luttke: Magensaure d. Menschen, Stuttgart, 1892.

⁸⁶ Seeman: Zeitschr. f. klin. Med., Bd. v, s. 273.

⁸⁷ Hari: Archiv. f. Verdauungskrankheiten, Bd. ii, H. 203.

⁸⁸ This plan of analysis is that originated by Töpfer, with some modification of the tests. Töpfer: Zeitschr. f. Physiol. Chemie, Bd. xix, H. 1.

⁸⁹ One-tenth molecular wgt. of Na OH+1000 c.cm. distilled water = 4 gm. to 1000 c. cm.

this result the per cent. or per mille amount of acid is estimated. (See bottom of next column.)

The estimation of the total acidity due to free acids and acid salts (*b*) is performed in the same manner, using Congo red as the preliminary indicator and alizarin as the final indicator.

Congo red paper, prepared by dipping filter paper into a strong aqueous solution of Congo red, turns a clear blue color in the presence of free HCl, purple in the presence of organic acids and a dull brown with acid salts. In the presence of combined acids it does not change color. In this test the decinormal solution is added to a given amount of the contents until a drop of the mixture fails to give any change of color to the Congo red. The reading taken at this point is recorded as the preliminary record of the amount of free acids *plus* acid salts present.

An aqueous solution of alizarin monosulphonate of soda (one per cent.) of a yellowish color gives no change of color when added to a solution containing free acids or acid salts, but gives a purple color in alkaline solution or in an acid solution, the acidity of which is due to combined acids alone. Decinormal soda solution is added to a portion of the contents to which two or three drops of a one-per-cent. solution of alizarin has been added, until a purple color is obtained. The appearance of this color marks the neutralization of the free acids and acid salts. It is the final record of the amounts of these substances.

The alizarin test is the more accurate and should be taken as the final index where it is possible to get an accurate result with it.

The reason for employing both the Congo red and alizarin in this estimation is that it is impossible in some cases to make an accurate reading by the alizarin test, the point of transition from a yellow to a purple color not being abrupt.⁴⁰

In such cases the record by the Congo-red test must be used. The reading by this test will always be less than the alizarin test by about 0.1 to 0.3 c. c. decinormal solution to 10 c. c. contents, as the first records the end of the acid reaction while the latter records the actual alkaline reaction.

By the subtraction of the total acidity due to free acids *plus* acid salts (*b*) from the total acidity (*a*), the acidity due to combined acids is obtained (*c*). Where free hydrochloric acid is present all of the combined acid is combined hydrochloric acid, whatever organic acids may be present.⁴¹

The estimation of the total free hydrochloric acid (*d*) is performed by titration with the decinormal soda solution until the test for free HCl can no longer be obtained. Ten cubic centimetres of the contents to which two drops of the one-half-per-cent. alcoholic solution of di-methyl-amido-azo-benzol have been added are titrated with the soda solution until the red color of the mixture gives place to a yellow color. This point determines the neutralization of the free HCl. This is the simplest method of performing this test. It has, however, one great disadvantage as a test for general use. Where any considerable quantity of organic acids is present in the contents, the point of transition from a carmine-red to a yellow color is not sharp and cannot be accurately determined.⁴² The organic acids give a brownish-red color which is not

unlike the much diluted carmine red of the mineral acids.⁴³ For this reason I have used phloroglucin-vanillin as the indicator in place of or in addition to Töpfer's reagent. The test with this reagent can never be confused by the presence of organic acids or other constituents of the gastric contents. Ten cubic centimetres of the contents are titrated with the soda solution until a drop of the mixture fails to give the free HCl reaction with phloroglucin-vanillin. The last reading before the failure of the test is taken as the measure of the hydrochloric acid. Thus, if the test responds after the addition of 4 c. c. one-tenth soda solution and fails with the addition of 4.1 c. c., the free HCl in the 10 c. c. of contents = $4 \times .00365$ gm.

The total hydrochloric acid (*e*) is determined by the addition of the total combined HCl (*c*) and the total free HCl (*d*), in cases where free HCl is present. Where no free HCl is present the total hydrochloric acid can be estimated by the following method (Mintz method):

To 100 c. c. of the contents add a decinormal solution of hydrochloric acid until the test for free HCl with phloroglucin-vanillin is obtained. Since the limits of the Gunzburg reaction is 0.036 gm. per mille HCl (that is, one cubic centimetre decinormal soda solution to 100), the difference between this figure and the amount of decinormal soda solution used represents the amount of combined HCl present in the 100 c. c. of contents, that is, the total hydrochloric acid present. For example, if Gunzburg's reaction were first positive after the addition of six-tenths of a cubic centimetre decinormal HCl solution to 100 c. c. contents, then $1 - 0.6 = 0.4$ c. c. one-tenth normal HCl is the amount of HCl already present in 100 c. c. of contents. This process can be conducted with less than 100 c. c. if necessary.

The total combined acid (*c*) in cases where no free HCl is present represents the sum of the combined hydrochloric and combined organic acids. Where no organic acids are present by the qualitative tests the total combined acid (*c*) may be taken approximately as the total hydrochloric acid in these cases.⁴⁴

As an example of the application of this method, I give the results of the examination of the contents of a normal stomach — contents expressed one hour after an Ewald test meal.

Amount of contents, 160 c. c.

Amount of filtrate, 85 c. c.

A. Ten cubic centimetres mixed contents *plus* two guttæ phenothalein gave red color on addition of 7 c. c. decinormal soda solution. ∴ Total acidity of 10 c. c. contents = 7×0.00365 gm. = 0.02555 gm. HCl = per mille $\frac{10.00}{10} \times 0.02555 = 2.55$ gm.

B. Ten cubic centimetres contents with Congo-red paper fail to give change of color at 4.7 c. c. decinormal NaOH ∴ 1.71 gm. per mille HCl = preliminary record total free acids *plus* acid salts. Same 10 c. c. contents give purple color with alizarin on addition of 4.9 c. c. NaOH solution ∴ Total acidity due to free acids *plus* acid salts in 10 c. c. = $4.9 \times .00365 = 1.78$ gm. per mille (final record).

C. Total combined acid = A — B, that is, $2.55 - 1.78 = 0.77$ per mille.

D. Ten cubic centimetres contents titrated with NaOH failed to give red color with phloroglucin-vanillin, first, on

⁴⁰ Mohr: Zeitschr. f. Physiolog. Chemie, Bd. xlx, H. 6, s. 67.

⁴¹ Boas: Loc. cit.

⁴² Hari: Archiv. f. Verdauungskrankheiten, Bd. ii, H. 203.

⁴³ Strauss: Deutsches Archiv. f. klin. Med., Bd. lxxvi, H. 1.

Mohr: Loc. cit.

⁴⁴ The qualitative tests for lactic and butyric acids, etc., react to lactates and butyrates as well as the free acids.

addition of 3.2 c. c. NaOH solution — responded with 3.1 c. c. . . . Total free HCl = $3.1 \times .00365 \times 100 = 1.13$ gm. per mille.

E. Total hydrochloric acid = C + D, that is, $0.77 + 1.13 = 1.90$ gm. per mille.

F. Total acidity due to organic acids *plus* acid salts = B — D, that is, $1.78 - 1.13 = 0.65$ gm. per mille.⁴⁵

The whole process of quantitative determination by this method can be accomplished with simple apparatus within twenty minutes.

The results though not of absolute accuracy, are accurate for comparative work. For example, the delicacy of the test for free HCl is .05 gm. per mille. The total free HCl is thus for 3.1 c. c. NaOH solution not 1.13 per mille but $1.13 + 0.05$ per mille. Also the error incident upon the judgment of colors must affect the results in this method for absolute work. The above sources of error are, however, constant in comparative work, and thus do not affect the results.

A certain amount of the secreted HCl combines with the phosphates of the food, forming acid phosphates, which contribute to the sum of the total acidity of the contents. In some cases it may be useful to estimate these total acid salts and the total organic acids separately. This may be accomplished by the addition of the following method (Leo's method) of estimating the total acid salts to the scheme of analysis already given.⁴⁶

To 15 c. c. contents add one gramme dry powdered CaCO_3 ; shake, filter. Measure off 10 c. c. of filtrate; pass a stream of hot air through it to carry off the CO_2 ; add 5 c. c. CaCl_2 , add one drop of phenolphthalein, and titrate with decinormal soda solution. The total acidity of this last filtrate divided by two is the total acid salts contained in the 10 c. c. of contents. The CaCO_3 unites with all the acid elements of the contents save the acid salts, forming of the HCl calcic chloride, of the lactic acid lactate of calcium, etc. In the presence of the CaCl_2 thus formed twice the amount of decinormal soda solution is necessary to neutralize the acid phosphates as in the absence of CaCl_2 ; hence the division by two of the final result.

If this total acid salts (G) be subtracted from the total of organic acids *plus* acid salts obtained as described above, but after the addition of 5 c. c. of concentrated solution of CaCl_2 to the 10 c. c. of contents (B_2), we have as a result of our subtraction the total organic acids (see addenda to analysis).

This plan of analysis is, as I have stated, a modification of the method published by Töpfer.⁴⁷ The modifications consist in —

(1) The addition of the Congo-red test for free acids and acid salts, to the alizarin test as given by Töpfer, in the quantitative estimation of these substances.

(2) The substitution of the phloroglucin-vanillin test for HCl, for the di-methyl-amido-azo-benzol test of Töpfer in the quantitative estimation of the HCl.

The reasons for these changes are given in the description of the methods (see preceding pages). As I have stated in the description referred to, the Töpfer tests are satisfactory for a majority of cases examined, but not for many cases, especially those with pathological conditions. The objection to the tests cited are

⁴⁵ If the acid salts are computed by the method given below we get the following addition to the above record. G total acid salts subtracted from B_2 (total free acids and *plus* acid salts in mixture with CaCl_2) = total free acids (H). Subtract total free HCl D from total free acids (H) = total organic acids (K).

⁴⁶ Leo: *Frankheiten der Verdauungs Organ*, Berlin, 1890.

⁴⁷ Töpfer: *Zeitsche. f. Physiol. Chemie*, Bd. xix, H. 1.

based upon the researches of Hari,⁴⁸ Strauss,⁴⁹ Mohr,⁵⁰ and upon my own experience in analyses of the gastric contents.

The pepsin of the gastric juice is produced from the pepsinogen formed in the glands of the gastric mucous membrane by the action of free hydrochloric acid upon this pepsinogen.⁵¹ Since pepsin may be found in gastric contents containing no free hydrochloric acid, it is probable that the secreted acid has combined with the pepsinogen before the affinities of the proteid foods are satisfied.⁵²

The pepsin acts only in the presence of free hydrochloric acid. The evidence of the presence of pepsin in the contents of a given case is assured by the capacity of this contents to digest albumin.

If free hydrochloric acid be present, the determination of the pepsin is conducted as follows: 50 mgm. of coagulated egg albumin is placed in 25 c. c. of the filtrate of the contents and the mixture kept at a temperature of 40° C. If pepsin be present, digestion of the albumin will occur. If no free hydrochloric acid be present in the contents, the same test is applied, the contents having first been brought to the proper acidity by the addition of hydrochloric acid.

These determinations performed in this way also enable us to form some rough quantitative estimation of the pepsin present. In the normal contents 50 mgm. of egg is entirely dissolved in 25 c. c. of contents within three hours. The acidity being normal then, either naturally or by addition of acid, a duration of the dissolution of the egg over three hours indicates a diminution in pepsin.⁵³

A more definite quantitative estimation, suited to practical work, may be made as follows:⁵⁴ A one-per-cent. solution of albumin (dry) containing four per cent. free hydrochloric acid is made up. This is divided into two portions of ten cubic centimetres each. To one portion five cubic centimetres of water is added, to the other five cubic centimetres of the filtrate of the gastric contents to be tested. Both mixtures are then placed at a temperature of 40° C. for one hour. The amount of albumin in each solution is then tested by means of an Eshach albuminometer, and from the comparative results the per cent. strength of the contents estimated. Thus, if the first solution shows six per cent. albumin and the second three per cent., the contents are said to have a 50 per cent. strength pepsin. The normal contents give from 80 per cent. to 90 per cent. by this test.

Rennin, the milk-curdling ferment of the stomach, is formed from its zymogen which exists in the cells of the gastric mucous membrane, by the action of the secreted acid. A certain amount of rennin can, however, be obtained by the addition of water to the mucous membrane even where no free HCl is present in the stomach. Rennin is active in acid, neutral or even feebly alkaline solutions.⁵⁵

The normal gastric contents contain both rennin and its zymogen.⁵⁶

⁴⁸ Hari: *Archiv. f. Verdauungskrankheiten*, Bd. ii, H. 203.

⁴⁹ Strauss: *Deutsches Archiv. f. klin. Med.*, Bd. 55, H. 1.

⁵⁰ Mohr: *Zeitsche. f. Physiolog. Chemie*, Bd. xix, H. 6, s. 6, H. 7.

⁵¹ Langley: *Journal of Physiology*, vol. vii, p. 391, and vol. iii, p. 269.

⁵² Hammerschlag, *Archiv. f. Verdauungskrankheiten*, finds considerable amounts of pepsin in cases with no free HCl.

⁵³ Hammerschlag: *Naturforscher-Versammlung*, 1894, und *Archiv. d. Verdauungskrankheit.*, B. ii, H. 1.

⁵⁴ Jaworski: *Zeitsche. klin. Med.*, Bd. xi, s. 275.

⁵⁵ Heintz: *Jour. f. prakt. Chemie, Neur. Folg.*, vol. vi, p. 374.

⁵⁶ Hammarsten: *Mohr's Jahrsbericht*, vol. ii, 118, vol. iv, 135, vol. vii, 158.

The test for rennin is as follows: Ten cubic centimetres of the filtrate of the gastric contents is neutralized with decinormal solution of NaOH. To this ten cubic centimetres of neutral milk is added, and the mixture tested at 38° C. If rennet be present casein will form in ten to fifteen minutes.⁶⁷

The test for the zymogen is as follows in the absence of the ferment: To ten cubic centimetres of the filtrate made slightly alkaline add two cubic centimetres of a one-per-cent. solution of calcium chloride; then ten cubic centimetres of milk and heat at 38° C. If rennet is present casein will form. It is rare to find a condition in which rennet or the rennet zymogen is wholly absent, but a marked diminution of these substances is characteristic of certain morbid conditions.

In some cases, therefore, aid may be derived from a quantitative estimation of these substances.

The quantitative estimations for rennet and the zymogen are as follows: Part of the gastric filtrate is exactly neutralized, and portions of this diluted to different dilutions as one-tenth, one-fifteenth, one-twentieth. Five cubic centimetres of each dilution is placed with five cubic centimetres of neutral milk at 38° C., and the dilution at which the ferment ceases to be active ascertained. By comparing the result with normal results, any diminution and the amount of it can be observed. For the zymogen a portion of the filtrate is made alkaline; different dilutions made, one-tenth to one one-hundred-and-sixtieth; five cubic centimetres of dilution placed with one cubic centimetre CaCl₂ plus five cubic centimetres of milk; and the dilution where action ceases recorded.

Full tables of the normal amounts of the rennin and its zymogen in the normal conditions can be found in Friedenwald's article on the subject.⁶⁸

(To be continued.)

THE TUBERCULOUS DIATHESIS.

AN INQUIRY INTO THE CAUSES THAT LEAD TO PULMONARY CONSUMPTION.¹

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AMONG the morbid conditions associated with pulmonary tuberculosis, one of the most constant is a fatty liver. This lesion may be in the form of fatty degeneration, or fatty infiltration. Morphologically it is often impossible to distinguish between the two. The liver normally contains a certain proportion of fat, particularly after meals.

"This fat," according to Ziegler,² "is partly brought to the liver ready-formed and there deposited, and partly elaborated from albuminoid substances *in situ*." In diseased conditions the hepatic fat may be enormously increased, the increase depending either on increased production of fat or on diminished consumption of fat, or on both. Most authorities when treating of this subject in connection with pulmonary phthisis consider fatty liver a disorder of suboxidation. And so it is, but the reason ordinarily given, namely, embarrassed pulmonary respiration, is inadequate to explain all cases. For, as long ago pointed out by

¹ Read before the Medical Society of Santa Clara County, California, April 13, 1897.

² Path. Anat., 1884, sect. viii, chap. lviii, No. 487.

⁶⁷ Boas: Magenkrankheiten. Loc. cit.

⁶⁸ Friedenwald: Medical News, June 22, 1895.

Rokitansky, there are diseases characterized by embarrassed respiration, more profound than that of pulmonary phthisis, as, for instance, pulmonary emphysema, in which fatty liver occurs with nothing like the frequency it does in phthisis, while in other diseases in which the lungs are sound, as in tuberculosis of the bones, chronic dysentery and anemia, fatty liver occurs with comparative frequency. Some other factor than embarrassed pulmonary respiration must enter into the production of this pathological state.

It has seemed to the writer a promising subject to investigate, and one which might lead to a better understanding of the tuberculous diathesis. Accordingly, the question to be answered is: "Why should the liver of pulmonary phthisis so often be in a state of fatty degeneration?" It has been suggested by Fitz, that the administration of cod-liver oil is largely responsible for this condition. In some cases it may be, but it by no means follows that because oil is taken as a food it appears in consequence as oil in the tissues. It may be entirely oxidized to carbon dioxide. On the other hand, foods which are not fatty, as albumins and sugars, may appear as fat in the tissues. Foster mentions a pig³ in which 472 parts of fat were laid on for every 100 parts of fat taken as such in the food; while of every 100 parts of a mixed diet, including substances other than fat, 21.2 parts were retained in the body as fat. "Clearer proof than this," he says, "could not be afforded that fat is formed in the body out of something which is not fat."

It is well to understand, before proceeding further, to what uses the fat is put after it is formed. Thompson⁴ mentions several such uses, namely, to furnish energy for the development of heat; to spare the tissues from disintegration; to serve for the storage of energy.

Fat is, therefore, a fuel, a producer, if properly oxidized, of heat and power. It has already been stated that the fat found in the liver cell may be brought thither ready-formed or may be elaborated from albuminoid substances *in situ*.

Brunton⁵ gives a table which makes clear this latter change. According to this table, albuminous tissues split up into non-nitrogenous substances, as fat, etc., and nitrogenous substances, as leucine, tyrosine, etc. The fat is normally converted into carbonic acid and excreted by the lungs; while the leucine and tyrosine are converted into urea and pass off by the kidneys.

Smith⁶ says that "fat when entirely deprived of water consists of three elements only, namely, carbon, oxygen and hydrogen (C₇₇ O₁₁ H₁₂). When the fat is decomposed in the body these elements unite, so that the carbon takes a part of the oxygen and becomes carbonic acid, whilst the hydrogen takes another part of the oxygen and becomes water, any deficiency in the quantity of oxygen for this purpose being supplied by the inspired air."

An hepatic cell, therefore, in a state of fatty degeneration, is one in which the fat has been elaborated from albuminoid substances *in situ*. Furthermore, there has been some interference with the normal chemical process, for the change to stop at the fat formation and not pass on to that of carbon dioxide.

Fat is a fuel, burned up or oxidized in the vital processes of the cell. The fat droplets appear in the parenchyma of the cell shortly after the ingestion of a

³ Physiology, 1883, p. 533.

⁴ Practical Dietetics, 1895, p. 173.

⁵ Pharmacology and Therapeut., 1885, p. 360.

⁶ Foods, 1873, p. 45.

meal, and disappear in large part before the next meal. The oxygen necessary for combustion comes from without; in other words, the cell has a respiration: it breathes; and if it breathes there must be a respiratory mechanism.

Quain⁷ speaks of the streaming movements of cellular granules. "This phenomenon," he says, "can be seen to occur both in cells which are stationary and in those which are exhibiting ameboid movements. It consists in the protoplasm of the granules which are suspended in that substance." He refers the production of the phenomenon to contractions in the protoplasmic substance. Here, then, is the mechanism by which the cell breathes. If it contracts, it also expands, and probably draws in oxygen in the process through the cellular walls. As if to put the seal of *imprimature* on this supposition, he further says: "The contractility of protoplasm is dependent upon the supply of oxygen. If this be withheld, the movements will, it is true, proceed for a time as usual, but this is because protoplasm, like other forms of contractile substance, such as muscle, has the power of storing away and using oxygen in some form of combination. For it is found that the active manifestations will not proceed indefinitely in the absence of oxygen, but cease after a time, to be renewed only on the accession of fresh oxygen."

A cell, therefore, in which fat is not consumed, a cell, in other words, in a state of fatty degeneration, is a cell which has ceased to breathe sufficiently to oxidize its fat. This failure of respiration may be due to failure of oxygen in the body at large, or to intrinsic weakness in the cellular respiratory mechanism. Cases of the first class occur in any disease in which the lungs are involved or in which the oxygen-carriers, the red blood corpuscles, are involved. Such are pulmonary complaints of long standing, anemia, infectious diseases and the intoxications, as lead, syphilis, alcohol, etc.

Cases of the second class may develop independently of the first class, or may be the direct sequence of this. The stationary cells of the body are in relation with the nervous system. Stimuli sent through this manifest themselves in signs of cellular activity. One of these signs is cellular contraction, and this, as has been shown, is the probable essential feature of the cell's respiratory mechanism. Failure of contraction involves failure of nerve force, and this in turn involves lesions of the nerve substance. In the case of the liver, the nerve substance, or nervous supply, is derived from the hepatic plexus of the sympathetic system. Filaments from this accompany the hepatic artery in its ramifications in the portal canals. Any lesions of these filaments or of their supplying plexus must perforce affect the physiological functions of the hepatic cells.

It is astonishing that more attention has not been paid to the pathology of the sympathetic system. Most writers ignore it altogether or make but passing allusion to it. What few facts it has been possible to collect for the purposes of this paper are rather in the nature of processes common to nervous matter in general than to the sympathetic system in particular.

Broadly speaking, such processes may be divided into inflammatory and degenerative, the one often following or becoming merged in the other. Thus, cellular infiltration is followed by fibrous hyperplasia or

sclerosis and degenerative atrophy of the nerve elements. Among the specific causes which induce inflammation of the nervous structures may be mentioned typhoid, variola, acute rheumatism, pyemia, puerperal fever, ulcerative phthisis. Nor must syphilis, alcohol, lead and other mineral poisons be forgotten. It will be observed that these are the same disorders in which fatty glandular change is so common. Lead in particular gives rise to degenerative change in the intestinal plexuses. Wherever degeneration occurs, the nervous filaments on the distal side atrophy, and consequently cut out of circuit more or less completely the structures to which they are distributed. This is descending degeneration. There is also an ascending degeneration of more limited extent extending upward to the nearest ganglion cell. In such cases, the trophic centre is in the periphery, and hence the course of the degeneration is away from the cut-off base of supply.

Intrinsic weakness in the cellular respiratory mechanism is simply another name for cellular paresis and the anatomical basis of this is inflammatory or degenerative change, or both, in the nerves supplying the cells concerned. The fatty cell is an index of this condition, and the writer is firmly of the opinion that the majority of cases of fatty degeneration wherever situated will be found to be associated with a degenerative neuritis of the nerve supply. This has already been shown to exist in the case of Bright's disease by the researches of Da Costa and Longstreth,⁸ who found an apparently constant degeneration of the renal ganglia, along with the other lesions peculiar to the disease. The associated albuminuria may be due to a similar condition, for the blood-vessels and the renal parenchyma have a similar nerve supply, and if the integrity of the one is attacked, the other must suffer also, and allow a leakage of serum albumin through their damaged walls. For all that is known to the contrary, the amyloid or lardaceous change may be due to a similar condition, for fatty degeneration is a constant concomitant with this disease.

In diabetes, it is estimated that half the cases are associated with a degenerated and fatty pancreas. In fatty degeneration of the heart a careful search would probably disclose degeneration of the cardiac ganglia. Eichhorst has demonstrated that section of the vagi is followed by fatty degeneration of the heart, and branches of the vagi terminate in these ganglia. In peripheral neuritis a dropsical condition of the limbs is often observed. All admit that this is due to paresis of the blood-vessels. If paretic blood-vessels in this situation allow their fluid contents to escape, will they not do the same in other situations? In short, there is good clinical evidence in support of the conclusion that a fatty cell is a paretic cell.

If the liver of pulmonary phthisis is so often in a state of fatty degeneration, it is because it is paretic. The cause of the paresis may be difficult to determine. From what has already been said, it will be understood that the site of the lesion may be either at the termination of the nerves in the hepatic parenchyma, or in the hepatic plexus. The former is probably the more frequent site of the two. Any glandular structure may be worn out by excessive use. Inflammation follows, then degeneration and atrophy. Here, then, is one cause of hepatic paresis—overwork. The liver of beer drinkers is often fatty and cirrhotic.

They also often develop pulmonary tuberculosis. Cattle fed upon malted grain become, after a time, emaciated and tuberculous. In both cases the liver is overworked. Again, from the position it occupies, the liver is peculiarly liable to septic intoxications. With the exception of fats, all the products of intestinal digestion pass through the liver on their way to the general circulation. Poisonous peptones and many other poisons are here rendered innocuous. But it is conceivable that the task may be too great and the liver itself be poisoned. Over-feeding and its consequent dyspepsia is therefore a frequent cause of a disordered and parietic liver.

Another cause is improper food. Strong meat is not for babes, nor is alcohol or starch for adults. The late Dr. Fothergill, of London, has set forth in his inimitable way the reasons why meat in excess is not a proper food for certain individuals.⁹ According to this authority, lithogenesis is reversion. Reversion to an archaic ancestry, which shared with birds, reptiles and fishes conditions of life which resulted in certain similar metabolic processes. Among these, he places the excretion of uric acid in place of urea. Birds excrete a solid urine rich in uric acid, but deficient in urea, as do also reptiles and fishes. The reverse is the case with mammalia. Here a fluid urine is excreted, rich in urea, but deficient in uric acid. The fetus *in utero* is a reptile with the potentialities of a mammal. Its circulation and heat production are reptilian, and it manifests a tendency to the reptilian uric-acid formation. "When it breathes," writes Dr. Fothergill, "as by the touch of an enchanter's wand, the circulation becomes that of the mammal, and its heat production that of a warm-blooded animal."

The uric-acid infarcts of infantile kidneys are well known, as well as the deposit of urates on infantile napkins. At puberty the uric-acid formation is largely left behind. Exceptionally it persists, and where before the passage of uric acid and its salts through the kidneys occasioned little or no irritation, it is, later in life a fruitful cause of Bright's disease and many other ailments. Most authorities agree that urea is excreted by the liver cells. Vaughn has shown that uric acid is excreted by leucocytes. The liver cell, therefore, excretes a fluid urine rich in urea, the leucocyte, a solid urine rich in uric acid—an interesting distinction, as showing the one to be mammalian in its development, the other reptilian. In hepatic disorders, a heavy output of urates is a very common occurrence; and as these disorders are generally plethoric in their character, it would seem as if the old contention was true, that urea is simply oxidized uric acid; or, to put it more in the language of this paper, that the liver cell being specialized and of the mammalian type, breathes more deeply and uses more oxygen than the reptilian leucocyte.

Again, Haig has shown¹⁰ that uric acid and the xanthin compounds from which uric acid is derived may be introduced with the food, particularly where a meat diet is used. A feeble liver, therefore, fed with meat peptones containing uric acid and xanthin, is easily upset and hepatic congestion and inflammation follow. Feebleness of hepatic function is often inherited. The diathetic state in which this occurs is called scrofulosis, and the frequent association of this with tuberculosis has long been recognized. Fothergill

says that the children of town dwellers in the second and succeeding generations are very apt to be lithogenetic. How common the type is the out-patient waiting-room of any metropolitan hospital will show.

There is the bulky personage of large frame, clumsy and rheumatic, with features like a blurred photograph, and the delicate, fragile creature of emotional temperament, feeble digestion, light lower jaw and arched palate. The air of cities is notoriously deficient in ozone, and this may have much to do with the persistence of the uric-acid diathesis, particularly as such patients improve when removed to the ozonized air of the sea-shore.

With regard to the use and abuse of alcohol, but little need be said. Its influence is sometimes beneficial, often deleterious. It robs the system of oxygen to satisfy its own needs. In addition, sclerosis develops under its continued use. Whether this is due to the alcohol itself or to the impurities which often accompany it does not appear to have been determined. Fusel oil is generally regarded as one of the offending factors.

Starch, while admitted by all as unsuitable for infantile digestion, is not so generally recognized as unsuitable for adult digestion. And yet it is often a stumbling-block to those of the dyspeptic habit. The secretions of the salivary glands, Brunner's glands, pancreas and liver may all be called on in turn to struggle with starch and convert it into glucose. Sugars, fats and albumins, on the contrary, are readily digested and absorbed. The axiom has already been stated that "any glandular structure may be worn out by excessive use." The constant struggle of a delicate organism to convert the starch into glucose is an illustration in point. If the truth could be known, it would probably appear that the diet of baked beans and doughnuts, common to so many American families, had much to answer for in the production of insufficient livers and pulmonary phthisis. The rice-eating Bengalee escapes gout, but falls a frequent victim to diabetes and consumption.

So far, the inquiry has endeavored to show the causes which lead to fatty degeneration of the liver, and the fact has been pointed out that this condition is often associated with tuberculous deposits in the lungs. It remains to study the one condition with the other and ascertain what relation, if any, exists between the two.

No time need be wasted over the proximate cause of pulmonary consumption. All admit its identity in the tubercle bacillus. This microbe is not an aggressive fellow. He requires time for development and quiet surroundings. The cultures grow slowly. On the other hand, the leucocyte is an aggressive fellow and is the sworn enemy of microbes in general. How happens it then, that the battle is often so languidly waged and that the victory so often rests with the peace-loving invader? For the very reason that there is peace in his immediate neighborhood. He has pitched his camp by the slow-flowing stream of dropsical fluid that exudes from parietic capillaries. He is not rudely jarred by draughts of air sweeping through the passageways of the lungs. On the contrary, he chooses the apices where the respiratory movement is normally slight, or some dependent portion of the lung already infiltrated with the serous exudate. The leucocytes hasten to do battle, and crowd about the seat of invasion in ever-increasing numbers. But

⁹ Keating: *Cyclopedia of Diseases of Children*, 1889, vol. ii, pp. 256-319.

¹⁰ *British Medical Journal*, October 3, 1896.

they have pushed their way into a practically airless region, and one impregnated with toxins. If Dr. Hirschfelder's contention is true that a toxin oxidized becomes an antitoxin,¹¹ then conversely a toxin unoxidized remains a toxin. The leucocyte cannot continue to elaborate germicidal nuclein without a supply of oxygen. If the supply is deficient its amoeboid movements cease and therewith its functional activity. The toxins clamor for oxygen, and so likewise do the leucocytes, with the probable results that the leucocytes perish, and the toxins continue toxins.

The evidence of a pulmonary paresis antecedent to the outbreak of tuberculosis is clinical rather than pathological. It rests on the fact of dulness on percussion over the affected area, and diminished respiration. These may precede by a considerable interval the demonstration of the presence of the tubercle bacillus.

The nervous supply of the lungs is derived from the anterior and the posterior pulmonary plexuses, which are formed by branches of the sympathetic and pneumogastric nerves. Section of the pneumogastric nerve, according to Ranney,¹² gives rise to a remarkable set of symptoms: the larynx is impaired in its action; there is dyspnea and hoarseness: the lungs are engorged and consolidated; sometimes there is hemorrhage; the heart is altered in its rhythm, accelerated, often irregular; swallowing is difficult; the liver loses its glycogenic function; the gastric functions are imperfect and there is constipation. These symptoms appear if both nerves are divided below the jugular ganglion. If only one nerve is divided, there is hoarseness, dyspnea, emphysema or pulmonary congestion. A paresis of the pneumogastric, therefore, would manifest similar symptoms, different in degree but not in kind. Such paresis may arise from direct injury to the pulmonary nerves, as is seen in pneumonia and capillary bronchitis, or from injury to some other branch of the vagus, in which case the pulmonary symptoms are reflex.

The pneumogastric, or vagus nerve has its origin in a nucleus near the lower part of the floor of the fourth ventricle, and terminates on the right side in the celiac and splenic plexuses, and on the left side in the hepatic plexus. The left pneumogastric is, therefore, more in touch with the liver than the right pneumogastric. In cases of tubercular deposits in the left lung the liver is more frequently found to be diseased than where the right lung is affected. This is a clinical point of some value, as directing attention to the liver in such cases. The nervous connection between the two explains this.

The pneumogastric communicates through its auricular branch with the glosso-pharyngeal, facial and auricularis magnus nerves, and consequently influences hearing (through the stapedius and laxator tympani muscles), the condition of the tonsils, soft palate and tongue, the muscles of facial expression, and those holding the ear close to the head, as well as the sensation and nutrition of the posterior scalp. Through its junction with the spinal accessory, it further influences the tonicity of the sterno-cleido-mastoid and trapezius muscles. The other branches are distributed to the larynx, heart, esophagus and stomach.

A general paresis of the pneumogastric nerve would be evidenced by some such collection of symptoms as

the following: Hoarseness, dyspnea, pulmonary congestion, feeble cardiac action, dyspepsia, coated tongue, constipation, relaxed and edematous soft palate, catarrh, deafness, emaciated face, neck and upper extremities, prominent ears and silky hair on the posterior portion of the scalp. It is also a picture of many cases of pulmonary consumption.

As has been said, pneumogastric paresis may arise from direct injury to some one of its numerous branches. The frequency with which fatty liver occurs in pulmonary consumption points to this as the origin of morbid change in many instances. The interstitial framework of the organ, in which the supplying nerves ramify, becomes inflamed. A neuritis is developed which issues in degeneration, and is thus transmitted to the hepatic plexus and thence into the pneumogastric nerve. This would explain what to Ziegler is a mystery, namely, that the vagus is subject to degenerative change without any compression, inflammation, or other injury.¹³

Inflammation of the hepatic interstitial tissue at once suggests cirrhosis. Osler says,¹⁴ "A remarkable feature (in cirrhosis of the liver) is its association with acute tuberculosis. In seven cases of my series, the patient died with either acute tuberculous peritonitis, or acute tuberculous pleurisy. Pitt states that twenty-two and a half per cent. of the cases of cirrhosis dying in Guy's Hospital during twelve years had acute tuberculosis."

This clinical observation of the association with hepatic cirrhosis of pleurisy and peritonitis cannot be explained by any lesion affecting the branches of the pneumogastric nerve. But how about the phrenic nerve? This also supplies the liver, as well as the pleura and peritoneum. It further supplies the pericardium and diaphragm. The right phrenic ends in a small ganglion, from whence branches issue to the hepatic plexus, suprarenal capsule and inferior vena cava. The left phrenic ends in the phrenic plexus, a subdivision of the solar plexus which supplies all the viscera in the abdominal cavity. Peritonitis and pleurisy could thus both originate from injury to the branches of the phrenic nerve in the interstitial connective tissue of the liver.

It will be observed that the hepatic plexus receives the termination of the right phrenic and left pneumogastric nerves. A lesion here, originating from hepatic disease, could issue in paresis of the left pneumogastric nerve, the symptoms of which have already been given, while on the right side there might occur pleurisy, pleuro-pneumonia and defective respiration from paresis of the diaphragm. Nor must it be forgotten that the lower lobe of the right lung is packed tightly between the liver and the ribs, and might easily be compressed by enlargement of the liver, thus causing pressure neuritis of the pneumogastric and phrenic filaments and pneumonic consolidation.

Martin has shown that interstitial nephritis often accompanies or antedates the development of pulmonary tubercle. If the latter is the case, the same course of reasoning already followed in the case of the liver would indicate that the pneumogastric or phrenic paresis, on which the pulmonary lesion depends, has its origin in degeneration of the solar plexus, and that this depends on a neuritis in its renal branches. Interstitial nephritis is the nephritis of gout and of the

¹¹ Occidental Medical Times, November, 1896.

¹² Applied Anatomy of Nervous System.

¹³ Pathological Anatomy, 1886, Sect. 667.

¹⁴ Practice of Medicine, 1892, p. 442.

uric-acid diathesis, both of which depend for their production on an insufficient liver. The inquiry therefore begins with the liver and ends with the liver as an etiological factor in the production of pulmonary consumption. The acute and chronic parenchymatous forms of nephritis, so often associated with phthisis, are more likely to be induced by the passage of tuberculous toxins through the renal parenchyma.

Most persons are attacked, at one time or another, with tuberculosis, but in the majority of cases the seed fortunately falls on barren ground. "The frequency with which foci are met with in the lungs and in the bronchial glands," says Osler (*op. cit.*), "is extraordinary, and the statistics of the Paris morgue show that a considerable proportion of all persons dying of accident or by suicide presents evidences of the disease in these parts. The post-mortem statistics of hospitals show the same widespread prevalence of infection through the air-passages. Biggs reports that more than 60 per cent. of his post-mortems showed lesions of pulmonary tuberculosis. In 125 post-mortems at the Foundling Hospital, New York, the bronchial glands were tuberculous in every case. In adults, the bronchial glands may be infected while the individual is in good health."

Bartholow says that incipient phthisis is characterized by indigestion and an abnormal excretion of urea. He thus bears indirect evidence to the frequent hepatic origin of the disease. For urea is the urinary excretion of the liver cell. If this is in excess, the cell must be in a state of increased functional activity. The same condition of increased excretion of urea is found in diabetes mellitus. Indeed the increased production and excretion of urea has probably much to do with the persistence of the polyuria, for urea is nature's diuretic. When the liver has become worn and paretic from over-use, other symptoms are added to the clinical picture. The secretion of bile is deficient; hence fats are but poorly digested or absorbed in many cases and the body wastes. The leucomaines and toxins of intestinal dyspepsia fail to be neutralized on their passage through the liver, and the body at large is poisoned. Again, the glycogen-forming function is impaired.

Pary holds that one of the functions of the liver is to assimilate glucose, that is, that instead of being a sugar-producing it is a sugar-assimilating organ. The change from glucose to glycogen is apparently effected by the subtraction of a molecule of water, the formula of glucose being $C_6H_{12}O_6$, while that of glycogen is $C_6H_{10}O_5$. The failure of the liver cell to accomplish this allows the unchanged glucose to filter through into the general circulation, thus producing diabetes. It is certainly an interesting coincidence, that whereas glucose is not often found in the urine of pulmonary consumption, inosit is found.¹⁶ This substance is simply glucose plus two molecules of water ($C_6H_{12}O_6 + 2H_2O$).

To recapitulate, the seat of the tuberculous diathesis is in the pneumogastric or phrenic nerves and their connexions. The causes which induce neuritis or multiple neuritis elsewhere are also operative here. Such are alcohol, syphilis, the mineral poisons, trauma, the toxins of infectious diseases and uric acid. In addition the glandular structures, and the liver in particular, in communication with these nerves, may degenerate from overwork and communicate their degen-

eration to the main sources of their nerve supply. These factors are the predisposing causes of the disease, the tillers of the soil in which the *tubercle bacillus* later takes root and grows luxuriantly.

According to this view of pulmonary consumption, treatment, to be effective, should be begun early. A diagnosis should be made of the underlying dyscrasia, and this properly treated. Success at this stage will depend much on the skill of the therapist. The diet should be most carefully regulated. It is folly to overfeed a phthical patient. His digestion is feeble at best. Hence none but the blindest foods should be allowed. Milk, eggs, cheese, fruits, green vegetables, toasted bread, an occasional chicken or other bird, game, oysters and soft water, should compose the dietary. Substances rich in xanthin compounds, as meats, meat soups and extracts had better be avoided, as they result in the liberation of uric acid, which acts as so much poison. The ingestion of oils has long been regarded as a *sine qua non* of phthical treatment. And if properly introduced into the system, they undoubtedly have a reconstructive action. Long experience has shown that cod-liver oil is more effective than the others. The reason for this has been much debated. If the conclusions arrived at in this inquiry are sound, most phthical patients have a deficiency of bile. Hence their absorption of fats from the intestinal canal is attended with difficulty. Cod-liver oil, on the contrary, furnishes its own bile and is therefore more easy of assimilation. Oils may also be introduced through the skin by inunction, and as they nourish the nerves and so many of these terminate in the skin, much good can be accomplished in this way. The common habit of greasing the throats and chests of persons afflicted with inflammatory disorders of these parts is an illustration of this principle. The workers in woollen mills, particularly in the "feeding" room, enjoy a singular immunity from consumption and scrofula, and as their clothing and persons became saturated with oil the greater part of the time, it is supposed this has much to do with their health. Vaseline or cocoanut oil are the most elegant substances to use for inunction purposes.

Closely connected with the choice of foods is the use of nascent oxygen. The writer has seen striking results from its use in all stages of the disease and has witnessed several cures. It is well known that phthical patients often derive astonishing benefit from living out of doors and especially from sleeping out of doors. Neither fever, sweating nor debility contraindicate it. Hirschfelder's contention has already been alluded to, namely, that antitoxins developed within the body are simply oxidized toxins. If this is so, and there is clinical evidence in support of the view, it is easy to understand why the fresh air treatment of phthisis is often curative. The atmospheric oxygen combines with the toxins of tuberculosis to form antitoxins, and these in turn kill the bacilli. Hirschfelder oxidizes the toxins outside the body and then injects the antitoxine hypodermically. Good results are reported of this method of treatment. Nature, however, appears to oxidize the toxins within the body.

In giving oxygen by inhalation, the writer uses a strong solution of hydrogen peroxide, mixed with glycerine in a specially constructed atomizer, and under a pressure of twenty pounds. The patient spends five or ten minutes four times a day in breathing this compound. Where there are cavities in the

¹⁶ Tyson: Exam. of Urine, 1891, p. 103.

lungs the peroxide undoubtedly exercises locally, its well-known cleansing and antiseptic properties. Again, where oxygen is given through its normal channel, the lungs, such of it as is not used in oxidizing the toxins, is directly available for systemic purposes, thus burning up within the body, the waste products of metabolism.

Finally, the suggestion of Tidey¹⁶ to strap the chest walls in phthisis, is an excellent one, and is a great relief to the patient.

Clinical Department.

A CASE OF NEPHRECTOMY FOR RENAL ABSCCESS, CALCULOUS PYELITIS, AND CHOLECYSTOTOMY IN THE SAME PATIENT: RECOVERY.

BY JOHN HOMANS, M.D., BOSTON.

MRS. M., age forty-two, was brought to me in May, 1897, by Dr. Dibble of St. Stephens, N. B. She was a pale, spare woman, who had suffered from pain and dyspeptic symptoms for sixteen years. At times she had vomited; had never been jaundiced. A tumor in the right iliac region had been discovered thirteen years before I saw her. Her most pronounced and prominent symptoms were a tumor in the right lumbar region, much pus in the urine, pain and debility. The abdomen was enlarged between the umbilicus, right ribs and anterior iliac spine. This enlargement was formed by a fluctuating, lobulated, cystic tumor about the size of a man's head, which was freely movable. It was flat on percussion and seemed to be the right kidney enlarged. The left kidney, of normal shape and size, was felt in the left lumbar region. The urine contained much pus, an excess of epithelial cells, a few hyaline and coarsely granular casts with occasional oil drops adherent.

I recommended immediate nephrectomy. It seemed needless to watch the openings of the ureters into the bladder with the endoscope, because the tumor must be removed to cure the patient, and it was more than probable that the greater part of the pus came from the right kidney.

Prof. J. C. Warren saw the patient also, and concurred in my recommendation for an operation. On June 1st I operated at St. Margaret's Home. Professor Warren, Dr. Dibble and Dr. Pease were present.

An incision was made over the tumor, near the right linea semilunaris, about six inches long. On opening the abdomen the tumor could be seen under the posterior layer of the peritoneum, moving with the respiration. The posterior peritoneal fold was nicked and then torn with the fingers. The capsule was peeled away without difficulty till the pedicle, that is, the blood-vessels and ureter, were reached. There was very little bleeding. The veins, about the size of the thumb, and the artery, about the size of a slate pencil, were clearly seen, and were tied separately with silk. The ureter below was tied with the artery and vein, *en masse*, in a Staffordshire knot, and the tumor was cut away. No pus was seen in the ureter.

Great care was taken not to tear the renal veins and not to open the kidney, which was evidently full of fluid. The kidney had been removed intact; not a

drop of pus had been spilled. No shock was noticed during the removal of the kidney.

Having the dyspeptic symptoms and epigastric pain in mind, I now looked at the gall-bladder, and found it much distended and filled with gall-stones. Several ounces of straw-colored fluid were withdrawn by aspiration, and later the gall-bladder was incised. A dozen stones, of different sizes and faceted, were removed. Two were very large: one, an inch and a half long and nearly an inch thick, was firmly impacted in the common duct, and could not be dislodged until it was squeezed upwards towards the fundus of the gall-bladder with considerable force by means of the fingers and thumb in the abdomen on the outside of the duct, and at the same time the fingers within the gall-bladder skinned the walls of the duct back and off from the stone. The gall-bladder was united to the peritoneum by six fine silk sutures; the ends of these sutures were left very long, so that the knots could be cut later and the stitches entirely removed.

This proceeding of removing the sutures which have united the gall-bladder to the peritoneum, or fascia, is very important. In a recent case gall-stones formed again around sutures, and were removed, of quite a large size, twenty months after a successful cholecystotomy.¹ Some operators use catgut which is probably absorbed, but I never have confidence in the aseptic qualities of catgut or animal tendon and always use fine silk in all my aseptic work.

The renal tumor was about ten inches long; the kidney was dilated, full of pus and friable stones which had been united in a coral shape before the tumor was opened. There was more than a pint of foul-smelling pus and many stones.

The kidney was given to Dr. J. H. Wright, as were also culture-tubes taken when the kidney was opened. The bacteriological report of Dr. J. H. Wright of the Massachusetts General Hospital Laboratory is as follows: "June 3d. Tubes marked 'kidney': one sterile, the other shows a few unknown cocci. Tube marked 'from cavity after opening': a few bacilli. Two unmarked tubes sterile. A guinea-pig has been inoculated with a piece of the kidney to test for tuberculosis."

July 12, 1897.

Kidney removed by Dr. Homans June 1st, and sent to this laboratory June 2d for examination as to whether lesions of tuberculosis were present. Microscopic examination shows no evidence of tuberculosis; the kidney tissue is largely replaced by connective tissue. A guinea-pig inoculated with a piece of the specimen was killed to-day. The autopsy showed no lesions of tuberculosis.

J. H. WRIGHT.

Recovery was uninterrupted. In the first twenty-four hours thirty ounces of urine were passed, showing that the left kidney was doing its work well. The bladder was washed out once. In the second twenty-four hours thirty-six ounces of urine, perfectly clear, were passed, showing that the pus had come wholly from the right kidney. Her diet was almost unrestricted. The gall-bladder stitches were all taken out on the 6th of June. On the 9th of June the amount of urine in twenty-four hours was sixty-two ounces, and after that from forty-five to fifty. On June 22d, three weeks after operation, she went home, perfectly well, free from pain and having gained in weight.

¹⁶ British Medical Journal, March 21, 1896.

¹ See Annals of Surgery for July, 1867.

Medical Progress.

RECENT PROGRESS IN GYNECOLOGY.

BY EDWARD REYNOLDS, M.D.

A METHOD OF UNTYING THE KNOTS OF SILK LIGATURES.¹

THE well-known disadvantages of the removal of the silk ligatures applied in vaginal hysterectomy by mere traction upon them after they have become loosened by suppuration has led to the invention by Dr. Grad of a most ingenious method of untying such ligatures by the insertion within them of a series of so-called traction strings. Each traction string consists of a piece of braided silk about 20 inches long with its two ends tied together. Three of these are used, and are distinguished by placing upon their ends one, two and three knots respectively. When the ligature has been placed in position, and is about to be tied, one of its free ends is passed through the looped end of the first traction string. The first portion of the knot is then tied in the ordinary manner, but before the second part of the knot is tied one of the free ends is passed through the loop of the second traction string. The knot is then completed in the usual manner, and if for the sake of safety a third loop is to be tied, the third traction string is arranged upon one of the free ends of the ligature before the third loop is placed. One end of the ligature is then cut short, the other is left long for traction and is fastened into a bundle with the three traction strings by tying a small bit of silk about them. This process is repeated with each ligature, and the bundle of silk thus made is sufficiently large to provide for drainage of the tissues. When the knots are to be untied, the thread binding one of the bundles is cut, and the traction string attached to the lower portion of the knot is picked up and slowly sawed backwards and forwards by alternate pulls upon these two ends. This speedily unties the part of the knot last fastened, and this traction string is then released and comes away. The second and third parts of the knots are equally readily released by to-and-fro pulls upon the appropriate traction strings. The ligature is then completely untied, and is of course removed by pulling upon its long end. The writer reports three successful cases. (The reporter is able to add a fourth in which the device was admirably efficient.)

VAGINAL LIGATION OF THE UTERINE ARTERIES FOR FIBROIDS OF THE UTERUS.

Goelet² takes up this operation, which he has previously advocated, to give the results of a riper experience with it. He still strongly advocates the operation, but restricts it to interstitial growths that have not extended beyond the level of the umbilicus, and to small superperitoneal growths which spring from the wall of the uterus below the fundus, and are without extensive adhesions through which the tumor may obtain nourishment. He has not seen a tumor completely disappear after the operation, but has uniformly seen a decrease in the size of the tumor, and the disappearance of symptoms. He insists upon the necessity of dividing the artery between the ligatures in order to secure its complete obliteration. The technique of his operation is as follows: The preparation of the vulva

and vagina is as careful as for vaginal hysterectomy. The cervix is dilated, the uterine cavity is thoroughly curetted, washed out, and packed with iodoform gauze. A traction ligature is then inserted through both lips of the cervix. With this the uterus is drawn down and over to one side, so as to expose the left vaginal vault. A semicircular incision, about an inch and a half long, is made through the vaginal wall at the cervico vaginal junction to the left of the cervix. With the index fingers the vaginal tissue is carefully separated from the broad ligaments at the anterior angle of the incision, which frees the bladder and pushes the ureter to one side, out of reach. Posteriorly, the broad ligament is carefully separated in the same manner without penetrating the peritoneum. By passing one finger in front and the other behind, the base of the broad ligament is grasped between them, and the pulsation of the uterine artery can be felt. It is carefully isolated, seized with a broad ligament clamp and drawn down. A curved aneurism needle, carrying a stout catgut ligature, is passed up along the finger as a guide and around the artery to the outer side of the clamp and tied. A second ligature is passed around the artery nearer the uterus to the inner side of the clamp, and when this is tied the clamp is removed and the artery is divided between them.

The cervix is now drawn over to the opposite side, and the same manœuvre is repeated on the right side. The wounds are now irrigated with a one-per-cent. solution of lysol, and the vaginal incisions are closed with a continuous catgut suture. The vagina is packed loosely with iodoform gauze, which is renewed after forty-eight hours. The operation is done with the patient on the back in the lithotomy position. A broad perineal retractor with a short blade is used. Sometimes a narrow-bladed lateral retractor is employed, being inserted through the vaginal incision to hold the ureter to one side.

The needle which he employs for carrying the ligature around the artery is one of special design, and is made for him by Messrs. J. Reynder & Co. It is set at a more obtuse angle to the shaft than those ordinarily made, and the point is semisharp instead of blunt, but it is not sharp enough to wound the artery.

The patient is confined to bed for ten days or two weeks. There is usually no elevation of temperature following the operation, and the wounds heal promptly if strict asepsis has been preserved throughout.

SKIAGRAPHING A FOREIGN BODY IN THE PELVIS.

Cordier³ describes the skiagraphing of the contents of the pelvis by the introduction of sensitized photographic plates into the vagina of the female, and the rectum of the male, and also describes the use of a fluoroscope made in the shape of a Fergusson's cylindrical speculum. A highly sensitized photographic plate is cut into pieces from 1½ to 2½ inches wide and 6 inches long. This plate is wrapped in heavy black paper to protect it from the sunlight, the film side of the plate being carefully marked, as the x-rays do not penetrate glass well. The plate may be inserted by anointing it with vaseline or soap, or by covering it with a rubber condom, but great care must be exercised in the use of soap, as it will ruin the plate if allowed to come in contact with it. The patient is placed in the dorsal position with the spine somewhat flexed. The photographic plate is introduced into the vagina

¹ Grad: American Gynecological and Obstetrical Journal, vol. x, No. 2, February, 1897.

² Loc. cit.

³ American Journal of Obstetrics, vol. xxxvi, No. 2, August, 1897.

with the film side to the front and passed as high as possible. The Crookes tube is then so placed that its centre of effort will be directed somewhat in front of the axis of the superior strait. The writer publishes a skiagraph which shows the pubic ramus and a number of foreign bodies which have been introduced into the bladder. He hopes to be able by means of it to detect not only the presence of foreign bodies but to obtain an outline of the uterus.

A CASE OF VARICOSE VEIN OF THE BROAD LIGAMENT.

Baldy⁴ reports a case in which he made an exploratory incision to determine the source of pelvic pain which had resisted three years of treatment, and for which no adequate cause could be found previous to operation. Upon looking at the organs with the patient in the Trendelenburg position, they appeared wholly normal, with the exception of a varicosity of the vessels of the left broad ligament. These were multiplied in number from six- to ten-fold, were much increased in size, and greatly thickened. The Fallopian tube, ovary and broad ligament of that side were excised as widely as possible. The case is reported shortly after the operation, but the woman was so far relieved from pain. The writer reports the case on account of its rarity and with a full recognition of the fact that the necessity of operating upon varicosities in the pelvis is much doubted by the profession.

THE SURGICAL TECHNIQUE OF OPERATIONS FOR PUS IN THE PELVIS.

Stone⁵ describes a method of enucleation of large pus tubes without rupture and consequently without spilling their contents into the peritoneum, which seems so reasonable and for which he claims such an extraordinary success, that a large portion of his description of the technique is quoted:

"Given a patient in sufficiently good condition to bear an operation of one hour in duration, who has a clinical history and symptoms enabling us to make a diagnosis of pyosalpinx and ovarian abscess, single or double. The uterus is fixed, the whole pelvis filled, not as some say, with 'exudate,' but with tubes and probably ovaries converted into pus sacs and held firmly by adhesions to uterine ligaments, abdominal and pelvic walls, and perhaps intestine, omentum and mesentery. The abdomen is opened at once by an incision four or five inches in length between the umbilicus and pubes. Omental adhesions, if present, are tied off, and, if possible, immediately separated and fragments removed, although this is often at first impossible. The next step is to find one of the uterine cornua, not merely as a landmark, but in order to clamp the tube and broad ligament as closely to it as possible, and at once prevent any or all hemorrhage during the subsequent steps of the operation. The ovarian arteries are, if easily seen or located, also clamped and tied. It may be seen that the purpose in view thus far is to save every possible drop of blood. Formerly a few ounces of blood lost during these operations was thought of but little consequence, but we are no longer of this opinion. If intestinal adhesions have rendered access to the uterine cornua difficult, they must be overcome and separation completed far enough to permit inspection of the underlying tube and ovary, or at least

the upper portions thereof. The tube is cut just outside the clamp nearest the uterus, and separated throughout its entire length from the meso-salpinx, which, of course, means section of the upper border of the broad ligament. It is generally possible to insert the finger between the ovary and uterus first, then to separate tube and ovary from the broad ligament. The fimbria attaches itself to the ovary most frequently on the outer side, and rupture of the pus sac is known to occur here in most instances; therefore the specimen must be carefully handled to avoid rupture at this point. Quite often rupture unnecessarily occurs deep down behind the uterus, when the surgeon fears penetration of the bowel. The plan of separating the anterior surface first works especially well when the tube or ovary is known to be very firmly attached to the bowel, and every care must be exercised to avoid a rent of the intestine.

"It is a pleasant surprise, to those who first try this plan, to see how much more room is made for manipulation and how readily the specimen comes up. It is better to use vision, to take more time, and to attack these distended tubes and ovaries from every or any point of vantage, rather than be obliged to close a tear in any portion of intestine. The writer asserts that every tear of the bowel in these operations is a mistake or a misfortune and should be prevented. He does not say that communications do not exist between abscess and bowel, for he has found and closed these openings; nor does he say the bowel is not so necrotic at times as to require immediate repair. But one does not make such a rent—it is already existing; and, moreover, he should see and know just what he is doing when he is enucleating such a specimen. It should be set down as an error when the surgeon tears into comparatively healthy bowel. Of course the peritoneal coat is often injured and requires repair; but reference is here made to complete tears into the lumen of the intestine."

He suggests further that it may be possible to save some infected tubes by the injection of an antiseptic solution into the cervix during the operation, with sufficient force to expel a minute stream of it through the tubes where it can be caught by a sponge without allowing it to come in contact with the contents of the abdomen. He quotes cases in which, after disinfected acutely purulent tubes by this method, he has closed the abdomen without drainage, and seen the patient return to health.

THE TECHNIQUE OF CÆSAREAN SECTION.

Barton Cooke Hirst⁶ summarizes the technique to which his experience of fourteen Cæsarean sections has led him to settle down. He opens the abdominal cavity by a sweeping incision through the wall, trusting to the absence of intestines in front of the uterus. This incision is rapidly enlarged to a degree which permits the delivery of the uterus from the abdomen. An incision an inch long is then made through the uterine muscle; next, in Hirst's own words, "with one rapid movement of the left hand and arm the uterine wall is torn down to the internal os, the membranes are ruptured, the placenta, if in the way, is detached and pushed aside, the child is seized by the most accessible part—shoulder or leg—is delivered, and with the placenta still attached to it handed to an assistant. So far the operation rarely requires seventy-five seconds. Then

⁴ American Journal of Obstetrics, vol. xxxvi, No. 3, September, 1897.

⁵ Loc. cit., vol. xxxvi, No. 3, September, 1897.

⁶ Loc. cit., vol. xxxv, January, 1897.

follows an easy hysterectomy; ligation of the ovarian arteries and of the arteries of the round ligament; application of clamps; cutting of the broad ligaments; preparation of peritoneal flaps; amputation of the womb; ligation of the uterine arteries, and over-sewing of the stump, which is dropped."

NOTES ON THE DIAGNOSIS AND TREATMENT OF THE FEMALE URINARY ORGANS.

Skene⁷ after emphasizing the importance of a study of symptomatology, speaks of the advantages of the galvano cautery in treating morbid growths and ulcerating tissues of the bladder. He praises the ease with which its action can be limited to the diseased tissue, and the manner in which the eschar protects the tissues from contact with the urine. He also describes a method of destroying neoplasms by seizing their pedicles with a specially devised forceps clamp and then devitalizing the tissue of the pedicle by the application of a dessicating degree of electric heat. He reaffirms his belief in the value of the operation prescribed by him a number of years ago for the relief of cystocele, which consists of making a small buttonhole incision through the vaginal wall at the junction of the urethra and bladder; a probe is then passed upward between the vaginal wall and bladder to the cervix uteri; this is followed by a closed forceps which is extended within the tissues thus making an extensive submucous separation between the vagina and bladder. The mucous membrane of the bladder is then held out of the way with the probe while the raw surfaces beneath the vaginal mucous membrane are brought together by through and through stitches, thus taking a tuck in the end of the anterior vaginal wall. He further notes several interesting cases in which when a ureter was divided during hysterectomy and the bladder at the same time opened, spontaneous cure and closure of the resulting fistula followed.

A NEW METHOD OF OBTAINING THE URINE SEPARATELY FROM THE KIDNEYS IN WOMEN.

Rose⁸ criticises the various methods so far in vogue and recommends a new one, which, he says, has the following advantages: great certainty, simplicity of instrumentarium, avoidance of infection of one ureter from the other, avoidance of anesthesia. Rose employs a speculum one finger long, with a lumen of about one centimetre; this is introduced into the bladder, after previously immunizing the urethra, for a distance of five and a half centimetres, and is placed directly upon the ureteral opening. Its principle, therefore, consists of a direct elongation of the ureter. Pelvic elevation or the genupectoral position is used. The practicability of the method has been demonstrated upon the cadaver and living subject.

BICYCLING FOR WOMEN.

Theilhaber⁹ recommends cycling in cases of amenorrhea, especially when the uterus is undeveloped. Dysmenorrhea of nervous origin in young girls and sterile women is often relieved. In endometritis the writer has seen no results, either favorable or unfavorable, from this form of exercise; in the hemorrhagic form he advises against it on theoretical grounds. It should be forbidden in chronic as well as in acute

gonorrhea, in salpingitis, and in subacute and chronic peritonitis of whatsoever origin.

Flexions and versions do not constitute a contra-indication; in fact, cycling is often recommended for patients with these conditions with the view of relieving nervous symptoms and strengthening flabby muscles rather than actually relieving the displacement. This may account for the good results claimed in some cases of partial prolapsus.

The use of the bicycle is inadmissible by patients with fibroid and ovarian tumors. The writer notes the rapid increase in size of fibroids in two women who rode contrary to his advice. Bladder troubles are usually aggravated by cycling, though on this point there is some difference of opinion. Hemorrhoids are sometimes relieved, but are sometimes made worse, especially when improper saddles are used. Such benefit as may be experienced is usually due to the relief of constipation. Women ought not to ride during menstruation, though the writer admits that several of his patients had done so without injury. Pregnancy is a positive contraindication. Two of the patients who disobeyed his injunction aborted, but a third went on to full term, though she had a retroflexed uterus and prolapsed ovaries.

In general, he approves of cycling in moderation.

H. Macnaughton Jones¹⁰ calls attention to the fact that cycling may have an injurious effect on women at the time of the menopause, and should not be indulged in except on the advice of a physician, especially if the patient is anemic and has functional cardiac trouble. He doubts the propriety of women with retrodisplacements of the uterus riding, with or without pessaries; this applies especially to anemic young girls. Hemorrhoids are aggravated, and coccygodynia may result.

The writer recommends a pneumatic saddle so constructed as to support the ischia, but not to press upon the external genitals or the coccyx; there should be no projection under the pubes. He approves highly of this form of exercise, which he regards as far superior to massage.

Fleel¹¹ says bicycling exerts a favorable influence in all cases where the uterine disorders are due to a relaxed condition of the parts. In chronic inflammatory conditions, it may be indulged in with care and moderation, but must be interdicted in all acute cases. Great benefit is derived from cycling in lack of appetite, chronic constipation, sleeplessness and general malaise — in fact, in all disorders due to insufficient exercise. The patients should not feel discouraged if improvement is not rapid or is even preceded by an aggravation of symptoms. It has a valuable influence in disordered menstruation, especially in amenorrhea and dysmenorrhea. Anemic, badly-nourished women gain in weight, while those who have a superabundance of fat are apt to lose. It is the physician's duty to draw attention to proper dressing before permitting active exercise. A corset should not be worn, as it interferes with respiration.

ETIOLOGY AND TREATMENT OF CANCER OF THE UTERUS.

Baecker¹² from an analysis of 705 cases of cancer of the uterus, arrives at the following conclusions with reference to the etiology of the disease:

(1) The true origin of malignant disease of the

⁷ American Journal of Obstetrics, vol. xxxv, March, 1897, p. 321.

⁸ Münch. Med. Woch., No. 2.

⁹ Loc. cit., 1896, No. 48.

¹⁰ Medical Press, November 4, 1896.

¹¹ Deutsch. med. Woch., No. 48.

¹² Archiv. für Gynäkologie, Bd. lili, Heft 1.

uterus is as yet unknown, nor can it be referred to a specific micro-organism.

(2) The indirect cause is endometritis, generally of puerperal origin, which furnishes a suitable nidus for its development. This is shown by the fact that cancer is common in women who have borne children, while it is comparatively rare in single and in sterile women, as well as in those who have had gonorrhea. Moreover, in nearly every case of cancer there is a chronic catarrh of the endometrium. Endometritis is the primary condition, malignant degeneration being secondary. Hence the practical importance of treating endometritis actively from the outset as a prophylactic measure.

In the treatment of carcinoma of the cervix total extirpation is always preferable to high amputation, because in leaving behind the body of the uterus the surgeon leaves a chronic endometritis which furnishes a favorable nidus for the development of malignant disease, even if the latter is not already present.

HYPERTROPHY OF THE CERVIX UTERI IN A VIRGIN.

Helme¹³ describes a case of hypertrophy of the cervix in an unmarried woman, aged twenty-one years. The fundus uteri was at nearly its normal level, while the cervix protruded from the vulva, a sound passing to the depth of four and one-half inches.

The following operation was performed: a circular incision was carried around the cervix at the level of the vesical attachment, and lateral incisions were made on either side parallel with the bases of the broad ligaments. The cervix was then freed as in the preliminary step of vaginal hysterectomy and both uterine arteries (including the cervical branches) were ligated, in order to cut off the blood supply from the hypertrophied part. The cervix was drawn forcibly downward and transfixed antero-posteriorly with silver wire. Circular amputation was performed, followed by bilateral section of the cervix, forming anterior and posterior flaps. The vaginal and cervical mucous membrane were united, and lastly the cervix was sutured to the edge of the vaginal wound on either side.

The stitches were removed on the ninth day and the patient was discharged at the end of the third week. When examined six weeks after the operation the canal was patent and the uterus measured two and three-quarters inches.

THE USE OF STEAM WITHIN THE UTERINE CAVITY.

Pitha¹⁴ reports the results of his observations in Pawlik's clinic, extending over two years and including 46 patients. The deductions are also based on examinations of six uteri removed from four to fourteen days after the application of steam.

The technique is quite simple: A small kettle, fitted with a thermometer, is connected with a double-current uterine catheter by means of rubber tubing; a wooden handle on the instrument protects the hand of the operator. The temperature is raised to 105°–115° C., and after the steam issues from the holes in the catheter the instrument is cooled to avoid burning the vagina, and is then introduced into the uterine cavity. The steam is then allowed to escape for one minute. It condenses within the uterine cavity, where its action is really due to the heat from the catheter and the hot

water. Narcosis is not necessary, as most of the patients bear the application easily. Active uterine contractions followed, and in some cases were quite violent, attended with reflex vomiting, but there were no other unpleasant consequences. Sloughing occurred, and was not completed before the fourteenth day, the endometrium not being entirely regenerated until four weeks had elapsed, showing that the cauterizing effect was quite as profound as after the use of the Paquelin. Twenty-eight patients, with hemorrhagic endometritis, treated in this manner were discharged cured, and ten with hemorrhage following abortion; in the latter, decidua remains were first removed with the curette before applying the steam.

The use of this agent is also highly recommended in cases of malignant diseases of the corpus uteri.

The advantages claimed for this method of intra-uterine cauterization are the ease and rapidity with which it can be effected in a clinic, the immediate hemostatic effect, and the deep slough which is caused, as well as the freedom from untoward results. The after-treatment is simple. The patient is kept in bed until the slough has entirely separated, the vagina being irrigated and tamponed lightly with iodoform gauze. No intrauterine injections are given. Among the disadvantages the writer mentions the unequal character of the cauterization and the fact that the after-treatment is more prolonged than after curettement. He is not willing to assert that "vaporization" is preferable to the latter operation.

DESTRUCTION OF THE ENDOMETRIUM BY HOT INJECTIONS.

Schick¹⁵ discusses the value of various methods of removing the diseased endometrium. The ideal method, he believes, should fulfil the following requirements: (1) absolute asepsis; (2) removal of the entire tissues down to the muscular layer; (3) thorough removal, so that no portion of the mucosa may remain; (4) limitation of the destruction action, so that extensive injuries to the deeper parts may be avoided.

None of the procedures usually adopted satisfies these requirements. In curettement the diseased mucosa is rarely completely removed, and then only in puerperal cases. Chemical agents, especially chloride of zinc, may cause destruction of the subjacent muscular tissue in some spots, while in others islands of mucous membrane remain untouched. Electrolysis produces the same results as caustics, though less effectively.

The writer, after various experiments, came to the conclusion that the effect of hot water was most satisfactory. Before employing it in the living subject he studied its action upon the endometrium in freshly extirpated uteri. Water at a temperature of 80° to 85° C. was allowed to flow through an intrauterine catheter for periods ranging from thirty seconds to two minutes. After half a minute the entire mucosa was seen to be covered with a thin, whitish layer, which penetrated more deeply according to the length of exposure to the action of the hot water. As practised on the living subject the writer's technique was as follows: The cervical canal is dilated with laminaria tents until it admits the little finger. The patient is anesthetized, the genitals rendered thoroughly aseptic, and the cervix is seized and drawn down with a volsella. To a kettle of water, heated by a Bunsen burner, is attached a rubber tube on which is fitted a Bozeman-Fritsch

¹³ British Medical Journal, December 26, 1896.

¹⁴ Centralblatt für Gynäkologie, No. 22, 1897.

¹⁵ Centralblatt für Gynäkologie, No. 23, 1897.

double-current catheter. A second tube communicates with a receptacle filled with ice-water, which is allowed to flow into the vagina before and during the operation. The hot water is now allowed to enter the uterus while the end of the catheter is constantly turned in different directions in order that the entire endometrium may be affected. As the hot water escapes from the os it mingles with the cold, and thus does not burn the vagina. Since the action of the heat is more intense upon living than upon dead tissues, the writer adds the caution that thirty seconds should be the limit of exposure. The degree of reaction is noted by the marked contraction of the uterus.

Several successful cases of menorrhagia are reported (including two cases of abortion and one of fibromyoma), in none of which were any unpleasant effects observed.

The writer calls attention to the different actions of steam and hot water. The former has been introduced into the uterus for the purpose of controlling hemorrhage, while the effect of the latter is to destroy the entire lining membrane of the organ. While the writer has seen no failure of the mucosa to become regenerated when it is exposed to the action of the heat for half a minute, he thinks it wiser, until the subject has been more fully studied, to employ it only in the case of women with fibroids and those who are near the climacteric, in whom the preservation of the function of menstruation would be less important.

INTRAUTERINE INJECTIONS.

Döderle¹⁶ reports the results of experimental injections of methyl-violet, iodine, and chloride-of-zinc solutions in six cases in which he was about to perform total extirpation of the uterus. The usual cautions were employed—thorough dilatation of the cervical canal, moderate force, and the maintenance of a return current, yet in all but one instance (a case of endometritis fungosa) the fluid entered the tubes and was forced into the peritoneal cavity. The writer infers that the result of these experiments throws considerable light upon the question of tubal menstruation and the extension of gonorrheal infection. It is unnecessary, he says, to add that the fact of this perviousness of the tubes to fluids should lead to the greatest care in regard to intrauterine therapeutics.

Reports of Societies.

NEW YORK ACADEMY OF MEDICINE. SECTION ON OBSTETRICS AND GYNECOLOGY.

STATED Meeting, October 7, 1897, the PRESIDENT, EDWARD G. JANEWAY, in the chair.

THE TREATMENT OF PUERPERAL SEPTIC DISEASES.

The medical aspect of the subject was presented in a paper by DR. CHARLES P. JEWETT, of Brooklyn. This class of affections, he said, was strictly among the preventable diseases, and the accoucheur was usually responsible for their occurrence. Prophylaxis must begin many weeks before the time of labor, and among the predisposing causes to which he referred were anemia, syphilis, vaginal disease, diarrhea, constipation and auto-intoxication from the retention of excrementitious products in the system. It was the

opprobrium of the profession that, notwithstanding all the advances which have been made in the last few years, the percentage of deaths among practitioners in general still remained undiminished.

He condemned the use of the douche after parturition, except in rare instances, as interfering with the normal processes, in which the parts were protected by the natural secretions. In order to treat any case intelligently an accurate diagnosis was required, and he advised a vaginal examination by the speculum. Any lacerations could then be packed, or otherwise treated, and if there were foul discharges a vaginal injection with peroxide of hydrogen or Labarracque's solution (1 to 10) should be made by the physician himself. No interference should be made with the uterine cavity unless it were positively known that this was affected. In exploring the cavity it was difficult to render the hand aseptic, and he thought the curette preferable, though curettage should never be lightly undertaken. For scraping the cornua, a special form of instrument was required. In the absence of *débris* in the uterus, the use of the curette was contraindicated. Under these circumstances the cavity might be painted with iodine or packed with an iodoform dressing. Intrauterine irrigation was permissible only so long as it was followed by a reduction of the temperature. The injection of steam at a temperature of 100° C. had been used with favorable results in France.

In the systemic treatment, eliminants and tonics, such as strychnia and quinine (not in large antipyretic doses), were called for. Also concentrated liquid nourishment and, in many cases, alcoholic stimulants in large quantities. The free use of water internally and externally in the form of cold bathing or sponging was often of great service. Plenty of fresh air was essential, and the intravenous injection of saline solutions had been employed with success. Ergot was thought to be useful in limiting the diffusion of the poison. The antitoxic serum treatment was as yet under trial, and no very definite conclusions could be made in regard to it at the present time. He had employed it in six cases, but in one only had the results appeared to be satisfactory. Nuclein he had used in three cases, but with no result. Dr. Jewett's general conclusion was that, while of late years much had been added to our knowledge of prophylaxis, but little progress had been made in the medical treatment of puerperal sepsis.

DR. EGBERT H. GRANDIN read a paper presenting the surgical aspect of the subject. It was very important, he thought, to determine in any case under observation whether we were dealing with sapremia or septicemia. These conditions were very different, although, if allowed to go undisturbed, the former was apt to result in the latter. Curetting was liable to do injury, unless practised with great care, by breaking down the protecting bed of leucocytes which nature provided and thus causing a further extension of the trouble. We had, then, a putrid and a septic endometritis. The best means of diagnosis was the accoucheur's fingers. If any remains were found in the uterus, the curette was to be employed, but if there was nothing to remove, curetting should not be resorted to. He had found it advantageous to use sterile gauze to keep the cavity open. It should be removed in about thirty hours. Iodoform gauze was attended with considerable danger and he had rejected it.

¹⁶ Centralblatt für Gynäkologie, No. 25, 1897.

As to the use of the curette, the dull instrument was quite sufficient to remove necrotic tissue, but either the sharp or the dull curette was dangerous in inexperienced hands.

In septic forms of endometritis, he thought the less interference the better, as over-action was apt to cause a diffusion of the poison into the tubes, ovaries and peritoneum. His own practice was to employ, after one injection, sterile gauze soaked in absolute alcohol. As to the matter of operation, it was a question not so much *how* as *when*. All inflammatory processes were modified by the puerperal condition, and the great aim should be to act before systemic infection was deep. When this was the case operation availed but little. In puerperal surgery he was the best judge who had for years made a study of the process of parturition, and not the general surgeon. Here, plastic peritonitis and cellulitis was apt to become septic, but in certain cases it was advisable to anesthetize the patient and make an incision. As a rule, there were multiple septic foci, and the question of the justifiability of hysterectomy was as yet in an unsettled state. In this connection he mentioned the case of a woman, with multiple abscesses of the uterus, who recovered without operation and afterwards gave birth to a child.

General septic peritonitis was the *bête noir* of the surgeon and particularly so when it was associated with the puerperal state. The septic condition rapidly affected the nervous centres and almost always proved fatal. When the peritonitis was plastic the prognosis was less grave. It was in cases of the latter kind that opium proved of so much service. As long as a part of the peritoneum remained unaffected, however, there was a chance of success.

DR. W. A. N. DORLAND, of Philadelphia, spoke of the use of the serum treatment in his own city, and said that thus far it had not proved very satisfactory. At a meeting held some little time ago twelve cases were reported by various physicians and in six of them the patients died. In four cases the treatment seemed to be successful, and in the other two the matter was doubtful. In the experience of Philadelphia physicians since then about one-half of the cases had also died. From this 50 per cent. mortality it might perhaps be inferred that the treatment was positively harmful; but, on the other hand, it was no doubt true that the cases in which it was employed were of more than ordinary severity. Personally, he should not be inclined to resort to it unless an exact bacteriological examination showed the presence of the streptococcus. Even if there was pus in the lochia, it did not necessarily follow that it was in the system at large.

There were two points on which he wished to lay stress: (1) the importance of resorting to anesthesia in making a diagnosis, and (2) the fact that this class of patients was much more apt to recover with intact organs than patients in the non-puerperal state. Therefore, great care should be observed as to the excision of organs. The absorption of products was very remarkable, even in cases where there were the most extensive exudates. Hence, a judicious conservation was all-important, and even though both tubes and ovaries could not be saved by drainage, he thought drainage better than excision. Another point was the importance of limiting the time of intrauterine injections or irrigation. If continued for more than one or two days, they did more harm than good. He be-

lieved intravenous injections of saline solutions to be of great service.

DR. P. F. MUNDÉ said that he had been much gratified by the conservative stand taken by the previous speakers as regards surgical interference. He had always been satisfied to keep the patient alive by combating high temperature and maintaining nutrition in every possible way, until the system could throw off the poison. Only within the last year had there appeared a ray of hope for a more successful treatment. He had recently treated two cases which he thought would certainly prove fatal with antitoxic serum, and both recovered. Whether this result was positively due to the serum he could not say; but at all events the gratifying fact remained that the patients got well. What we wanted now was more scientific reports regarding this subject. In regard to surgical interference, he was glad to hear it said that the curette was not to be used unless there was something to be removed by it. When there was no septic product to be removed he thought it was a mistake to employ the instrument, no matter how thick the inflamed endometrium, as it only served to open new channels for septic infection. Wherever pus pointed, it should be evacuated; but he did not believe in removing the uterus when the patient was in such bad condition that the operation was almost sure to prove fatal. In puerperal peritonitis he believed in incisions. It was true that the results were usually bad, but still a few patients recovered.

DR. H. C. COE said that the history of the treatment of endometritis was very much like that of abdominal surgery. In its first stage operators were too timid, in the second, too bold, and then there had come a time when a middle ground was occupied. As Dr. Grandin had stated, the first thing to do was to locate the trouble by anesthetizing the patient and making an exploration with the finger. He wished to call attention to one important point, namely, that imperfect drainage is not infrequently due to ante flexion, and that the mere opening up of the canal was sometimes followed by the best results. As regards operative measures, he would recall the advice of Dr. Lusk, "You must not stir up a sloughing uterus." He had not seen a case of recovery after hysterectomy or radical operation for suppurative peritonitis. Locally, he was very partial to the use of peroxide of hydrogen, and in the way of general treatment thought well of the intravenous injection of saline solutions. The inhalation of oxygen had also proved of service in his experience, and he had sometimes kept it up for a week at a time.

DR. C. A. VON RAMBOHR thought that the chief point in the treatment was prevention. Among 1,500 women treated in the outdoor lying-in service of the Post-Graduate School and Hospital, where the surroundings and general conditions were, as a rule, very unfavorable, there had been but two deaths, and only one of these was due to sepsis. He considered bichloride-of-mercury solutions objectionable, as liable to cause acute nephritis. When septic infection occurred the aim of the physician should be to combat multiplication of the cocci, high temperature and heart-failure. This main reliance was placed on alcohol in very large quantities and hydrotherapy. The serum treatment was as yet too new to enable us to form a positive opinion upon.

DR. H. N. VINEBERG said there was a class of cases in which the patient did well for five or six days, when

there would be a rise of temperature. The only local condition discoverable might be an enlarged uterus, and on exploration it would be found that a portion of the placenta had been left behind and was decomposing. This he was in the habit of removing with the curette and he then injected the cavity with plain water or a two-per-cent. solution of carbolic acid. He mentioned one case in which this treatment had not proved successful, and in which he was finally obliged to resort to hysterectomy, with the result of saving the patient's life.

DR. R. A. MURRAY spoke first of the advantage of a full dose of ergot after the delivery of the child.

If there was the slightest rise of temperature an examination should be made with the finger, and we could then use the curette with advantage, if this was necessary. Afterwards we could apply iodine, alcohol or other agent to close the mouths of the veins by coagula. For the reduction of temperature he thought very highly of veratrum viride, as used by Dr. Fordyce Barker and others. It was best given in small doses, frequently repeated, and in association with whiskey, which was the natural antidote to it. As to diffuse peritonitis, he had yet to see the case, at the autopsy, where he felt that an operation would have done any good. In localized peritonitis it was his practice to drain and then operate afterwards if the patient survived.

Two speakers having referred to the frequency of malaria as a complication of the puerperal state which called for large doses of quinine, DR. S. MARX, the Chairman of the Section, took up the question, "Why is the antitoxic treatment successful in surgical sepsis, and not in puerperal?" He believed the reason was because in the latter the septic condition was complicated by unknown factors incidental to the puerperal state. He had employed the serum treatment in five cases, in four of which a careful bacterial examination was made, and his experience had convinced him that the infection present was of such a nature that we had to deal not only with the streptococcus, but with some other element as yet undetermined. All the five cases proved fatal. He was of the opinion that the many favorable cases reported from abroad were in reality cases of sapremia, which would have recovered under almost any treatment.

Recent Literature.

The Essentials of Obstetrics. By CHARLES JEWETT, M.D., Professor of Obstetrics in the Long Island College Hospital, Brooklyn, N. Y. In one 12mo volume of 356 pages, with 78 illustrations and 3 colored plates. New York and Philadelphia: Lea Brothers & Co. 1897.

This book is well arranged for ready reference, being provided with a good index, and with black type headings to paragraphs. For example, under Eclampsia, the following paragraphs are given: Definition, Frequency, Etiology, Premonitory Symptoms and Signs (which are given in a table), Differential Diagnosis, Clinical Phenomena and Treatment, the latter divided into Prophylactic and Remedial—all this in a space of five pages. In this manner a cyclopedic amount of information is compressed into a very small space.

The illustrations are good and to the point.

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HEALTH LEGISLATION IN GERMANY.

MANY of the Sanitary Laws in force in the German Empire are models of efficient legislation, and have proved to be the means of placing Germany among the foremost of civilized countries in matters¹ pertaining to public hygiene.

In consequence of its Vaccination Act and its thorough enforcement, Germany has a small-pox death-rate far below those of its neighboring countries. The following is the substance of the existing vaccination law:

VACCINATION LAW.

Every child, in the calendar year in which it completes its first year of life and every pupil in school in the year in which it attains the age of twelve years, must be vaccinated, unless a previous attack of small-pox provides immunity from a recurrence of the illness. Men who are liable for military service are re-vaccinated on entering the army or navy. By the appointment of vaccinating physicians,² paid from the public treasury, every one has an opportunity of obeying the vaccination law without expense. The necessary lymph is produced at vaccine establishments in each of the twenty-five larger cities of the empire, under the best scientific supervision, by well-trained experts.

This method is exactly the opposite of the method pursued in America, where vaccine lymph is mainly a commercial product, being largely prepared by poorly trained men as a source of private revenue, in such a manner as to secure the greatest pecuniary returns at the lowest cost to the producer.

FOOD LAW.

By a law of May, 1879, police-officers are authorized to take samples of food offered for sale in shops. Adulteration of food and drink, for the purpose of commercial deception, and the sale of adulterated food

¹ Gesundheitsbüchlein, bearbeitet im Kaiserlichen Gesundheitsamt, Berlin, 1896.

² Loc. cit., p. 192, Berlin.

under a description calculated to deceive, is forbidden. The manufacture or sale of food and other necessities of life which are injurious to health is forbidden and punished by severe penalties and by imprisonment in frequent cases.

Special laws provide that :

(1) Petroleum, which produces an inflammable vapor at a temperature below 60°, must be kept in vessels marked in plain letters "inflammable."³

(2) Lead, or alloys containing more than 10 per cent. of lead, must not be used in the making of cooking-utensils, and they must not be coated internally with alloys containing more than one per cent. of lead. This regulation applies to all objects which come in direct contact with the mouth or are used in preserving food.⁴

(3) Articles used in coloring food or drink must not contain the following substances: Antimony, arsenic, barium, lead, cadmium, chromium, copper, mercury, uranium, zinc, gamboge, coralline and picric acid.

The foregoing colors must not be used in the wrappings of food, in making soap, or in preparations for the skin or hair, or in the manufacture of toys.

The use of arsenical colors is forbidden in the manufacture of carpets, curtains, wall-paper, paints, furniture, artificial flowers, clothes and type.⁵

(4) The sale of imitation butter is forbidden unless distinctly labelled as such.⁶

(5) The use of machines for making artificial coffee beans is forbidden.⁷

(6) A law of April, 1892, forbids the addition of certain injurious substances to spirituous liquors.

WORKSHOPS AND FACTORIES.

Children under thirteen years must not be employed in factories, and over that age only when they have completed their school course. Children and young women must not be employed in factories declared to be dangerous to health or morality. This law has been extended to include wire-works, glass-works, sugar-refineries, rolling-mills, brick-works, coal, tin and lead mines, etc.

Children under fourteen must not be employed more than six hours a day; from fourteen to sixteen years, not over ten hours a day, work not to begin for persons at this age earlier than 5.30 A. M., nor to be continued after 8.30 P. M., and to be broken by regular intervals. These regulations apply also to females, and they cannot be employed more than eleven hours per day, for more than ten hours on Saturdays and the days before holidays. They must also have a rest of an hour at noon, to be increased to one and one-half hours if they have to attend to housework at home.

Working people are not required to work on Sundays and holidays. Most heavy labor must cease on these days, with certain exceptions. Otherwise all

workers are entitled to twenty-four hours' complete rest on Sundays and holidays, thirty-six hours if two such days are consecutive and forty-eight hours at Christmas, Easter and Whitsuntide. In the exceptions, an equivalent must be given on ordinary working⁸ days to those who are employed in these periods of rest.

COMPULSORY INSURANCE AGAINST SICKNESS, ACCIDENTS, OLD AGE AND DEATH.

All persons of both sexes, employed for pay, in trade or business (about eight millions altogether), are insured compulsorily, the premiums being paid by the employer and the employed, the former paying one-third and the latter two-thirds. Domestic servants or farm laborers are not included. Every insured person, in case of illness, receives medical attendance, medicine and other articles essential to his recovery free (for example, trusses, bandages, etc.). If unable to work, he receives at least one-half the usual wages for each working day while he is sick. These privileges continue thirteen weeks, if illness lasts as long. A sum is paid to relatives in case of death. Insurance against illness is conducted by sick clubs, each trade having one.

Insurance against accident is more common than sickness insurance. All persons (about eighteen millions) employed in industry and agriculture are subject to it, also subordinate trade officials and small contractors. All persons insured are by law thus protected against the results of accidents occurring in the course of business, even if the insured, himself, or a third party, is responsible for the accident. All sudden events connected with the industry are to be considered as accidents, not including results due to prolonged employment, such as lead and phosphorus poisoning. Compensation is guaranteed to the wounded. Such compensation includes the costs of recovery, as well as a payment for the time in which the sufferer is unable to work, to an amount not exceeding two-thirds of his average earnings in the previous year. These payments do not begin until the fourteenth week after the accident, up to which time the patient is entitled to support by reason of his insurance against sickness. If death is caused by the accident, money is paid to the relatives for burial expenses, and the widow and children receive annuities, the former till death or remarriage, the children until they are fifteen years old. The cost of accident insurance is borne entirely by the employers, who are associated for that purpose.

Incapacity for work on account of age (seventy years), but not from temporary illness or accidents protected by accident insurance, is provided for by the law, as insurance against inability to work and old age. This law applies to all laborers in all branches of trade (exclusive of apprentices and servants) and to officials⁹ and messengers earning less than five hundred dollars per year — embracing in all about twelve million persons. The advantage of this law — an annuity vary-

³ Law of February 24, 1882.

⁴ Law of June 25, 1887.

⁵ Law of July 5, 1887.

⁶ Law of July 12, 1887.

⁷ Law of February 1, 1891.

⁸ Law of June, 1891, with later amendments.

⁹ Law of 1883, with many amendments.

ing according to wages and number of years the person has been subscribing (on an average the annuity amounts to about thirty-seven dollars) accrues rapidly to those who are incapacitated from labor by accidents not due to their occupations, or by diseases gradually contracted in their occupations. The necessary funds are partly supplied by the State, which adds about twelve dollars annually to the amount subscribed in equal shares by the employer and the workman.

MEDICAL NOTES.

BEQUESTS TO HOSPITALS.—Under the will of the late George M. Pullman, thirteen hospitals and charitable institutions of Chicago will receive \$10,000 each.

PLAGUE IN INDIA.—Plague in India shows no signs of diminishing, and the unpleasant report that Haffkin's autitoxic serum has effected no cures is also in circulation. It is generally conceded, however, that the inoculations are of value for prophylaxis.

YELLOW FEVER IN THE SOUTH.—The following statistics concerning yellow fever have been received in the office of the Supervising Surgeon-General of the United States Marine-Hospital Service during the week ended November 2:

		No. of the puerperal state	
ALABAMA:		No. of quinine, Dr. S. MARX, 0	
Flomaton,	Nov. 13-19,	1	1
Mobile,	Nov. 13-19,	1	1
LOUISIANA:		in surgical	
New Orleans,	Nov. 14-19,	49	12
MISSISSIPPI:			
Biloxi,	Nov. 14-19,	6	1
Clinton,	Nov. 13-19,	3	0
Edwards,	Nov. 13-19,	5	1
Scranton,	Nov. 13-19,	11	1

On November 22d Mississippi revoked the State quarantine, which was the last to be removed. There were only four new cases and one death reported in New Orleans on that date.

THE AMERICAN SOCIETY OF NATURALISTS.—The American Society of Naturalists and the affiliated societies will meet at Ithaca, N. Y., on December 28th, 29th and 30th. The other societies meeting with the Naturalists are: the Association of American Anatomists, the Association for Botanical Morphology and Physiology, the American Morphological Society, the American Physiological Society, the American Psychological Association, Section II (Anthropology) of the American Association for the Advancement of Science.

KANGAROO PATHOLOGY.—The deprivation of active exercise which is entailed by board and lodging in the Zoölogical Gardens, afflicts the Kangaroo in a marked manner. They develop enormous corus, several ounces in weight, which are very troublesome to remove, and on the approach of damp weather—and damp weather seems to be the rule in the purlieus of Regent's Park—they are prone to gouty manifestations, usually first affecting one hand, or paw, and then the opposite foot.—*Medical Press and Circular.*

DANGEROUS SPORTS.—The foot-ball season is over. The three great college games have been played and were hotly contested, but there were no casualties. Georgia, however, has acquired a law against foot-ball which reminds one of similar legislation in England in the reign of James II. The hunting season is now in full blast and we find a telegram from Houghton, Mich., in the daily press in regard to deer shooting in that State to the following effect: "There is venison on every bush and work for the coroner in almost every township. The Nimrods are mainly armed with new model rifles, carrying small calibre bullets and smokeless powder cartridges. The bullets bound, as a stone cast upon the water, when they strike smooth and hard projections at certain angles. No man in the woods knows where his bullets are going to stop. Up to date nine men have been killed in the upper peninsula. This is the record for nine days. The season lasts until the end of November and the average is expected to keep up to a man a day."

ARCHIVES OF THE RÖNTGEN RAY.—With No. I of Volume II, the American edition of which, though dated July, 1897, has just appeared, the *Archives of Clinical Skiagraphy* changes its name to the *Archives of the Röntgen Ray*. The present number, beside other handsome plates, contains a skiagram of the whole adult body taken at one exposure by Dr. William J. Morton, of New York. The time of exposure was thirty minutes, and the distance of the tube from the plate, four feet six inches. The apparatus employed was a twelve-inch induction coil whose primary was supplied from the 117-volt Edison current of the street mains, and made and broken by a break-wheel which caused about 5,000 breaks per minute. When the break-wheel revolved 5,000 times per minute the current gave a free discharge of sparks across a five-inch air gap; current through primary coil, 3 6-10; voltage at terminals of primary, 75; an ordinary Crookes tube with a consuming vacuum corresponding to a spark of two inches, which gradually rose to eight inches. This is probably the first time that a skiagram of the entire adult human skeleton has been secured at a single exposure.

NEW YORK.

X-RAYS IN A FOOT-BALL INJURY.—In a foot-ball game at Manhattan Field, on November 13th, between the Carlisle Indians and Brown University, Martin Wheelock, of the former team, received a severe but obscure injury of the shoulder, and was taken in an ambulance to the Manhattan Hospital. At the hospital the x-rays were employed to ascertain the nature of the trouble, and it was found that there was a fracture at the shoulder-joint, which had been severely sprained in a match one week before with the University of Pennsylvania team.

THE WORK OF THE LYING-IN HOSPITAL.—The annual report of the Society of the Lying-in Hospital, just published, states that during the past year 3,695

applicants presented themselves at the hospital and sub-station for treatment, and that 2,792 were attended in confinement at their homes in the tenement districts and in the hospital wards. The number of births reported in the city for the year ending October 31, 1897, was 54,692, and out of that number, therefore, more than five per cent. became a charge upon the Society. The cost of conducting the hospital and sub-station for the year, less interest charges and the printing of reports, was \$27,843, making the expense for each patient only about \$9.97. During the year the Medical Board gave instructions to 307 students of midwifery.

PROPOSED MEDICAL EXAMINATION OF JURYMEN.—In view of the unfortunate and expensive results of the illness of the juror in the Thorn trial, who, it was ascertained, had previously suffered from appendicitis, a writer in one of the daily papers has made the suggestion that on the day or days of the selection of a jury in important cases there should be secured the services of a competent physician, whose duty it would be to examine into the physical condition of each talesman accepted for trying the case.

BROKEN NECKS FROM FALLS DOWNSTAIRS.—There are at present in New Jersey two patients living with broken necks, both of whom received fractures of their vertebræ about the same time and in the same way, by falling down a flight of stairs. One of them met with the accident at Bayonne, near Jersey City, and is in the hospital at that place. The other was injured at Bound Brook and was taken to the Newark Hospital. Subsequently he was taken to New York for treatment, but has now been returned to his home at Bound Brook.

MENINGITIS FROM AN UNUSUAL CAUSE.—A child, twenty-one months old, died at Orange, N. J., November 15th, of spinal meningitis, the result of a peculiar accident. On the day previous it fell down with a large darning-needle, which it had found while playing on the floor, in its mouth, and the point of the needle was driven through the back of the throat into the spinal cord.

DEATH AT THE AGE OF ONE HUNDRED AND THREE.—Mrs. Christiana French died in Morristown, N. J., on November 14th, at the well authenticated age of one hundred and three years and three months. She had always enjoyed vigorous health, and about a year ago appeared at court in Trenton to prosecute a suit at law in connection with some property she owned. She leaves a son seventy-three years old, eight grand children and ten great-grandchildren.

THIRTY THOUSAND DOLLARS AWARDED FOR LOSS OF LIFE.—The widow of Dr. Mixsell, a practising physician who was killed by a railway accident at Mamaronech, Westchester County, on the New York, New Haven and Hartford Railroad, has been awarded \$30,000 as compensatory damages, the \$5,000 limit as compensation for death from accidents having been abrogated in New York.

THE WORK OF THE BOARD OF HEALTH.—The Board of Health has made a report to Mayor Strong relating to its work during the three summer months. In those months 2,578,445 pounds of unwholesome meat, milk, fish and fruit were seized and condemned, and 768 analyses were made by the chemists of the Department, of samples of milk, water, whiskey, candy, cigarettes, ice-cream and other articles. The report also states that the death-rate for the summer months was lower than in any year since 1892, being 20.96 per thousand of the estimated population. In 1896 it was 24.25; in 1895, 24.73; in 1894, 22.18; and in 1893, 23.33.

Miscellany.

AN UNUSUAL WEIGHT FOR A CHILD AT TERM.

DR. J. W. HARTIGAN, reports in the *New York Medical Journal* the following unusual case:

"In June," he writes, "I was called to see a young woman in labor, aged twenty-one years; weight, a hundred and twenty pounds; primipara. The child seemed unusually large. I had the father, a very small man, weigh it. He reported eighteen pounds as its weight. I expressed surprise, and got another pair of scales and weighed it myself in the presence of another physician. It weighed on both scales eighteen pounds and four ounces. The parents were both small and both young. The labor was rather a quick one, and the birth not so hard as I have often seen with much smaller children."

According to Lusk, Scanzoni found an average of nearly seven pounds, for both sexes, in nine thousand births. The average weight of two hundred children born in Bellevue Hospital, according to Dr. Lusk, was seven pounds and two-thirds for both sexes, the heaviest child weighing eleven pounds. Waller reports the forceps extraction of a child weighing fifteen pounds and fifteen ounces.

GENERAL CONCLUSIONS OF THE INTERNATIONAL LEPROSY CONFERENCE, BERLIN, 1897.

At the close of the debates of the International Leprosy Conference, Berlin, 1897, the Secretaries of the Conference presented the following short report of the general conclusions of the Conference, especially for the benefit of those members who have been delegated by their respective governments, and who have to make reports on the results of the Conference.

"As might be expected, a considerable portion of the discussion has related to the bacillus *Lepræ*, which the Conference accepts as the *virus* of leprosy, and which for upwards of twenty-five years has been known to the scientific world through the important discovery of Hansen and the able investigations of Neisser.

"The conditions under which the bacillus grows and develops are still unknown, as well as the way of its invasion into the human system; but from the discussions of the Conference, it seems probable that unanimity of opinion will soon prevail in reference to

its modes of subsequent dissemination within the human body.

"Very interesting observations have been brought forward in connection with the elimination of the bacilli in large quantities by means of the skin and the nasal and buccal mucous membranes of lepers; it is desired that such observations be confirmed where opportunities occur.

"The question is of very great importance to those who are entrusted with the care of the public health, as leprosy is now acknowledged to be a contagious disease.

"Every leper is a danger to his surroundings, the danger varying with the nature and extent of his relations therewith, and also with the sanitary conditions under which he lives.

"Although among the lower classes, every leper is especially dangerous to his family and fellow workers, cases of leprosy frequently appear in the higher social circles.

"The theory of heredity of leprosy is now further shown to have lost ground, in comparison with the at present generally accepted theory of its contagiousness.

"The treatment of leprosy has only had palliative results up to the present time.

"Serum therapy has so far been unsuccessful.

"In view of the virtual incurability of leprosy and the serious and detrimental effects which its existence in a community causes, and considering the good results which have followed the adoption of legal measures of isolation in Norway, the Leprosy Conference, as a logical issue of the theory that the disease is contagious, has adopted the following resolution proposed by Dr. Hansen and amended by Dr. Besnier:

"(1) In such countries, where leprosy forms foci or has a great extension, we have in isolation the best means of preventing the spread of the disease.

"(2) The system of obligatory notification, of observation and isolation as carried out in Norway, is recommended to all nations with local self-government and a sufficient number of physicians.

"(3) It should be left to the legal authorities after consultation with the medical authorities to take such measures as are applicable to the special social conditions of the districts."

SUPPLEMENTARY REPORT TO THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK BY ITS COMMITTEE ON THE ABUSES OF MEDICAL CHARITY.¹

THE initial report of your Committee on the Abuses of Medical Charity was transmitted to the Society on the 24th of May last. The report was accepted, and the committee continued, with power to take such steps as appeared to it advisable toward completing the work then under way.

Shortly after that date a joint-committee was formed, composed of representatives from this committee, and from like committees which had been appointed by the County Medical Association, the New York Medical League, and the Society for the Advancement of the Practice of Medicine. Somewhat later this joint-committee was enlarged by accredited representation from the New York State Medical Association and the joint-committee appointed by the Kings County Medical

Society, the Kings County Medical Association, the Brooklyn Medical Society, the Brooklyn Medical Association, and the Long Island Medical Society. As a result of many conferences by this joint-committee, a bill designed to regulate the management of all medical dispensaries in this State has been prepared by the counsel of this Society and referred by the joint-committee to the several societies and associations represented in its membership. The text of this bill reads as follows (we have room only for the first three sections):

SECTION 1. By this act a dispensary is defined to be any corporation, institution, agency or place, society or association, whose purpose it is, either independently or in conjunction with any other purpose, to furnish gratuitously or at a merely nominal price, to indigent, needy or other persons not resident therein, medical or surgical relief, advice or treatment, medicine or orthopedic or other appliances.

SECT. 2. After the passage of this act, it shall not be lawful for any person to conduct a dispensary within this State; unless said person is a corporation, incorporated under the laws of this State and licensed by the State Board of Charities as hereinafter provided.

SECT. 3. Hereafter no dispensary shall be conducted in any place in this State commonly known as a drug store, nor in any place or building in the State defined by law or by an ordinance of a Board of Health as a tenement house; nor shall it be lawful for any dispensary to furnish (except in cases of emergency) medical or surgical relief, advice or treatment, medicine or orthopedic or other appliances to persons other than such as are indigent or needy.

As will be seen, this bill differs essentially from that with which the first report of your committee had to deal, the most important feature being that each and every dispensary must obtain a license from the State Board of Charities, by virtue of which its operations shall be conducted; and that, in case the law, or the rules and regulations framed by the Board, is not complied with, said Board is empowered to revoke the license of the dispensary so offending. The vested rights of corporations will in no wise be interfered with, and the effort to correct the crying abuses now so widely prevalent will not result in injury to those institutions which are, and will be, properly and conscientiously conducted. This bill, as now presented, embodies the result of much painstaking and earnest consideration, and it is hoped that it will receive the hearty and unqualified support of those who have the subject of the correction of medical charity abuse nearest at heart. The State Commissioners of Charity have already been informally consulted regarding its provisions, and after it has been approved by the several societies it is proposed to transmit a copy, containing such modifications as may be deemed advisable, together with other literature which has been prepared, to every legally constituted medical society in the State for indorsement preparatory to its presentation to the Legislature during the first days of the approaching session.

For many obvious reasons, it has been impossible for your committee to complete its labors in season to present a complete report at the present meeting, and although it is customary that a committee such as this one is relieved of its duties when the presiding officer to whom it owes its appointment retires from the Chair, your committee in this instance begs to recommend, with the courteous concurrence of the new President of the Society, that it be continued, with power, until the new Dispensary Bill shall have been presented to the Legislature, at which time the matter with which

¹ Transmitted November 22, 1897.

it has had to do will be turned over to the Committee on Legislation.

It is not the idea of your committee that the universal abuse of dispensary privileges can either be done away with or even adequately controlled all at once, but the enactment of a law, such as provided for in the accompanying bill, will, in its opinion, mark an era in the effort which, during the past twenty years, has been made by so many earnest workers toward this end. Experience has shown that without a law on the statute books, just and equitable alike to the laity and the members of the medical profession, absolutely nothing can be accomplished in the direction of bettering existing conditions, and therefore it is with the full confidence that the Medical Society of the County of New York will heartily indorse the action of its committee, and will attach its seal of approval to this amended Dispensary Bill, as presented by the joint-committee, that this report is submitted.

JAMES HAWLEY BURTENSHAW, M.D., *Chairman.*

Correspondence.

MEDICAL LAWS OF THE STATE OF WASHINGTON.

SEATTLE, WASH., November 10, 1897.

MR. EDITOR:—I am in receipt of many inquiries concerning the medical laws of the State of Washington. I would say that all persons intending to practise medicine or surgery in the State of Washington are obliged to pass an examination before the State Board of Medical Examiners.

These examinations are held the first Tuesday in January and the first Tuesday in July. The January meeting is held on the west side of the Cascade Mountains and the July meeting on the east side.

No temporary certificates are granted by this Board, and no exception is made to this rule.

Very truly yours,

F. H. COE, M.D.,

Secretary Medical Society, State of Washington.

THE BILL FOR A DEPARTMENT OF PUBLIC HEALTH.

WASHINGTON, November 15, 1897.

MR. EDITOR:—Will you kindly permit me to correct a statement made in the editorial columns of your esteemed journal of the issue of November 11, 1897, under the caption, "A Department of Public Health." I refer to the statement in the second paragraph, which reads as follows: "The American Medical Association, at the Philadelphia meeting of this year, adopted a draft for a bill to establish a department of public health." I am informed by the Recording Secretary of the Association and also by others who were present, that the American Medical Association did not adopt a draft for a bill to establish a department of public health.

The facts regarding the proposed bill, referred to in your editorial, are as follows: At the last meeting of the American Medical Association, the Committee of the Association on Department of Public Health, through its chairman, Dr. U. O. B. Wingate, of Wisconsin, read a report of the Committee, in which was included the draft of a bill providing for a department of public health. The report of the Committee was received by the Association, and the Committee continued. As the proposed bill was presented during the last hours of the meeting of the Asso-

ciation, when few were present, it was *not discussed, adopted or rejected* by the Association. An opinion on the merits or demerits of the proposed bill was not expressed by the Association. In fact, the American Medical Association, the year previous, at the Atlanta meeting, in adopting a report of its Committee on Department of Public Health, which report recommended that the Committee be authorized to draft a bill which should be in accord with the recommendations of their report, expressed views which are entirely opposite to those embraced in the report of the Committee at the last meeting, recommending the proposed bill for a Department of Public Health. It is proper to state that by reason of the death of Dr. Jerome Cochran, the Chairman of the Committee in 1896, a new Chairman was appointed.

You are, undoubtedly, misled in the statement in your editorial by the editorial statement in the *Journal of the Association*, as was the case with some members present at the last meeting of the American Public Health Association. The statement that the proposed bill was adopted by the American Medical Association was announced at that meeting, which, undoubtedly, influenced members in voting for it. However, there were only nineteen votes for the bill, and seven against it at the meeting of the Public Health Association, whose average membership is about eight hundred.

Very truly yours,

H. W. AUSTIN, M.D.

[We find that the statements in regard to the American Medical Association contained in the above communication are substantially correct, and publish them with pleasure. Practically it seems to be a question whether the proposed Department of Public Health should swallow or be swallowed by the Marine-Hospital Service. — Ed.]

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 13, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	1,868,000	658	210	11.25	17.40	1.95	1.34	3.60	
Chicago . . .	1,619,256	368	115	14.04	13.50	4.86	3.24	4.59	
Philadelphia . . .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	161	38	11.59	11.59	.61	2.44	5.49	
Baltimore . . .	550,000	163	47	14.03	6.10	4.86	1.22	6.71	
Boston . . .	517,732	185	46	7.56	12.96	1.62	.54	2.70	
Cincinnati . . .	405,000	103	—	4.90	2.94	1.96	.98	1.96	
Cleveland . . .	350,000	—	—	—	—	—	—	—	
Pittsburg . . .	285,000	72	38	19.46	19.46	5.56	1.39	6.95	
Washington . . .	277,000	81	21	4.92	17.22	—	4.31	2.17	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	105,050	46	12	13.02	10.85	4.34	2.17	—	
Worcester . . .	105,050	26	4	7.70	—	—	—	3.85	
Fall River . . .	95,919	39	18	10.24	7.68	5.12	2.56	—	
Lowell . . .	87,193	34	12	8.82	14.70	—	—	8.82	
Cambridge . . .	86,812	28	5	10.71	17.85	3.57	7.14	—	
Lynn . . .	65,220	10	0	—	—	—	—	—	
Charleston . . .	65,165	17	10	5.88	11.76	—	—	—	
New Bedford . . .	62,416	19	5	15.78	5.26	10.52	5.26	—	
Lawrence . . .	55,510	19	7	21.04	5.26	—	—	5.26	
Springfield . . .	54,790	10	2	10.00	—	10.00	—	—	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,002	15	4	6.66	20.00	—	—	6.66	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	3	0	—	33.33	—	—	—	
Chelsea . . .	32,716	8	2	25.00	—	—	—	—	
Haverhill . . .	31,406	8	2	25.00	12.50	—	25.00	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,980	8	3	25.00	—	—	—	—	
Fitchburg . . .	28,392	9	2	11.11	—	—	—	—	
Taunton . . .	27,812	9	4	—	11.11	—	—	—	
Quincy . . .	22,562	4	2	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	4	2	—	—	—	—	—	
Everett . . .	21,575	—	—	—	—	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	4	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,189; under five years of age 634; principal infectious diseases (small-pox, measles, diphtheria and croup,

cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas, and fevers) 257, acute lung diseases 286, consumption 258, diphtheria and croup 89, diarrheal diseases 62, typhoid fever 44, scarlet fever 16, whooping-cough 11, measles 10, cerebro-spinal meningitis 10, malarial fever 9, erysipelas 6.


From scarlet fever New York 11, Chicago, St. Louis, Pittsburg, Fall River and Newton 1 each. From whooping-cough New York and Pittsburg 3 each, Chicago 2, Baltimore, Washington and Charleston 1 each. From measles New York 10. From cerebro-spinal meningitis New York 3, Boston 2, Baltimore, Providence, Worcester, Chelsea and Newton 1 each. From malarial fever St. Louis 4, Nashville 3, Chelsea and Fitchburg 1 each.

In the thirty-three greater towns of England and Wales with an estimated population of 10,992,524, for the week ending November 6th, the death-rate was 18.1. Deaths reported 3,823, acute diseases of the respiratory organs (London) 363, measles 128, diphtheria 82, diarrhea 64, fever 51, scarlet fever 46, whooping-cough 41.

The death-rates ranged from 11.2 in Croydon to 23.4 in Liverpool; Birmingham 20.7, Bradford 14.9, Cardiff 15.3, Gateshead 15.0, Huddersfield 20.0, Leeds 19.2, Leicester 11.5, London 18.5, Newcastle-on-Tyne 19.4, Nottingham 15.9, Salford 16.9, Sunderland 15.0, West Ham 16.8.

METEOROLOGICAL RECORD

For the week ending November 13th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		Wet'h'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...7	29.92	45	52	38	58	63	60	W.	W.	16	12	C.	C.	
M...8	29.89	42	48	35	70	74	72	W.	N.W.	8	5	O.	O.	.02
T...9	29.34	51	60	42	96	79	88	E.	S.W.	14	14	O.	C.	.60
W...10	29.78	44	52	37	60	69	64	W.	W.	16	10	C.	C.	
T...11	29.86	40	48	33	75	79	77	W.	E.	6	24	C.	R.	
F...12	29.37	40	48	33	100	97	98	N.W.	W.	36	13	N.	O.	1.74
S...13	29.77	42	47	36	72	63	68	W.	W.	24	14	F.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 13, 1897, TO NOVEMBER 19, 1897.

By direction of the President, the retirement from active service this date, November 15, 1897, of **LIEUT.-COL. WILLIAM E. WATERS**, deputy surgeon-general, is announced.

CAPTAIN RICHARD W. JOHNSON, assistant surgeon, is relieved from duty at Fort Logan, Col., and ordered to Fort D. A. Russell, Wyo., for duty.

CAPTAIN CHARLES E. WOODRUFF, assistant surgeon, will upon the abandonment of Fort Custer, Mon., proceed to Jackson Barracks, La., and report for duty at that post, to relieve **MAJOR WILLIAM C. SHANNON**, surgeon.

Leave of absence for one month is granted **CAPTAIN R. G. EBENT**, assistant surgeon.

LIEUT.-COL. J. V. D. MIDDLETON, deputy surgeon-general, granted one month's extension to present leave of absence.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING NOVEMBER 20, 1897.

C. G. HERNDON, surgeon, detached from the Bureau of Medicine and Surgery and placed on waiting orders.

J. C. THOMPSON, assistant surgeon, detached from the Naval Laboratory, Brooklyn, and ordered to the Naval Hospital, Mare Island, Cal.

W. B. GROVE, assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., on reporting of relief, and ordered to the "Oregon."

T. B. BAILEY, passed assistant surgeon, detached from "Yorktown," and ordered home with two months' leave.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOVEMBER 18, 1897.

SAWTELLE, H. W., surgeon. To rejoin station at New Orleans, La., via Washington, D. C. November 17, 1897.

WHITE, J. H., passed assistant surgeon. To rejoin station at New York, N. Y., upon completion of duties at New Orleans, La. November 16, 1897.

PETTUS, W. J., passed assistant surgeon. Granted leave of absence for one month from December 14, 1897, with permission to go beyond sea. November 13, 1897.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, November 29th, at 8 o'clock.

Dr. C. F. Withington will read a paper entitled: "Pulmonary Abscess and Gangrene."

Dr. C. L. Scudder: "Tuberculosis of the Breast."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, December 1st, at 8 o'clock.

Papers: "Indications for Nephrectomy," by **Dr. M. H. Richardson**.

"The Value and Limitations of the Ureteral Catheters and Bougies in Cases of Pyonephrosis," by **Dr. Edward Reynolds**.

"Cystitis in Young Girls, with a Report of Three Nephrectomies," by **Dr. Edgar Garceau**.

The presentation of pathological specimens of surgical interest is invited.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY. The twenty-seventh annual meeting of this Association will be held December 8, 1897, in the Hall of the Washingtonian Home, 41 Waltham Street, Boston, Mass.

The morning session will begin at 10.30.

The annual address will be delivered at the evening session at 8 o'clock, by **Dr. Ira Van Gieson**, Director of the New York State Pathological Institute: "On Some Recent Researches on the Action of Alcohol on Brain Cells."

The profession is cordially invited to attend.

T. D. CROTHERS, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Essentials of Bacteriology; being a Concise and Systematic Introduction to the study of Micro-organisms for the Use of Students and Practitioners. By **M. V. Ball, M.D., Bacteriologist to St. Agnes' Hospital, Philadelphia**. Third edition, revised. With 81 illustrations, some in colors and five plates. Philadelphia: W. B. Saunders. 1897.

A Text-Book of the Practice of Medicine. By **James M. Anders, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine in the Medico-Chirurgical College, Philadelphia; Attending Physician to the Medico-Chirurgical and Samaritan Hospitals, Philadelphia, etc.** Illustrated. Philadelphia: W. B. Saunders. 1897.

The Principles of Bacteriology; A Practical Manual for Students and Physicians. By **A. C. Abbott, M.D., Professor of Hygiene and Director of the Laboratory of Hygiene, University of Pennsylvania**. Fourth edition, enlarged and thoroughly revised. With 106 illustrations, of which 19 are colored. Philadelphia and New York: Lea Brothers & Co. 1897.

Outlines of Anatomy; A Guide to the Methodical Study of the Human Body in the Dissecting Room. By **Edmund W. Holmes, A.B., M.D., Demonstrator of Anatomy, University of Pennsylvania; Surgeon to the Methodist Episcopal Hospital; Consulting Surgeon to the State Asylum for the Insane, Norristown; Consulting Surgeon to the Northern Dispensary, etc.** Published by the Author. 1897.

Surgical Pathology and Principles. By **J. Jackson Clarke, M.B. (Lond.), F.R.C.S., Assistant Surgeon at the Northwest London and City Orthopedic Hospitals; Late Senior Demonstrator of Anatomy, Demonstrator of Bacteriology and Curator of the Museum in St. Mary's Hospital Medical School, and Pathologist to St. Mary's Hospital**. With 194 illustrations. London, New York and Bombay: Longmans, Green, & Co. 1897.

A Text-Book of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By **Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; Member of the Association of American Physicians, etc.** Sixth edition, enlarged. Thoroughly revised and largely rewritten. Philadelphia and New York: Lea Brothers & Co. 1897.

Original Articles.

THE BACTERIOLOGY OF LOBAR AND LOBULAR PNEUMONIA: VARIOUS INFECTIONS DUE TO THE DIPLOCOCCUS LANCEOLATUS.¹

BY RICHARD MILLS PEARCE, M.D.,

First Resident Assistant Pathologist, Boston City Hospital.

This paper is a report of all the cases of acute lobar pneumonia and acute broncho-pneumonia which have come to autopsy and have been studied bacteriologically at the Boston City Hospital between May 1, 1894, and May 1, 1897. It includes also the report of various infections, due to the pneumococcus, found at autopsy or at operation. The work has been carried on under the direction of Prof. W. T. Councilman, in the Pathological Laboratory of the Boston City Hospital. The methods of study pursued were those usually employed. Löffler's blood serum, in the form of "slants," prepared according to Mallory's¹ modification, was the culture medium used. Cultures were taken from the solidified lung, pleural and pericardial exudates, if present, and from heart's blood, liver, spleen, kidney and various lymphatic glands. In most cases direct examination by cover-slip preparations was also made.

In taking cultures from the solidified lung a considerable amount of the exudate was used; and generally more than one tube was inoculated. Blood serum was used, because upon it the ordinary pathogenic bacteria grow much more quickly and equally as characteristically as upon agar-agar. This is especially true of the pneumococcus, which after twenty-four hours shows an excellent growth in the form of minute colonies, somewhat smaller than those of the streptococcus, glistening and slightly granular, and usually more moist. It is probably due to the use of this excellent culture medium and the ease with which the pneumococcus grows upon it that in this series of examinations it has been more frequently found than in the cases reported by other investigators.

The recognition and identification of the pneumococcus have been based upon the appearance of the colonies as described above, and upon the microscopical examination of the colonies, which are made up of small oval organisms arranged in pairs, having lancet-shaped or conical ends. Slight variations in form and size have been noted, and short chains have been observed occasionally in the water of condensation; but these are readily distinguished from the streptococcus with its hemispherical elements.

I. ACUTE LOBAR PNEUMONIA.

Since the discovery of the organism now known as the pneumococcus or diplococcus lanceolatus, much work has been done by various observers with a view to demonstrating its etiological relation to pneumonia.

Frankel² states that it is the usual and most frequent organism associated with that disease. Out of 129 cases of lobar and lobular pneumonia, Weichselbaum³ obtained it in 94 cases (78 of which were lobar pneumonia), the streptococcus in 21 cases, and the bacillus of Friedländer in nine cases. In 70 cases Wolff⁴ found the pneumococcus 66 times, and the bacillus of Friedländer three times. Netter⁵ states that it occurred in 75 per cent. of his cases. Gamelía⁶ found it in 12 cases; and considers Friedländer's bacillus as a simple saprophyte "which is only occasionally accidentally

present." Welch,⁷ in a report of 50 cases, considers the pneumococcus as the usual causative agent of acute lobar pneumonia in man. Wright and Stokes⁸ found it in 38 out of 42 cases, and the bacillus of Friedländer not at all.

In this report of 121 cases the pneumococcus was found in the solidified lung in 110 cases, in 84 of which the pneumococcus was the only micro-organism present. In the remaining 26 cases the organisms associated with it were: staphylococcus pyogenes aureus, nine times; streptococcus pyogenes, eight times; staphylococcus pyogenes aureus and streptococcus pyogenes, three times; streptococcus pyogenes and staphylococcus pyogenes albus, twice; bacillus capsulatus (Wright), once; staphylococcus pyogenes albus, once; Klebs-Löffler bacillus, once; Klebs-Löffler bacillus and streptococcus, once.

(In this summary the presence of the bacillus coli communis has not been considered of sufficient importance for classification.)

In the remaining 11 cases, no lung cultures were taken in four, probably through neglect; but in one of these four the pneumococcus was present in pleural and pericardial exudates, in a second in heart's blood, liver and spleen and kidney, in a third in heart's blood and spleen, and in a fourth in spleen and kidney. In two of the remaining seven cases the lung cultures were lost; but in one of them the pneumococcus was present in pericardial exudate and kidney, and in the other in liver and spleen. In two other cases the lung cultures were sterile, but in one the pneumococcus was present in the heart's blood, liver, spleen and kidney, and in the other in pleural exudate and kidney. As the source of the general pneumococcus infection in these cases was evidently the solidified lung, and as the associated inflammation of pericardium and pleura showed the pneumococcus to be present, it seems justifiable to conclude that the pneumonia was due to the same micro-organism and that if cultures had been examined in the first six cases it would have been found; and that its absence in the last two cases was probably due to some error in technique. If these eight cases are therefore added to the others, they make a total of 118 cases out of 121, or 97.5 per cent., in which the pneumococcus was present in the lung.

With the exception of the eight cases just considered, in only three cases of the 121 was the pneumococcus not present in the solidified lung or pleural exudate. These cases, both macroscopically and microscopically, were true lobar pneumonia. In one case there was a general staphylococcus infection following epididymitis, cystitis and pyelo-nephritis. Cultures from lung showed abundant growth of staphylococcus pyogenes aureus. In the second case, complicating typhoid fever, lung cultures showed abundant growth of a streptococcus. It is very probable that in both these cases the pneumococcus was inhibited in its growth, or was present in small numbers, but obscured by the profuse growth of the other organism. The third case was an old pneumonia, well along in the third stage, in which the staphylococcus pyogenes albus only was found. It is very probable that in this the pneumococcus was the causative agent, but had died out. The bacillus of Friedländer was not met with at all.

COMPLICATIONS.

In the exudate of acute pleuritis and acute pericarditis associated with pneumonia, the pneumococcus was

¹ Read before the Boston Society of Medical Sciences, June 1, 1897.

found in every case in which examinations were made — 49 times in pleural exudates, and 15 times in pericardial exudates. These results agree with those of Netter,⁹ Levy¹⁰ and Jakowski,¹¹ who state that the pneumococcus is the usual cause of meta-pneumonic pleurisy; and with Wright and Stokes,⁸ who found it in 12 of 13 cases of pericardial exudate.

Abscess of lung following pneumonia occurred in three cases; in two of these the pneumococcus was the only organism present. In the third case, which was an unresolved pneumonia, the staphylococcus pyogenes aureus and the streptococcus pyogenes were present in addition to the pneumococcus.

In two cases in which an acute meningitis, and in three cases in which an acute endocarditis was associated with or followed the pneumonia, the pneumococcus was present in pure culture. This was also true of one case of acute fibrinous peritonitis.

GENERAL INFECTION.

In looking over the literature the question of general infection with the pneumococcus in the course of pneumonia does not appear to have received much attention. It was found in the circulating blood during life, by Belfanti¹² in six cases, and by Boulay¹³ in two cases. At autopsy it has been found in the blood by Pernice and Alessi¹⁴ in two cases and by Netter⁶ and Levy¹⁰ each in one case; in the kidneys, by Faulhaber in 29 cases, and by Fränkel and Reiche in 22 cases out of 26 cases; in the spleen by Proir¹⁶ in five cases, and also by Sée¹⁶ and Bordas.¹⁷ In ten cases, Welch⁷ found it in the spleen four times, kidney and heart's blood each once. Wright and Stokes,⁸ in 26 cases, found it in the liver eight times, and in the heart's blood in three out of eleven cases.

In this series of 118 cases, the pneumococcus was found in the heart's blood 56 times, liver 44 times, spleen 47 times, kidney 51 times; and in two cases in which the exudation extended from the pleura upwards into the neck following the posterior mediastinum the pneumococcus was found in the exudation in these tissues and in the cervical glands.

As regards the intensity of the infection, in 18 cases it was found in all the organs, that is, heart's blood, liver, spleen and kidney; in 18 cases in three, in 21 cases in two, and in 24 cases in at least one of the above organs.

CONCLUSIONS.

The pneumococcus is almost universally present in true lobar pneumonia and its complications. Its presence in pure culture in the majority of cases indicates its etiological relation. General infection, in fatal cases, is quite frequent, and therefore of considerable importance, both from a bacteriological and from a clinical point of view.

II. ACUTE BRONCHO-PNEUMONIA.

This report includes 128 cases, which may be divided into two classes: first, those associated with the acute infectious diseases of childhood, 82 cases; and, second, those associated with other medical and surgical affections and generally occurring in adults, 46 cases.

Of this first class 62 were associated with diphtheria alone, and the organism present was Klebs-Löffler bacillus 52 times, streptococcus pyogenes 27 times, staphylococcus pyogenes aureus 11 times, staphylococcus pyogenes albus once and the pneumococcus once.

The Klebs-Löffler bacillus occurred alone in 17 cases; streptococcus pyogenes alone in seven cases; Klebs-Löffler bacillus and streptococcus pyogenes in 16 cases; Klebs-Löffler bacillus and staphylococcus pyogenes aureus in seven cases, and Klebs-Löffler bacillus, staphylococcus pyogenes aureus and streptococcus pyogenes in eight cases, Klebs-Löffler bacillus, staphylococcus pyogenes aureus and streptococcus pyogenes in two cases, Klebs-Löffler bacillus and pneumococcus in one case, Klebs-Löffler bacillus and staphylococcus pyogenes albus in one case, Klebs-Löffler bacillus streptococcus pyogenes and pneumococcus in one case, Klebs-Löffler bacillus, staphylococcus pyogenes aureus and pneumococcus in one case, streptococcus and pneumococcus in one case.

In nine cases of scarlet fever and diphtheria combined, the Klebs-Löffler bacillus was present in every case; in five cases alone, and in the other four cases associated with the streptococcus pyogenes, the streptococcus pyogenes and the staphylococcus pyogenes aureus, the streptococcus pyogenes and the pneumococcus and the staphylococcus pyogenes aureus and the pneumococcus, respectively.

In two cases of diphtheria and measles combined, the Klebs-Löffler bacillus, the streptococcus pyogenes, and the staphylococcus pyogenes aureus were present in each case.

In nine cases of scarlet fever the streptococcus pyogenes was found in two cases, pneumococcus in two cases, staphylococcus pyogenes aureus in one case, streptococcus pyogenes and staphylococcus pyogenes aureus in three cases, pneumococcus and staphylococcus pyogenes aureus in one case.

The association of the Klebs-Löffler bacillus with broncho-pneumonia in such a large proportion of the cases, 63 out of 73, would indicate that its presence was more than accidental, and its occurrence in pure culture in 17 cases strengthens the theory that broncho-pneumonia may be due to the action of this organism, with or without the aid of the pyogenic cocci. This view is held by Wright and Stokes,⁸ who found it present in 18 out of 19 cases, in eight of which it was obtained in pure culture, and by Kanthack and Stephens,¹⁸ who found it in most of their cases.

Its presence has also been observed by Thaon,¹⁹ by Johnson²⁰ in one case, by Strelitz²¹ in one out of eight, by Flexner²² in one out of two, by Mosny²⁸ in one out of three, by Kutchner²⁴ in eight out of nine cases, by Frosch,²⁶ and by Netter²⁶ in four out of seven cases.

Of other organisms associated with the broncho-pneumonia of diphtheria and scarlet fever, the streptococcus pyogenes is the most common, as shown by the work of Fränkel,² Prudden,²⁷ Neumann,²⁸ Mosny,²⁸ Northrup,²⁷ Wright and Stokes.⁸

In this series of 82 cases it occurred 44 times. The pneumococcus was present in only eight cases; and it is of interest that five of these were scarlet fever cases. In two of the latter it was obtained in pure culture. Netter²⁶ reports four cases of broncho-pneumonia associated with scarlet fever, in two of which the pneumococcus and streptococcus pyogenes occurred; and Queissner²⁹ reports four cases, in each of which the pneumococcus was found alone or associated with some one of the pyogenic cocci. Netter reports 42 cases of broncho-pneumonia in children, which, with the exception of the 11 cases quoted above, were not associated with either diphtheria or scarlet fever.

He found the pneumococcus in 10 cases, the streptococcus pyogenes in eight, and the staphylococcus pyogenes aureus in five, the bacillus of Friedländer in two cases and in the other 17 cases various combinations of these organisms.

Wollstein⁴⁵ reports 33 cases studied at the Babes' Hospital, New York. Of these 19 were primary, in 17 of which the pneumococcus was found, occurring alone in nine, with the streptococcus in seven, and with staphylococci in one. Of the two remaining cases, the streptococcus was found in one and staphylococci in the other. In 14 cases secondary to measles, diphtheria, marasmus and scarlet fever, the pneumococcus was found in 11 cases, in two of which (measles) it was obtained in pure culture. In the other cases it was associated with the streptococcus and staphylococci.

The second class of broncho-pneumonias, 46 in number, occurring principally in adults, are best studied by grouping them according to the diseases with which they were associated, as follows :

Typhoid fever, five cases: the colon bacillus in two, the pneumococcus alone in one; and the pneumococcus, streptococcus pyogenes and staphylococcus pyogenes aureus in one. In the fifth, which was also complicated by diphtheria, the Klebs-Löffler bacillus, staphylococcus pyogenes aureus and the bacillus capsulatus (Wright) were found.

Chronic purulent bronchitis, four cases: in two the streptococcus pyogenes alone, the pneumococcus in one, the staphylococcus pyogenes aureus in one.

Gangrene of lung, one case: colon bacillus only.

Chronic pulmonary tuberculosis (with associated non-tubercular broncho-pneumonia), three cases: in one the pneumococcus, in another the staphylococcus pyogenes aureus and in the third both the streptococcus pyogenes and staphylococcus pyogenes aureus.

Acute milary tuberculosis, one case: streptococcus pyogenes, general infection.

Pulmonary thrombosis, two cases: pneumococcus in one, colon bacillus in the other.

Acute meningitis, four cases: in each the same organism was found in the broncho-pneumonia as in the meningeal exudate, in three the streptococcus pyogenes, in one the pneumococcus. In each of these cases there was a general infection.

Erysipelas, two cases: in one the staphylococcus pyogenes aureus alone, in the other the streptococcus pyogenes and the staphylococcus pyogenes aureus.

Gangrene, two cases: of neck and foot respectively; the staphylococcus pyogenes aureus alone in one case and associated with the pneumococcus in the other.

Acute nephritis, one case: the streptococcus pyogenes and the pneumococcus, general infection.

Chronic cardiac and renal diseases, six cases: in three the pneumococcus alone with general infection, the streptococcus pyogenes alone in two cases and the staphylococcus pyogenes aureus in one case.

Chronic nephritis, two cases: in one the pneumococcus and staphylococcus pyogenes aureus and in the other the pneumococcus and streptococcus pyogenes.

Acute ulcerative endocarditis, two cases: the streptococcus pyogenes in one, the pneumococcus in the other.

Intestinal affections, four cases: in three of these (diphtheritic colitis, chronic colitis and appendicitis, respectively) the process in the lung was due to the streptococcus pyogenes; in the fourth (acute intussusception), the streptococcus pyogenes and the pneumococcus.

Acute peritonitis, one case: colon bacillus the only organism present.

Cerebral hemorrhage or thrombosis, three cases, the pneumococcus alone in two, the staphylococcus pyogenes albus in the third.

Multiple injuries with cerebral hemorrhages, one case, the streptococcus pyogenes.

Acute suppurative inflammation of the middle ear, two cases, the streptococcus pyogenes alone in one, the streptococcus, pneumococcus and staphylococcus pyogenes aureus in the other.

Puerperal septicemia, one case, the streptococcus pyogenes.

To sum up, the streptococcus pyogenes occurred alone in 16 cases; pneumococcus alone in 12 cases; staphylococcus pyogenes aureus alone in six cases; staphylococcus pyogenes albus alone in one case; colon bacillus, in five cases; streptococcus pyogenes,

staphylococcus pyogenes aureus and pneumococcus, in two cases; streptococcus pyogenes and staphylococcus pyogenes aureus, one case; streptococcus pyogenes and pneumococcus, two cases; pneumococcus and staphylococcus pyogenes aureus, one case.

(Of the five cases in which the colon bacillus occurred alone there was a general infection, in two with the colon bacillus, in one with the streptococcus pyogenes, in one with the typhoid bacillus, and in the fifth all other organs were sterile.)

It is noticeable in all cases where a local or a general infection existed, the associated broncho-pneumonia was due to the same micro-organism; but where the condition was a chronic or non-infectious process, as a chronic cardiac and renal disease, cerebral hemorrhage, etc., the broncho-pneumonia was generally due to the pneumococcus; thus, of the 12 cases in which the pneumococcus occurred alone, eight were chronic diseases.

In reviewing the literature few reports on broncho-pneumonia in adults were found. Netter,²⁶ in 53 cases, found the pneumococcus 15 times, the streptococcus 12 times, the bacillus of Friedländer nine times, staphylococci three times, and various combinations of these organisms in 11 other cases.

Weichselbaum,⁸ in a report of 25 cases, found the pneumococcus 12 times, the streptococcus pyogenes seven times, staphylococci three times, bacillus capsulatus twice, and both the pneumococcus and the staphylococcus pyogenes aureus once. Banti,³⁰ in four cases, found the pneumococcus alone in one case, associated with staphylococci in one case, the bacillus capsulatus alone once, and streptococcus pyogenes with staphylococci once.

III. VARIOUS INFECTIONS DUE TO THE PNEUMOCOCCUS, 56 CASES.

The autopsy records show 26 acute infection processes in which the pneumococcus was present, and which were not accompanied or preceded by lobar pneumonia. These are divided as follows: acute ulcerative endocarditis, six cases; two were associated with chronic pulmonary tuberculosis; one with a broncho-pneumonia; one with an abscess of the myocardium; and in two there were no lesions besides the endocarditis. The pneumococcus was the only organism present, and was demonstrated in five cases by culture and in one by stained section of valve. In three cases there was a general infection.

Acute purulent meningitis, five cases; two of these followed suppurative disease of the middle ear due to infection through the Eustachian tube after fracture of base of skull through petrous portion of temporal bone. (These two cases have already been reported by Wright and Stokes.⁶) Pure culture of the pneumococcus was obtained in each case, and a general infection was present in each case. The third was associated with a broncho-pneumonia. Pneumococcus was obtained in pure culture. The two other cases were apparently primary infections. The pneumococcus occurred alone in one, and in the other was associated with the streptococcus and the diplococcus intra-cellularis meningitidis.

Acute fibrinous pericarditis, three cases. The pneumococcus was obtained in pure culture in each case. One case was accompanied by acute fibrinous pleuritis with general infection (reported by Wright and Stokes³).

Acute fibrinous peritonitis six cases, one followed operation for radical cure of inguinal hernia; the pneumococcus was present in pure culture; general infection. Two cases followed an acute endometritis, the pneumococcus present in pure culture, and also demonstrated in the endometrium and Fallopian tubes; general infection in both cases. One case followed rupture of a pyosalpinx: pneumococcus was present in pure culture. One case followed perforation of the rectum with formation of pelvic abscess: colon bacillus and staphylococcus pyogenes citreus present in addition to the pneumococcus. In the sixth case following appendicitis there was a profuse growth of the pneumococcus with five colonies of staphylococcus pyogenes aureus.

Weichselbaum²¹ and Barbacci³² each report two cases; and Fränkel³³ and LeGendre³⁴ each one case of peritonitis due to the pneumococcus. The latter, LeGendre, states that the literature shows 11 cases, eight of which terminated fatally.

In the following six cases there was a general (terminal) infection with the pneumococcus. In three cases associated with leukemia, chronic pulmonary tuberculosis and general sarcomatosis (with broncho-pneumonia) respectively, it was present in pure culture, except in kidney of last case, which had also the staphylococcus aureus. (This last case has been previously reported by Dr. Wright.⁸) In a fourth case, liver abscess following appendicitis, the pneumococcus and staphylococcus pyogenes aureus were present; in the fifth case, diabetes with carbuncle, the pneumococcus and the staphylococcus pyogenes aureus were present; the sixth case, an acute septicemia with peculiar rash, congestion of the lungs, and acute degenerative changes in all the organs showed pneumococcus in the lung, spleen and kidney. In all these cases the infection-atrism is evident, except in the first and last.

The surgical and medical records show that in 29 cases the pneumococcus was the infectious agent. These infections are divided as follows: pleuritis, 15 cases, in seven of which the exudate was sero-fibrinous and the pneumococcus was present in pure culture. In eight cases of purulent pleuritis the pneumococcus was present in pure culture in six, and associated with the streptococcus pyogenes in two. These cases were, of course, all coincident with acute lobar pneumonia.

Fränkel³⁵ reports the pneumococcus in three cases of empyema, Hoplik³⁶ in seven, Prudden in nine, and Netter⁹ in 14 out of 46. Wright and Stokes⁸ found it in 12 out of 13 cases of fibrinous pleurisy and in four cases of empyema, in two of which the staphylococcus pyogenes aureus was also present.

Acute abscess, seven cases. In four of these the pneumococcus was present in pure culture. They were respectively, deep cervical abscess, abscess of leg, of upper eyelid, and of liver communicating with pleural cavity. The fifth was of the face, and had the staphylococcus pyogenes aureus in addition to the pneumococcus. The sixth, abscess involving seminal vesicles, by cover-slip examination showed abundant lanceolate diplococci, with distinct capsules (stained by Welch's⁷ method). Cultures showed, in addition to pneumococci, a few streptococci and colon bacilli, evidently a contamination. The seventh was of the finger, and the streptococcus pyogenes and the pneumococcus were present.

Acute abscesses due to pneumococcus are rare. Testi³⁷ reports two of the parotid gland, one of which was as-

sociated with a pleuritis; Gabbi,³⁸ one case of tonsillar abscess; Monti³⁹ and Belfanti, a purulent arthritis; and Ortmann and Samter⁴⁰ a purulent inflammation of the shoulder-joint. The last two followed pneumonia.

Acute suppurative otitis media, two cases; pneumococcus alone in one; and in the other associated with the staphylococcus pyogenes aureus.

Acute suppurative mastoiditis, three cases; the pneumococcus alone in one, and associated with the streptococcus pyogenes in the other.

Of middle-ear diseases, Yaufal⁴¹ reports six; Levy and Shrader⁴² three out of 10; and Netter,⁴³ five out of 18 cases due to pneumococcus.

Acute purulent peritonitis, one case, pneumococcus and colon bacillus present.

Gangrenous appendicitis, one case, pneumococcus and colon bacillus present.

Pyosalpinx one case, pneumococcus present in pure culture. The presence of the pneumococcus in this affection is extremely uncommon. I have found only one definite case in the literature I have examined, that of Zweifel,⁴⁴ who in 71 cases found it but once.

The presence of the pneumococcus in these acute infections indicates that in addition to the production of its specific process in the lung, it may also, as is occasionally observed with the tubercle bacillus, the typhoid bacillus and the Klebs-Löffler bacillus, produce acute suppuration.

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44. Wiener med. Blätter, 1891, xiv.
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LOVE'S YOUNG DREAM. — A man aged one hundred years and one month was married in St. Joseph, Mo., on November 18th, to a widow aged seventy-seven years.

THE CHEMICAL ANALYSIS OF THE GASTRIC CONTENTS.

I. METHOD OF ANALYSIS FOR USE IN CLINICAL WORK.
II. RECORD OF THE ANALYSES OF THE GASTRIC CONTENTS OF FIFTY HEALTHY INDIVIDUALS.BY HENRY F. HEWES, M.D.,
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(Concluded from No. 22, p. 542.)

LACTIC acid is not a constituent of gastric juice, and is not produced in the stomach during the course of normal gastric digestion.^{59 60} Statements contrary to this are found in many of the leading text-books; but the truth of the above statement has been adequately demonstrated by the researches of Bidder and Schmidt, Rothschild, Martins and Lutke, Boas and others.⁵⁹

The presence of this acid, therefore, in the gastric contents, except in the amount ingested in the food as acid or salts, is of pathological significance.⁶⁰

The best test for lactic acid for practical work is the ferric-chloride test. A colorless solution of neutral ferric chloride is turned a lemon-yellow (gelbgrün) color by lactic acid. A more striking application of this test is seen in the Uffleman lactic acid test.⁶² Uffleman's solution consists of 10 c. c. of four per cent. carbolic acid, 20 c. c. of water and one drop of 10 per cent. neutral ferric chloride. The pale amethyst color of this solution is bleached and replaced by a lemon-yellow color by the addition of lactic acid.

This ferric-chloride test responds to the presence of half a gramme per mille lactic acid. As the amount of lactic acid contained in the Ewald test breakfast is at most one-tenth of a gramme per mille, this test can be used as an index of the presence of produced lactic acid after the ingestion of this meal.^{61 63}

In testing for lactic acid in the gastric contents this ferric-chloride test must be used in a modified form, since the straight test or Uffleman modification are interfered with by certain substances which may be present in the normal or pathological contents.^{61 64}

Thus glucose, alcohol, peptones, carbonates, bile, butyric acid, potassic sulpho-cyanide, all substances which may be present in the gastric contents, may to a greater or less degree simulate the test.⁶¹ Phosphates, hydrochloric acid and fatty acids, if in sufficient amount,⁶¹ inhibit the test. These substances must therefore be excluded before making the test for lactic acid in the contents. A most satisfactory method of excluding these substances and testing for lactic acid in the gastric contents is the De Jong method.⁶⁵

To five cubic centimetres of the gastric contents add two drops of strong hydrochloric acid; heat the mixture to a syrupy consistency over a flame or water-bath; shake the residue with ten cubic centimetres of ether; separate the ether; to this ethereal extract add five cubic centimetres of water and one drop of five per cent. neutral ferric chloride. If lactic acid be

present in amount over a half-gramme per mille, a lemon-yellow color will be obtained.⁶⁶

In this process butyric acid, potassic sulpho-cyanide, fatty acids and alcohol, if present, are separated by the addition of free hydrochloric acid and subsequent evaporation. These substances would otherwise be taken up by the ether. The lactic acid is taken up by the ether, while the remaining substances, as glucose, peptones, etc., remain in the residual contents.⁶⁷ This test includes both free lactic acid and lactates. It will not react to the amount of lactic acid contained in an Ewald test breakfast.⁶⁸

If it is desired to detect the production of very small quantities of lactic acid (2 gm. per mille) the method of Boas must be used. For this test a meal containing no lactic acid is ingested. Boas' meal consists of an oatmeal soup, prepared by boiling one drachm of oatmeal in one litre of water. One or more hours after ingestion the contents are expressed, and subjected to a very delicate test for lactic acid devised by Boas.⁶⁷

According to our present ideas, the production of lactic acid during gastric digestion occurs as the result of the fermentation of the carbohydrate foods, through the agency of certain bacterial organisms. Whether this fermentation is due to one definite organism or to several different forms of bacteria is not definitely settled. Huffer first demonstrated by scientific methods a specific bacillus as a cause of lactic acid fermentation. This bacillus (*acidilactici*) is a short, plump, rod-shaped organism 1 to 1.7 μ in length by 0.3 to .4 μ in thickness.⁶⁹

Miller has found several kinds of lactic-acid-forming bacteria in the mouth in normal conditions—among others, one similar to this bacillus of Huffer in morphological and physiological characteristics.⁷⁰ Kauffman and Schlesinger, Rosenheim and others have found that the presence of large numbers of a large bacillus of a type found in the mouth is characteristic of the gastric contents where lactic acid is produced.^{71 72} The action of this bacillus is inhibited by an acidity of seven-tenths per mille free hydrochloric acid or one to two per mille combined hydrochloric acid. In the normal stomach the action of the bacillus is inhibited by the increasing acidity, before any appreciable fermentation can be produced by the few bacilli swallowed with the food.

Where, in pathological conditions, the secretion of hydrochloric acid is absent or slight, and the presence of stenosis or dilatation with resulting stasis of the contents gives a long period for action to the bacillus, great multiplication of the bacilli and fermentation of large amounts of lactic acid occur.⁷³ This condition is most associated with carcinoma of the stomach, where the combination of the conditions of atrophy of the secreting structures and of stenosis is most common. It may occur in other conditions.⁷³

Butyric acid is not a constituent of the gastric juice.

⁵⁹ Martins u. Lutke, Magensaure d. Menschen, have proved this conclusively by establishing a comparison of the total acidity and the total hydrochloric acid and finding that they coincide or run parallel throughout digestion.

⁶⁰ Boas: München med. Woch., No. 43, 1893; Zeit. klin. Med., 1894.
⁶¹ De Jong: Archiv. f. Verdauungskrankheiten, Bd. ii, H. 1; also Langguth, same Archives, Bd. i, s. 365.

⁶² Uffleman: Deutsch. Archiv. f. klin. Med., Bd. xxvi, s. 431.

⁶³ Lactic acid may be produced in the normal stomach by the action of free HCl upon the lactates of the food, but it is not built up there.

⁶⁴ Boas: Deutsch. med. Woch., No. 39, 1893; Berl. klin. Woch., No. 9, 1895.

⁶⁵ De Jong: Archiv. f. Verdauungskrankheiten, Bd. ii, H. 1, s. 59.

⁶⁶ This is the best method for clinical work yet given. The other reliable methods given are that of Strauss (Berl. klin. Woch., No. 37, 1895), and that of Boas (referred to later). Neither is as simple as the above. The ordinarily used Uffleman-Penzolt test is not free from error.

⁶⁷ Boas: Deutsch. med. Woch., No. 39, 1893.

⁶⁸ De Jong: Archiv. f. Verdauungskrankheiten Bd. ii, H. 1; also Langguth, same Archives, Bd. i, s. 365.

⁶⁹ Huffer: Mittheil. a. d. Reichsgesundheitsamts, Bd. ii, s. 307.

⁷⁰ Miller: Die Mikro-organismen der Mundhöhle, Leipzig, 1899.

⁷¹ Kaufman: Bacteriologie der Magengährungen, Berl. klin. Woch., No. 6, 1895.

⁷² Rosenheim: Loc. cit.; also Virchow's Archiv, Bd. iii, s. 414.

⁷³ Hammerschlag: Archiv. f. Verdauungskrankheiten, Bd. ii, H. 1.

It is formed from carbohydrate and milk foods by the action of several bacilli, among them the bacillus butyricus. Physiologically it may occur in the gastric contents after the ingestion of large amounts of carbohydrate foods or milk. After an Ewald meal the amount of butyric acid is never enough in the normal stomach to appear in the tests one hour after ingestion. In pathological conditions, however, lactic butyric may be present in the contents.

The tests of butyric acid are as follows: Ten cubic centimetres of the contents are shaken with 50 c. c. of ether, the ether drawn off and evaporated, and the residue dissolved in water. To this aqueous solution lumps of calcium chloride are added. If butyric acid is present in amount sufficient to be of pathological significance, globules of the acid will separate out in the solution. Butyric acid may be discovered also by adding to the contents alcohol and sulphuric acid, and heating. If butyric acid be present, the pineapple odor of its ethyl ester will be perceived.

Butyric acid when present in the amount of half a gramme per mille gives a tawny-yellow color with ferric chloride. Where the acid is present in considerable amounts, it may be distinguished by the odor of the contents.

Acetic acid may occur in the gastric contents in the presence of abnormal fermentation of carbohydrates. It is never present in the normal contents after an Ewald breakfast. It is produced by the action of a unicellular organism (the mycoderma aceti) upon the food.

The test for acetic acid is as follows: Ten cubic centimetres of the contents are shaken with 50 c. c. of ether, the ether drawn off and evaporated, and the residue dissolved in water. This aqueous solution of the ethereal extract is neutralized with sodic-hydrate, and a few drops of 10 per cent. neutral ferric chloride added. If acetic acid be present, a deep red color results. The acid may also be discovered by heating the contents with alcohol and sulphuric acid; the ethyl ester is formed, which can be recognized by the odor. When acetic acid is present in pathological amount, it can be recognized in the odor of the contents.

SUMMARY.

In summary, the chemical analysis of the gastric contents is conducted as follows:

- (1) Reaction tested with litmus.
- (2) Free acid is tested for with Congo red.
- (3) Test for free HCl with phloroglucin-vanillin. If negative or doubtful with this reagent, test with Boas reagent, 00 tropæolin, Töpfer's reagent.
- (4) Test for lactic acid, De Jong method.
- (5) Test for butyric acid.
- (6) Test for acetic acid.
- (7) Measure off 10 c. c. of the mixed contents; to this add two to three drops of phenothalein. To this mixture add decinormal soda-solution from a burette, testing a drop of mixture for free HCl by phloroglucin-vanillin after each addition of the soda. When a drop fails to give the Gunzburg test, record the reading of the decinormal solution present when the test was last obtained for the reading for total free HCl. Continue to add the decinormal solution to the same mixture, testing a drop after each addition with Congo-red paper for free acids and acid salts. Note the reading when the Congo red ceases to give even a slight brown color. At this point test a drop of the mixture

with a drop of one-fourth per cent. aqueous solution of alizarin. Continue adding the decinormal solution until a drop of mixture gives a pinkish-purple color with alizarin. Take this reading for the estimation of the total free acids and acid salts (B).

Where this alizarin test works, it is to be used as the index of these substances, the Congo test being simply an adjuvant test. The alizarin test is, as a rule, from one to two-tenths of a cubic centimetre decinormal soda-solution more delicate than the Congo (.036 to .072 gm. per mille). In many cases the alizarin test is not clear, and in such cases the Congo test must be relied upon. (See last number of JOURNAL, page 540.)

Continue to add decinormal solution until a pinkish-red color appears permanently in the mixture. The reading at this point indicates the total acidity (A). Subtract B from A = total combined acid (C). Add D to C = total secreted HCl (E). Subtract D from B = total organic acids plus acid salts (F). Repeat this analysis to this point with a fresh portion of contents.

(8) Test 10 c. c. of the contents for acid salts by Leo's method. Estimate free acids plus acid salts in 10 c. c. of contents after the addition of one gramme calcium carbonate (see page 541). Subtract total acid salts (G) from this estimate of the total free acids plus acid salts (B_2) = total free acids (H). Subtract total free HCl (D) from total free acids (H) = total organic acids (K).

(9) Place 50 mgm. of coagulated white of egg in 25 c. c. filtrate of contents at 40° C., and record time of disappearance of egg.

(10) Test for rennin and rennet zymogen by the tests given on page 542.

(11) If free HCl be absent, test for pepsin by the Hammerschlag method (page 541).

(12) If free HCl be absent, estimate the total combined HCl by the Mintz method (page 540).

The record for the second analysis for quantitative estimation of the total acidity, total for HCl, etc., may be taken as the final record. The quantitative tests for each of these substances may be made in separate portions of contents, if desired.

This is a summary of the complete chemical analysis of the gastric contents, as far as such analysis is suited to chemical work. It is unnecessary in many cases to apply the complete analysis.

If a given contents shows free HCl present, no lactic acid, normal total acidity, and a normal period of digestion of the egg albumin, it is, as a rule, safe to conclude that no abnormality which can be discovered by further chemical analysis is present. At the same time a more complete insight into the particular condition of the digestive apparatus in such cases may frequently be obtained by the estimation of the separate acid factors or the full analysis. Where the qualitative tests or the total acidity are abnormal further analysis is absolutely necessary — as the estimation of the amounts of separate acid factors and of the ferments.

II. RECORD OF THE ANALYSIS OF THE GASTRIC CONTENTS OF FIFTY HEALTHY INDIVIDUALS.

The characteristics of the normal gastric contents as investigated by the method described have been to some extent outlined in the description of the method. Stated collectively these characteristics are as follows:

Gastric contents expressed one hour after Ewald breakfast.

Total quantity of mixed contents, 36 to 200 c. c.

Total quantity of filtrate contents, 20 to 140 c. c.

Free hydrochloric acid, present.

Lactic acid, absent.

Butyric acid, absent.

Acetic acid, absent.

Proteids. Native proteids (albumin or globulin) are, as a rule, present in the filtrate in very slight traces. Acid albumin, present. Albumoses and peptones, present.

Carbohydrates. Starch is, as a rule, absent in the filtrate, but may be present. Erethrodextrin is frequently present. Dextrin and sugars are, in a majority of cases, the only carbohydrates present in the filtrate.

Total acidity of contents, 1.50 to 3 gm. per mille.

Total hydrochloric acid, 1.15 to 2.48 gm. per mille.

Total combined hydrochloric acid, 0.24 to 1.49 gm. per mille.

Total organic acids and acid salts, 0.20 to 0.88 gm. per mille.

Total free hydrochloric acid, 0.1 to 1.90 gm. per mille. Mean 1.12.

Period necessary to digest .005 gm. of coagulated egg albumin in 25 c. c. of contents, 2 to 3½ hours.

Pepsin, present. Quantity, 80 to 90 per cent. Hamerschlag method (page 541).

Rennin, present. Quantity, one-twelfth to one-fortieth dilution.

Kennet zymogen, present. Quantity, one-sixtieth to one one-hundred fiftieth dilution (by Friedenwald's tables, referred to on page 542).

The data just given are taken directly from the collected results of a series of investigations of the normal digestion which I have this year conducted at the Harvard Medical School.⁷⁴ The subjects of the investigation were healthy young men between the ages of seventeen and thirty years, students at the school. The number of individuals examined was fifty. Such cases only were taken as had no symptoms of digestive disturbance at the time of examination, and no history of chronic or intermittent dyspepsia.

The investigations were conducted in the following manner: Each man took an Ewald test breakfast, consisting of one baker's roll and 300 c. c. of water in the morning, after a fast of twelve hours. One hour later the stomach-tube was passed and the gastric contents expressed by the Ewald method (page 538). The expressed contents were then subjected to an investigation after the method described in this paper summarized on page 566.

In each of the fifty cases the following determinations were made:

- (1) Total quantity of mixed contents.
- (2) Total filtrate.
- (3) Presence of free hydrochloric acid.
- (4) Presence of lactic acid.
- (5) Total acidity.
- (6) Total hydrochloric acid.
- (7) Total free hydrochloric acid.
- (8) Total combined hydrochloric acid.
- (9) Total organic acids and acid salts.
- (10) Presence of starch, of erethrodextrin, of dextrin.
- (11) Presence of native proteids, of acid albumin, of albumoses or peptones.

In each of fifteen cases, in addition to the above, these determinations were made:

- (12) Presence of butyric acid.
- (13) Presence of acetic acid.

⁷⁴ The data in regard to the pepsin and the rennin must be excepted from this statement. These are taken from the observations referred to on pages 541, 542, in the last number.

(14) Period necessary to dissolve five milligrammes of coagulated egg albumin in 25 c. c. of filtrate of contents at 40° C.

(15) Total amount of acid salts.

(16) Total organic acid.

The scheme employed in the analyses was that given in the summary of the method on page 566.

In testing for free HCl, all four of the reagents mentioned in the detail of the method were used in order to test their relative delicacy and applicability.

The test used for lactic acid was the De Jong test.

The much-used Uffleman test, as also the Penzolt modification of this, were both used in each case, in order to test the relative accuracy of these tests by the De Jong.

The quantitative estimations were made in each case both upon the mixed contents and upon the filtrates. The method used in the quantitative work is that detailed in the description as the color-analysis method (page 539).

It is clear that the results obtained in this way are of value chiefly for comparative work. For example, the estimation of the total free hydrochloric acid is slightly less than the actual amount present, as the limits of the Gunzburg reaction test are at best .05 gm. per mille. In the estimation of the total organic acids *plus* acid salts, by the subtraction of the total free hydrochloric acid from the total free acids *plus* acid salts, this .05 gm. per mille of HCl must therefore be included in the total of organic acids *plus* acid salts, making this total slightly too high. But such an error in the absolute amounts does not affect the value of the results for comparative work since this error is a constant in all results obtained by this method.

The results in the fifty cases fall within regular and fairly circumscribed limits admitting of a definite classification.

The qualitative results, as regards the mineral and organic acids, are absolutely regular.

The quantitative results show a fairly wide range of variation in the different cases; excepting in one case (Case 17), however, these results correspond to a definite type.

The summary of results in the cases is as follows:

(1) Total quantity of contents: mean, 110 c. c.; minimum, 35 c. c.; maximum, 220 c. c. Twenty-five cases gave a quantity of 100 c. c. or more.

(2) Total quantity of filtrate: mean, 110 c. c.; minimum, 20 c. c.; maximum, 140 c. c. Eight cases gave 100 c. c. or more.

(3) Free hydrochloric acid. Present in all cases.

(4) Lactic acid. Present in no case.

The Uffleman test was obtained from the crude filtrate in eight cases.

The Uffleman test was obtained in the ethereal extract of the contents (Uffleman-Penzolt test)⁷⁵ in two cases, both of which had given the test in the crude filtrate. The De Jong test was obtained in no case. This would indicate that there were present in the contents in eight cases substances not lactic acid which to some extent simulated the test for this substance in the filtrate. In two cases only were these substances soluble in ether.

Butyric acid. Present in no case (15 cases).

Acetic acid. Present in no case (15 cases).

Proteids. Native proteids. Present in slight trace in 46 cases.

⁷⁵ Deutsches Archiv. f. klin. Med., 1893-94.

Acid albumin. Present in all cases in filtrate.
Albumoses or peptones (Biuret reaction). Present in all cases.

Carbohydrate. Starch present in six cases in filtrate. Erethrodextrin present in 15 cases. Dextrin present in 27 cases.

QUANTITATIVE ESTIMATIONS.

MIXED CONTENTS.

	Mean. per mille	Max. per mille	Min. per mille
Total acidity of mixed contents	2.18 gm.	3.00 gm.	1.50 gm.
Total hydrochloric acid	1.66	2.48	1.15
Total free hydrochloric acid ⁷⁶	1.12	1.90	0.09
Total combined hydrochloric acid ⁷⁶	0.57	1.49	0.24
Total organic acids and acid salts	0.59	0.88	0.20
Total organic acids (15 cases)	0.45	0.61	0.15
Total acid salts (15 cases)	0.14	0.27	0.08

FILTRATE.

Total acidity of filtrate	2.04 gm.	....	....
Total hydrochloric acid	1.48	....	....
Total free hydrochloric acid	1.07	....	....
Total combined hydrochloric acid	0.41	....	....
Total organic acids and acid salts	0.56	....	....

A comparison of the quantitative results of the mixed contents and the filtrates shows, as you see, a lower average total acidity in the filtrates. This difference appears from the results to be due principally to the smaller amount of combined acids which are present in the filtrates, the free acids both mineral and organic being practically the same in both contents and filtrates.

In several cases the total acidity of the contents and filtrates was the same; in all other cases the filtrate total was less. In one case the difference of the total acidity of contents and filtrate was 1.33 gm. per mille; in one case .56 per mille; in all other cases it was less than this. These examples serve to demonstrate the necessity of performing the quantitative tests with the mixed contents and not with the filtrates, as has been advised by several investigators. On this point my results are in accord with those of Martius and Luttke in their investigations of this subject.⁷⁷ The work of these authors shows, in addition, that different filtrates from the same contents give varying results.

The results of the investigation in individual cases may be seen in the following analysis, which I have taken from the fifty analyses:

CASE I. Total quantity of mixed contents, 150 c. c.
Free hydrochloric acid, present.
Lactic acid, absent.
Butyric acid, absent.
Acetic acid, absent.
Albumin, slight trace. Acid albumin, albumoses or peptone, present.
Starch, absent, erethrodextrin, present.
Total acidity, 2.47 gm. per mille.
Total hydrochloric acid, 2.03 gm. per mille.
Total free hydrochloric acid, 1.37 gm. per mille.
Total combined hydrochloric acid, 0.66 gm. per mille.
Total organic acids, 0.35 gm. per mille.
Total acid salts, 0.11 gm. per mille.
Total quantity of filtrate, 105 c. c.
Total acidity (filtrate) 2.30 gm. per mille.
Total free hydrochloric acid, 1.37 gm. per mille.

⁷⁶ This low record of free HCl was found in one case (Case 17). The next lowest record was .1 gm. per mille. This Case 17 also gave the high combined acid record 1.49 gm. per mille, also the highest difference between contents and filtrate 1.33 gm. per mille. The total acidity and the qualitative results were normal. I have records of several pathological cases with a low free HCl like this case, which were relieved by administration of HCl. So low a record is not therefore always normal.

⁷⁷ Martius u. Luttke, Magensanre d. Menschen, loc. cit. See also on this subject Giegler u. Blas, Zeitschr. f. klin. Med., Bd. xx; and Ewald, Zeitschr. f. klin. Med., Bd. xx.

Total combined hydrochloric acid, 0.40 gm. per mille.
Total organic acids, 0.40 gm. per mille.
Total acid salts, 0.10 gm. per mille.
Period necessary to dissolve .005 gm. coagulated egg albumin in 25 c. c. of filtrate at 40° C., 2½ hours.

CASE II. Total quantity mixed contents, 205 c. c.
Free hydrochloric acid, present.
Lactic, butyric, acetic acid, absent.
Albumin, present.
Starch and erethrodextrin, absent. Achrodextrin, present.

Total acidity, 2.54 gm. per mille.
Total hydrochloric acid, 1.82 gm. per mille.
Total free hydrochloric acid, 1.15 gm. per mille.
Total combined hydrochloric acid, 0.67 gm. per mille.
Total organic acids, 0.45 gm. per mille.
Total acid salts, 0.27 gm. per mille.
Total quantity filtrate, 135 c. c.
Total acidity, 1.98 gm. per mille.
Total free hydrochloric acid, 1.20 gm. per mille.
Total combined hydrochloric acid, 0.22 gm. per mille.
Total organic acids, 0.37 gm. per mille.
Total acid salts, 0.19 gm. per mille.
Period of dissolution of egg albumin, 2¾ hours.

CASE III. Total quantity mixed contents, 55 c. c.
Free hydrochloric acid, present.
Lactic acid, absent. Lactic acid test obtained in this case by Uffleman test on crude filtrate also in ethereal extract of contents (Uffleman-Penzolt) but not by De Jong method.

Butyric and acetic acid, absent.
Albumin, present.
Starch, present.
Total acidity, 2.18 gm. per mille.
Total hydrochloric acid, 1.38 gm. per mille.
Total free hydrochloric acid, 1.06 gm. per mille.
Total combined hydrochloric acid, 0.32 gm. per mille.
Total organic acids, 0.64 gm. per mille.
Total acid salts, 0.16 gm. per mille.
Total quantity filtrate, 28 c. c.
Total acidity, 2.03 gm. per mille.
Total free hydrochloric acid, 0.95 gm. per mille.
Total combined hydrochloric acid, 0.32 gm. per mille.
Total organic acids, 0.60 gm. per mille.
Total acid salts, 0.16 gm. per mille.

CASE IV. Total quantity mixed contents, 128 c. c.
Free hydrochloric acid, present.
Lactic acid, butyric and acetic acid, absent.
Albumin, absent.
Starch and erethrodextrin, absent. Achrodextrin, present.

Total quantity filtrate contents, 50 c. c.
Total acidity, 1.72 gm. per mille.
Total hydrochloric acid, 1.31 gm. per mille.
Total free hydrochloric acid, 0.87 gm. per mille.
Total combined hydrochloric acid, 0.44 gm. per mille.
Total organic acids and acid salts, 0.41 gm. per mille.
Period of dissolution of egg albumin, 3½ hours.

CASE V. Total quantity mixed contents, 60 c. c.
Free hydrochloric acid, present.
Lactic acid, absent. Test obtained in crude filtrate with Uffleman's test but not in ethereal extract or De Jong test.

Albumin, present.
Erethrodextrin, present.
Total quantity filtrate, 35 c. c.
Total acidity, 2.16 gm. per mille.
Total hydrochloric acid, 1.61 gm. per mille.
Total free hydrochloric acid, 1.37 gm. per mille.
Total combined hydrochloric acid, 0.66 gm. per mille.
Total organic acids and acid salts, 0.55 gm. per mille.

CASE XVII. Total quantity mixed contents, 60 c. c.
Free hydrochloric acid, present.
Lactic, butyric and acetic acid, absent by all methods.
Albumin, present. Albumoses or peptones, present.

Achrodextrin, present.

Total acidity, 2.12 gm. per mille.

Total hydrochloric acid, 1.58 gm. per mille.

Total free hydrochloric acid, 0.09 gm. per mille.

Total combined hydrochloric acid, 1.49 gm. per mille.

Total organic acids and acid salts, 0.53 gm. per mille.

Total quantity filtrate contents, 25 c. c.

Total acidity, 0.79 gm. per mille.

Total free hydrochloric acid, 0.07 gm. per mille.

Total combined hydrochloric acid, 0.21 gm. per mille.

Total organic acids and acid salts, 0.51 gm. per mille.

A comparison of these results with those of other investigators shows a general agreement, except in regard to two conditions. These conditions are:

(1) The total quantity of gastric contents.

(2) The condition of the carbohydrate digestion in the stomach.

The total quantity of the gastric contents expressed one hour after the ingestion of an Ewald test breakfast from the normal stomach is placed by most writers on the subject of gastric disease as lying between 25 and 60 c. c. (Roseheim, 25 to 60 c. c.; Leo, 25 to 60 c. c.; Hammerschlag, 30 to 40 c. c.).⁷⁸

I have been unable to find any report of any definite sets of observations to serve as a basis for this generally accepted statement. The results are undoubtedly taken from the large number of cases these observers have examined in clinical work.

These writers say further, that a quantity of expressed contents of over 100 c. c. in a given case is suggestive of some affection of the motility of the stomach or of stenosis of the pylorus.

Boas states in his text-book that the total quantity of the filtrate upon the contents obtained one hour after the Ewald breakfast averages 40 c. c. in the normal stomach. The normal limits of variation he places as 15 c. c. each way.⁷⁹

He gives as the bases of his statement the results of the investigation of eight cases.

The results in the fifty cases which I have investigated are as follows:

The total quantity of the mixed contents expressed one hour after the Ewald test breakfast averaged 110 c. c.

The minimum amount was 35 c. c.

The maximum amount was 205 c. c.

Twenty-five cases showed a quantity of over 100 c. c.⁸⁰

The total quantity of the filtrate averaged 66 c. c.

The minimum was 20 c. c. The maximum, 140 c. c.

Eight cases showed a total filtrate of 100 c. c. or more.

These results differ considerably from those of Boas and from the statements of the other writers upon the subject.

They increase the limits of the normal variation and definitely contradict the conclusion that a total quantity, or even a total filtrate of the gastric contents of over 100 c. c. is indicative or suggestive of some pathological condition.

In regard to the condition of carbohydrate digestion in the normal stomach, the conclusion given by Ewald in his text-book is confirmed or acquiesced in, in practically all the text-books upon the subject.⁸¹ Ewald's conclusion is that in the filtrate of the gastric contents expressed one hour after the Ewald test breakfast from the normal stomach, the starch is all transformed to

achrodextrin. The presence of a blue color with the iodine-test (starch) or a purple color (erethrodextrin) he considers indicative of hyperacidity of the contents.

In the fifty cases which I investigated, starch was present in the filtrate in six cases, erethrodextrin in fifteen cases, achrodextrin in twenty-seven cases.

The evidence of these results warrants the conclusion that erethrodextrin or even starch may be present in the filtrate of the contents of the normal stomach one hour after the Ewald test breakfast.

In regard to the qualitative results for free hydrochloric and for organic acids all authors are in agreement.

In regard to the quantitative results there is practical agreement. Thus for total acidity we get the following set of figures:

TOTAL ACIDITY.		Per mille.
Ewald ⁸¹	. . . . .	1.30 to 2.40 gm.
Leo ⁷⁸	. . . . .	0.73 to 2.19
Friedenwald ⁸²	. . . . .	1.40 to 2.29
Hewes	. . . . .	1.50 to 3.00
FOR TOTAL FREE HYDROCHLORIC ACID.		
Mintz ⁸³	. . . . .	0.50 to 1.00
Friedenwald ⁸²	. . . . .	1.39 to 1.75
Hewes	. . . . .	0.10 to 1.90

For the test of digestive capacity with egg albumin Jaworski found that five milligrammes of coagulated egg albumin dissolved in 25 c. c. of filtrate of normal gastric contents in two to three hours at 40° C.

In considering these results in my cases two facts must be borne in mind: (1) that the results were obtained exclusively upon healthy young men; (2) that the individuals utilized were all accustomed to partake of a hearty American breakfast at the hour at which they took the test meal.

In what way and to what extent these facts have influenced the results, it is impossible to determine. It is probable, however, that results obtained from individuals of all ages and both sexes would differ somewhat from these.⁸⁴

These results were obtained upon individuals many of whom had never experienced the passing of the stomach tube. Some observers consider results obtained at the first passage of the tube as inaccurate, owing to the effect of the experience upon the nervous-control system of the patient. I have examined the contents obtained from these same individuals on subsequent occasions, in a considerable number of cases, and have found the general averages and limits the same.

When all is said, however, data of this kind can be used as control data in a general way only. For, as is well known in matters of physiological function, each individual is to a certain extent a law unto himself.

PERILS FROM ELECTRICITY. — A man was killed in Philadelphia last week by a shock of electricity while he was looking in a shop window. It was raining and he was holding an umbrella with a steel rod in it over his head. Above him was an electric arc light. The end of the umbrella rod touched the iron frame of the lamp and a current of electricity passed through his body to the iron covering of a coal shaft in the sidewalk, killing him instantly. A man was killed in a similar way on Eighth Avenue in New York about three years ago. — *Medical Record*.

⁷⁸ See references to Rosenheim, Leo, Hammerschlag, in last number of the Journal.

⁷⁹ Boas: Diagnostik, loc. cit.

⁸⁰ These high amounts were obtained two and three times in the same individual.

⁸¹ Ewald: Klinik d. Verdauungskrankheiten, 1891, s. 51.

⁸² Friedenwald: Medical News, June 22, 1895.

⁸³ Mintz: Wiener klin. Woch., Bd. xx, 1889, Bd. ix, 1891.

⁸⁴ Abstract in Boston Journal of Medical Sciences, No. 11, 1897.

A CASE OF CHOLECYSTITIS DUE TO THE TYPHOID BACILLUS.

BY MARK W. RICHARDSON, M.D., BOSTON,

From the Pathological Laboratory of the Massachusetts General Hospital.

ABOUT April 1, 1897, I had referred to me by Dr. Maurice H. Richardson two specimens for examination. The first consisted of about half a pint of dirty, brownish fluid, and the second was a swab soaked in that fluid for bacteriological investigation. The fluid had been evacuated from a gall-bladder which was the seat of a purulent inflammation, and which was distended by the impaction of a biliary calculus in the cystic duct.

I found the fluid to have the following characteristics: it was dirty-brown in color, cloudy and slightly viscid. The reaction was alkaline; the specific gravity 1.018; albumin one-half per cent.; bile reaction very faint. There was much reddish-white, granular sediment. Microscopically, the sediment showed much normal blood (operation?); many small, round, fatty-degenerated cells; considerable numbers of large, squamous epithelial cells; many bacilli in large clumps.

I next proceeded to the bacteriological examination of the swab above mentioned, sweeping it thoroughly over the surface of two blood-serum tubes. After twenty-four hours in the incubator each tube showed about half-a-dozen round, semi-transparent, whitish-gray, moist colonies of considerable size. Microscopically the growth was found to be made up of what was apparently a pure culture of a short, stout bacillus with rounded ends. The organism varied considerably in size; occurred most often alone, but sometimes grew out into chains of from three to six elements; in short, the bacillus belonged apparently to the colon group, and was very probably the colon bacillus itself. I was much surprised, however, when, after further cultivation upon differential media, the organism showed all the characteristics of the typhoid bacillus: (a) It was quite motile. (b) It produced no coagulation of litmus-milk, and only a very faint acid reaction. (c) It produced no gas when grown upon sugar-agar. (d) It showed no production of indol when grown in peptone solution. (e) It grew characteristically, without liquefaction, upon gelatin slant and stab cultures. (f) It showed no visible growth upon potato. (g) It did not grow at all upon solution No. 1 of Proskauer and Capaldi. Upon solution No. 2 of the same authors it produced a marked acid reaction. (h) It showed the specific reaction of Pfeiffer when treated with typhoid serum.

The discovery of the typhoid organism in the purulent exudate added much to my interest in the case, and led me to inquire more carefully into the previous history. Dr. Chandler, of Townsend, Mass., the attending physician, gave me the following account of the case:

Five weeks previous to operation the patient, Mrs. P., an elderly lady, first came under observation with symptoms of an acute cystitis. This condition improved much after a week of appropriate treatment.

Four weeks before operation the temperature and pulse began to rise steadily. There was also nausea with considerable pain and tenderness in the right iliac region. The patient had a typhoidal look. The case was thought to be possibly one of appendicitis, and

the patient was seen by Dr. M. H. Richardson,* who advised waiting.

Two weeks before operation the temperature was still elevated. There was some pain in the right chest, and considerable cough with rusty sputum. No enlargement of the spleen was noted, and no rose-spots were seen. At this time a firm, rounded tumor was first made out below the ribs on the right side, and at about the level of the anterior superior spine of the ilium. The mass was very tender and painful. Examination under ether by Dr. Chandler, of Townsend, and Dr. Stimson, of Fitchburg, showed that the tumor was quite movable, and apparently extended through to the back. A probable diagnosis of pyo- or hydro-nephrosis was made. Urine was said to be negative.

One week before operation the temperature had dropped to about 100°, but the tumor had become much larger, with considerable increase in pain and tenderness.

At the time of operation no positive diagnosis was made, but the lesion was thought to be a pyo-nephrosis or an acute cholecystitis. A short incision in the back, however, showed the right kidney to be normal. An oblique cut was then made in front over the gall-bladder, which was found excessively distended. The gall-bladder was first aspirated, then freely incised. Impacted in the cystic duct, and removed with great difficulty, was an elongated, cylindrical gall-stone with a smooth surface and rounded ends.

Since the operation the progress of the patient has been satisfactory. The opening into the gall-bladder is gradually closing in, and there has been great increase in weight and strength.

A week after the operation, at my request, Dr. Chandler sent me a specimen of the patient's blood (dried on paper), and a small portion of a stool. I could obtain no typhoid serum-reaction with the blood, however, nor did bacteriological cultivation from the stool by the Capaldi method show any typhoid bacilli. In connection with this attempt it is interesting to note, nevertheless, that, although the dried blood caused no clumping of typhoid bacilli, the fluid from the gall-bladder, when filtered and added, in proper proportion, to an independent typhoid culture, caused a well-marked reaction. Indeed, if we look once more at the sediment of the inflammatory exudate, I think we must regard the large clumps of bacilli which we find there, as evidence of a gigantic serum-reaction which has taken place spontaneously in the gall-bladder.

From all the evidence obtainable in this case it seems clear that there was a typhoidal infection of the gall-bladder associated with the presence of a gall-stone in the cystic duct. Was this infection primary or secondary?

A primary infection of the gall-bladder by the typhoid bacillus has, as far as I know, never been described. *A priori*, it is perfectly possible to imagine such a localized infection, but in the absence of post-mortem evidence, such a supposition can have but little value.

On the other hand, a cholecystitis as a sequel to typhoid fever, as has been exhaustively shown by Dr. A. L. Mason¹ is of quite frequent occurrence, and it is in this latter category that I would place the present case. For, as it seems to me, the history—four to five weeks of continued fever, abdominal pain and tenderness, typhoidal aspect, bronchitis—suggests

¹ Boston Medical and Surgical Journal, May 13, 1897.

distinctly a previous typhoidal invasion of the intestinal tract. Nor would the fact that the blood, one week after the beginning of convalescence, gave no typhoid reaction deter me from such a conclusion. For, as is well known, the blood-conditions necessary for the serum-reaction may be present upon one day and absent the next, or they may entirely disappear with or even before the fever, so that the value of a single negative result is not great.

As we look over the increasing literature upon the subject of cholecystitis as a sequel to typhoid fever, I think we cannot fail to be impressed with its great importance. Especially striking are the observations of Chiari, who found typhoid bacilli in the gall-bladders of 19 out of 22 typhoid cadavers. Moreover, out of these 19 positive cases 13 showed a condition of actual inflammation.

We see, therefore, that, in typhoid fever, the bile, far from being antagonistic to the growth of the typhoid bacillus, actually becomes a medium in which it reproduces itself rapidly. Furthermore, that the bacilli may persist for considerable lengths of time in the gall-bladder is shown by the case of Gilbert and Girode, and that of Dupré (quoted by Mason, loc. cit.), in which cholecystotomy five and six months after typhoid fever showed pure cultures of the typhoid bacillus.

At the Massachusetts General Hospital during the last nine months ² cultures from the gall-bladder were made at three autopsies of typhoid patients, and in every case typhoid bacilli were demonstrated. Two of these cases were uncomplicated typhoids. The third was unusual in that it was combined with a general tuberculosis. This patient was admitted to the hospital November 2, 1896, and passed through what was apparently a typhoid fever lasting from three to four weeks. During this time a suspicious patch of consolidation was detected in one lung, but examination of the sputum failed to reveal any tubercle bacilli. At the end of four weeks, when convalescence was apparently about to begin, irregular fever with cough, persistent vomiting and rapid emaciation set in, and death followed in six weeks. At the autopsy the following pathological conditions were found: chronic tuberculosis of the lungs, with cavity formation; chronic miliary tuberculosis of the liver, spleen and kidneys; chronic tubercular salpingitis, with localized abscess formation and circumscribed peritonitis; ulceration of the ileum, partly tubercular and partly typhoidal; tuberculosis of the mesenteric, retro-peritoneal, and bronchial lymph glands, etc. Typhoid bacilli were found in the bile, liver, kidney, and the pus of the pelvic abscess.

I could find no record as to the presence of a typhoid serum-reaction during the life of the patient, but a specimen of blood obtained at the autopsy, added to a typhoid culture, gave a well-marked positive result.

This case, therefore, not only illustrates the power of the typhoid bacillus to grow in the gall-bladder and to persist there for several weeks after the end of the proper typhoidal infection, but also demonstrates the possibility of a simultaneous double infection of the intestine with the bacilli of typhoid fever and tuberculosis. A very similar case has been reported recently by Guinon and Meunier.³

In the light of what has been said I think the possibility of a complicating cholecystitis should be borne strongly in mind in the later stages of any case of typhoid fever.

Given such an inflammation of the gall-bladder, and having failed to relieve the condition by medical methods, we should avoid the dangers of rupture or perforation by early resort to surgical interference.

RECORD OF TWO CASES OF BEGINNING PULMONARY TUBERCULOSIS TREATED WITH SUBCUTANEOUS INJECTIONS OF KOCH'S TUBERCULIN T. R.¹

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

THROUGH the courtesy of Mr. Humes Hall, the Boston representative of John T. Milliken & Co., manufacturing chemists of St. Louis, Mo., I was enabled to give the injection of Koch's Tuberculin T. R. prepared by them in their laboratory to the following two cases of early pulmonary tuberculosis. The solutions were freshly prepared for each injection according to the printed directions. The injection was invariably given between or below the scapulae. Each injection was given with an ordinary subcutaneous syringe after the first few trials of the antitoxin syringe of Williams. This necessitated filling the barrel of the syringe three times for each injection on an average, and the introduction of the needle into a new place each time.

There was no abscess produced in the eighty or more punctures which were made during the treatment of the cases. The only complaint was of a slight soreness in one case in the neighborhood of the injections on about the sixth day of treatment. The injections were also made in three other cases, but as these cases were not suitable to the treatment, from too advanced a stage of the tuberculous process, they have not been included in this report. No constitutional symptoms were observed after the injections in these two cases, nor did the temperature more than once rise as much as one degree Fahrenheit above its usual course. As a rule, the cough and local signs progressively diminished, the amount of the expectoration lessened, and the patient felt progressively better in all the cases in which I have used the Tuberculin T. R., though in the unfit cases (too advanced a stage of disease) emaciation and an extension of the disease kept steadily on.

Professor Koch states that only cases of beginning tuberculosis should be treated with Tuberculin T. R.; that the initial injection should not exceed one five-hundredth of a milligramme; that the temperature should be watched carefully; and that no reaction fever of more than one-half a degree Centigrade should be allowed. If the fever due to the injection is more, the dose should be lessened; otherwise, every other day an injection may be given and the dose doubled each time till one has given fourteen injections or a final dose of sixteen milligrammes. It sometimes happens that more than the usual number of injections is required, or they may have to be made less often or smaller in amount each time. In order that a proper oversight of the patient may be insured and a careful record of the temperature taken it is necessary that the patient should be either treated in a hospital or have the ser-

² I am indebted to Drs. Fitz and Wright, of the Massachusetts General Hospital, for permission to publish these cases.

³ Rev. Mens. des Mal. de l'Enfance, April, 1897.

¹ Read before the Suffolk District Medical Society, October 30, 1897.

vices of a trained nurse at home during the entire time of the treatment.

CASE I. J. A. W., teamster, aged seventeen, born in Nova Scotia, residing in Roxbury, entered the Massachusetts General Hospital August 9, 1897.

The family history was unimportant. His personal history embraced an attack of measles and whooping-cough in childhood, and an occasional cough since on catching cold, which was speedily recovered from. He used no tobacco nor alcoholic drinks, but took five cups of tea a day.

His present illness began on the fourth instant, when he got wet while at work, and had a cough accompanied by bloody expectoration, which still continued. There was no pain on taking a long breath, no chill, no stitch in the side. He admitted that he had been ill for a month or more, with loss of appetite, slight cough, and felt pretty "seedy," though he kept on working.

His temperature on entrance was 100.4° F., pulse 80, respiration 32. He was well developed, but thin. The pupils were equal and reacted to light. Tongue slightly coated. The heart was rapid in action, otherwise not abnormal. Abdomen showed nothing unusual. Deep and superficial reflexes normal. Lungs gave a few moist, medium fine râles over the left chest, more marked in the axillary region. An occasional râle on the right side. No change in the respiratory and voice sounds. Urine of normal color, acid, 1.032 specific gravity; no diazo reaction; no bile, sugar or albumin. The blood-count gave 9,800 whites. Hemoglobin, 102.5.

August 10th. Much cough in the afternoon and evening, with large amount of bright-red and some dark, bloody expectoration. Hospital cough mixture.

August 11th. Cough and expectoration somewhat diminished. More comfortable.

August 12th. Less expectoration, blood darker. More comfortable. Tubercle bacilli found in abundance in the expectoration, also pneumococci. Urine normal in color, acid, 1.026; chlorides normal; no diazo; no bile, sugar or albumin; sediment contained calcic oxalate crystals, a few blood globules, leucocytes and round epithelium cells.

August 15th. More hemorrhage in the early morning.

August 18th. Nucleinic acid five-per-cent. solution, ten minims, three times a day.

August 20th. Considerable hemorrhage last night and this morning. Nucleinic acid increased to twenty minims, three times a day.

August 22d. Considerable hemorrhage. Nucleinic acid increased to thirty minims *ter die*.

August 25th. As he had made no improvement, the nucleinic acid was omitted and $\frac{1}{500}$ mg. of Milliken's Tuberculin T. R. was injected subcutaneously, according to Koch's directions.

August 26th. There was no reaction from the Tuberculin T. R. injection. He rested quietly all day.

August 27th. Feels well.

August 28th. Injection of $\frac{2}{500}$ mg. Milliken's Tuberculin T. R.

August 29th. There has been a gradual improvement since the injection. Says he feels well.

August 30th. Injection of $\frac{3}{500}$ mg. Milliken's Tuberculin T. R. Sat up. There was a slight rise in temperature of about one degree to nearly 100° F. There was no disagreeable after-effect. Feels very well.

September 1st. Injection of $\frac{5}{500}$ mg., or a little less, as the syringe did not work well. The temperature reached 100° F. about six hours after injection, but the patient felt perfectly well.

September 3d. Injection of $\frac{16}{500}$ mg. Out doors in the yard. Feels much stronger. No rise in temperature from the injection.

September 5th. Injection of $\frac{32}{500}$ mg. Complained of pain in the region of injection. No swelling or visible change in the skin at this point.

September 6th. Has gained six pounds in weight during the past week and looks very much better. Aside from a simple cough mixture, has had only the injections.

September 7th. Tuberculin T. R. injection of $\frac{64}{500}$ mg., no reaction; September 9th, one of $\frac{128}{500}$ mg., no reaction, doing well; September 11th, $\frac{256}{500}$ mg., no reaction; omitted cough mixture; September 13th, 1 mg.; September 15th, 2 mg.; September 17th, 4 mg.; September 19th, 8 mg.

September 21st. Tuberculin T. R. injection of 16 mg., which was followed by a chill and rise of temperature to 99.5° F., though the patient was not bothered by it. The patient had been out in the yard daily for the greater part of the day since the 3d instant, and lately had visited his friends outside every day as well.

September 27th. Since the injection of Tuberculin T. R. was begun, the patient has steadily improved in every way and was discharged to-day "much relieved." There was no expectoration, no cough, and there had been no opportunity to get any sputum for examination for some days. There were no physical signs in the chest on discharge.

CASE II. E. B., student, aged twenty-four, single, born in Prince Edward's Island, living in Cambridge, entered the Massachusetts General Hospital, September 2, 1897, with an unimportant family history.

Habits. One cup of tea and one cup of coffee *per diem*, no alcoholic drinks.

Previous History. Measles, whooping-cough and scarlet fever as a child. A pulmonary hemorrhage last winter.

Present Illness. Twelve days ago pulmonary hemorrhage without cause. Since then eight or nine hemorrhages, the last one to-day.

Examination. Pulse 96, temperature 101.8° F., respiration 24. Well developed and nourished. Pupils react equally. Tongue slightly coated. Pulse of good volume, fair tension, not easily compressible. Lungs: on the left side, under the clavicle, a few moist râles are heard at the end of inspiration; slight dullness on the right side, but no râles. Heart apex in the fifth interspace inside mamillary line; no murmurs; aortic second sound not accentuated; pulmonary second sound accentuated. Abdomen not distended nor tympanitic. Liver not enlarged. Spleen not felt. Abdominal and patella reflexes normal. Urine of normal color, acid, 1.028; no albumin, bile, sugar or diazo reaction. Hemoglobin 100. Many tubercle bacilli found in sputum.

September 3d. Injection subcutaneously of $\frac{1}{500}$ mg. Milliken's Tuberculin T. R. No medicines otherwise.

September 4th. No hemorrhage. Resting very quietly all day. Mouth dry.

September 5th. No hemorrhage. Feels better. Injection of $\frac{2}{500}$ mg. Tuberculin T. R. which gave no reaction.

September 6th. No respiratory murmur on the

right side behind, above the angle of scapula. High pitched respiration in front on the same side as low as the third intercostal space and fine moist râles which disappear under examination.

September 7th. Injection of Tuberculin T. R. $\frac{3.0}{500}$ mg., no reaction. Many tubercle bacilli found in sputum.

September 9th. Injection of Tuberculin T. R. $\frac{3.0}{500}$ mg. Feels stronger. Still some expectoration. Slight cough.

September 11th. Much stronger. Injection of $\frac{3.0}{500}$ mg. Tuberculin T. R.; Bacilli not as numerous.

September 13th. Injection of $\frac{3.0}{500}$ mg. Tuberculin T. R. Improving all the time. Sat up.

September 15th. An injection of $\frac{12.0}{500}$ mg. Tuberculin T. R.; September 17th, one of $\frac{3.0}{500}$ mg.; September 19th, one of 1 mg. Much better. Has increased in weight markedly. Cough much less.

September 21st. Tubercle bacilli not so abundant. Injection of 2 mg. Tuberculin T. R.

September 23d. Injected 4 mg. Tuberculin T. R.; September 25th, 8 mg.; September 27th, 16 mg. Since the injection of Tuberculin T. R. was begun, the patient has steadily and uninterruptedly improved without other medication. He was discharged "much relieved" a few days after the last injection was made, with no cough, no expectoration and feeling well.

October 14th. Received a postal card from him, stating that he had gained six pounds in weight in the fifteen days he had been out of the hospital. He coughed scarcely at all, and "raised" absolutely nothing.

October 25th. Seen and examined. Had gained twelve pounds in weight since leaving the hospital. No cough, no expectoration. Feels perfectly well and looks splendidly. Careful physical examination of lungs was not made, as patient was in a hurry to go.

ALCOHOLIC STIMULATION IN CONTINUED FEVERS.¹

BY RICHARD C. CABOT, M.D.

WHAT are the indications for the use of alcoholic stimulants in such febrile diseases as typhoid, grippe, pneumonia or septicemia?

There are many who regard the existence of one of these febrile diseases as of itself a sufficient reason for giving alcoholic stimulants. For example, in Wood and Fitz's "Practice of Medicine," it is laid down that "Alcohol in some form should be used in every case of typhoid from the beginning, unless there be some very strong reason for refusing it, as where there is a distinct heredity towards drunkenness." Many who might not agree to this course in typhoid believe in using alcohol in every case of pneumonia, whatever its nature, and in all severe septic and pyemic processes, I should suppose that the majority of good practitioners in this vicinity would prescribe alcohol as a matter of routine. From this point of view the diagnosis once established, the exhibition of alcoholic stimulants is a matter of course.

On the other hand, there are in many modern textbooks signs of a reaction against this wholesale and routine use of stimulants. For instance, W. Gilman Thompson, in his new work on dietetics, says, "I am inclined to prescribe very much less alcohol than for-

merly"; and again, "The routine employment of alcohol in typhoid is to be deplored." Pepper, in the edition of 1894 of the "American Text-book of the Theory and Practice of Medicine," says, "Until recently, the symptoms of alcoholic over-action (in typhoid) were often mistaken for advancing debility, and regarded as an indication for still more free stimulation."

Of modern authorities I think Strümpell is the only one who distinctly disbelieves in the use of alcohol in any of the diseases above mentioned. Even in pneumonia he does not give alcohol except to patients who have become habituated to it before their illness. "We could never satisfy ourselves," he says, "of the often praised action of alcohol on the heart."

Between these two extremes—the routine use, and the absolute avoidance of alcohol in continued fevers—falls the practice of most of us. The usual opinion is that there are certain indications for the use of alcohol in such cases. What I want to bring out in this paper is that many of us are not as clear or as consistent as we ought to be as to just what we expect to gain by stimulation, and as to the reasons for its use in any particular case.

For example, I think that there is a fairly widespread impression among us that alcohol is itself directly inimical to the toxemia which forms the chief danger in acute infections.

Does this impression rest on any satisfactory experimental basis? I have never heard of any such. If it could be shown that the use of alcohol increases the germicidal power of the blood, or the power of the kidney to excrete toxins, or precipitates them in the stomach, we should have a satisfactory reason for giving stimulants, as, for instance, most surgeons now give them in septic cases. There would then be good reason for giving stimulants even if they did not improve the heart's action, the digestion or any other function of the organism. But, so far as I know, there is no experimental evidence that the ingestion of alcohol does increase the antitoxic or bactericidal power of the blood, and there is a certain amount of evidence that so far from increasing the ability of the kidneys to excrete toxic products, alcohol has just the reverse effect. We know that alcohol precipitates snake poison in the stomach where it is excreted, but I am aware of no such evidence as regards other toxins.

I have heard surgeons and others express a belief that it is no harm to stimulate a septic patient even to the point of making him drunk. As to the wisdom of this course the following experiments are relevant:

(1) In the *Comptes de la Société de Biologie* for 1895 (p. 51) Wurtz and Hudels report experiments on 14 rabbits and 7 guinea-pigs which were given enough alcohol to make them drunk, and then killed, and their blood examined for bacteria. Over one-half the cases showed the presence in their blood of streptococci, colon bacilli, proteus vulgaris and various anaerobic organisms.

The control animals, to whom the same dose of alcohol had been given, recovered from its effects, showing that the inroad of bacteria in the autopsied cases was not due to any moribund condition from a lethal dose. They were simply drunk and not dangerously poisoned.

If large quantities of alcohol make bacteria enter the blood in animals, why may it not have a similar effect in sick men? Are we likely, then, to benefit a septic patient by making him drunk?

¹ Read before the Suffolk District Medical Society, October 30, 1897.

(2) Again, take the question of the excretion of toxins by the kidney. It is well known that in most acute infectious diseases, where the patient is doing well, the urinary toxicity is greatly increased, and this is taken to show that the kidneys are aiding in the fight against the disease by excreting the poisons produced by the infectious agent. Kellogg found that the use of alcohol, so far from increasing the urinary toxicity, greatly decreased it. I do not vouch for these results, but offer them for what they are worth. There is no doubt that cold bathing in typhoid does increase the urinary toxicity, as has been shown by Roque and Weill.

Apart from the question of the action of alcohol as an antitoxic or bactericidal agent, the following indications for using it in continued fevers are stated in most text-books:

(1) Persons long addicted to its use should not be deprived of it in febrile diseases. On this point there seems to be no disagreement.

(2) It may be the only form of food which the patient can and will take.

(3) Sudden collapse or great prostration from any cause is generally agreed to call for stimulation.

As to these three indications I think most physicians would agree. But the great majority of writers go further and recommend that—

(4) Any serious complication, such as hemorrhage or perforation in typhoid, severe nervous symptoms like delirium—in fact, anything that shows an especially severe case—should be considered an indication for stimulation.

(5) Persons over forty years of age and persons of feeble constitution are believed by most writers to need stimulation in case they catch any severe infectious disease, like typhoid or pneumonia.

On the other hand, Ringer's views on the use of alcoholic stimulants are copied into many text-books, and they conflict with the belief that a severe or complicated case or one occurring in a feeble person should always be treated with stimulants. Ringer says in substance: "If after the use of alcohol we see the pulse become slower, the skin and tongue moister, sleep better, nervous symptoms less marked, breathing less hurried, food better taken—the alcohol is doing good. *Not otherwise.*"

Now, if this be true, we cannot say that severe or debilitated cases need stimulation, but only that they may need it, or that they need it in case it turns out to do them good. Now, this is where I think many of us err. We do not watch the action of alcohol as we do that of other drugs which may do harm. We often give it as we might give malt, and not as we give digitalis or calomel. When we give a diaphoretic or a purgative, we look for its definite action; if we do not get it after a sufficient dose, we do not continue the drug. But I have repeatedly seen alcohol given whether any good effects appeared or not, with a general idea that it must be doing good since it is a food and a stimulant. But in many cases it does not act as a stimulant—in any dose; does not slow the pulse, moisten the tongue or decrease restlessness and delirium; and other food is so well taken that it is not needed as a food, yet we go on using it under a vague impression that it helps the patient to fight his disease, makes him feel better perhaps, and at any rate cannot do any harm. I want to enter a protest against such treatment, which I see constantly administered in our hospitals and else-

where. I believe with Pepper, that the symptoms of alcoholic poisoning are "often mistaken for advancing debility and regarded as an indication for still more free stimulation."

There is a pernicious idea which I have repeatedly heard advanced by prominent physicians, that if the smell of alcohol is not present on the breath, the amount of alcohol given must be doing good. But alcohol is not excreted solely by the lungs and its ill effects can be shown, as Ringer and others have pointed out, by other symptoms besides the smell of the breath.

In conclusion, it seems to me that what is most needed at the present time in order to improve our therapeutic use of alcohol is more experimental evidence on two points: (1) the effects of alcohol on the toxicity of the urine, and on the antitoxic and bactericidal power of the blood; (2) the effects of treating acute infectious diseases without alcohol.

I have often thought that therapeutic progress is seriously hindered by the fact that every case is given the best treatment known. I cannot account for the long persistence of the bleeding treatment except by supposing that since every patient was given the best treatment known, namely bleeding, physicians had no chance to see how the disease would do without the treatment. Similarly, at the present day, so few of us have ever seen a severe case of sepsis or pneumonia treated without alcohol that it is very possible that some of us may attribute to the disease (as Pepper says) symptoms really due to the treatment. I have often been struck with the close resemblance between delirium tremens and some of the symptoms of severe febrile cases treated with the best known alcoholic stimulation.

In 1864 A. L. Loomis treated 600 cases of typhus fever without alcoholic stimulants as an experiment. His mortality record was six per cent.; the previous record in the same epidemic in cases treated *with* stimulants was 22 per cent.

N. S. Davis claims to have treated 1,000 cases of typhoid fever without alcoholic stimulation, with a mortality of five per cent.

Kellogg, of Battle Creek, states that he has treated 82 cases of pneumonia without alcohol, with a mortality of 4.9 per cent.

Now, I am aware that statistics can lie, and I am not prepared to say, as Strümpell does, that we should give up alcoholic stimulation in fevers; but I do think that we need a broader experimental basis for our practice of and use of stimulants simply because the case appears very severe.

CONCLUSIONS.

(1) Alcohol, like other drugs, should be given to accomplish a definite therapeutic result, and if no signs of that result appear, the drug should be withdrawn.

(2) Experimental evidence is much needed:

(a) As to the effects of alcohol on the toxicity of the urine and the bactericidal power of the blood; (b) as to the result of treating acute febrile diseases without alcohol.

WOMEN SUE DRUGGISTS.—Two cases are now being heard in Brooklyn, N. Y., in each of which a woman is suing a druggist for \$5,000 and \$10,000 damages, respectively, for prescribing medicine which she alleges caused permanent injuries and impairment of health. — *Medical News.*

PNEUMONIA, TREATED BY HEAT OVER THE SPINE AND BY THE INHALATION OF PURE OXYGEN.

BY BEVERLY OLIVER KINNEAR, M.D., NEW YORK.

PNEUMONIA is a very fatal disease in old people, in broken-down constitutions from any cause, and also frequently in unusually strong people, from the very vigor of their circulation; a congestion of the active form in such cases often covering a larger area of lung and extending more rapidly unless promptly checked. Whether the germ theory of pneumonia be correct or whether it is not will not be discussed in this paper; but the disease as an inflammation, caused by abnormal conditions of the circulation, will be presented, and some reference made to the central nervous system and its agency in the generation of inflammatory troubles.

The treatment of pneumonia in the congestive stage, and that of red hepatization, by heat over the dorsal sympathetic ganglia is but little known as yet to the profession, though it has been occasionally brought to their notice during the past thirty years; while the proper use of properly combined oxygen given by inhalation, or by the rectum if necessary, will undoubtedly be the means of saving many lives which without it would certainly die. It is our object to demonstrate what heat so used will accomplish in this disease in its early stages, and give evidence of the soothing, supporting and life-restoring power of properly combined and prepared oxygen.

Pneumonia may be broadly divided into acute and chronic. The clinical course of the acute form is that of chilliness or rigor, followed by vomiting and sometimes convulsions, the last especially in children or epileptics.

The rise of temperature is exceedingly rapid in pneumonia, with crimson cheeks, and a pungency of the skin not noted in other inflammatory disorders.

There is no perceptible dyspnea, yet the rate of respiration is extraordinarily rapid. There may or may not be the rusty sputa with the cough; the nostrils dilate during inspiration, and the lips are of a slightly purplish color, due to insufficient aëration of the blood, and normal oxidation of the tissues.

Early and even violent delirium is common in extended pneumonic trouble, especially in neurotic subjects. There is pain in the majority of cases, and the usual pains, headache and loss of appetite common to all febrile complaints.

The physical signs in this early stage show restricted movement of the side affected, some increased vocal fremitus, and slight dulness over the affected part of the lung. There may or may not be crepitant râles in this congestive stage.

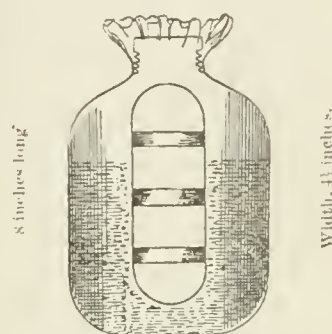
All of these signs are intensified in the stage of red hepatization. The right lower lobe is most frequently attacked, and usually only a portion of the lung is implicated; but it is apt to spread to other parts with great rapidity unless promptly checked. The physical signs and the clinical course denote both congestion and exudation into the air-cells, and infundibula.

The post-mortem appearances corroborate the physician's observation and examination. In the first stage, the lung is found massive, weighty and of a brownish-red color. Under the microscope the most manifest departure from health is observed in the dilated and twisted state of the arterioles of the alveolar walls, with minute points of extravasation beneath the

pleura, and in the connective tissue between the lobules. In the stage of red hepatization the lung is more solid and the infundibula and air cells are found full of inflammatory exudation.

Thus these three methods of investigation, two before and one after death, testify to the true conditions within the lung, or lungs, which constitutes a developing and developed pneumonia. From the testimony of these two or three important witnesses conjoined, it appears to the writer that the most efficient treatment in this early stage is to contract the arterioles in the inflamed area, as well as throughout the upper body, because from post-mortem appearances we know that in cases of pneumonia where much of the lung is involved there is also found effusion upon the pleural surface, pericarditis, and even the upper part of the peritoneum may be found covered with lymph; while delirium and cerebral meningitis may ensue.

How then may we successfully accomplish this much to be desired end?



We have found that very rapid and satisfactory results can be obtained by applying the spinal hot-water bag, or its equivalent in heat and moisture over the dorsal sympathetic ganglia. By the application of heat over these knots of nervous tissue in this region, we have over and over again, during the past sixteen years, subdued nearly all the acute forms of inflammation affecting the respiratory apparatus.

The accompanying cut gives a good idea of the double columned hot-water bag and illustrates the method of its application. Two rolls of flannel may be applied (being first dipped in water no hotter than 120° F.) instead of the hot-water bag; the space of one inch should be left between the rolls, so that the heat will not cover the spinal vertebrae direct. One yard of flannel, eight inches wide, rolled evenly from each end toward the centre until the space of one inch remains between the rolls, may then be sewed so that they will not unroll. They will answer if the hot-water bag is not at hand, and may be made the means of saving many lives in the earlier stages of all inflammations of the respiratory passages. They should be wrung out after dipping in water at 120° F., and then quickly applied between the shoulders, covered with a thick dry towel, and the patient told to press against them. The application when flannel is used should be changed every twenty minutes, until decided relief is obtained to the breathing, the pain, the flush of the face and the bounding pulse (which if reduced in speed and volume will at once lower the temperature). It may then be removed until there are signs of a renewal of the symptoms, when it can be reapplied, and will be found at once to check them. The hot-water bag used

in this way in active congestions and early inflammations will always reduce the temperature and the pulse, and excite the sweat glands to action, thus giving relief to the symptoms; evidencing also by auscultation a speedy progress toward recovery, and therefore a return to normal of the calibre of the pulmonary capillaries in the stage of congestion—and in the condition of red hepatization, a rapid resolution or reabsorption of the inflammatory exudation.

In bronchitis, in pneumonia alone, or accompanied by pleurisy, in acute laryngitis, and in the frequent pleurisy of phthisis, we have quickly controlled the inflammation by this means.

In some people we have found great prostration follow the rapid reversal of the inflammatory process in respiratory diseases; and we believe it to be due to some extent to the shock to the nervous system, both of the attack and also that caused by the sudden restorative change. In the past we have often wished that we possessed some agent which would improve nutrition, stimulate the nerve centres, and aid restoration of normal inspiration by rapid oxidation of the blood and the tissues, while conquering the inflammation by the hot-water bag.

We rejoice to say that such an agent has been found in the inhalation of pure oxygen properly diluted by combination with a gas of lighter specific gravity than oxygen. Pure oxygen when used alone is too dense in its specific gravity to be absorbed by the capillaries, being also too powerful an oxidizing agent, and very irritating to the mucous membranes, especially in sub-acute forms of inflammation.

The gas which has been found best suited to dilute the oxygen is nitrous monoxide, and the formula used by the London Oxygen Hospital is considered the best by all leading writers upon oxygen. It is pure oxygen, two parts; one part of nitrous monoxide, and a small equivalent of ozone added to keep the oxygen fresh. This employment of ozone does away with any objection which might be made to gas compressed in cylinders, as it prevents rapid deterioration.

We cannot speak too emphatically upon the proper formula and the quality of the gas, because only by strict attention to both can we ameliorate and subdue diseased conditions.

Oxygen as a therapeutic agent is but little understood by the medical profession; and it is a very serious error to suppose that the ordinary commercial oxygen manufactured by calcium-light makers is a proper agent to be employed for therapeutic purposes. It is completely saturated with chlorine and other deleterious gases, which, being exceedingly poisonous, are most injurious to the patient. Obtain, therefore, the very best quality. We obtain our gas from Dr. Walton's Laboratory in New York, where the London formula, or any other, may be obtained that in the judgment of the physician may seem best suited to the case. We believe that all prominent druggists in the United States have Walton's gas.

In regard to the inhalation of oxygen in pneumonia we recommend its administration in the early stages, every two or three hours. In pneumonia the nose cannot be held, and the gas inhaled through the mouth, therefore it should be inhaled through the mouth or nose in a perfectly natural manner, taking long and deep breaths for a period of thirty seconds; then wait one minute and apply for another thirty seconds, until this has been done three times. In the advanced

stage of pneumonia administer every half an hour or continuously in very severe cases, as in the case reported by Dr. A. N. Blodgett in the *Boston Medical and Surgical Journal* of November 20, 1890. He has minutely detailed the results in an admirable manner.

The bounding pulse of pneumonia, the tendency to delirium and meningitis, as well as the accompanying tendency to inflammatory exudation upon the surface of the pleura, the pericardium and the upper portion of the peritoneum, all denote a great dilatation of the arteries of the whole upper body, and evidence that the most effective treatment, is, as rapidly as possible to contract the arterioles in this region to their normal calibre, and renew to every tissue of the whole organism that necessary oxygen which is being withheld just so long as this widespread congestion is allowed to remain.

In chronic pneumonia, we believe that the use of the spinal hot-water bag may be made, by judicious application, a power to gradually overcome the diseased processes, especially if combined with the inhalation of oxygen properly prepared for therapeutic administration.

The offensive odor of the breath and of the sputa in chronic forms of pneumonia may be best overcome by the inhalation of oxygen, for it is perfectly antiseptic in its properties, as well as an agent which will improve the general nutrition.

In the year 1881, when practising in Boston, we were called to a young girl suffering from an attack of pneumonia of the lower lobe of the right lung, and well-marked pleurisy of the same region. The temperature was 104° F.; the patient showed typhoid symptoms; and unless speedy relief was obtained, only a very unfavorable prognosis could be given. The patient had been much overworked for some time before contracting the attack, and the second stage of the disease had already been reached before our arrival.

We at once applied the spinal hot-water bag, filled with water at 115° F., over the dorsal sympathetic ganglia. The relief to the dyspnea, pain, and a tendency to confusion of thought was almost immediate; and the patient fell asleep, waking in two hours covered by a profuse perspiration, and the temperature reduced three degrees. In twelve hours the temperature had fallen to the normal, the bag having been applied for one hour every three hours, except the first application, which was longer.

The bag was then continued three times a day for two days, when all recurrence of temperature rise having ceased, it was stopped, and only a double thickness of flannel placed over the region covered by the bag. This we advised the patient to wear for some weeks, in order to strengthen the weakened sympathetic ganglia. The patient was practically convalescent in twelve hours after treatment began, but the great trouble we had was in restoring the general strength; and we are now convinced that if we had possessed one or two cylinders of properly combined and prepared oxygen, and given it by inhalation, the patient would have much more rapidly recovered her vigor.

From a very instructive and interesting article published by Dr. J. N. DeHart in the *Maryland Medical Journal* of August 31, 1895, we cull the following remarks. The article is entitled, "The Therapeutic

Value of Oxygen in Pneumonia, Bronchitis, Anemia and Chronic Diseases." He says:

"In pneumonia it relieves the patient by overcoming the cyanosis, and furnishing a fresh supply of oxygen to the blood.

"In a case of double pneumonia, occurring in a woman thirty years of age, the gas was not prescribed until the fifth day, and the cyanosis was very marked.

"Temperature 106°, pulse 170, respiration 65. After the inhalation of five gallons of the gas, the patient was much relieved. The temperature was reduced to 104°, pulse 140, respiration to 45, and the countenance resumed its normal appearance. The inhalations were continued every half-hour for seven hours, and then once an hour for the following day; after that, resolution began in both lungs, and the gas was given every two hours for the following three days. It was given at frequent intervals for the following two weeks, until the patient was able to leave the bed."

He recommends the inhalation of oxygen combined with nitrous monoxide, and advises its use in the early stages as giving the best results; for, while many physicians have found much relief experienced in the later stages of the disease, the results then, although decidedly comforting and ameliorative, have not always been curative. He also says that a physician in Troy, N. Y., used the same combination of gases in treating thirty-five cases of pneumonia during the early stages of the disease, and that they all recovered. He also declares that it relieves promptly the most intense dyspnea, whatever its origin.

It appears to the writer, from his observation during the past sixteen years of the action of heat and cold over the spine (and their power in the former case to contract the arterioles, and in the latter to expand them and make more active the circulation and the general processes of nutrition), that the relief given by oxygen when inhaled in inflammations of the respiratory organs must be at least partly due to the fact, that by the stimulation induced in all the tissues of the body, and the generally bettered nutrition, the excess of the blood contained in the inflamed area must be withdrawn and the arterioles in the diseased tissues contracted, while the local excess of blood is carried off by the systemic arteries, the blood in which is now more completely oxygenated, to be distributed normally to all parts of the body and aid in strengthening the exhausted and previously insufficiently oxidized tissues.

This personal conviction is corroborated by the fact that only by the contraction of the arteries in the inflamed region, can the inflammatory process be subdued; therefore, when we find an agent lowering the temperature, reducing and calming the pulse, and diminishing the rapidity of the respiration, we know that there must be a reduction of the inflammation in the inflamed area, and therefore a contraction of the widely distended arterioles, in the region.

Heat applied between the shoulders, or over the dorsal sympathetic, with the prompt administration of oxygen properly combined and prepared for therapeutical purposes, will, especially in the early stages, we believe, quickly, rapidly and safely restore the diseased lung to its normal condition and the patient to health.

The administration of oxygen by means of a cylinder is very simple, as you have only to turn a stopcock off and on.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY.

JOHN DANE, M.D., SECRETARY.

REGULAR Meeting, Saturday evening, October 30, 1897, DR. FRANCIS H. BROWN presiding.

DR. RICHARD C. CABOT read a paper on

ALCOHOLIC STIMULATION IN CONTINUED FEVERS.¹

DR. JOHN L. HILDRETH described his

IMPRESSIONS OF THE INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.

DR. E. G. CUTLER read a

RECORD OF TWO CASES OF BEGINNING PULMONARY TUBERCULOSIS TREATED WITH SUBCUTANEGUS INJECTIONS OF KOCH'S TUBERCULIN T. R.²

DR. CUTLER said: Until I saw the Koch Tuberculin T. R., which was produced by John T. Milliken & Co., of St. Louis, a firm of manufacturing chemists, and placed at my disposal by their agent in Boston, Mr. Humes Hall, I had some hesitancy in making use of the substance, because I had seen that in T. R. which came from abroad they had found tubercle bacilli which could be stained and had got some cocci in the culture. I had a bottle from this house given to me by Mr. Hall and gave it to Dr. Wright of the Bacteriological Laboratory of the Massachusetts General Hospital, and he obtained cultures of cocci. They were very small in number, and so after making a few experiments with it I decided to use the article. It is certainly a very active agent. Two cases which I report came into the hospital. They were having pulmonary hemorrhages. Tubercle bacilli were discovered in numbers in each case. The temperature ran tolerably high, it was about 102°. After watching the temperature a time and trying other modes of treatment, I commenced the use of tuberculin residue of Koch, and gave to begin with the official dose, one five hundredth of a milligramme. Koch says that the patient shall be given a dose so small that there shall be relatively little reaction from it. He says a rise in temperature of more than one-half a degree of the Centigrade scale shall not be allowed, and he orders the injection to be given every third day, that is, skip one day, and that the injections, doubled each time, shall average about fourteen in number. I followed out this procedure closely and the patients got along uninterruptedly well. One, I believe, had a temperature after the third or fourth injection of 100°, that is to say an increase of one degree over the temperature he had had. He felt, however, perfectly well. At the last injection of that same patient he had a chill and a considerable rise of temperature, but felt perfectly well. The cases were uneventful except that they got better. The tubercle bacilli, which were found abundantly in the first instance, got less and less frequent and abundant. It was harder to demonstrate them, and the patients progressively increased in weight. One of them I got a letter from after he left the hospital. He said he had increased his weight something like six pounds the first ten days of treatment, and after that he increased still more rapidly, until finally he

¹ See page 573 of the Journal.

² See page 571 of the Journal.

wrote me he had gained as much as twelve pounds. On the twenty-fifth of October I saw him. He was perfectly well, and I found no physical signs, no expectoration. He did not have time to let me examine him carefully, and so I tried to get some expectoration, and found nothing but saliva.

I have here the charts of the two patients. The first one came in with a pretty high temperature and after the injections it progressively got lower. He finally went out with a perfectly normal temperature after a period of twenty-eight days. The bottles of tuberculin substance contain each a cubic centimetre, representing twenty-five five-hundredths of a milligramme. You begin with one five-hundredth, and the second injection is two five-hundredths, the third four five-hundredths, etc., doubling each time until you get sixteen milligrammes, at which time usually the patient is so much better that he does not need any more injections. There are cases, however, which require more.

I have here a postal card I received from the second patient, who writes as follows: "I have gained six pounds in weight since leaving the hospital. I weighed myself the 12th of October, fifteen days after leaving, and in estimating the gain was careful to weigh and deduct all extra clothing. I am scarcely ever troubled by coughing and raise absolutely nothing. I feel strong and well in every way." I saw him the 28th of October, as stated before, and he had gained twelve pounds since the last record which he sent me. He looked perfectly well, had no cough and felt well. I could find no physical signs.

I would say that at the same time I used the Tuberculin T. R. on these two beginning cases of tuberculosis I used it also on three others pretty far advanced, and I found it had the same effect on them in some respects that it had on the early cases, namely, that the cough and the expectoration diminished, that the physical signs in the initial cases got better and finally disappeared, but in the severe cases the disease went on and the patient emaciated although the physical signs improved somewhat. The progress of the disease apparently was not at all affected by it in advanced stages, which was what Professor Koch had led us to expect from his assertions.

On motion of DR. C. P. PUTNAM, seconded by DR. P. C. KNAPP, the President, Vice-president, Secretary, and such other persons as the President should at his leisure think it proper to appoint, were constituted a Committee on

CHARITABLE AND REFORMATORY INSTITUTIONS.

DR. E. H. BRADFORD read a paper entitled

A STUDY IN HUMAN GAIT,

which he illustrated with lantern slides.

DR. CUTLER: I would like to say a word on Dr. Cabot's paper. I think Dr. Cabot has presented the subject admirably. It has been of late years my custom to give relatively little alcoholic stimulation in the class of cases he mentioned. The custom which I have adopted was to give, as Dr. Cabot has said, the alcoholic liquors to those to whom their use was habitual before and to those who were taking an insufficient amount of food. The amount of stimulants which I have used of late years has been extremely small in my hospital practice, and it is seldom I use it outside except in elderly individuals.

Recent Literature.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Vol. XI, Diseases of the Nervous System. Vol. XII, Mental Diseases, Childhood and Old Age. New York: William Wood & Co. 1897.

The eleventh volume of this encyclopedia is devoted to Diseases of the Nervous System; a very important department of medicine, in which much work has been done and great advances have been made in recent years. The first half of the volume is devoted to the consideration of the Cerebro-Spinal and Sympathetic Nerves, by Dr. James Hendric Lloyd. The next article takes up the Trophoneuroses, excluding scleroderma, acromegaly, and adiposis dolorosa; this article is by Dr. Charles K. Mills. The three diseases excluded from the preceding are discussed in a separate article by Dr. F. X. Dercum. These three contributions are all of Philadelphia.

An article of 240 pages on Diseases of the Spinal Cord is from the pens of Drs. L. Bruns, of Hanover, and Dr. F. Windscheid, of Leipsic.

On *Tabes Dorsalis*, which we are accustomed to regard as a disease of the spinal cord, Dr. P. J. Möbius, of Leipsic, gives a contribution of nearly a hundred pages—no more than the importance of the subject demands.

The writer has been the reporter on *tabes* for *Schmidt's Jahrbücher der Gesamten Medicin* since 1879. In regard to syphilis as a cause, he goes, if anything, even farther than Erb, as appears from the following statements: "We know now that *tabes* is metasyphilis, that is, a sequel of syphilis. *Tabes* becomes more frequent in just the degree that syphilis extends. . . . Like *tabes*, general paralysis of the insane was late in being recognized, but becomes more frequent year by year. The two diseases, in my opinion, are essentially one—metasyphilis of the nervous system. . . . With our present knowledge it is proper to view syphilis as the *conditio sine qua non*, or as the primary cause in all cases of *tabes*."

The last article, on *Pain*, is written by Dr. Lightner Witmer, of Philadelphia.

Volume XII deals with Mental Diseases, Childhood and Old Age. Dr. Fielding Blandford, of Loudon, contributes the most important article, of 250 pages, to this volume, on *Insanity*. Dr. Paul Sollier, of Paris, writes on *Idiocy*. Cesare Lombroso, of Turin, has a comparatively short article on *Criminal Anthropology*. Dr. J. Boy Teissier, in charge of the *Hospice des Vieillards*, at Marseilles, writes about *Old Age*. Dr. Jules Comby, of Paris, treats of the Diseases of Children, including infectious diseases and rachitis, in a final article of 300 pages. This makes rather a motley collection of subjects to be bound between the same covers, but the separate articles in themselves are good.

Had Dr. Möbius written the chapter on "General Paralysis of the Insane" in Dr. Blandford's article on *Insanity* the statements in regard to etiology would certainly have been very different from what they are, and the conclusions would likewise have been different. Discordant statements and conclusions are inseparable

from composite authorship, which merely means that doctors sometimes disagree. To the student this is perplexing; the practitioner should have learned to make allowances for the point of view.

Diseases of the Ear, Nose, and Throat and their Accessory Cavities. A Condensed Text-book. By SETU SCOTT BISHOP, M.D., LL.D., Professor in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Illinois Charitable Eye and Ear Infirmary. Chicago, New York, Philadelphia: The F. A. Davis Co.

This is a book of about five hundred pages for the use of medical students and general practitioners. It is a convenient size for reference; that is, it is more convenient than a larger size would be, and it includes the ear, and nose and throat in one volume. Text-books of this size may be very useful and contain all that many men need, but their compilation requires much more than knowledge of the subject or experience in practice. Some subjects are treated at a length out of all proportion to their relative importance. After nearly thirty pages on hay fever, largely devoted to the question of the influence of uric acid, we find the subject of nasal mucous polypus dismissed in twenty lines. This insertion of lengthy discussion of certain subjects is explained in the preface as an endeavor to fill gaps in collateral literature; but it entirely destroys the proper balance of an introductory text-book. The illustrations are largely from Politzer, Sajous, and a catalogue of instruments; with a few photographs of patients.

Teachers differ so much in the kind of text-book which they want for their students that each additional one finds its place.

Karezza: Ethics of Marriage. By ALICE B. STOCKHAM, M.D. Chicago: Alice B. Stockham & Co.

It is very difficult and dangerous to say much about this little work. The theme itself is old, difficult and dangerous; it is that old theme which we may indicate by borrowing a simile used by the authoress in which she speaks of the still waters in which one may row at ease securely without fear, unless one wishes, of being carried through the rapids over the fall—the fall being pregnancy. And the danger and the difficulty are, moreover, increased by her peculiar method of treatment, which is a combination of physiological reasoning with spiritual exhortation. The latter is luminous, but the former is not lucid. We imagine the course inculcated to be based on two relatively modern physiological doctrines: inhibition and internal secretion. We say *imagine*, for in this little work all details are carefully avoided. Things are dimly hinted at by metaphor and simile; but one is led to believe that plainer statements are to be found in other works by the same authoress or by other authors, whose titles, like that of the volume in hand, are, philologically at least, distasteful. We have not felt called upon to pursue the research into these other volumes, partly through fear that they, too, would equally fail to be explicit, partly for other reasons, and therefore must leave our readers in the same undesirable state of mind as that in which we find ourselves.

DR. GEORGE T. KEMP has been appointed to the chair of physiology in the University of Illinois.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, DECEMBER 2, 1897.

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DEPARTMENT OF MENTAL DISEASES AT THE BOSTON DISPENSARY.

THE Boston Dispensary has lately enlarged its field of usefulness by the creation of a Department of Mental Diseases.

In a city the size of Boston there are naturally many cases of mental disease occurring among the poorer classes which escape recognition until so far advanced that hospital treatment becomes a necessity, or perhaps a tragedy takes place which leaves no longer room for doubt. It is a well-recognized fact that early treatment in mental diseases is as important as in any other class of diseases, and without doubt many hospital committals would be avoided if a diagnosis could be earlier arrived at.

The Boston Dispensary, with its immense number of patients seen both at the dispensary and in their homes, has within its reach a means of getting at the disease in its incipient stages, which should be of great utility if properly made use of. The new department will co-operate with the district physicians, and not only treat cases referred to it at the dispensary, but will also hold consultations with them in the patients' homes, and help clear up the diagnosis in obscure cases.

Patients with mental symptoms coming to any of the departments, as well as cases of alcoholism, epilepsy and so on, can be referred to this department.

It is believed that the department can be of considerable service to the dispensary physicians and the friends of patients by giving them information in regard to the necessary steps to commit patients to hospitals. Often suggestions to the latter may expedite committals and in some cases be the means of averting serious accidents. Only those who have had experience know how ignorant the poorer people are about insane hospitals, and how they delay and procrastinate when the time comes to take action.

It will be the earnest desire of the physicians of the new department to do what may be possible to bring

about a more clear and definite recognition of mental diseases before they become fully developed cases of insanity, and they will be glad to have any cases referred to them for observation and treatment.

Dr. Walter Channing has been appointed to take charge of the department, and he will have as an assistant Dr. Arthur C. Jelly. The department will open December 2d, and the hours will be from eleven to twelve, Mondays and Thursdays.

SEWER-GAS AND SEWER VENTILATION.

DR. WALFORD¹ addressed a circular to the Medical Officers of Health of English cities, and received replies from 45 upon the following points:

- (1) The method of ventilating sewers adopted.
- (2) Whether the method was approved by the Health Officer.
- (3) Whether complaints of nuisance from ventilators were numerous.
- (4) Whether there was reason to suppose that illness had been caused by the system adopted.

Out of the 45 towns, there were 18 in which the sewers were ventilated entirely by ventilators opening at the street level, and in eight of these the system was approved by the Health Officer. In seven there was a decided disapproval and in the remainder it was qualified.

In 24 towns ventilators at the street level were supplemented by pipes carried above the houses and in a few cases connected with factory chimneys. This system appears to be generally approved so far as the connection with chimneys is concerned.

Complaints of nuisance in cases of openings at the street level were "numerous" in 21 towns and "not numerous" in 16 towns. In some, complaints were confined to particular districts in hot weather.

In two towns sewers were ventilated by cast-iron pipes, 30 to 80 feet high and without street ventilators. Bristol was the only town in which the sewers were not ventilated at all, and this system was approved by the Health Officer and City Engineer who desired no change. There were only six affirmative replies to the question whether there was reason to attribute illness to the existing method of sewer ventilation. In 11 towns the Health Officer had some reason to suspect it. In 28 there was no reason to connect illness with the ventilation.

In summing up, Dr. Walford says: "After a careful consideration of the facts which I have been able to collect, I believe there is very little reliable evidence to show that the ordinary specific infectious diseases are caused by inhaling sewer-gas, and that usually where sewage is responsible for their causation, the mischief has arisen through swallowing either water or food which has become contaminated with sewage matters. . . . We find that whilst sewers,

and consequently sewer ventilators, have increased to a vast extent all over the country, these diseases have considerably diminished, and that this has been more particularly the case with typhoid fever, a disease which of all others has been most conclusively shown to be connected with poisoning by sewage matters."

MEDICAL NOTES.

NEW YORK.

THE BOARD OF HEALTH AND THE GENERAL PRACTITIONER. — At the November meeting of the Medical Society of the County of New York, at which the Committee on the Abuses of Medical Charity presented its supplementary report accompanied with the draft of a proposed new dispensary bill, the President-elect, Dr. Arthur M. Jacobus, delivered his inaugural address. In it he severely criticised some of the methods of the Board of Health, saying, in part: "As the spokesman for 2,500 reputable physicians of this city we condemn the free vaccination and the inspection and examination of school children for contagious diseases or defective vision, etc., regardless of the wealth of their parents or the rights of the family physician or other practitioner; we protest against the ever-increasing control, segregation and free treatment in public institutions and elsewhere of patients suffering from even ordinary infectious diseases which any physician of to-day is fully competent to quarantine and treat at home in most instances, and that, too, without the frequent officious visits and criticism of the department inspector or other employé." In the course of the address Dr. Jacobus recommended that the exact legal rights of the Health Board should be ascertained with a view to securing legislative relief of alleged abuses, and urged that the Society, in co-operation with other interested medical bodies, should use all possible influence to induce the Legislature to amend the law which excludes the members of the medical profession from the chief executive part of the Health Department. A committee was appointed to take into consideration the subjects referred to. The committee consisted of the following members: Drs. T. E. Satterthwaite, A. M. Hadden, A. Jacobi, H. G. Piffard and A. A. Smith. The Committee on Legislation was directed to attend the next session of the Board of Estimate to protest against the appropriation of public moneys for private charities.

A VERY LITTLE ONE. — There is at present in one of the incubators at the Lion Institute an infant (said to have been born at full term) which, on admission, weighed only 20¾ ounces. The matron in charge, who has had an immense experience with the mites of humanity at Paris, Lyons, Nice and other cities of France, states that the child is the smallest that she has ever met with. There are now at the Institute twelve incubator children, one of whom is the daughter of a prominent New York physician.

¹ Sewer Ventilation and its Bearings on Public Health, by Edward Walford, M.D., Cardiff, Wales, The Sanitary Record, July 30, 1897, p. 119.

SULPHUR-CHARGED GAS AT MOUNT VERNON.—The medical men of Mount Vernon, just beyond the northern limits of New York, and now a city of over twenty thousand inhabitants, had a very busy time of it on the night of November 19th, when the East Chester Gas Light Company pumped 270,000 cubic feet of sulphur-charged gas into the homes of the people. A very large number of persons were made ill by the poisonous gas, some of the cases being quite serious, but no loss of life resulted. The cause of the trouble was ascertained to be an accident in connection with the purifying process, by oxide of iron, at the gas works.

DEATH OF DR. JULIUS A. SKILTON.—Dr. Julius A. Skilton died suddenly at his home, in Brooklyn, on November 20th. He served with distinction as an army surgeon during the Civil War, and later acted as war correspondent of the *New York Herald* in Mexico. On one occasion he had a very narrow escape from death as a spy, but managed to reach the protection of a foreign vessel. He had much to do with the Emperor Maximilian, and after the latter's death exhumed the body and arranged for its transportation to Austria. After the cessation of hostilities he was medical officer of the escort which took President Juarez to Mexico and restored him to power. He was appointed Consul-General in the City of Mexico, by General Grant, and at the close of the latter's second presidential term engaged in mining and railroad enterprises in Mexico. He also made extensive archeological researches and discoveries, and his valuable collection is now in the museum of Yale University, of which he was a graduate.

Miscellany.

THE NEED OF MEDICAL EXAMINING BOARDS.

W. P. HAMAKER, M.D., of Meadville, Pa., a member of the Pennsylvania State Board of Medical Examiners, publishes in the *Pennsylvania Medical Journal* the following answers from the papers handed in at a recent examination by the board, as examples of the ignorance which it appears is not incompatible with the possession of the diploma of a medical school. All the authors of the following answers were the possessors of diplomas:

"Hydrogen gas is degenerated from the urea." "Cantharides is derived from the root of the plant." "Pix liquida is from the Pinus Somniferous group." "Cantharides is derived from the destructive distillation of the Spanish fly." "The malar bone articulates with the occipital bone." "Picrotoxin is an alkaloid of senna and rhubarb." "Sparteine and eserine are alkaloids of somnis papaverum." One said that "Sparteine was derived from Sparta," and another said it "was derived from Spartus." Another said "that vinegar was an antidote for mineral acid poisons," and another stated that "an infusion of Spanish fly was one of the official preparations." Another gave us the information that "the uriniferous tubules secrete the seminal fluid." Another said that "belladonna locks up all of the secretions except the urine and feces." Another stated, without additional matter of any kind,

that "the differential diagnosis between epilepsy and hysteria is that in epilepsy they fall on the stove and burn themselves, and in hysteria they don't." Turning to obstetrics, one man, in rigid os, "would decapitate or perform craniotomy or he would put on the forceps and deliver at once." Another, in performing version, "would put his finger in the child's mouth and bring the chin under the os pubis, and hold his hand over the mouth to prevent the liquor amnii from choking it." Another stated "that the endocardium is a mucous membrane which weighs two ounces, and is separated from the pleura by the pericardium." Another stated "that the function of the optic nerve is to contract the pupil and move the eyeball." A new diagnostic symptom was offered by another man whose paper stated "that in cerebral hemorrhage the patient may vomit the cerebro-spinal fluid!"

THE ETIOLOGY OF DUPUYTREN'S CONTRACTION OF THE PALMAR FASCIA.

"ONE of the most frequent characteristics of Dupuytren's contraction is the bilateral symmetry of the lesions," writes Féré in the *Revue de Chirurgie* for October 10, 1897. This symmetry is in favor of a constitutional condition as the cause, and relegates traumatism and external agencies in general to second place in etiological importance. The additional fact of importance is that the contraction often coexists with other conditions which indicate various trophic troubles. Rheumatism and herpetism often figure among the hereditary or personal antecedents of sufferers from Dupuytren's contraction. More rarely the contraction is found in diabetics. A relation between it and the other trophic lesions in diabetes is possible, as shown by the case of Dreyfus-Brisac, in which it coexisted with *mal perforans* in a diabetic. It is often found associated with gouty tophi, or other trophic lesions which are observed in the gouty.

Numerous authors, notably Kirby, Paget and Tuffier, have described in gouty and arthritic patients an induration of the fibrous tissue of the penis, and Verneuil has observed this in diabetics. This induration of the penis has been noted several times in sufferers from Dupuytren's contraction (Cameron, Poisier, Castillers, Delaborde), and has been well established by the observations of Jonathan Hutchinson, who has carefully described this induration of the dorsum of the penis, causing a curvature of the organ with a concavity downward, which makes erection painful and prevents coitus. Féré has found these conditions coexisting in one of the cases described in his article.

Dupuytren's contraction is also frequently found in sufferers from diseases of the nervous system; it has been noted in sufferers from locomotor ataxia and general paralysis. Féré has seen it in an hysterical patient, and reports in his paper two cases in epileptics.

As regard predisposing causes, traumatism probably is of considerable importance. Féré reports the case of a man coming of a gouty family who was attacked with acute contraction of the palmar fascia of the right hand following repeated pressure, and in whom a similar contraction appeared in the left hand, apparently without provocation. The predisposing effect of traumatism is apparently supported by the situation at which the disease begins. The contraction usually appears first at, and frequently remains limited to, the base of the ring and little fingers, a part which is much exposed to traumatism in laboring men.

Involvement of the base of the middle finger is not uncommon; but if one may judge by the reported cases, the base of the index finger is rarely affected, and the thumb very rarely indeed. Even in cases where the disease has extended to the radial region of the palm, the ulnar region is seen to have been chiefly and primarily involved; and this fact is also true of the rare cases in which the thumb is invaded.

ATTACK OF WITCH DOCTORS ON MEDICAL MISSIONARIES IN RHODESIA.

"THE *Edinburgh Evening Despatch* of Nov. 17th, gives an account of the attack of native witch doctors on Dr. and Mrs. Owen, of Zimunya, Rhodesia, where they had established themselves for medical missionary purposes.

"Zimunya is a lonely station, consisting of three huts and a tent on the summit of a high mountain in Mashonaland, about twenty-five miles from Umtali. Staying with them was a friend, the Rev. L. M. Caulfield, of Umtali, who fortunately had brought with him his collie dog. About four in the morning they were all roused by the barking of the dog, only to find the witch doctors making a fierce attack on the mission-house. Dr. Owen fired at the miscreants, but they made a hasty retreat, and unfortunately escaped. It was then found that the dog had been killed by the blow of an assegai. The Rev. Mr. Caulfield attributes the attack to the jealousy of the native witch doctors, who for many generations have attended the sick, and, it would seem, have been well paid for their services — sometimes, it is said, to the equivalent of £4 or £5 a case. They found their occupation gone and their reputation eclipsed by the enlightened treatment of Dr. Owen, for which no charge was made. It is inevitable that in Africa, as elsewhere, the witch doctor must be superseded by the educated physician, and we congratulate Dr. and Mrs. Owen on the happy ending of what might have been a serious disaster. We are not entirely without sympathy for the superseded local practitioners. They upheld the dignity of the art in one respect — they charged for their services, and it is open to them to say that their successful competitor owed his success rather to the fact that his advice was gratuitous while theirs was not. The missionary uses of medicine are most legitimate and beneficent, and in the case of the poor they must be applied without money and without price, but the more free from pauperizing abuse it is the better. If the natives can pay, as apparently was the case with many of the people there, they should be required to do so. In introducing the virtues of religion into barbarous countries we must try not to introduce its vices." — *The Lancet*.

THERAPEUTIC NOTES.

THE PREVENTION OF IODISM IN THE USE OF POTASSIUM IODIDE. — Spencer (*Journal de Médecine de Paris*) is credited with the following formula:

R Potass. iodidi	parts xxx.
Ammon. ferrocitratis	parts iv.
Tinct. nucis vomicæ	parts viij.
Aq. distillatæ	parts xxx.
Tinct. cinchonæ	q. s. ad. parts cxx.

M. Sig. A teaspoonful in half a glass of water, to be taken after each meal. The tincture of nux vomica and the ammonio-citrate of iron are said to check the tendency to coryza and at the same time to act as tonics.

QUININE MIXTURE. — The following (*Journal de Médecine de Paris*), is advantageous in irritable stomach when quinine is to be given:

R Quinine sulphâ	12 (gr. ii.)
Ac. citrici	36 (gr. vi.)
Syr. simplicis	035 (gr. ss.)
Syr. aurantii flor.	035 (gr. ss.)

This is to be placed in a wineglass containing bicarbonate of sodium (from three to five grains) in saturated solution and drunk during effervescence.

AN APPLICATION FOR URTICARIA. — Gaucher (cited in the *Gazette Hebdomadaire de Médecine et de Chirurgie* for July) recommends this:

R Mentholis	1 part.
Chloroformi	} aa 3 parts.
Etheris	
Spts. camphorin	

M. To be used as a spray or as a lotion. The part should then be dusted with powdered starch or zinc oxide.

ACUTE LOCALIZED PROSTATITIS (*Journal des Praticiens*):

R Iodoformi	} aa 03 (gr. ss.)
Ext. hyoseyami	
Olei theohromati	
	3 (gr. xlv.)

M. Sig. Use as a suppository.

COMPOUND TINCTURE FOR THE TREATMENT OF GOUT (Dr. V. Gayle, *Buffalo Medical and Surgical Journal*):

R Tinct. stramonii	4 (3 i.)
Tinct. colchici	6 (3 iss.)
Tinct. guaiaci	60 (3 ii.)

M. Three teaspoonfuls daily in milk.

TREATMENT OF SOFT CHANCRE BY SALICYLIC ACID OINTMENT (*Buffalo Medical and Surgical Journal*). — A Hungarian practitioner, Dr. E. Szánto, has come to the conclusion that, of all the means employed against soft chancre, salicylic acid is the best. He uses it in the form of an ointment as follows:

R Ac. salicylic	1 (gr. xv.)
Vaselin	30 (3 i.)
Tinct. benzoin	2 (3 ss.)

For external use.

PILLS FOR CONSTIPATION IN CHILDREN. — Prays (*Journal de Médecine de Paris*) is credited with the following:

R Extract of cascara sagrada	grains xxx.
Extract of frangula	grains xv.
Powdered aloes	grains lx.
Powdered gentian	each
Medicinal soap, q. s.	

M. Divide into eighty pills.

Sig. From one to four pills to be taken at bedtime.

Correspondence.

A DEPARTMENT OF PUBLIC HEALTH AND THE AMERICAN MEDICAL ASSOCIATION.

MILWAUKEE, November 27, 1897.

MR. EDITOR:—In a communication published in the November 25th issue of the JOURNAL, signed by H. W. Austin, M.D., there appears the following:

"In fact, the American Medical Association the year previous at the Atlanta meeting in adopting a report of its committee on a Department of Public Health, which report recommended that the committee be authorized to draft a bill which should be in accord with the recommendations of their report, expressed views which are entirely opposite to those embraced in the report of the committee at the last meeting recommending the proposed bill for a Department of Public Health."

As I had to do with the framing of each of these reports, and deeming it of considerable importance that the medical

profession should know the exact truth in regard to this matter, I respectfully submit herewith the two reports in their order:

REPORT OF THE COMMITTEE ON DEPARTMENT OF PUBLIC HEALTH AT ATLANTA.

Your Committee was appointed in 1891, with the object in view of securing the passage of a law creating a National Department of Public Health, with a Secretary of Public Health at the head of it, with a seat in the Cabinet of the President of the United States. The bill which was prepared for presentation to Congress was extremely crude and indefinite in its provisions, and gave this proposed high official very little important work to do. It was, indeed, found to be so defective, that last year the effort to have it enacted into a law was abandoned.

In the meantime the Marine-Hospital Service, which in 1890 had already been invested with some important health functions, was by the act of 1893 converted into a National Health Department with very large and far-reaching powers and abundant means. It is not called a Department of Public Health but it is a Department of Public Health in fact. Since 1893 until the effort was abandoned last year your Committee has been engaged in the hopeless and unwise enterprise of endeavoring to induce Congress to establish another Department of Public Health — a very weak and inconsiderable department by the side of a very powerful department. Such an effort could not succeed. Such an effort did not deserve to succeed.

It seems to us to be a fundamental proposition that we shall have but one National Department of Public Health. This being conceded, one of three courses remains open to us:

- (1) We may devise and advocate a plan to deprive the Marine-Hospital Service of its public-health functions, and for the establishment of an entirely new department; or
- (2) We may accept the Marine-Hospital Service just as it stands, as a department sufficient for our present use; or
- (3) We may endeavor to improve the Marine-Hospital Service and make it a more satisfactory health department than it now is.

It would seem that this last method promises to be the most fruitful of beneficent results, and the question then arises as to the modifications that may be wisely made in the existing law.

In arranging any scheme of national public health supervision it would seem advisable that nothing should be done to discredit and weaken the various State boards of health, but that, contrariwise, the effort should be to strengthen the State organizations and to foster and facilitate their further evolution. If this principle is conceded, it is at once made evident that the National Department of Public Health should act in and through the State boards of health, in co-operation and harmony with them, and not outside of them and independent of them. If the National Department acts within the States, independently of the State boards, and assumes the work that ought to devolve upon the State boards, then the State boards become comparatively useless institutions, and will fall into disfavor. Some of the State boards are still weak institutions, and any rivalry between them and the National Department in State work would doom them to speedy destruction. In this direction it would seem that additional legislation is needed, and the simplest plan to reach the desired reconciliation would embrace two provisions:

- (1) That the National Department should act with the States by and through and in co-operation with the State boards.
- (2) That the head of the National Department should call, annually, to meet in the city of Washington, an advisory council to be composed of one representative from every State board of health. This would bring about mutual understanding and co-operation and reciprocity of action, and would virtually constitute a great central school of public hygiene.

Such a scheme as this would probably command the approval and support of the National Conference of State Boards of Health, which Conference is quite as deeply interested in movements of this character as is the American Medical Association.

As the conclusion of the whole argument, we recommend that we be authorized to draw up a new bill along the lines we have indicated, and that we be authorized to invite the co-operation of the Conference of State Boards of Health and of the American Public Health Association in our endeavor to have the proposed bill enacted into a law.

All of which is respectfully submitted,
JEROME COCHRAN, M.D., *Chairman of Committee.*

It was moved that the report of the Committee be accepted, the plan outlined adopted, the Committee continued and enlarged by the appointment of a member from each State.

REPORT OF THE SPECIAL COMMITTEE ON THE DEPARTMENT OF PUBLIC HEALTH, PHILADELPHIA.

At the last meeting of the Association, held at Atlanta, Ga., your Committee on Department of Public Health, which was

appointed in 1891, with the object in view of securing the passage of an Act of Congress creating a National Department of Public Health, with a Secretary of Public Health in the Cabinet of the President of the United States, made a report of progress through its Chairman, the late and lamented Dr. Jerome Cochran. That report suggested that it was impossible to attempt to secure the passage of an act creating a cabinet officer, and recommended the drafting of a bill in which the powers of the Marine-Hospital Service, which was already a department of public health with important public-health functions under the existing laws, be enlarged, and that such a department should be so created as to require co-operation with the various State and Territorial Boards of Health; that report was accepted and its recommendations adopted, and in addition the Chairman was authorized to add to the Committee already appointed an additional member from each State and Territory.

Your Chairman was appointed by the President of the Association to succeed the late Dr. Jerome Cochran in October last, and in looking over the field found that it was impossible to get either the Fifty-Fourth Congress, or the special session thereof, to take any action on such a measure, so he has appointed the additional members of the Committee, a list of which may be found published in the JOURNAL for January 16, 1897, and which is appended herewith, and has drafted a bill which is presented herewith.

Your Committee recommends the continuance of the Committee with power to have the aforesaid named bill amended to meet requirements but not to change the general purposes thereof, and to introduce the same into Congress at its discretion, and that the members of the Association be requested to do all in their power for its passage.

Respectfully submitted,

U. O. B. WINGATE, *Chairman*, LISTON H. MONTGOMERY,
WILLIAM BAILEY, CHARLES DENTON,
H. L. E. JOHNSON, W. B. ATKINSON.

To this was appended the names of the members appointed representing each State and Territory, and a full text of the bill. The bill, briefly stated, provides for the appointment of a Commissioner of Health by the President, subject to confirmation by the Senate; also an Assistant Commissioner of Public Health, and that the Commissioners of Public Health shall call an advisory council to meet twice a year in Washington, consisting of one representative from each State and Territorial Board of Health, and also one officer learned in the law, detailed by the Attorney-General of the United States from the Department of Justice. It provides that the Department of Public Health shall be under the control and management of the Commissioner of Public Health. It also provides that there shall be in said department a bureau to be known as "The Bureau of the Marine-Hospital Service," which shall be under the exclusive control of the Commissioner of Public Health, and all laws governing the appointment to official positions in said Marine-Hospital Service and to promotions in said service shall continue in full effect, and all funds now or hereafter appropriated for the Marine-Hospital Service by Congress shall continue to be disbursed under the supervision of the Commissioner of Public Health by the direction of the Secretary of the Treasury, until otherwise provided by law, it being the intent and purpose of this act to continue the Marine-Hospital Service under its present management, and to confer all duties relating to quarantine and the public health upon the department hereby created.

Very respectfully yours,
U. O. B. WINGATE, M.D.

BIBLIOGRAPHY OF ARTICLES BY WM. WARREN GREENE, M.D.

150 LOWRY ARCADE, ST. PAUL, MINN.
November 26, 1897.

MR. EDITOR: — I am making an effort to obtain a complete list of the articles published by my father, the late Wm. Warren Greene, of Portland. The references are scattered and difficult to obtain, and I would ask that any of his old students or professional friends, who have reprints or references to articles, will kindly advise me concerning them, thereby conferring a favor which will be greatly appreciated.

Very truly yours,
CHAS. LYMAN GREENE, M.D.

METEOROLOGICAL RECORD

For the week ending November 20th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...14	30.16	38	43	33	62	63	63	W.	N.W.	12	10	C.	C.	
M...15	30.32	38	46	31	89	89	89	W.	S.E.	12	10	O.	O.	
T...16	29.98	58	68	43	91	89	90	S.W.	S.W.	10	18	O.	F.	.02
W...17	30.32	38	43	32	82	57	70	N.W.	N.W.	9	8	F.	C.	.16
T...18	30.41	32	37	38	66	58	62	N.W.	N.	10	6	C.	F.	
F...19	30.34	28	30	25	64	49	76	N.W.	S.	8	4	O.	N.	
S...20	30.27	34	41	26	94	92	93	N.W.	S.	10	7	N.	C.	.02

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. \bar{x} Mean for week.

an estimated population of 10,992,524, for the week ending November 13th, the death-rate was 19.0. Deaths reported 4,009; measles 157, diphtheria 70, diarrhea 68, whooping-cough 61, fever 59, scarlet fever 46.

The death-rates ranged from 10.7 in Cardiff to 27.1 in Bolton; Birmingham 21.7, Brighton 14.2, Croydon 14.6, Gateshead 13.9, Hull 15.3, Leeds 19.2, Leicester 16.1, Liverpool 23.1, London 19.4, Manchester 18.9, Newcastle-on-Tyne 17.0, Nottingham 16.1, Salford 22.3, Sheffield 24.7, Sunderland 18.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 20, 1897, TO NOVEMBER 26, 1897.

CAPTAIN ISAAC P. WARE, assistant surgeon, is relieved from duty at Fort Grant, Arizona, to take effect upon the expiration of his present leave of absence, and ordered to Benicia Barracks, Cal., for duty.

CAPTAIN MERRITTE W. IRELAND, assistant surgeon, is relieved from duty at Benicia Barracks, Cal., to take effect upon the arrival at that post of CAPTAIN WARE, and ordered to the Presidio of San Francisco, Cal., for duty.

PROMOTION.

MAJOR PETER J. A. CLEARY, surgeon, to be deputy surgeon-general with rank of Lieutenant-Colonel, November 15, 1897, vice Waters, retired.

CAPTAIN CHARLES RICHARD, assistant surgeon, to be surgeon, with the rank of Major, November 15, 1897.

FIRST-LIEUTENANT PAUL F. STRAUB, assistant surgeon, to be assistant surgeon, with the rank of Captain, November 4, 1897, after five years' service.

RETIREMENT.

LIEUTENANT-COLONEL WILLIAM E. WATERS, deputy surgeon-general, November 15, 1897.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING NOVEMBER 25, 1897.

H. W. SAWTELLE, surgeon. To proceed to Memphis, Tenn., and assume temporary command of service. November 23, 1897.

C. E. BANKS, surgeon. To inspect Service at Buffalo, N. Y., and Philadelphia, Pa. November 22, 1897.

A. H. GLENNAN, passed assistant surgeon. To rejoin station at St. Louis, Mo., via Washington, D. C. November 19, 1897.

G. M. MAGRUDER, passed assistant surgeon. Granted leave of absence for ten days on account of sickness. November 20, 1897.

J. O. COBB, passed assistant surgeon. To proceed to Delaware Breakwater Quarantine Station for temporary duty, and then to rejoin station. November 19, 1897.

C. P. WERTENBAKER, passed assistant surgeon. Granted leave of absence for seven days on account of sickness. November 23, 1897.

BOOKS AND PAMPHLETS RECEIVED.

Headaches from Nasal Causes. By Sargent F. Snow, M.D., Syracuse, N. Y. Reprint. 1897.

Ein Fall von Adeno-Carcinoma der Nase. Sonderabdruck aus dem Archiv für Laryngologie. Von F. E. Hopkins, M.D.

Operative Surgery at the Philadelphia Polyclinic, from May 1, 1896, to September 1, 1897. By Francis T. Stewart, M.D. Reprint. 1897.

Experimental Basis of the Dietetic and Medicinal Treatment of Hyper-Acidity and Gastritis. By John C. Hemmeter, M.B., M.D., Ph.D. Reprint. 1897.

Proceedings of the Seventh Annual Meeting of the Association of Military Surgeons of the United States. Held at Columbus, O., May 25, 26 and 27, 1897. Edited by James E. Pilcher, M.D., Captain in the Medical Department of the United States Army; Secretary and Editor of the Association. Columbus, O. 1897.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections. In photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris, with explanatory wood-cuts and text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Cartel, Physicians to the Saint Louis Hospital, with the co-operation of Henri Feulard, Secretary, L. Jaquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P., Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part XII. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders. 1897.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 20, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	646	193	10.65	15.75	1.80	.60	3.45	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	593	103	16.80	8.00	1.00	1.00	7.50	
Brooklyn	1,160,000	353	89	9.52	13.44	.84	1.68	5.60	
St. Louis	570,000	—	—	—	—	—	—	—	
Baltimore	550,000	—	—	—	—	—	—	—	
Boston	517,732	188	61	8.48	15.90	1.06	2.65	2.65	
Cincinnati	405,000	103	—	6.86	7.84	.98	2.94	2.94	
Cleveland	350,000	92	32	12.96	16.20	1.08	3.24	6.48	
Pittsburg	285,000	69	29	31.90	14.49	4.35	4.35	14.49	
Washington	277,000	142	53	5.60	9.10	.70	1.40	3.50	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	37	11	24.30	8.10	8.10	5.40	2.70	
Worcester	105,050	31	9	3.22	9.66	—	3.22	—	
Fall River	95,919	23	13	13.02	13.02	13.02	—	—	
Lowell	87,183	42	20	9.52	19.04	—	—	9.52	
Cambridge	86,812	24	9	12.48	24.96	4.16	—	—	
Lynn	65,220	—	—	—	—	—	—	—	
Charleston	65,165	39	7	10.24	2.56	5.12	2.56	—	
New Bedford	62,416	17	5	11.76	11.76	—	11.76	—	
Lawrence	55,510	24	14	8.33	10.50	8.33	—	—	
Springfield	54,790	12	3	16.66	25.00	—	8.33	8.33	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	5	2	—	—	—	—	—	
Brockton	35,853	—	—	—	—	—	—	—	
Malden	32,884	8	2	25.00	—	12.50	—	12.50	
Chelsea	32,716	8	2	—	—	—	—	—	
Haverhill	31,466	5	1	40.00	—	—	20.00	20.00	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,890	6	2	—	16.66	—	—	—	
Fitchburg	28,362	5	2	40.00	—	20.00	—	20.00	
Taunton	27,812	10	1	—	—	—	—	—	
Quincy	22,562	7	2	28.56	14.28	—	14.28	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	0	—	20.00	—	—	—	
Everett	21,575	6	2	33.33	—	—	16.66	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	3	0	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,368; under five years of age 685; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 263, acute lung diseases 311, consumption 280, diphtheria and croup 112, typhoid fever 45, diarrheal diseases 45, measles 20, scarlet fever 19, cerebro spinal meningitis 8, whooping-cough 7, malarial fevers 5.

From measles New York 16, Pittsburg 4. From scarlet fever New York 10, Philadelphia 3, Brooklyn, Cleveland, Pittsburg, Charleston, Cambridge and Everett 1 each. From cerebro-spinal meningitis New York and Boston 3 each; Cambridge and Quincy 1 each. From whooping-cough New York and Brooklyn 2 each, Philadelphia, Boston and Pittsburg 1 each. From malarial fever Nashville 3, Brooklyn 3.

In the thirty-three greater towns of England and Wales, with

Lecture.

CHARACTERISTICS OF INSANITY.¹

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

THE striking thing you will notice in your intercourse with insane persons is that you can never get on a common footing with them. There is always some intangible, indefinite, undefinable obstacle to mutual comprehension, which prevents the usual good understanding we expect to have with every one. Often there is the greatest willingness on the insane person's part to appreciate what you say, and to co-operate in what you wish him to do; and very often he is himself perfectly satisfied that he is wholly one with you. But all the time you will have the vague consciousness there is a third party to the transaction. You do not alone have his ear—you are addressing him, *plus* some other side of his personality, and he unconsciously is giving a qualified assent to your arguments. Your attitude toward him is somewhat similar to that toward a child, in which case you do not expect to be fully understood, and you intentionally leave a margin in your mind for his inability to grasp what you say. You explain this simply enough by the fact of the child's imperfect development; his mind is not matured. The explanation is in keeping with the nature of things and is sufficient.

With the adult the case is different. He may be intellectually your equal, or superior, yet there is just this degree of what the French call "*disharmonie*," which parts you mentally, and no explanation can suffice except that you or he are mentally of unsound or disordered mind. In these remarks I am assuming that the person is insane, but to a degree not particularly noticeable, and requiring some skill possibly to find out just what the form of trouble may be. I am assuming also that he is not a person dull and stupid mentally, who would naturally find it hard to make out what you meant, but a person of average intelligence.

I am often struck in my interviews with insane persons with their lack of congenialness. Even without speech, there is a lack of attraction, even a repulsion of a very subtle kind sometimes. You are asked to give nothing; you are not needed, often not wanted in that world, entrance to which is denied you. Even if you may be called on and even prayed for to help, as I sometimes have been, you will still be aware of this negative attraction, which holds you at arm's length.

Alienists very often speak of this *lack of responsiveness* in their patients, and I wish to direct your attention to it, for it is a marked characteristic of the insane. We see people often enough who do not respond to what we may say, or do, but they have their reasons, which will be found, on the whole, consistent under the circumstances. With the insane, on the other hand, it is practically the opposite; their reasons are not, on the whole, consistent.

This brings me to another point, which is, that *we judge the insane very much by what they do*; by their actions, or conduct. You may often find no trace of mental impairment *in words*, when you would clearly do so *in acts*. Do not expect, as many do, that the

insane will give utterance to strange, grotesque, fantastic ideas, which will stamp them at once as insane. Many times a very insane man will talk for a considerable period and give no sign of his disease. You may not on the surface get a complete clinical picture, but that is because you cannot see at one glance the whole of the human mind, not that the elements of the disease do not exist. I shall later tell you of cases of "*partial insanity*," where the mind *appears* touched only at one point, but that is because it is at that particular point only, at the given time, that the disease has broken through the crust which hides the working of the man's mind, and reveals itself to our gaze, which, in looking into the vast mysteries of human intelligence, is at best dull and stupid.

Observe then the acts of the supposed insane man. See if they are rational acts, in accord with what you would expect a man to do if placed as this man is. Inform yourself most carefully of his habitual methods of action; study into his environment. In well-marked cases the man is so changed that he is entirely unlike himself in what he does; in the more obscure cases it will usually be found that his conduct is inconsistent with what it always has been before, and with what the circumstances naturally demand it should be.

This, then, is the point which I wish to make, to return to more fully, if time allows in subsequent lectures, that a characteristic of mental disease is *inconsistency*. Where before was a man who could be relied on to act in a certain definite way, you now have a man who may, or may not, do what he did before. His present conduct is inconsistent with his past conduct; his opinions, his beliefs, his affections all are tinged with some hidden, new influence, which alters him, and shows how imperceptibly yet radically a man's whole nature may be overturned, and made inconsistent with itself, by the insidious, and often slow, growth of the morbid mental process.

Lack of adaptability is another characteristic. In the social life of the community each individual must to some degree adapt himself to others. To succeed he must have a definite end and aim at which he can only arrive by placing himself at the service of others and resolutely adapting himself to the requirements of the situation in which he is placed, and so through life he is always disciplining himself to meet the needs of the community, and the better he knows how to do it the more successful he will be. This particular quality is almost wholly wanting in the insane. The more developed the disease, the more the tendency to individualize dominates them. It is well enough for a man who has talent in one direction to individualize, or more correctly specialize, his work; but this means that he is directing his individual efforts to accomplishing something of an objective nature, and he is really adapting himself all the time to his work. The insane man, on the contrary, expects other things to bend to him. He is the centre of things. In as far as the others come to him he may be able to accept what they thrust on him, but he has no power to meet them half-way. All his efforts are for himself; he lives and moves and has his being in a kingdom bounded by the four walls of his own personality.

With this lack of adaptability goes the *lack of power to combine with others*. In rare cases, a few of the criminally insane have been known to combine to-

¹ A lecture delivered to the students of the Tufts College Medical School.

gether to plan an escape, but, as a rule, if you visit the wards of an insane hospital, you will be struck by the separate lives the patients lead. They often work together, walk together and talk together in small, or large numbers, because they are easily trained and disciplined, but each patient in whom the disease is well developed, unless convalescence has set in, is a kingdom, and a law to himself. He need not go to any one else for guidance, help or sympathy, because it all comes from within. Not that he consciously says this to himself, or realizes it; it is to the onlooker that it is apparent. It can be easily seen that this lack of power to combine, to enter into mutual arrangements for the common good, is a serious weakness in a community which is ever forming societies, or coteries for such a purpose. It may entirely prevent any success in a business way, or interfere, jeopardize or destroy the harmony of a family circle.

Change in the affections is an almost constant accompaniment of mental disease. I will not say that it is invariable, but it is to be regarded as a characteristic symptom. In conditions of depression, the insane man often thinks that he has ruined his family. Therefore he feels himself unworthy of their love, and for the time being believes he has lost it, and acts accordingly. In conditions of exaltation, there is indifference or positive dislike, or exaggeration of feeling. It depends on the degree of intensity of the disease. Where ideas of persecution are dominant, the affections may be entirely alienated. In conditions of depression it should have been further said that the expression of feeling is in abeyance, even if ideas of wickedness or unworthiness are not dominant in the mind. In mixed forms of mental disease there is every shade in the expression of the affections, but rarely if ever are they wholly normal. There is a lack of reciprocalness of feeling. However much affection may be lavished on the insane man, he fails to appreciate it at its true value, and returns little, or nothing. He cannot be expected to give what is temporarily in abeyance or permanently lost.

Loss of the sense of relation of things is another characteristic of the insane. The ordinary affairs of life, the important questions that may arise from time to time may make little or no impression on their minds; or if they do make an impression, it is an unnatural or perverted one, and in no way what might be expected. There seems to be no consciousness of what these things mean. In a case of religious delusional melancholia, the patient, a most affectionate and religious man, had lost his wife and daughter within a few days of each other. Though he was devotedly attached to them, and externally apprehended every element of his loss, yet in consequence of his disease he had not a feeling of sorrow, and while detailing to me the circumstances of their deaths, played solitaire unremittingly on the side of his bed! Here was not only a change in the affections but also an indifference to the proper relation of things.

While so little consequence may be attached to the important matters, *details are exaggerated* to almost any extent. Gestures, motions, words, looks may be freighted with a portentous significance. Articles of clothing, food, bits of paper, etc., all possess a new interest and value. The mind is so occupied with these material details that no time is left for more important ones. The consequence of this preoccupation is a gradual loss of grasp on things as wholes, and they

lose their normal appearance of totality and unity. The sense of relation to external objects thus becomes blurred and confused, and no longer possesses its former power of restraining, modifying and controlling the acts of the individual.

With this particular defect goes a *loss of the power of comparison*, a most important attribute of the mind, for when we cannot compare we lose the power of choice, and when that goes we may be morally unable to distinguish right from wrong.

A *loss of initiative power* naturally is common among the insane. Taking no longer a rational interest in their affairs, unable to adjust or adapt themselves to their work or social obligations, without the stimulus of love and affection for their families, unable to perceive wherein they are deficient because their power of comparison is gone, it is not remarkable that they feel no incentive or call to perform the duties which once seemed a matter of necessity as well as of pleasure.

There are other characteristics of mental disease which will be mentioned frequently in succeeding lectures, two of these being *loss of inhibitory power* or *disordered and weakened will power* and *diminished power of attention*, which I will briefly refer to here as being found in every well-developed case, as necessary elemental symptoms. No man wishes to lose his reason, and while he can consciously control his mental processes he will persistently strive to do so. The man of strong inhibitory force will by will power pass through strains, mental, moral and physical, which wreck the man deficient in such force. From physical causes the strong break down and their natural power of inhibition is weakened; but, other things being equal, the weaker man goes to the wall first. It is, of course, true, that men can be found, in all classes, of weak wills; and it is also true that many of the insane are extremely self-willed without there being perhaps perversion of will-power, or weakness in the ordinary sense. But there is markedly a loss of inhibitory control over the mental processes. The discriminative faculty of will (if we choose to use this expression) which checks aberrant mental action while it gives free play to what is natural, is in abeyance, or slumbers, or is stifled at its post.

Inhibition acts on the cerebral processes (thereby, of course, including both so-called mental and so-called nervous processes, which, as far as we know, are only different phases of one continuous process) somewhat after the manner of the operator in the signal tower of a railroad. Regularly the trains come and go, now on this track, then on that; one may be retarded or another hastened, but always there is regularity and continuity in the movements of the trains. As long as the operator remains at his post, unless some break occurs in the apparatus, no accident can happen, for his hand is on the lever which controls with absolute certainty every operation of every train. But once let him leave his post, and trust the trains to manage for themselves, and confusion and blocking of the whole road will result. Trains will occupy the wrong tracks, some may collide with each other; others may be thrown off the track. Where before we had system and regularity in moving trains, we shall now have fitful, spasmodic attempts to do the same, and before the operator again returns the whole road may be blocked.

So it is with the function of inhibition. When working normally, every cerebral process flows along

smoothly and continuously to a successful and immediate issue. Weakened or suspended, these processes become inchoate, vague, uncertain, paralyzed.

The other characteristic mentioned was the *loss of the power of attention*. We may say that attention means the power to consciously concentrate thought and project it continuously in one direction. Of all mental faculties this must be regarded as the highest. There are many degrees, however, of attention. The child will concentrate his mind on what he is interested in intensely for short periods to the exclusion of other subjects. But this is not wholly conscious thought, but largely instinctive, arising out of sudden overpowering interest and curiosity. To arrive at the point of higher development of attention requires training and self-discipline. The highest attention means that the mind can turn to the objective consideration of subjects. Emerson says that "A man is intellectual in proportion as he can make an object of every sensation, perception and intuition, so long as he has no engagement in any thought or feeling which can hinder him from looking at it as somewhat foreign."² In other words, man is intellectual in proportion to the power he possesses of directing his attention objectively to subjects.

Now we usually find intellectual impairment in the insane. Exceptionally there are insane persons in whom there is what seems enhanced intellectual brilliancy; but even in these cases all the elemental qualities of the finest intellect are generally not present and there is apt to be a lack of perfect equilibrium. Granting that there may be exceptions, the rule holds good that intellectual force and power are both weakened in mental diseases. If the man of intellect deals with subjects objectively, the converse is true of the insane man: he deals with objects subjectively. In the first case the man consciously puts his *ego* to one side; in the second case the man unconsciously puts everything but his *ego* to one side. One dominates the *ego*; the other is dominated by the *ego*.

We often speak of an insane man as "concentrating his attention on himself." This is, strictly speaking, an incorrect use of terms. In such a case the faculty of attention is so weakened that it cannot be exercised except negatively. The man's thoughts are concentrated on himself because he cannot make use of the modicum of attention he may have possessed. His mind feeds on itself because it cannot attend to anything else; it cannot "detach" itself.

We now come to more classical characteristics of mental disease—symptoms, I suppose I should call them—which, no doubt, are somewhat familiar to you all. I allude to delusions, hallucinations and illusions. Whenever one of these can be clearly and definitely enough diagnosed, so that there is no question of its existence, there is no reasonable doubt that we are dealing with a case of mental disease. On the other hand, there are many cases of undoubted insanity in which neither can be clearly determined, and some in which neither clearly exist.

Delusion is usually defined primarily as a "false belief," and I advise you to bear these two words in mind for future use, when you may find it difficult to recall quite what a delusion was said to be. It is a false belief contrary to the individual's past experience, inconsistent with his former thoughts and feelings, the result of disordered brain action.

Clouston says:³ "An insane delusion is a belief in something that would be incredible to sane people of the same class, education or race as the person who expresses it. This resulting from diseased working of the brain convolutions."

Kirchhoff, a German writer, calls delusions "false judgments." "They are due to the uncritical acceptance of the combination of ideas which occupy the foreground, and this depends on some morbid condition of the brain."⁴

Régis, a French writer, says: "Delusive conceptions are not only difficult to define because they are far from being always absurd in themselves, but also because it is not always easy to distinguish them from error. The difference does not consist, as has been claimed, in that the delusive idea is not changed in spite of the accumulation of the most absolute proofs of its falsity."⁵

Dr. Landon Carter Gray, of this country, states that a delusion is a false belief. Then he says it is sometimes stated that a false belief of the insane differs from a false belief of the sane, because the former is fixed and not amenable to reason; but this is a mistake, because the former is not always fixed and unamenable, while the latter sometimes is. "The only definition of an insane delusion," he says, "is that it is a false belief occurring in an insane person. Whether or not a person is insane is a question of diagnosis."⁶

The view of Dr. Gray, I have never known before adopted, and I must regard it as rather dangerous for a student who is trying to find solid ground to stand upon. Of course, we all must agree that a delusion of the kind we are discussing, which is the delusion of an insane man, must be a false belief occurring in an insane person; that goes without saying, but the last part of Dr. Gray's sentence leads one to infer that it is not a most necessary and often vital factor in diagnosis, which can be made independently. Do not accept that position for a moment, for it is untenable. If there is one diagnostic mark of any disease, it is that of delusion in mental disease. With that well made out, there is some assurance that you are correct, without it there is a very good chance you have not gone to the bottom of the case. Dr. Gray's assertion is like saying: "The only definition of the lesion of diphtheria is that it is the Klebs-Löffler bacillus recurring in a diphtheritic patient, but whether or not a person has diphtheria is a question of diagnosis."

You will observe, in Clouston's definition, that care is taken to make it clear that a delusion is a belief which would be incredible to sane people of the same class, education or race. The reason of this is that sane people often entertain beliefs which are so strange, and erratic and false to the facts of life, that by themselves alone they might seem to be genuine insane delusions. Carefully investigated, however, they are seen to have a consistent connection with the expressed views, or actions, or conduct, or mode of life of those who hold them. Strange superstitious are usually mentioned as instances; also unusual religious views; eccentricities of conduct so unusual as to suggest mental unsoundness.

Insane delusions may grow out of exaggerated, extreme or over-wrought beliefs. Emotional people of sensitive, high-strung nature, liable to go to extremes,

³ Clinical Lectures on Mental Diseases, T. S. Clouston, M.D., p. 189.

⁴ Handbook of Insanity, T. Kirchhoff, pp. 72, 73.

⁵ Practical Manual of Mental Medicine, E. Régis, p. 64.

⁶ Nervous and Mental Diseases, Landon Carter Gray, p. 587.

² Natural History of the Intellect, R. W. Emerson, p. 24.

or ignorant people, also of the emotional kind and easily influenced, cannot, when sane, be regarded as well-balanced, and, under the strain of the trials of life, or ill-health, can easily pass over the narrow line which separates the sane from the insane. One can often trace the genesis of the delusion, as it is slowly evolved, and see from what it originated, in this particular class of cases, but it is necessary to be careful, and not label a delusion an insane one until fully evolved.

When once delusions are fully formed, they are no longer reasoned and speculated about, as is the case with insistent ideas. They are the very heart and essence of the *ego* itself. They are the new personality, which has taken the place of the old one, whatever that might have been, and it is from this new standpoint that the I, the *ego*, looks out and gazes on the world around him, and judges what shall be his attitude towards it. There is no longer any thought that he can be in the wrong, or that anything is unnatural about him. However depressed, sad, miserable, or exalted or happy he may be, he now sees things clearly in their true light exactly as they actually are. If any one disagrees with him, or tries to argue him out of his false beliefs, even if such a person is listened to, he is commiserated for his ignorance, shown that he cannot comprehend the true state of affairs, or is regarded as unbalanced himself.

The extraordinary hold that delusions have over the insane is illustrated by the way they treat each other in hospitals. Often they are quick to perceive each other's delusions, and in their mutual treatment are kind and forbearing, fully recognizing how much allowance must be made for people who are controlled by erratic notions and foolish ideas. They even will try to argue each other out of their delusions, and use much tact and skill in doing so. Frequently when I see how completely a person is held in bondage by his false beliefs, yet receptive of certain kinds of impressions; see him eating, dressing, working, amusing himself, precisely as do other people, yet in a world of his own which I cannot reach, I feel as if he were hypnotized; as if only one part of his brain was working, while the other portions slept. And so to some extent he is the victim of auto-suggestions, made so often, that at last they come to have an organized, living character. I am sometimes so much impressed by the patient's being in this hypnotic state, that I search persistently for clues to the suggestions which he has made to himself, to see if I cannot replace them by counter-suggestions to gradually offset them. I am not now speaking of hypnotism, to which I shall refer under the head of therapeutics, but simply of the substitution of suggestions in the mind of the patient.

It may help you, perhaps, to look at an insane person as if he were hypnotized. Think of his having some rather unusual false belief, such as that he is a teapot (Bucknill and Tuke), or made of butter (Régis), or has glass legs, or a snake in his stomach, or has a sponge in his head instead of a brain (Kirchhoff). Then picture to yourself what a man might say, do, and feel, if he had been hypnotized to believe such things, yet at the same time was obliged to conform to social requirements as far as was possible. It would seem as if the incongruity of the situation must make it impossible to play such a part, but it does not. The hypnotized person, as you all know, will do the most ridiculous things with calm and imperturbable gravity, for the reason that only one portion of his mind is

alert and wide awake. The intelligence of the other portion, which under conditions would be active, is "switched off" as James says, and is temporarily dead. The power of comparing, which would at once reveal the absurdity of things, is held in abeyance, for only one portion of the *ego*, that interested in the special suggestion, or set of suggestions, asserts itself above the "threshold of consciousness." I would not say that the insane person and the hypnotized person are in a similar morbid condition, but there is a rather striking analogy in some ways between them, a knowledge of which will make you feel more familiar with mental disease.

(To be continued.)

Original Articles.

SOME RECOLLECTIONS OF THE TWELFTH INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

At the suggestion of our President, Dr. Mason, I have put together the notes of such of my recollections of the recent Congress in Moscow as seemed most likely to be of interest to the Society. I must ask your indulgence for the lack of sequence and absence of systematic arrangement, for they are written in the order in which the events occurred to me personally, and I have made no attempt to classify them.

I will ask you then to begin with me at the Russian frontier. The first evidence of the generous scale of the management of the Congress was the railroad pass, which gave free passage from the frontier to Moscow and back again, over any of the direct routes. This had been promptly forwarded to me in London on application by letter. These passes were given to every member of the Congress, and at a rough calculation must have cost the government in the neighborhood of half a million dollars.

I found no Russian train officials who spoke any language but their own. This was true also of some of the hotels, and many of the shops, more especially of those in Moscow. In St. Petersburg, German, at least, was generally spoken.

Railroad travel in Russia is comfortable. Broad-gauge tracks allow spacious cars, and the dining-cars, lighted with numerous large candles, are admirably furnished and served. The rate of travel is slow, rarely exceeding twenty-five miles an hour. At the stations there were no trucks to move baggage, but each piece was carried separately by very deliberate railway porters.

St. Petersburg was lavishly decorated with flags and gay-colored bunting in honor of the birthday of the Dowager Empress, and in anticipation of the visit of the German Kaiser and Kaiserin; and even in the dead season of midsummer, the town was again filled by the various military and civil officials, who had returned to take part in these ceremonial events.

On the next day I went to visit the Marien Hospital, which is the best in St. Petersburg, and was cordially received by its resident superintendent, General Pavlov, who has recently resigned the professorship of surgery in the St. Petersburg Academy, which he held for twenty-four years.

¹ Read before the Boston Society for Medical Improvement, November 1, 1897.

We are accustomed to consider the "hustler," as our slang terms him, a product peculiar to American soil; but Professor Pavlov's daily routine of work dispels this idea. In addition to the duties of superintendent of this hospital of about 450 beds, he carries on a large private practice, is body surgeon to the Czar, has numerous duties connected with his military position, and has a private hospital of forty beds which he uses for the surgical cases amongst his own private patients.

The Marien Hospital was built a little more than a hundred years ago, and accommodates 140 patients in its surgical division. The construction of this part of the buildings was, of course, unsuitable to the practice of modern aseptic surgery, but the wards and operating-rooms devoted to this work have been altered to meet the requirements, and now have all the essentials for carrying out thorough aseptic work, which is in successful operation. This end has been secured in a thoroughly practical manner, at a relatively small expense, and its success is contributed to by the thorough drilling of the nurses and attendants, which seemed to me notably good.

The character of the furniture and aseptic appliances are shown in the accompanying illustrations. The apparatus for sterilizing by heat is built into the wall which separates the rooms in which the dressings are prepared, and instruments are kept previous to sterilization—and the operating-room. An iron door opens at either end of the sterilizer into each of the rooms, so that the articles to be sterilized are put in at one end and taken out at the other, ready for use, directly into the room where they are needed. The walls of the operating-rooms are of hard-finished plaster covered with glazed paint, the floors of cement. The custom which has been generally given up elsewhere is still in vogue here, namely, that of washing the operating-room with a carbolic solution applied through a hose, and also of filling it with steam about three hours before operating, with the view to precipitating all dry particles. The temperature of these rooms is kept very high during operations, heat being supplied by large porcelain stoves in which wood is burned.

The senior surgeon of the staff, Dr. Trachtenberg, is another example of the arduous demands of this hospital, in that no operation requiring an anesthetic is allowed to be performed in his absence, whether night or day. He has a continuous service, taking three months' vacation each year. Under his direction are nine other surgeons, also having continuous services, each taking about six weeks' vacation annually. These nine associates are under the control of Trachtenberg and are of equal rank. Seven are on duty in the house, and two in the out-patient department at the same time, and exchange these services in rotation. Each has twenty beds under his special care, and each in turn does all the operations deputed to him by Trachtenberg for ten days at a time, being assisted by his colleagues. The house-surgeons have but a small share in the immediate assisting at operations in the hospital, and get most of their practical experience in the out-patient department.

I saw the removal of an ovarian cyst with a twisted pedicle performed by the first assistant surgeon. The operation was carefully, deliberately, and safely performed, but without much technical style or finish. The nurses wore white sterilized gowns and caps, the former having short sleeves leaving the arms entirely bare. Four nurses were present at this operation.

The dressings and sponges are kept in round, covered tin boxes. One nurse has the exclusive duty of banding these to the surgeon as they are required, and keeping them from all contamination during the operation. A second has charge of needles and sutures, ligatures and instruments. A third cleanses and replaces the instruments as they are used, and a fourth has general care of the room, bringing additional supplies, keeping the tables clear, floors clean, etc. Long tapes were employed, with snap forceps attached to one end and firmly fastened by the other to the gauze pads used for packing in the abdominal cavity during the operation, the forceps hanging over the edge of the table to avoid the danger of leaving sponges in the abdominal cavity, and to obviate the necessity of keeping count of them.

Anesthesia is begun by bromo-ethyl, and continued with chloroform, ether having been abandoned after two years' continued trial because of the frequent occurrence of bronchitis and pneumonia following its administration. I noticed that the patient I saw operated upon vomited subsequently, quite as much as we are accustomed to see them do after ether here.

The dressing often used is sterilized moss, or wood fibre made into pads by covering with gauze. The wood fibre, instead of brushes, is also used for washing hands. Some of the surgeons here operate in, and have their assistants also wear, thin white sterilized cotton gloves. The surgical wards were clean, well cared for and comfortable, the low beds being their only bad feature.

In Professor Pavlov's private hospital, to which reference has been made, the outer air is everywhere filtered through wool wadding, which is placed in the ventilators of every room; and in the case of the operating-room, the air is sterilized by heat also. All the arrangements of this hospital were admirable, including the quarters for the nurses, who are members of the Red Cross Society.

The rest of the time in St. Petersburg was largely occupied by the Kaiser's visit and its attending ceremonials, which it would not be appropriate to describe here.

The first impression of Moscow is distinctly disappointing, the drive from the railway to the hotels being through a part of the town which gives no hint of its remarkable beauties. The cobble-stone street pavements are of the roughest, and one is driven over them at a rapid speed, in small open cabs innocent of springs, being jolted about in a manner that makes all other bodily exercise unnecessary for the rest of the day. Clouds of dust pervaded the streets, and the temperature ranged between 85° and 95° F. during the two weeks of my stay. If the first impression of the town is not an agreeable one, it is dispelled and wholly altered from the moment that one enters the enclosure of the Kremlin, with its numerous remarkable buildings and historical associations, and looks out over the most wonderful panorama presented by any town in the world, stretching as far as one can see over the plain, with its varied and harmonious coloring, and its sixteen hundred spires, turrets, and minarets rising above it. There at once the peculiar enchantment of the place enters one, and steadily grows the longer one stays.

It was an advantage to go, as I did, to Moscow ten days before the Medical Congress opened, for it gave the opportunity to make the acquaintance of the sur-

geons there, to see the town, to watch the preparations for the Congress and judge of their efficiency, and to become familiar with some of the medical institutions. Of the latter the two most interesting, I thought, were the Clinic of the Faculty, and the Foundling Hospital. The latter is, so far as I know, unique and certainly the most remarkable that I have ever seen. It is approached through a broad avenue shaded by large trees; on either side is a high wall, beyond which are gardens. At the top of a wide flight of steps in front of the entrance there stands an official who is a striking figure—a man well over six feet, dressed in a caped and long-skirted, bright scarlet coat, lavishly trimmed with gold lace. He had a handsome face, with moustache and long flowing side-whiskers, and a thick mass of hair cut rather short and standing erect, all white; and he held in his hand a long gold-headed cane. Upon sending our cards to the superintendent, one of the assistants, a woman, was detailed to show us over the insti-

thousand who were that day inmates of the institution, to which must be added about a hundred more who were within doors, some being kept alive in incubators, and others who were the subjects of various diseases.

The women who attend these illegitimate children are either their mothers, or wet nurses paid by the State for this purpose. Each of those who are mothers of an illegitimate offspring is obliged to suckle not only her own child which she brings there with her, but also that of some other woman, who has not taken her baby there but has left it in the streets instead; the number of the latter class is sufficient to oblige the mothers who come with their children to do double nursing duty, and also necessitates the employment of paid wet nurses. Considerably more than half of the women I saw there that day were mothers of one of the children they were nursing.

Every woman who brings her infant to the institution is obliged to pay a fee of about twelve dollars in



FIG. 1.—Professor Sklifosowski.



FIG. 2.—Professor Bobrow.

tution. She took us to a gate in the wall bordering the avenue, and opened it upon one of the most singular and picturesque sights imaginable. A broad, sanded path extended from the gate for a distance of about three hundred yards, shaded by two rows of fine trees and forming one side of a pretty garden of about four acres; on either side of this pathway stood a line of women, about five hundred in number; they were divided into three companies, by short intervals of distance, and each company wore a costume of the same form but of different color. The skirts of all were white. The first company wore red and white bodices and red caps; the second, blue and white bodices and blue caps; the third, green and white bodices and green caps. The blue was worn by those who were caring for infants with diseases of the eyes, the green by those caring for infants of premature birth, and the red for the children who were free from disease. In front of each woman stood a baby-carriage containing *two* illegitimate children, in all about a

order to gain admission for herself and the child. This regulation has, however, only been in operation for the last few years; formerly all applicants were received gratuitously.

The children are allowed to remain for six weeks, and then, unless the mothers wish to keep them, are sent to be cared for in various families in the country who make a business of taking them, and bringing them up by hand, and who keep them until they are thirteen years of age, during which time they are maintained at the expense of the State. After this, they are apprenticed to trades and then must take care of themselves. The mortality of these children while they remain in the institution is about 40 per cent.

The mothers were for the most part of the peasant or poor laboring class, and evidently did not associate any sense of shame with the fact of the illegitimacy of their offspring. They were all unaffectedly pleased if one noticed their babies, and held them up for approval with a simple and gratified smile. They were

a strong, healthy lot of women, as a rule, but singularly lacking in feminine charms and good looks, and most of them were no longer very young. I saw but six comely forms and faces amongst them all.

About ten thousand illegitimate children pass through this institution annually. There is also a lying-in ward connected with this hospital, but I did not inquire into its details.

The second institution of which I will speak is the Surgical Clinic. This was founded in 1846.

The professor of surgery, J. Inozentsen, was sent to various countries to study the administration and practice of their hospitals; and, following his report to the minister of education, a surgical hospital of fifty beds was founded.

In 1880 Professor Sklifosowski was appointed to the professorship of surgery, and conducted the clinics until a few years ago, when he accepted an appointment at St. Petersburg, and was succeeded by Prof.

illustration. There are also two smaller operating-rooms, well lighted, and furnished with all the needful appliances for carrying out aseptic work.

As in the hospitals which I saw in St. Petersburg, all the essentials for the best modern surgical work were present, and have been secured at a comparatively small cost. They lack the beauty of finish and the costly materials which we have become accustomed to see in our hospitals here; but for all practical purposes they are well equipped, and in the drill and discipline of their hospital attendants they seemed to me to be superior.

There was one contrivance there which we would do well to adopt, a simple method of transferring the patients to and from the operating-rooms without taking them from their beds. The bed is jacked up upon a pair of small rubber-tired wheels placed beneath each end, the crossbar at each end of the bed being caught in iron arms placed upon a strong rod above



FIG. 3. — Surgical Clinic.

A. A. Bobrow, who is the present incumbent. These two gentlemen (Figs. 1 and 2) were respectively the President of the recent Congress, and Chairman of the Executive Committee of the Surgical Section, in which capacities they showed great executive ability and tact; and much of the credit for the admirable organization and the smooth running of the machinery of the Congress was due to their efforts.

The surgical department of the clinic has the capacity now of eighty beds, is a handsome building just outside the town, where it forms one of the extensive group devoted to various other branches of medicine, which together constitute the hospital of the Clinic of the Faculty. The illustrations are of its exterior, the amphitheatre and one of the smaller operating-rooms (Figs. 3, 4, 5). With its furnishings and appliances it cost a little less than one hundred thousand dollars. The department has an amphitheatre with a seating capacity for three hundred persons. It is built in the peculiar form which is shown in the accompanying

the wheels, and the bed lifted by depressing two long handles, which are also connected with the wheels, and by which the bed is transported by an attendant placed between the handles of each pair of wheels. In this way the bed with the patient in it is moved from its place in the ward directly to the side of the operating-table, the patient is anesthetized in the bed and then placed upon the operating-table, the bed is arranged and made ready to receive the patient at the end of the operation (Fig. 6).

There was nothing specially noteworthy in the details of the aseptic work. The wards of the hospital were clean and well ventilated, and the patients evidently well cared for; altogether the institution compares favorably with the best ones of other countries.

I had the pleasure of seeing Prof. A. A. Bobrow perform two suprapubic lithotomies; the bladder was closed by complete suture in both cases. The operations were carefully and skilfully done, and the technique was excellent. The professor is ably assisted

by the two assistant surgeons (*professeurs agrégés*), MM. S. P. Fedorow and S. M. Roudnew. From these gentlemen I met a cordial welcome, uniform kindness and courtesy throughout my visit.

The dedication of Pirogoff's monument took place about a week before the opening of the Congress. The statue is of bronze, and represents the great Russian surgeon seated in a chair, and is said to be an admirable likeness of him. It is placed in front of the Surgical

They worked like beavers, and deserve the thanks of all for their uniform courtesy and efficiency. Some of them were deputed to meet the members at the railway stations, not only at Moscow but in St. Petersburg and some of the larger towns as well; to offer their services in securing lodgings and to assist in any way the members might wish, both on coming to and going from the Congress. This service was by no means an empty formality, for, owing to the visits of the German



FIG. 4. — The Amphitheatre.



FIG. 5. — The Laparotomy Room.

Clinic. On the day of dedication a platform had been raised about its base, and upon it were gathered many of the notable physicians and surgeons of Russia. Directly in front of the statue stood a lady who followed with marked attention the words of the speakers. It was Pirogoff's wife, who is now eighty-four years of age. The ceremonies were opened with prayers by two priests, who wore the long robes and tall sugar-loaf-shaped hats of the Russian Church. They were followed by a choir of male voices; then came the speeches and the unveiling of the monument; after which a reception was held in the hospital.

Finally came the time for the opening of the Congress. But few of its members arrived until two days beforehand, so that the officials having the arrangements in charge were suddenly faced with the by no means easy task of registering and supplying information to about eight thousand men who descended upon them like a flight of locusts, all expecting to be attended to at once, and some of them being disposed to grumble because this impossible task could not be performed.

The government had put the great military riding academy at the disposition of the Congress, and it was here that the members went to register their names and to receive their cards of membership, etc. The floor space was divided by temporary partitions into bureaus for the different sections, restaurants, post-office and central bureau. This building, which it may be said in passing has the largest unsupported ceiling in the world, is near the principal hotels. The hotel proprietors had been informed of the details of the arrangements for the Congress, and were able to direct their guests to the places of meeting of the Sections, etc.

Some of the best work, and certainly the most arduous, was done by the volunteer corps of medical students, who were detailed to fill out the cards of membership, of invitation to the various entertainments, etc.

Kaiser, the French President, and the nearly simultaneous meetings of the Medical, Statisticians, and Geological Congresses, Russia was crowded with visitors to a degree that taxed her means of transport and accommodation to the utmost.

The Congress first met in general assembly in the opera house, which is certainly one of the most beauti-

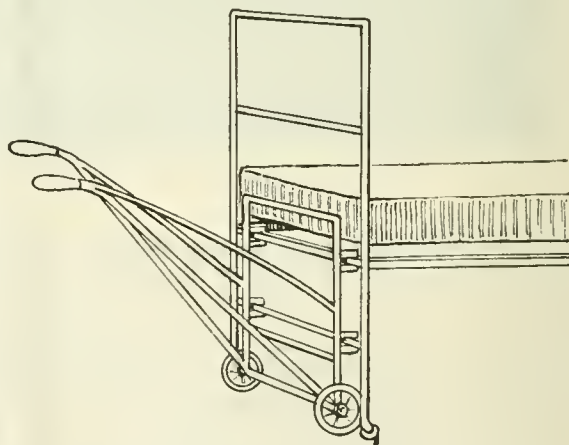


FIG. 6. — Method of Transferring the Patients.

ful theatres in the world, but only about one-half of its members could be accommodated in it, although the stage as well as the auditorium was occupied. The scene was a striking one, and the bright uniforms worn by a large number of those present added greatly to the effect. The stage was occupied by the State officials, the officers of the Congress and the delegates from the different countries; in the centre sat the Grand Duke Serge, having on his right the Mayor of Moscow and the Minister of Education, and on his left Profes-

sor Sklifosowski, President of the Congress and of its Surgical Section. The Congress was formally opened by the Grand Duke in a few words of welcome. He was followed by the Mayor, the Minister of Education and Professor Sklifosowski. Professor Roth, the indefatigable Secretary of the Congress, then read his report, which included the statement of the numbers of the foreign members present, amongst which that of the United States was regrettably small, there being but 120, very few of whom were from the Eastern section of the country. Then the delegates of the various nations were called upon to speak for their respective countries, Professor Kohle, of Berlin, being the first. The sequence was tactfully arranged in such a way that the delegates of the smaller nations were interspersed with those of the larger ones, and not left till the end.

Our country was admirably represented on this occasion by Dr. William S. Thayer, of Johns Hopkins University, who unexpectedly to himself was called upon to fulfil this somewhat difficult task, of which he acquitted himself in a highly satisfactory manner.

The representative of Japan created the liveliest interest of all the delegates; he was almost the only one who did not speak in his own tongue, but made an admirable address in German, which was greeted by hearty applause. Among the other delegates who spoke were Sir Wm. Mac Cormac, Virchow, Ziemssen and Du Jardin-Beaumetz.

On the following day the regular business of the Congress began, the Sections meeting in the various halls of the large building known as the *Salle de Noblesse*, which is centrally situated, and is sort of a fashionable club, used by its members in the winter season for balls, concerts and entertainments. Its many spacious rooms gave ample accommodation for all the Sections.

The hall in which the Surgical Section met was as comfortable as any room could be with the temperature in the nineties, where it remained throughout the eight days of the Congress. At one side of the room was a platform which was occupied by the Honorary Presidents of the Section, of whom there were two from each country. Among them were Macewen of Glasgow, Launelougue of Paris, Gussenbauer of Vienna, Roux of Lausanne, Scriba of Tokio, Rose of Berlin, Bottini of Padua, Tillaux of Paris, Sir William Mac Cormac of London, Czerny of Heidelberg, Küster of Marburg and many other well-known names.

There were two sessions, of three hours each, daily, each one being presided over by one of the Honorary Presidents in turn, in alphabetical order. While there were no remarkable new surgical departures brought forward, the contributions presented were of a high order. The French speakers, as usual, threw into the shade those of other nations by the telling power of their language and their vivid way of using it. Tuffier and Albarran were conspicuously good. The communications offered showed but little tendency to conservatism with regard to operations, but rather the contrary, as was seen, for example, in the advocacy of more radical and extensive operations upon the lungs. It was gratifying, especially for a Bostonian, to hear the strong defence of Bigelow's litholapaxy, which was made in a very convincing way by Albarran.

A certain number of surgeons operated, by invitation, in the amphitheatre of the Surgical Clinic, among others Doyen, who demonstrated his instruments for cerebral operations. Dr. Calot showed his method of

forcible straightening of the vertebræ in Pott's disease, and exhibited patients in whom this had been successfully done.

Among the more interesting papers read before the Section may be mentioned those of Tuffier and Macewen, on the surgery of the lungs, that of the former dealing with cases of tuberculous cavities and gangrene; both surgeons urged excision in a certain class of cases of the former of these conditions, and reported examples which showed the benefit of such treatment. The paper of Credé, of Dresden, upon the use of silver as an antiseptic in wounds, and as a prophylactic measure against various infections, was interesting. The preparations recommended by him are the lactate and citrate; the latter is a white, odorless powder, soluble in water or wound secretions, in the proportion of 1-3,500; it is absolutely unirritating and is not a poison. For the purpose of disinfecting wounds, and for preventing subsequent infection it is applied as a powder thinly sprinkled over the surface. In solution, in the proportion of 1-8,000, up to the strength of 1-500 to 1-2,000, it is used in the throat, eye, bladder, urethra, etc. It is a much more powerful germicide than corrosive sublimate, and is free from the objectionable qualities of the latter.

ENTERTAINMENTS.

There were a number of public and private entertainments during the Congress. Perhaps the most interesting of them was the general reception for the members of the Congress and the ladies who accompanied them, which was held on the first evening in the Chamber of Commerce, an immense building, about as long as a block and a half of town houses, and about 200 feet wide. Within the space inclosed by its walls are three parallel glass-roofed arcades, separated by two long rows of shops two stories high, which are placed one between the centre and right-hand and one between the centre and left-hand passages respectively. The second stories are connected by bridges across the passageways. The lines of shops are broken at intervals by cross-passages, which are also bridged. On the ground-floor at the intersection of the passages there are carrefours of circular form, in the centre of which are fountains which, on this occasion, were playing in jets of various colors. At one end of the central passage a military band and at the other a fine orchestra played in alternation. In some of the alcoves which occurred at intervals along the side passages temporary stages had been placed, on which were given, by companies of players or choruses of singers, national songs and dances of different provinces of Russia. On some of the bridges connecting the galleries there were choruses of soldiers, the singing of one of them, the Cossacks, was very interesting. The long lines of shops were brilliantly lighted and the galleries gaily decorated. Altogether such a scene would be difficult to surpass either in novelty or beauty.

On another evening, in the *Salle de Noblesse*, there was a ball preceded by a concert; and one of the pleasantest evenings was that passed by a few of the members, at the invitation of Professor Sklifosowski, in listening to the singing of the choir of the Church of St. Sauveur. In this choir were some bass voices such as are only to be found in Russia, and which surpass all that I have ever heard in power and in beauty of tone.

On the evening before the last one of the session came the dinners of the various Sections; these were held in different restaurants, many of which have very large halls.

The dinner of the Surgical Section was largely attended, and was an interesting occasion. Professor Sklifosowski presided, and excellent speeches were made by Le Deutu, Macewen, Kocher and others; amongst them was one by a Russian, who said that his mind had become so confused by the babel of tongues that he was no longer capable of expressing himself in any one language and that we must excuse him if his speech seemed rather mixed in consequence; and in truth his speech was compounded of a number of tongues, which were, to some of us at any rate, very strange indeed. It was a very clever and amusing performance.

A committee of ladies, with the Grand Duchess at its head, had charge of entertaining the ladies who accompanied the members, and contributed their full share to the success of the Congress. Excursions to the environs of Moscow were among the pleasantest features of their programme. The Grand Duchess, who, it will be remembered, is the Czarina's sister, interested herself actively in the work of this committee.

In concluding this short sketch, let me say that the management of the Congress was in all respects admirable. It was planned and carried out on a large and generous scale, and it was evident that our Russian *confrères* who were concerned in it had put their shoulders to the wheel, and spared themselves no pains to assure its success. The remarkable facilities offered by the number of large buildings in Moscow and their central positions contributed to this result. The courtesy of our Russian hosts and their evident wish to please their visitors were conspicuous.

Amongst other things to be remembered are the deep-toned bells, the devoutness of the people as shown in the churches and before the shrines, or *Ikons*, as they are called, which are placed at frequent intervals in the streets, in passing which almost every Russian removes his hat and crosses himself, and in front of which are often to be seen people kneeling in prayer, bending forward from time to time and touching their foreheads to the pavement.

Then, other features of the country are the great number of fine horses and the universally rapid driving; the absence of small towns along the lines of the railways; the great number of police in the large towns; the presence of military patrols along either side of the railways, soldiers being placed within sight of each other sometimes for a distance of one hundred miles or more; and the customs of eating and drinking, to which one needs to be trained before reaching the level of the Russian's digestive powers.

One memory, which is strong with me, is that of the almost entire absence of laughter; smiles were not uncommon, but I think I can truly say that I heard no one laugh throughout the weeks I was there. One other custom which one has to learn to adapt one's self to is that of turning night into day. All the entertainments begin late, and the people seldom went home from them before three or four o'clock in the morning.

Yankee haste meets no encouragement in Russia; and the length of time they take to do things in the shops, hotels and railways, at least, is only surpassed by the deliberation of the negro of our own Southern States.

Let me say that, should we hold an International Congress here, we would do well to imitate as nearly as possible the manner of conducting it shown by the Russians last summer; and the more nearly we come to doing this the more successful will the occasion be.

ACUTE INFLAMMATION OF THE ANTRUM OF HIGHMORE.¹

BY FREDERIC C. COBB, M.D.,

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So much has already been written on the subject of inflammation of the antrum that it seems superfluous to add anything to the already enormous volume. Purulent antral inflammations may be divided into three classes: first, acute attacks associated with complete closure of the antral orifice; second, acute pus formation, with a more or less patent condition of the antral opening; and, third, chronic suppuration without any marked symptoms of obstruction.

It is to the second class of cases that I wish to call your attention. The symptoms observed in this affection are usually ushered in by a "cold" in the head, with perhaps a chill or severe pain in the frontal region or over the antrum itself. The "cold" may at first be bilateral, the antral condition only be suspected after the rhinitis has cleared up partially, leaving behind it a unilateral nasal discharge of thin or thick yellow or greenish character. There may or may not be a foul odor connected with the disease, and generally when present it is not perceptible to the friends of the patient but is extremely offensive to the patient himself. The character of the pain is intermittent, the intermissions being associated with a free discharge of pus from the nose or from the posterior nares. On transillumination the face appears dark under the eye of the affected side, and often light cannot be perceived in the eye of the diseased side as well as on the healthy one. The darkness is to be explained, not as is usually understood, by the presence of pus in the antrum, for we find that on washing out the cavity after trephining that the affected side remains as dark as before, but by the great thickening of the antral mucous membrane, resulting either from the constant presence of pus in the antrum or by the inflammation set up in the mucous membrane by the etiological factor of the antral disease itself.

We have now established with considerable probability the presence of pus in the antrum, but can still be misled by one factor, the anatomical difference in the thickness of antral walls and the size of the antral cavity itself. In order to be absolutely certain of the condition at the time of examination it is necessary to puncture the antrum, either through the lower meatus in the nose or through the canine fossa or alveolar process. In my experience, however, this is seldom necessary, as I have found transillumination a very satisfactory guide when taken in conjunction with other symptoms. Having determined that the antrum contains pus, the next step consists in finding the etiological factor in its production.

The teeth should be thoroughly examined, and, if possible, by a first-rate dentist, and any account of pain or filling of dead roots inquired into with great care.

¹ Read before the Boston Society for Medical Improvement, November 1, 1897.

Grünwald has shown that diseased tooth crowns as well as roots may give rise to an empyema. If there be nothing found amiss with the teeth, the nose should next be carefully examined for any signs of obstruction which could cause stoppage of the antral orifice. Ethmoiditis and frontal disease must be eliminated if possible, by examination with the probe for necrosed or bare bone in the region of the middle turbinate. Fillebrown has shown by the passage of a probe from the frontal sinus into the antrum, and I have satisfied myself by injecting colored fluids into the frontal sinus, that there exists a frequent natural communication between the frontal sinus and the antrum through the infundibulum. This fact has been well known to anatomists for a long time, but its significance in antral affections has not been appreciated by practitioners. If there are no signs of inflammation in either frontal or ethmoid regions, we are left to diagnose antral empyema, and the question of drainage at once presents itself. Pus in the antrum has usually been considered a good indication for at once opening that cavity. But the opening of the antrum, although at the top of the cavity in the erect position, is, in the recumbent position, parallel to its long axis, and offers free drainage if the patient lie on the healthy side, and if the middle turbinate does not obstruct the passage of the pus into the nose.

The object of this paper is to show that the antrum may, and often does, get well without other treatment than keeping the turbinate contracted and the nose as clean as possible. It may be objected that the process is a slow one under the expectant treatment, and would be rapid under the policy of interference. Fatal cases have, however, been reported from sepsis following the antral opening, and very severe hemorrhage is also a possibility which has occurred and has to be considered. On the other hand, we must consider what damage to the antral mucous membrane may be done by waiting a few weeks before operating. With regard to the latter point, the statistics show a most remarkable power of recovery in the mucous membrane of the antrum, cases being reported where, foreign bodies being removed from antra which has been suppurating for months and even years, healing took place very rapidly on removal of the cause. The following case is an instance of this:

A. C. entered the Boston Dispensary complaining of a foul discharge from the left nostril. Five months before she had had a severe cold in the head, but this seems to have been on the left side only. Examination shows a first bicuspid the crown of which only was decayed; but as all the other teeth were missing on the upper jaw on the side, it was decided to remove the tooth. A little cavity in the crown was found, but the roots were reported perfectly sound. A week later the antrum was opened through the alveolar process at about the location of the insertion of the second molar tooth, and much foul pus was evacuated. A week after operation, with daily washing, the wash-water showed no pus, although the antrum still appeared as dark as before puncture when transilluminated. The catheter was now passed every day into the antrum, in order to keep the opening from closing in case of a relapse; but as none occurred in ten days the opening was allowed to close. Three weeks after opening the antrum the right side, although still somewhat darker than its fellow, was much brighter than before. Five weeks after, however, transillumination showed an

equal light on both sides and the patient eighteen months later still reports herself perfectly well.

This case shows, I think, that the mucous membrane after five months of constant suppuration may regain its equilibrium so as not to secrete pus in a week or so although it may not return to its absolutely normal condition for four weeks. It also confirms Grünwald's statement that the diseased crown of a tooth may give rise to an empyema even if the roots of the tooth be sound. If, then, the antral mucous membrane recovers so rapidly when it is washed and drained, even if it has been in a condition of suppuration for many months, we need not fear to wait a week or two before opening and draining. That the antrum can be clearly proved to be full of pus and its mucous membrane infiltrated and yet that it can recover rapidly without operation is, I think, shown by the following cases:

CASE I. Miss E. F. came to me in March, 1897, with a severe rhinitis. This began on March 1st; and on the 5th, for its relief, the nostrils were cleansed with Seiler's solution by means of a spray. On the 9th she began to feel a sensation of pressure in the upper left molars, as if her teeth were crowded together. Her face swelled considerably on the same side, and on the 10th there was a discharge of pus from the left nostril, and all the symptoms began to abate. The teeth had been constantly examined by Dr. F. M. Briggs, and nothing could be found diseased about them in any way. On the 13th, the swelling of the face having subsided, transillumination showed darkness of the left side. The symptoms continuing to improve no operation was done, the treatment being confined to oily nasal sprays and cleansing washes. On examination of the nostril pus was clearly seen beneath oozing from the middle turbinate, which was slightly swollen and edematous. The discharge of pus decreased, the secretion becoming thicker and less in amount quite rapidly. At the end of three weeks the discharge had ceased entirely, and on the first day of April transillumination showed equal light on both sides of the face. There has been no return of the symptoms.

CASE II. R. P., a man thirty-one years of age, seen with Dr. Cogswell, of Boston, had a sharp attack of rhinitis March 10, 1895, with pain over left antrum and at root of nose. In two or three days the acute cold subsided, and the pain over the left antrum and frontal region became more acute. I saw him on March 16th, and found the left nostril excoriated by a thin purulent discharge, which was so profuse that it was hard to tell whether it came from above or below the middle turbinate. The lower turbinate was much swollen. Transillumination showed the antrum of left side quite dark, in great contrast to the other side. Although the antrum was evidently full of pus it was not considered wise to open it, on the principle before stated, that it was more likely to be the reservoir for the frontal sinus which the frontal pain seemed to make the probable seat of the disease. Under oily sprays to reduce the violently inflamed condition of the nostril the pain began to improve, growing less each day and soon disappearing altogether. The discharge began to improve, but slowly, and becoming thicker and more mucopurulent. It ceased in about three weeks, and the patient having no further symptoms was not seen until April 6, 1897, when transillumination showed both sides of the face perfectly equal in the transmission of light.

CASE III. Mrs. A. L. A., age forty-six. Duration, previous to operation, one week; thin yellow discharge from right side of nose. Also purulent otitis of same side; discharge is becoming more watery. On examination, left nostril clear; right nostril shows normal-sized turbinates, while from under the middle one pus is seen to be oozing. There was no polyp. Transillumination shows darkness below right eye and over right cheek. There were no teeth in the right upper alveolus. The discharge improved slowly in character, first thick and then watery; and on March 9th there was no discharge, although transillumination still showed darkness of the right side. The patient had no further trouble, returning to the hospital on September 13th for some other complaint, transillumination was found normal on both sides.

Both these cases were nervous, timid people, to whom the idea of operation was very repugnant and to whom any surgical procedure, however simple, would have seemed terrible. I am sure that they were more comfortable than patients I have operated on either through the nose or alveolus. These cases are but an example of others of which I have unfortunately not kept accurate notes. They make the question whether to operate and at what time an interesting one. If the experience of others agrees with mine, it seems to me that unless symptoms of pressure or great pain, chills, etc., coexist with empyema of the antrum, it would be wise to give nature a chance to heal it. If, after the acute symptoms are over, the discharge shows no tendency to dry up, then puncture and wash. I do not believe that pus in the antrum, even for a long period, in any way prevents its ultimate healing when well washed and drained, so that we run no risk in permitting the process to run if there are no great signs of pressure.

TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANISM.¹

BY GEORGE A. RAYMOND, D.D.S.

MR. PRESIDENT, MEMBERS OF THE SOCIETY, AND GENTLEMEN:—It gives me very great pleasure to come before this distinguished body to-night. It also gives me added pleasure that my paper should come on the same evening as that of Dr. Richardson, as I believe he will agree with me in the position which I take; and I believe firmly that the majority of our most able surgeons who have had much experience in dealing with cleft palates have arrived at the same conclusions.

It is not my purpose to give you any extended history or treatise on the subject before me, nor to take up your very valuable time in telling you what you already know.

We are all called upon to treat two kinds of cleft palate, namely, congenital and acquired. It is my purpose to-night to speak of the former, as the latter has to be dealt with according to the pathological conditions of each case.

The surgical operation known as staphyloraphy, or the closure of cleft palate, has been performed by some of our greatest surgeons for more than three-quarters of a century. The Germans, I believe, commenced surgical treatment about the same time as did our

American surgeons, working somewhat independently of each other, and yet reaching about the same results.

I believe it was as long ago as 1820 that the late and distinguished Dr. Warren first performed the operation in Boston. When I first undertook the treatment of these cases myself I immediately began a search in the records of the past, and have sought the information afforded me by those in the front ranks of our profession at the present day.

A little over a year ago I was to read a paper before the Maine Academy of Medicine on this subject, and I wrote to Dr. Norman W. Kingsley, of New York City, asking him if in his experience of forty years he had ever seen or heard of the staphyloraphic treatment resulting in a perfect articulation. In answer to my question he said that he had heard that there had been cases, but that he had never seen one. Continuing, he said, "I suppose it must be so, because some one says that he knew some one who said that he had seen such a case." In conclusion, he said, "We cannot deny the existence of such cases any more than we can deny the existence of the sea-serpent."

So, in my search for information, I find not a single case as having resulted in a perfect speech. Now, why is it that no one has ever been able to accomplish better results? Those of you who have examined any number of cases find that in the closure of the cleft the surgical palate will in all cases be short, and so tense that you can scarcely perceive any muscular activity or flexibility; therefore, while you may get a successful surgical palate, it is still far from being a physiological palate, as it is impossible for this new velum to come in contact with the posterior wall of the pharynx, thus shutting off the posterior nares.

About a year ago I had a young lady, twenty-three years old, come to me for whom Dr. Cheever had operated when she was a little child. I expected to have her here to-night that you might hear the speech yourselves, to see the results of an early operation. A few days ago I wrote to Dr. Cheever, calling his attention to her very bad speech and asking him his present opinion in the matter, and if after his long and noted experience he had known of a perfect speech resulting from such an operation. In reply he says, "The operations for the closure of cleft palate which I have done have usually disappointed me as to perfect articulation. The failures, I have observed, consist in lack of due flexibility of the soft palate."

The young lady whom I expected to have here not being present, I will show you a model of the mouth, and you can readily see how it would be more of a hindrance than otherwise to a perfect or normal speech. I see no reason myself why a cleft palate should be interfered with at all except to perfect the speech, as all the cases which I have been dealing with have not the slightest trouble with swallowing or in using fluid diet, and long before a child arrives at an adult age he has learned to accommodate himself to his condition.

A little over a year ago I saw a young child in Boston who had an operation for the closure of both hard and soft palate, including hare-lip. The lip had been closed in infancy but had torn open, leaving an ugly scar. In this operation (which was considered in advance of the usual operation) genius was displayed; but from my experience of twenty years in dealing with irregularities of the teeth and deformed

¹ Read before the Boston Society for Medical Improvement, March 8, 1897.

mouths as affecting one's articulation, I am firmly convinced that the child will never have a good speech.

If, perchance, you succeed in getting what may be considered the right length to the surgical velum in the child, and thus reach to the posterior wall of the pharynx, you will find that as the child grows and develops the last condition will be worse than the first, simply because there has been no commensurate enlargement or broadening of the soft palate. It will, therefore, be a hindrance to perfect speech.

Dr. James L. Little, of New York, once said, in speaking of uranoplasty and staphyloraphy: "I have carefully looked into the results and find that although in a large proportion of the cases the operations are successful so far as the closing of the fissure in the hard and soft palate is concerned, yet so little, if any, benefit is obtained in the improvement of the articulation that I have been forced to the conclusion that they should be discarded as surgical procedures in adults." Seeing also the results of the operation, even when done in childhood, what have we to conclude in the matter? We are convinced that the surgical procedure is a failure.

What you fail to get by a surgical palate we can get in all cases by the use of mechanism, and in the natural development of the child we can easily change the appliance to fit and perform the functions of a natural velum with the greatest accuracy.

I will now show you the phonographic record of the speech of a lady thirty years old who had worn her appliance about a year. She had a very wide congenital cleft and wears the appliance with perfect ease.

You will now hear her read an extract from American history without the appliance in her mouth.

She will now repeat "Nearer my God to Thee," with the appliance in her mouth.

I will show a little girl, ten years old, who has been wearing the appliance a year and a half. You can hear her speak in person. She has always been subject to severe tonsillitic inflammation, but a little less than a year ago quite a piece of each tonsil was cut away, so she is now able to wear the appliance night and day, only removing it to cleanse.

She will now speak without the appliance in her mouth.

She will now recite something with the appliance in her mouth.

I expected to have a young lady here for whom I have just made an appliance, but on account of sickness she is not able to be present.

I have associated with me Miss Sarah Allen Jordan, who is doing excellent work in teaching my patients in their articulation. Her special fitness enables her to supply the needs of these individual cases.

I have a little boy, who was placed in my hands by Dr. Hartwell, for whom I am now making an appliance. At a later period we will be able to show you, I think, in this case some very marked results. Before treatment you may be interested to have his speech by phonograph. This shows it as it is now.

When I was before the Maine Academy of Medicine my paper was discussed by Dr. Thomas Fillebrown, of this city, and I quote the following from his paper: "A serious objection to an obturator is that it is not practicable until the patient is well grown and the most susceptible part of his life gone, and the proper period for learning to talk has long since passed away."

I have shown you results to-night which are quite the opposite to his theory. I prefer to take such cases in early childhood, and I think I can truly say that I find it no more difficult to fit a child to an obturator who is seven or eight years old than for an adult.

Thanking you very kindly for your interest and the attention you have given me, I will conclude my remarks on this subject.

Clinical Department.

THREE CASES OF ABDOMINAL STAB-WOUND: LAPAROTOMY IN EACH CASE, WITH RECOVERY.

BY JOE V. MEIGS, M.D., LOWELL, MASS.,
Surgeon to St. John's Hospital.

THE three following cases occurred during my service in St. John's Hospital; two admitted in 1894 and one in 1895:

CASE I. E. M., single, age twenty-four, an operative. While engaged in a bar-room fight with several partially intoxicated companions he was stabbed several times by one of them with a jackknife which was recently used in cutting tobacco.

He was at once taken to his home near by, and while awaiting the arrival of the ambulance his protruding intestine was wrapped up in a much soiled undershirt. He was admitted to St. John's Hospital on the evening of May 5, 1894, an hour or two after the stabbing, somewhat under the influence of alcohol.

He presented the following wounds: A superficial wound one-half inch in length in the median line of the neck, two inches below the chin; a wound of the chest four inches below the left nipple, one inch in depth and one-half inch in length; a wound two inches in length on the inner side of the left thigh, six inches below Poupart's ligament; a wound two inches in length, two and one-half inches in depth, on the outer aspect of right thigh, about seven inches below the hip; a wound of the abdomen one and one-half inches long, one inch below and three inches to the left of the umbilicus, through which wound there protruded about ten inches of small intestine, which was penetrated just above the attachment of the mesentery by a wound three-quarters of an inch in length, running lengthwise. The intestine was wounded in two other places but not penetrated.

The abdominal wound was enlarged, the wound of the intestine was closed by Lembert sutures, silk being used. The remaining intestine was closely examined for other penetrations but none was found.

The abdominal cavity was flushed with sterile water and closed without drainage. Other wounds received appropriate treatment. Patient made a rapid recovery, and was discharged from the hospital four weeks after admission.

CASE II. P. O., single, age twenty-three, an operative. Received at hands of a companion the following wounds made with a pocket knife:

A lacerated wound of the ulnar side of the right hand, two inches in length; a wound of the little finger of the right hand, two inches in length; an incised wound of the abdomen penetrating the cavity, one-half inch in length, situated a little to the right of the umbilicus.

He was admitted to St. John's Hospital June 10, 1894. The abdominal wound was enlarged, intestine and omentum carefully examined and found to be uninjured. The cavity was flushed with sterile water and closed without drainage. Other wounds received proper dressing. Patient made an uninterrupted recovery, and was discharged, well, July 4, 1894.

CASE III. J. F., single, age twenty-three. Was admitted to St. John's Hospital on the evening of May 20, 1895, having been cut in a street fight. On examination the following wounds were found:

An incised wound on the dorsal aspect of the left hand, severing a tendon; a wound of the abdomen, two inches to the left and one-half inch below the umbilicus, three-quarters of an inch in length, with omentum protruding, seemingly strangulated.

The abdominal wound was enlarged, small wound of the omentum sutured, omentum replaced, intestines carefully examined but found uninjured.

The abdominal cavity was flushed with sterile water, and the abdominal wound closed without drainage. With the exception of a stitch-hole abscess, the patient made an uninterrupted recovery, and was discharged June 20, 1895.

Medical Progress.

RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

ETHMOID DISEASE AND NASAL POLYPI.

As a result of the study of the pathological anatomy of ethmoid disease J. N. Mackenzie¹ concludes that the so-called "myxomatous degeneration," described by writers on ethmoid disease, is not due to mucous change at all, but is the result of simple inflammatory action. Purulent ethmoiditis may in many cases endure for years without producing any bone lesion whatever. The changes found represent successive stages of the same affection, and therefore divisions of "ethmoiditis" tend to introduce an element of confusion into our pathological conception of the disease. The ethmoid region affords probably the most excellent place for the study of the origin of so-called nasal polypi. Of great importance is the striking similarity between the young granulation tissue found in the ethmoid region and the structure of round-celled sarcoma, and hence the possibility of error in microscopic diagnosis. The author protests against the careless use of the term "myxoma" as applied to a growth which is histologically an edematous fibroma. Caries, when it occurs at all, is secondary, and of no etiological importance. Except in cases due to syphilis, tubercle, chemical poisons or trauma, it is not the rule to find necrosis, or even caries of bone. When the inflammatory process reaches the bone changes may take place in it similar to those found in atrophic rhinitis; that is, absorption and disappearance. In opposition to Grünwald, nasal polypi are not considered the result of suppuration, although in the vast majority of cases the result of inflammation. The development is as follows: the first stage consists in the formation of young granulation tissue, in the second this tissue becomes gradually converted into definite adult connective tissue, which in the third gradually separates and

causes more or less complete obliteration of the normal structures, and in the fourth converts them into a fibrous mass. This by its position becomes edematous, and assumes the characteristic forms.

Hajek² contributes a similar paper based on the examination of portions of the ethmoid bone and its coverings from patients with polypi and inflammatory hypertrophy of the mucous membrane. A polypus is simply an edematous hypertrophy, essentially of the same nature as a dense hypertrophy. The inflammatory process may be confined to the superficial layers, or extend deeper. Superficial inflammation may be the result of some continued irritation, and may precede, or be found in a different part of the same specimen, with infiltration extending to the glandular layer, the periosteum or the bone itself. When the bone is affected, it may result in new formation or in absorption of the bone, in the latter case leaving in places detached scales. The theory of Woakes, that necrosing ethmoiditis is a common and causative agent, has for some time been abandoned; there is seldom necrosis or caries of bone, except as an accidental complication, or as a result of syphilis or tubercle. The author's researches show that the inflammatory process extends from the outer to the deeper layers, and not in the opposite direction.

TUBERCULAR INFILTRATION OF FAUCIAL TONSILS AND ADENOID VEGETATIONS.

The finding of evidence of the invasion by the tubercle bacillus of hypertrophied pharyngeal and faucial tonsils, to which attention was drawn by Dieulafoy,³ two years ago, has suggested not only a point of entrance of tuberculosis into the system but a possible explanation of the hypertrophied glands themselves. The former possibility has been received with more favor than the latter. Different authors have found evidence of tubercle bacilli in faucial tonsils and adenoid vegetations after their removal. Such varying methods of examination have been used that it is not strange that the percentages in which such evidence was found has varied from one up to 20 or 30 per cent.; neither does the finding of tubercle bacilli on the surface of the gland or in the crypt necessarily point to the gland as a source of tubercular invasion.

McBride and Turner⁴ in one hundred cases found giant cells in three, but consider this percentage as too small.

Gourc,⁵ on the other hand, from a study of two hundred cases, believes that tubercle bacilli are very rarely to be found inside the gland; although frequently on the surface. Several other micro-organisms were found, but the author failed to find any tubercle bacilli or evidence of them when the growths had been previously cleansed.

Wright⁶ believes that, in spite of the recent evidence, tubercular amygdalitis is a rare affection, and that the tonsils are rarely the seat of primary inoculation. Investigations have shown that bacilli do get through the epithelium of the throat and into the cervical lymphatics in tuberculous subjects and in animals fed on tuberculous food. Considering the chances of primary, but especially of secondary invasion, it is certainly rather remarkable that these structures should escape so constantly as they do.

² Archiv. f. Laryngol. n. Rhinol., Band 4, Heft 3.

³ Arch. de Lar., July, 1895.

⁴ Edinburgh Medical Journal, May, 1897.

⁵ An. des Mal de l'Oreille, May, 1897.

⁶ Transactions American Laryngological Association, 1896.

¹ Transactions American Laryngological Association, 1896.

ANTITOXIN INJECTIONS IN OZENA.

In studying the bacteriology of ozena, Belfanti and Della Vedova⁷ found a bacillus apparently identical with the Klebs-Löffler bacillus of diphtheria, except in its virulence. Acting on this suggestion, they treated several cases by subcutaneous injections of the diphtheria antitoxin with surprisingly good results. These observations have found varying degrees of confirmation in the hands of other bacteriologists and clinical authors. The large pneumococcus of Löwenberg is still considered as the possible specific organism of the disease. The injections of antitoxin have been found by several observers to be followed by softening and diminution of the crusts, disappearance of odor and increase of fluid nasal secretion. Improvement begins after two or three injections of four to six cubic centimetres. The good results are not always of long duration after the treatment has been stopped, and it is not always free from disagreeable complications.

Gradenigo⁸ has substituted intra-muscular injections of iodine with a similar good result.

TURBINOTOMY AND TURBINECTOMY.

At the recent meeting of the Laryngological Society of London, May 12, 1897, the operation for the complete removal of the lower turbinate for nasal obstruction was discussed. This operation, advocated by Carmalt Jones, with an instrument introduced by him, appropriately called a "spokeshave," has been the subject of discussion and differences of opinion for some time. The instrument is made with the cutting part in a curved form, so as to be convex on the side next the turbinal. Incidentally, the removal of part of the inferior turbinate, either the anterior or posterior end, by means of a snare or punch, was brought up. The general opinion was that the total removal of the bone was a more radical operation than was justified except in rare cases. There is danger of hemorrhage at the time, and secondary, and of drying of the secretions and scabbing as a result of the operation, although in several cases reported this had not occurred. The same subject was discussed at the recent meeting of the British Medical Association in Montreal by the Section on Laryngology. A paper was read for Mr. Jones showing good results, not only in relieving obstruction, but secondarily on the ears. The common criticisms were that it is unnecessarily radical and threatens the subsequent physiological integrity of the nose. The partial turbinectomy was generally sufficient, and even this was to be avoided if space could be gained on the septal side. The discussion was summed up by the President to the effect that complete resection of the lower turbinated bone is almost never called for; that partial removal is only occasionally required and then the anterior portion.

A METHOD OF OPENING AND DRAINING THE ANTRUM.

Following the method now commonly adopted for draining the frontal sinus by opening externally, exploring and draining into the nasal cavity and closing the external wound, Luc⁹ opens the antrum through the canine fossa, investigates the cavity and removes anything that seems advisable, then breaks through into the inferior meatus to establish drainage, and

closes the wound into the mouth by suture. This heals in about three days, and the antrum is washed through the nose as long as is necessary.

MEASLES AS IT APPEARS ON THE BUCCAL MUCOUS MEMBRANE.

Koplic¹⁰ describes an eruption which appears upon the inside of the cheeks at the onset of an attack of measles before the appearance of the skin eruption, which he considers distinctive as a means of diagnosis. Small, irregular spots of a bright-red color are seen on the inside of the lips and cheek, but not on the hard or soft palate; in the centre of each spot is a small bluish-white speck. These spots do not coalesce and do not become opaque white. As the skin eruption appears, the background becomes a diffuse red with a large number of bluish-white specks over it. This appearance soon afterwards fades. In *rötheln* and in influenza the mucous membrane remains normal. In aphthæ the spots are less red, and do not present the bluish-white specks.

RHINITIS SICCA ANTERIOR.

Under this title Ribary¹¹ describes the condition of the mucous membrane covering the part of the cartilaginous septum, which in various stages is shown by dryness, slight scabbing, crust formation, leading sometimes to deeper ulceration and perforation. The normal mucous membrane in this region is covered with ciliated epithelium, which in this disease is converted into pavement epithelium. The surface may appear varnished, and may be traversed by shallow depressions and folds. It is caused originally by picking with the finger-nail, dust, or other irritation. This injured mucous membrane may be a point of invasion for tuberculosis, erysipelas, or other infection. The treatment consists in softening the crusts as often as necessary and covering the surface with an ointment.

AUTOSCOPY.

Kirstein¹² has devised an instrument and technique for the direct examination of the larynx and trachea through the mouth, that is, without the aid of reflecting mirrors. The proceeding is thus simply described by the author: "The patient tilts his head slightly upward and opens his mouth; the physician presses the base of the patient's tongue forward with a spatula." This, however, requires a certain amount of training and skill on the part of the physician, and of tolerance on the part of the patient. A simple autoscope resembles an elongated tongue depressor which is hooked around the base of the tongue between it and the epiglottis; the head is bent backward and the tongue pressed downward and forward, bringing with it the epiglottis; in this way the posterior wall of the pharynx, the posterior half of the larynx and part of the trachea come within the field of vision. This method the author calls autscopy, and the instrument an autoscope. The field is illuminated either by reflected light or by a special electric attachment. The larynx, especially the posterior half, can then be reached by instruments which are straight and shorter than those in common use, a manifest advantage. He has been able to examine and reach the larynx and trachea in children who are under an anæsthetic much more easily and thoroughly than it is possible to do

⁷ Gaz. Med. de Turin, 1896.

⁸ An. des Mal. de l'Oreille, etc., June, 1897.

⁹ Arch. Internat. de Laryngol., 1897.

¹⁰ Arch. Ped., xiii, 9, 18.

¹¹ Arch. für Lar. u. Rhin., iv, 3.

¹² Monograph, translation by Thorner. F. A. Davis Co.

with previous methods, and occasionally, especially in young children, to dispense altogether with anesthesia.

A somewhat similar method of examining the naso-pharynx is described by Katzenstein,¹³ who places the patient on a table with his head bent backward, as in the Rose position. The tongue is grasped and held out, and the soft palate drawn forward with a palate hook. Lindt keeps the patient in a sitting position on a higher level than the observer, and uses a wide hook, concave below, with a notch for the septum. In good subjects the whole vault of the pharynx and the opening of the eustachian tubes can be seen and reached.

TO PREVENT THE DIMMING OF MIRRORS.

Dundas Grant¹⁴ notes a simple method of preventing the dimming of throat mirrors, suggested by Mr. George Wallace. It consists simply in rubbing the glass over with a piece of ordinary dry soap. The film of soap left on the mirror is wiped off by means of a soft rag or handkerchief and it is then found that the mirror can be breathed on without any cloudiness resulting. This is very often needed in cases where direct sunlight or an electric light is used, and means of heating the mirror are not at hand. After washing, the process must, of course, be repeated.

AN EXAMINATION OF THE LARYNX IN INFANTS.

Lack¹⁵ describes a simple method for the examination of the larynx in infants. The child is held in the sitting position, the index finger of the left hand is passed into the mouth and the tip hooked around the hyoid bone, which is pulled forward, the rest of the finger acting as a tongue depressor. The left thumb is pressed under the chin and a small mirror introduced in the usual way. This method is said to cause no pain, no anesthetic is required and it is applicable to every case. In older infants, those with teeth, a curved tongue depressor is used instead of the finger. It is not quite so easy, and some means of opening the mouth may be necessary.

THERAPEUTICS.

Among the numerous applications recommended for different conditions are the following:

Pharyngo-Mycosis. Colin¹⁶ paints the prominent end of each outgrowth with a solution of perchloride of iron, one part to four of water. This stains the fungus, which becomes hard and can be pulled out in two days. This is repeated every second day for three weeks.

Papilloma of the Larynx. Heryng¹⁷ after unsatisfactory results with other caustics uses sulphuric acid of phenol to prevent recurrence after operation, and in certain cases without previous operation. The latter is sufficient for growths on the aryepiglottic folds and cartilages of Santorini. A thirty-per-cent. solution is used, which is rubbed well into the growth.

Phthisis Laryngis. Braunsfeld,¹⁸ following the treatment of Hartman, concludes that the inhalation from solutions of liquo-sulphite reduces the cough and dysphagia, improves the expectoration, and to a certain extent cleans up the ulcerating surfaces; but produces no direct effect upon the tubercular process nor the bacilli. The solution is from ten to thirty per cent.

Cancer of the Naso-pharynx. Kuh¹⁹ reports a case in which a large mass in the naso-pharynx, shown by microscopical examination to be cancer, disappeared under twelve injections of alcohol, of three to thirty minims, after the method of Schwalbe and Halse.

Eucaïne. Lake²⁰ calls attention to a few cases reported by different writers in which troublesome symptoms, such as vertigo, faintness, amblyopia, occurred after the use of eucaïne as a substitute for cocaine; symptoms not unlike those of the latter drug.

THE NOSE AND DYSMENORRHEA.

Fliess²¹ has found such an intimate relation between the nasal mucous membrane and the female generative organs that in some cases he is able to entirely relieve painful menstruation by applying twenty per cent. cocaine to the lower turbinate and the tuberculum septi. These portions of the nasal cavity, he considers, are especially liable to become swollen and sensitive during menstruation.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, March 8, 1897, Dr. C. F. FOLSOM, chairman *pro tem.*, presiding.

DR. MAURICE H. RICHARDSON read a paper on

ACUTE INFLAMMATION OF THE GALL-BLADDER.

DR. G. A. RAYMOND, by invitation, read a paper on
THE TREATMENT OF CONGENITAL CLEFT-PALATE BY
MECHANISM.¹

DR. RICHARDSON: I do not feel ready to make any remarks on this subject. I tried once or twice to close the cleft in the soft palate, but never succeeded in doing anything with it. I don't know that I ever tried to close the hard palate. As it appears to me, now, I never shall do the operation, for this obturator method seems a most satisfactory way of treating cases. I think it is perfectly extraordinary how good the voice is in the case of this little girl. Unless I see some reason to change my view, I shall not try to do any surgical work on the hard or the soft palate.

DR. LANGMAID: I should dislike to let this opportunity go without saying that the conclusion Dr. Richardson has come to I came to years ago, and it has been now eight or ten years since I began to send every one who came to me, in hospital or private practice, to some one who would put in an apparatus. The reader in his paper has referred to Dr. J. M. Warren's operation. I remember one of the difficulties he had, and he was up to all the schemes in that day to close the soft palate over the hard palate. For several days I was engaged in soaking the sutures in compound tincture of benzoin. He thought that so prepared they did not ulcerate. In all these years I have been watching the results of operations upon cleft palate, and I have never seen not only perfect speech but have never seen an approach to good speech. Some years

¹ See page 596 of the Journal.

¹³ Archiv. für Lar. u. Rhin., Bd. v.

¹⁴ Journal of Laryngology, April, 1897.

¹⁵ Laryngol. Soc., London, February 10, 1897.

¹⁶ Arch. Int. Laryngol. Pé., ix, 5.

¹⁷ Therap. Monats., March, 1897.

¹⁸ Deutsch. med. Woch., April 1, 1897.

¹⁹ New York Medical Record, April 17, 1897.

²⁰ Journal of Laryngology, xii, 4.

²¹ Gazette de Gynecol., June, 1897.

ago there were brought before one of the societies patients who had had apparatus put in and we heard very perfect speech and singing, and I have taken pains for the past five or six years to see quite a number of patients, had them come to my office, and I have been studying the action of these artificial palates, and I have never seen a case in which the speech was not greatly improved and sometimes made almost perfect. I cannot help thinking that in every way this artificial apparatus must be preferable to any operation involving the cutting away of soft parts, and, as I say, for eight or ten years I have never allowed one of my patients to have an operation done if I could help it.

DR. MIXTER: There is one question I have asked myself several times, and perhaps Dr. Raymond can answer it; it is this: We have appearing at the hospital occasionally these patients with cleft-palate. Now this matter of having an artificial palate applied is one of considerable time and very considerable expense. A certain amount of work has been done, I suppose, at the Dental School, but how much I do not know. I have several times tried my best to get some one to work on these unfortunate patients, who are poor. Some of them come from a distance, have no place to stay and cannot afford to have such an apparatus put in. In several of these cases I have consented against my better judgment to operate, and have done so with a good surgical result, but with anything but a good result as far as articulation went. But what are we to do with these cases which are poor and cannot be fitted with apparatus? Those are the cases where it has seemed to me it was justifiable to do some operation because some men have claimed to get good results. I certainly have never seen anything that approached what you can call a good result as far as articulation goes; but what are we to do with those poor people?

DR. RAYMOND: It is a question I have thought of very much myself, and I have done a certain amount of work along those lines, but I cannot always do it unless I receive some compensation.

About a year ago I took a child who was very poor. She was then twelve years old, a little girl who had never been able to articulate intelligently so that any one could understand what she said. Her mother seemed to understand very well what the child said, but I could not understand her. I wanted to see what I could do for the child. The lip had been operated on by Dr. Bradford at the Children's Hospital when she was very young. I made her an appliance, and a lady in Boston partially compensated me for that work. Of course, it involved much time and was quite an expense to me. The child wore the appliance a while, and I tried to teach her something, but there were many interruptions in the teaching. Sometimes she would not come to take the lesson, so that she failed to get what I desired to give her; and then, a little later, her mother took her away somewhere. One day she left the plate out of her mouth, and about three months later I saw her. In the mean time, owing to the development of the child, changes had occurred in the mouth, so that for my own reputation I had to spend two or three weeks in refitting the appliance to her mouth. She is now wearing it, and I expect to have Miss Jordan try to see what she can do with her. I have been having her come to my house every day, and my wife has been trying to have her put two or three words together to express them.

I have often thought there ought to be some means whereby these children can be cared for, and if they need appliances that the appliances may be made; and then, too, we need a special school for such children. I took this child's case before Mr. Seaver, the Superintendent of Schools, and asked him if there was no school in which she could learn. He asked me if Miss Fuller, of the Horace Mann School, would not take her provided the committee were willing. Miss Fuller said it would be an injustice to the child because the children there are all deaf, and therefore it would not be the place for a child who can hear; so that the child has remained out of school; and, although born in the city of Boston, and thirteen years old, she cannot read and cannot talk so that anybody can understand her. In a few years the child will go out into the world; and what are we going to do with her? We must get her so that she can talk and be understood, so that we can put her in a family where she will earn her living, or else she will bring up in the poorhouse. I think it would be a grand idea for the physicians to interest the public in this question so that there may be some means afforded at the hospitals whereby such a class of children can be helped. I believe there is more hope of the children, and I am putting my efforts in that direction.

DR. HARTWELL: I had a census made of the children in the schools three years ago, to see how many stutters and stammerers there were, because I have found that the doctrine that the muscles were connected with the nerve-centres could not easily be accepted as the basis for work in physical training by the teachers and educators; and I thought I would take some case where we had three sets of co-ordinated neuro-muscular mechanisms, and show what mischief in one or the other might produce. The reports showed that 7 out of every 1,000 school children had some impediment in speech—stuttering or stammering. No distinction was made between stuttering and stammering. I found that the differences between the two sexes and the stuttering rate was correlated with Bowditch's rate of growth. The most scientific man upon this subject was Melville Bell, who pronounced the schools the nurseries for stuttering.

I did not find much in English upon the subject. In looking over the German and the French literature, I came to the conclusion that Kussmaul, a great stutterer, a professor of medicine in Strassburg, had written the best book. One per cent. of the children in Berlin turn out to be stutterers, and there are certain years when the stuttering comes on, the largest number of cases about the first dentition, the next largest about the onset of puberty. Taking the statistics from the lowest to the highest grade, there was very little among the kindergarten children, but the curves ran almost to their maximum in the second and third years of the primary school, where the children were struggling hardest to learn to read; and I can find no reason for believing it is anything more than certain unnatural or mistaken forms of teaching language and reading. I intimated as much in my report.

Some of the teachers of the Normal School were a little chagrined at the idea that their methods might not be the best there ever were, and they wanted to know the views I had on stuttering and how we could help it. I said, I will get some stutterers out of the schools and we will work along and see where we come out. I got some boys, and one of them sent in as a

stammerer had a cleft back into the hard palate. You have heard his speech to-night. We improved those boys a great deal. The method is a recognition of the fact that the voice is a threefold thing, the result of the bellows of the diaphragm, the phonation muscles and articulatory muscles; and we had reason enough to think if we could have them every day instead of once a week we could accomplish something. Dr. Raymond agreed to make this apparatus, and I hope some day we shall be able to give you a record of that boy's improved speech.

DR. SPEAR: I would like to add a few words to the very instructive paper which has interested me on account of the prevalence in ear clinics of these cleft-palate cases, and more especially because I am at present treating a gentleman who has an affection of the ears which undoubtedly resulted from the use of an improperly fitting obturator. I would earnestly call attention to the necessity of examining the ears in all cases of cleft palate in which there is any pathological affection of the post-nasal space or of the turbinate bodies. In my present case the obturator was a very large affair, the cleft being into the bony palate, and the doctor in attempting to close in the space used a very heavy outfit, the wearing of which induced the stasis of blood which produced the disease for which he applied for treatment. The trouble dated from the time he began to wear the obturator and ceased under treatment very shortly after the removal of the same three years later. In this case there was the usual appearance of chronic middle-ear disease accompanying disease of the naso-pharynx and of the nose. The ease with which the Eustachian tube can be seen in these open palate cases make them always of interest to the aurist as they are readily seen without rhinoscopic mirror.

DR. LANGMAID: I was extremely interested in the account Dr. Hartwell gave us of the examination of pupils who stammer or stutter. I suppose every one who sees throat cases is consulted by the parents of children who believe there is some disease of the throat or mouth which prevents their articulating certain consonants, and in fact most of the consonants. On examination nothing is found. The pharynx, larynx and naso-pharynx are normal, and yet this child does not speak so that it is understood except by the parents. Has Dr. Hartwell met with those cases which will not elaborate a consonant? They are not of infrequent occurrence at the hospital and in my office. They are not stammerers. I think there should be special instruction for stammerers and stutterers in our schools, and I would add for this other affection. In these cases, after informing the mother that there is no disease, no malformation, I insist that the child should have instruction either at home or by a teacher. Singularly enough, I have never had them come again with evidences of education. I don't know how they have obeyed my instruction. It is probable that this affection may cure itself. As the child gets older it may make an attempt and the inability may be overcome.

DR. HARTWELL: I think there are many children who have not anything like full power over their vocal organs, but their cases are not recognized or are not reported, and I have never undertaken to recognize how many cases there are. I think those cases would escape the attention of most of our teachers, who have such large classes. My idea is that they need training

in the use of the vocal organs, so that it may be clear that the children can co-ordinate their organs of speech with their hearing, because many of them now cannot, and teachers do not recognize what the trouble is, and they go on with bad habits.

DR. RAYMOND: I might ask Dr. Hartwell whether they made a special band obturator for each case.

DR. HARTWELL: Yes.

DR. RAYMOND: In order to get anything accurate in its contact it would be about as much to do as to fit an obturator attached to a plate that they might get the benefit of at all times. By wearing an obturator the speech is improved; yet if they go without an obturator, the speech, while it may not be quite as bad as originally, it is so nasal and hollow that it is not pleasant to listen to. This child you listened to to-night you cannot get to speak above a whisper if she does not have the appliance in her mouth. During the time she was suffering with tonsillitis and had to keep the plate out of the mouth you could scarcely hear her at all. After she could wear it she would speak in her usual tone of voice.

REGULAR Meeting, Monday, November 1, 1897,
DR. A. L. MASON in the chair.

ANATOMICAL SPECIMENS.

DR. J. C. WARREN: I have two specimens. The first is a specimen of fistula colli congenitalis, a very rare condition about which I had read and of which I had seen pictures, but never had the opportunity of seeing in its perfection before. As represented in the books you find a fistulous opening at the lower part of the neck on the anterior border of the sterno-mastoid muscle about one and a half inches above the clavicle, and this fistula usually reaches from that point to some point in the mouth or pharynx. It is, of course, a branchial cleft which is not closed, and when the end is not open forms what is known as hydrocele of the neck. I have seen tracheal fistulae, small fistulae at the angle of the neck and chin, but never one extending the whole length of the neck, as in this case. The patient stated that a probe passed through the fistula went up to his throat and gave him sore throat on this side. That frightened him, and he decided to have it taken out. I accordingly ten days ago dissected it out. In size and appearance it looked not unlike a rather long appendix. It reached from a point about two inches above the clavicle to the anterior pillar of the tonsil on the left side. When the patient swallowed during the operation this would retract back underneath the chin. It tore off as I was about to cut it off and ligature the end, to be sure there was no opening into the mouth. No opening in the mouth could be found. The wound healed by first intention. This specimen is nicely prepared by the Kaiserling method by Dr. Whitney. My first assistant, Dr. Moscher, has made a drawing taken from the photograph of the patient while under ether and shows the wrinkling of the skin in the act of swallowing. The incision here shows how the fistulous tube passes over the anterior border of the sterno-mastoid and beneath the external jugular vein, which had to be divided and tied.

The other case was one of supposed chronic appendicitis of about a month's standing. I was called into the out-patient department about ten days ago to see

the case, and found a boy with some febrile disturbance and a tumor at McBurney's point. He was recommended to the hospital, and was under my observation several days. In the meanwhile the general symptoms improved. On Saturday I made an incision for operation between the attacks. When I exposed the cecum, I found it was not a case of appendicitis, but of sarcoma of the mesentery at the ileo-cecal flexure. A resection of a portion of the ilium and of the ascending colon together with the appendix was performed. The ends of the bowel were united by the Murphy button and the mesentery sewed up. The disease extended to the root of the mesentery. This specimen shows on one side the interior of the colon and the appendix very much distended and slit open. The operation was done on Saturday. The boy is passing gas to-day and has a temperature about one degree above normal and is in a comfortable condition.¹

ORAL COMMUNICATIONS.

DR. C. H. WILLIAMS: I have a specimen I would like to pass round. It is a section of the entire eyeball from an enucleated eye, that you can see very well under the low magnifying power. The eye was from a boy of seventeen, where there was no history of accident; but he came to me with a considerable amount of pain, no perception of light whatever, and the eye very much inflamed. With the ophthalmoscope a total separation of the retina was found; the other eye was normal. The point about the separation of the retina was that it did not move as the ordinary separation does which has resulted from a serous effusion behind the retina, but remained fast, giving more the appearance of a growth behind the retina. It is impossible to see whether it was a tumor or what it was, but it appeared to be rather a solid mass. On enucleation and section it was found that behind this separated retina there was a large subretinal hemorrhage, which had formed a dense mass in the posterior portion of the eye. It is rather an unusual form of trouble. This preparation is stained with eosine and hematoxylin, and is so thin it can be studied even under high power; it was made by Mr. Robert Osgood, a student at the Harvard Medical School.

DR. FRANCIS S. WATSON read

SOME RECOLLECTIONS OF THE TWELFTH INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.²

DR. F. C. COBB presented a paper on

ACUTE INFLAMMATION OF THE ANTRUM OF HIGHMORE.³

DR. COBB: I should like to show two patients first. One of them has been shown here before, and on transillumination there was absolute darkness on one side.

I think you will see that the light is perfectly clear in one of these patients, and that the other is absolutely dark on one side. This latter is a case of ethmoiditis and antral disease. The first case was an antrum, and after about six months she has become perfectly bright on both sides.

DR. COOLIDGE: I think that this subject of acute infection of the sinuses has not been recognized to the extent that its frequency demands.

The clinical history is often as follows: an acute cold in the nose, lasting a few days, begins to clear up on one side, but the patient notices that the other nostril has a more profuse discharge. After a day or two the patient begins to complain of pain in the face. This pain may be situated about the inner canthus, or in, above or below the orbit, or in the cheek, running down over the teeth. The pain may be intense. The temperature has been very variable in the cases I have followed—in some hardly above normal, in some as high as 104° F. Transillumination shows opacity on the affected side. In many of these cases the antrum is not the only cavity involved, although in some it seems to be. Many of the cases have well-marked edema of the middle turbinate over the whole length; other cases have not. The character of the discharge is muco-purulent, and not the creamy pus seen in the chronic conditions. An exploratory puncture of the antrum is often very simple. An aspirating needle, or better a curved trocar, can be put through the inferior meatus in most cases into the antrum, care being taken that everything is clean; and the antrum washed out. The secretion is very much like that in the last stages of a common cold—muco-purulent—in that way differing from a case of empyema of the antrum due to caries, or other chronic process. My experience has not been great enough to know whether anything is gained by this opening and washing. If not opened the pain disappears in the course of from two to eight days. The unilateral nasal discharge may continue for some days longer. If the process can be shortened, and especially if the pain can be relieved by opening, it should be done. If the pain is in the region of the orbit it is very probably due to a similar condition in other sinuses.

I think that odor and color in the antral discharge indicate opening and washing.

DR. COBB spoke of the condition of the mucous membrane being the cause of the darkness in transillumination in the chronic form. It seems to me in acute inflammation also it is the cause of this darkness, because if you wash out the contents and transilluminate the case immediately afterwards, it is still dark. The light comes back sooner after the cessation of discharge than in a chronic case.

DR. J. P. CLARK: I have very little to add to what Dr. Coolidge has said in the discussion of Dr. Cobb's paper. I believe it is a fact that acute inflammation of the antrum often accompanies acute colds in the head and subsides without special treatment, and that a large proportion of those cases of acute inflammation which do come to a physician get well without opening the antrum simply by keeping the nostrils clear, reducing the swollen turbinates and washing the nose out thoroughly at regular intervals. It is a delicate question to decide as to when one shall make a counter-opening into the antrum, and I don't think it is one about which we can make a rule which shall be generally applicable. Each case must be decided for itself after thoroughly weighing the conditions.

DR. COBB: I have nothing to say in closing the discussion except perhaps a slight point of difference. I think Dr. Coolidge spoke of my using transillumination in chronic cases. These, you will remember, were acute cases I spoke of as being darker and having transilluminated better at the end of a few weeks. In regard to the absence of odor and color as indication

¹ The patient passed the button on the twelfth day and now, on the 21st day, is doing well.

² See page 588 of the Journal.

³ See page 594 of the Journal.

of acute or chronic condition, in all of these three cases the color was very yellow and the discharge very thin and the odor was foul in one of them. With regard to the effect of colds, I happen to have had lately rather an interesting case of a man where a tooth was removed so that the antrum could be washed through that socket, who subsequently to opening the antrum had a very severe bilateral cold. During this cold, on washing out the antrum, he got no more pus from that side than from the other, showing in that case that the cold had not affected the antrum at all.

In this series of cases we are considering, I think transillumination is an infallible sign, because, although difference in the thickness of the bones of the face may make one antrum darker than the other normally, yet if one side is dark and becomes in a few weeks brighter I think the difference in transmission of light is plainly due to the disease. In considering the diagnosis of the presence of pus in the antrum, it is, of course, but a symptom, and only has weight when combined with other signs of empyema.

DR. COOLIDGE: If we transilluminate normal cases we occasionally come to one in which one side lights up well and the other does not. This is due to some anatomical condition. But if we find unilateral pain, purulent discharge and darkness on the same side the darkness is strong presumptive evidence that the antrum is involved.

Recent Literature.

The Medical News Visiting List for 1898. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Thumb-letter Index, 25 cents extra. Philadelphia and New York: Lea Brothers & Co.

This convenient and attractive Visiting List comes in its usual form and usual dress. Those who have used it before will continue to do so, and those who have not would do well to make its acquaintance. The preliminary data have been revised and brought up to date.

A Text-Book of the Diseases of Women. By HENRY J. GARRIGUES, A.M., M.D., Professor of Gynecology and Obstetrics in the New York School of Clinical Medicine, etc. Pp. 728, 335 engravings and colored plates. Philadelphia: W. B. Saunders. 1897.

The first edition of this well-known text-book has already been reviewed in these pages. The second retains the features which have made the first edition a success, and much that is of interest has been added; thus, the changes made by modern asepsis have been introduced into the text, and the descriptions of the operative procedures, which have become popular since the first edition was published, have been appended to the chapters with which they belong. The book is, as before, a strikingly individual one.

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NICHOLAS IVANOVITCH PIROGOFF.

A FEW days before the opening of the recently held International Medical Congress at Moscow — an event of enormous importance for the future of scientific research along medical and biological lines in Russia — a rather rare occurrence, rare for Russia, took place in the same city, namely, the unveiling of a monument erected by a grateful profession to one of the few scientific and practical workers that Russia can boast of, Nicholas Ivanovitch Pirogoff. The Congress, to judge from the reports of some of the visitors, surprised agreeably not a few of the foreigners, who expected to find Moscow thronged with that somewhat mythical semi-barbaric personage, the Russian moujik (peasant), or the more substantial, although not much less vague, Cossack, and who instead found themselves in a great intellectual centre, not certainly without peculiarities, *sui generis*, possessing first-rate medical institutions, supplied with all the best and latest scientific requisites and surpassed but by a few in the civilized world. The Congress will doubtless tend to stimulate the desire, excited by the recent achievements of the Russians in the domains of literature and art, to become nearer acquainted with the scientific men of this but little known and less understood nation, which is yet to play an important rôle in the future destinies of Europe.

The conditions of life in modern Russia can hardly be considered as tending to develop a favorable soil for the inception and growth of truly great scientific minds; and if up to now Russia has given to the world but few, comparatively speaking, brilliant scientists, this lack is certainly not to be ascribed to some natural incapacity inherent in the race — for, on the contrary, the Russian is richly endowed by nature — but to certain purely artificial circumstances, which thwart and destroy such minds in their very earliest development.

The survival of one of these is, therefore, the more interesting, as the very fact of his having not only survived on an unfavorable soil, but even achieved great-

ness, speaks volumes for the extraordinary capacity of the man, whose activity in any other land would have been productive of incomparably greater and more lasting benefits to his nation and to the world. Such an exceptional man was, undoubtedly, the great surgeon, N. I. Pirogoff (1810-1881), who, outside of the osteoplastic operation bearing his name, is almost unknown in this country.

In connection with Dr. Watson's account of the Moscow Congress in this same issue of the *JOURNAL*, it seems fitting that our readers should be given a more intimate acquaintance with the career and achievements of one who may be truly considered as the most prominent figure in the history of Russian medicine, his activity forming, as it were, the dividing line between the two sharply defined periods of that history—the ante-Pirogoff and the post-Pirogoff. An implacable enemy of routine tendencies in scientific and practical work, and an ardent supporter of progressive, independent methods of investigation, based on the observation of the phenomena of nature, he was the first to create a school of his own, that is, he succeeded in gathering around him a number of able and enthusiastic men, who, joined together by a unity of scientific methods, continued the labor of their teacher along the lines laid out by him. Thus not only his personal, individual activity, but the impulse given by it to many others, has contributed so much to the advancement of the science of medicine and the art of surgery in Russia.

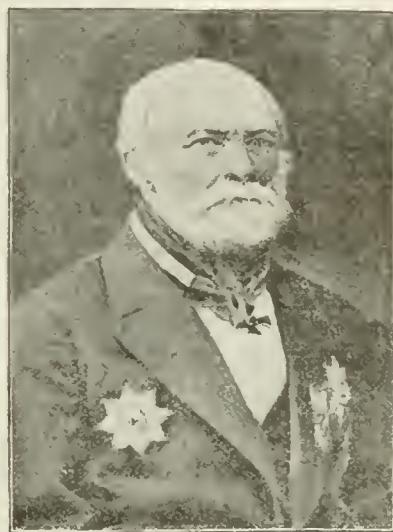
We can here touch only on some of the prominent events in his life. When hardly twenty-two years old—in 1832—while defending his thesis for the degree of Doctor of Medicine ("Treatment of Aneurism of the Iliac Artery"), on which he spent more than three years, Pirogoff promulgated the theory—a rather bold step in those times—that the solution of various medical problems requires not only clinical observation, but experimentation on animals as well; in fact, the experimental is sometimes the only way through which we can reach the solution of a clinical problem.

Working along the same experimental lines on the problem of ligating bleeding vessels, he reached the conclusion that a temporary ligature of a bleeding artery can only be practicable when its inner and middle coats are divided, thus curling themselves up when the ligature is fastened. This gave him an impulse in the direction of the anatomical study of the subject, the results of which were embodied in an anatomical work of a classical character, which at once created for the author a prominent place among the anatomists of the period. It is said that when Pirogoff, who was then twenty-eight years old, came to Paris with the purpose of studying there under Velpeau, he, on visiting Velpeau, found him engaged in diligently scanning the anatomical plates annexed to his (Pirogoff's) work. "It is I who must take lessons of you, and not you of me!" Velpeau exclaimed, with the impulsiveness of his French nature.

Pirogoff was one of the very few who foreshadowed

the advent of antiseptic surgery and the teachings of modern bacteriology, inasmuch as he taught that the infection in pyemia was due to the influence of some special ferments admitted from the atmosphere or developed within the blood. This view contrasts strongly with the theories held by many of his contemporaries.

In 1840 he issued a notable work on tenotomy of the tendo-Achillis for talipes. Some four years previous to this, Pirogoff was the first to perform this operation in Russia—a rare event even for Europe of that period, when the operation was done only by Stromeyer, the originator of subcutaneous tenotomy, and one or two other surgeons. Before the publication of his work Pirogoff had done some forty tenotomies. His subsequent studies on the process of repair after the division of the tendons are full of interest even for the modern surgeon.



Nicholas Ivanovitch Pirogoff.

The ligation of the lingual artery in cases of hemorrhages following wounds of that artery, most frequently as a preliminary step in the removal of the tongue, was first done by Pirogoff in the second part of its course, in 1836.¹

He was the first surgeon in Russia to apply ether as an anesthetic; as a true scientist, he first experimented with the newly invented agent on animals, on healthy men and even on himself. Being sent to the theatre of military activity in Caucasus in July, 1847, he resorted extensively to the employment of ether on the battleground. He was also the first to introduce into his military practice the use of the immovable bandage (gypsum) applied around extremities shattered by bullets, and in compound fractures. It was also at this time that he performed the operation bearing his name, which, as originally done and with some subsequent modifications, shares the honors with that of Syme.

It was particularly during the Crimean War that the all-embracing activity of this man found an almost unbounded field for labor. The enormous mass of ma-

¹ *Operative Surgery*, F. Treves, vol. i, p. 165.

terial gathered at this and at the previous war served as a framework for his "Grundzüge der Allgemeiner Kriegschirurgie," a great work which was, even up to a very recent date, recognized as a classical contribution to the literature of the subject. During his service as a military surgeon he introduced so many reforms, not only in the purely medical part of his department, but in the administrative side of the same, that he incurred the enmity of the higher military administration at Sebastopol, which resulted in his compulsory resignation from the professorship at the St. Petersburg Military Medical Academy. However, this was not the first time he suffered at the hands and from the stupidity of the high authorities. When in 1840 he was called to St. Petersburg from Dorpat (where he occupied the chair of surgery), his attempts to improve the sanitary condition of the Military Hospital connected with the Academy met with such opposition and created so much ill-feeling between him and the authorities that he was for a time considered insane and closely watched by secret detectives.

Pirogoff was also a very prominent educator. The appearance of a work of his on education, namely, "Vital Questions," produced a deep impression on the intelligent portion of the Russian community, and led in the course of time to his being appointed Superintendent of the Odessa, and later of the Kieff Department of Education. In the first, he was instrumental in laying the foundations for a university, an undertaking of the difficulties of which in Russia no foreigner can form an adequate conception.

His professional activity was so closely connected with his scientific and practical work as to become inseparable from it. He raised the standard of studies and laboratory work to a position they never occupied before, and many of the institutions attached to the Academy are indebted for their existence to his efforts. It may be of interest to note what he said several years before his death on a public occasion, about the method of teaching practised during his student years. According to this, he passed his examination at the university (at Moscow) without having seen or performed one single operation on the cadaver; nor was this condition much better in the western European universities. While he was in Germany, it was of frequent occurrence to hear prominent professors expostulating on the futility of anatomical knowledge for a surgeon: "You will hardly believe me, when I say that their method of finding one or another arterial trunk was based entirely on their sense of touch; feel of the pulsating artery and tie everything from which blood issues."

Pirogoff's clientele included people from all walks of life, and from every corner of the vast empire, and he was honored with a respect which only an hero-worshipping people, like the Russians, are capable of bestowing upon one of their great men. We conclude with the three inscriptions on his monument, which thoroughly characterize the man.

"Even when desiring to become thorough special-

ists, we must never forget that we need a general humanitarian education."

"I made it a rule on my first accepting the chair in the University never to hide anything from my students, and if not at once, then later on without hesitation to uncover before them any mistake I might have committed in the diagnosis or treatment of the disease."

"It is impossible to separate in the University the educational from the scientific. But the scientific without the educational shines and warms (is both useful and ornamental), while the educational without the scientific, however attractive its appearance, can only shine."

A FORTY YEARS' SUMMARY OF THE VITAL STATISTICS OF MASSACHUSETTS.

DR. S. W. ABBOTT, the accomplished secretary of the Massachusetts State Board of Health, has summarized for the Twenty-eighth Annual Report of the Board the essential facts relating to 630,680 marriages, 1,780,872 births, 1,317,453 deaths and 56,005 stillbirths recorded in the State from 1856 to 1895.

The population of the State has more than doubled in that time, the increase from the census of 1855 (1,132,369) to that of 1895 (2,500,183) having been 1,367,804, of which two-thirds consisted of immigrants from other States and countries. Emigration from the State, mostly to Western States, is indicated in part at least by the proportion of marriageable males to marriageable females, 277,180 to 370,973 (by the census of 1885).

In spite of the large influx of foreigners, among whom there is a greater ratio of persons of child-bearing ages and a higher birth-rate than among the native population, the general marriage-rate and birth-rate have diminished.

The total recorded death-rate has not materially diminished, having been in the four decades, respectively, 19.36, 19.59, 19.35 and 19.63. But increased accuracy and completeness of registration in the later years mean really a greater mortality than was reported when the records were more imperfect. The density of population too had increased from 136 per square mile in 1855 to 300 per square mile in 1895—a fact that may be taken to show that improved sanitary conditions have very nearly counterbalanced the unfavorable influence of increasing density.

The infantile death-rate of the first twenty years was 150.3 and that of the second twenty years was 161.2 per 1,000 births. The difference in the rates of the ten-year periods is much greater, chiefly on account of the disturbing effect of the epidemic years 1872 and 1873. The infantile death-rates of the four ten-year periods were, respectively, 134.2, 164.2, 157.8, 163.6. By this it appears that the infantile death-rate has increased considerably, when we compare the first twenty years with the last twenty, and especially when the first and last ten years are compared. If the figures for the two years 1872 and

1873 were to be omitted from the table, the infantile death-rate of the remaining eight years in the ten-year period 1866-75 would be reduced to 156.5.

The death-rate of infants under one has diminished with considerable uniformity during the last five years (1891-95) from 169.0 per 1,000 births in 1891 to 158.2 in 1895.

The death-rate of infants of the State at large was 160 per 1,000 births, while that of the combined urban population was 175 per 1,000 and that of the rural population was 129.

The probability that an infant under one year old will complete its first year of life is less at the present day than it was in the first half of the period, but, having survived his first year of life, his chance of completing the next four years is considerably greater than it then was.

The decrease in the death-rates from the infectious diseases is great and very gratifying, especially from typhoid fever, in which the lessened mortality corresponds directly with the introduction of pure drinking-water, and from scarlet fever.

There was, comparing the two twenty-year periods, a slight decrease in the death-rate from cholera infantum, a very great decrease in that of dysentery (5.11 to 1.55), a slight decrease in that of diarrhea (2.57 to 2.46), a considerable decrease in that of cholera morbus (0.70 to 0.43), and a marked increase in that of enteritis (2.01 to 3.23). There was, therefore, an improvement of 2.77 per 10,000 of the population in the total of these diseases.

The whole number of deaths registered from consumption in the forty years 1856-95 was 209,115, and the mean death-rate of the whole period from this cause was 30.9 per 10,000 living; 96,278 occurred in the first twenty years and 112,837 in the last twenty, the mean death-rate of each period being, respectively, 35.7 and 27.8 per 10,000. The maximum death-rate in any year from this cause was that of the first year, 1856, and was 40.8 per 10,000, and the minimum (21.9) was that of the last year, 1895, so that the death-rate from consumption had declined nearly one-half in the whole period of forty years.

The mortality from pneumonia has increased in the forty years. The death-rate per 10,000 living of the first twenty years was 12.2; of the second, 16.8; and of the eight five-year periods respectively 9.6, 11.9, 11.8, 14.7, 14.2, 16.0, 16.4 and 19.7.

From kidney diseases, heart diseases, brain diseases and cancer there has been a marked increase in the mortality, a certain portion of which must be attributed to more accurate registration.

In the mortality from the diseases and incidents of child-birth are included all deaths classed as from child-birth (all deaths specified as from abortion, child-birth, miscarriage and puerperal convulsions), puerperal fever, metritis, metria, puerperal septicemia and the excess of female deaths from septicemia over those of males. The whole number of cases of birth in the forty years was 1,820,756, and the deaths by child-

birth, etc., 12,075, or 66.3 per 10,000. In the first period (1856-75), with 745,461 cases of birth, there were 5,584 deaths in child-birth, or 74.9 per 10,000, and in the second period (1876-95) 1,075,295 cases of birth produced 6,491 deaths, or 60.4 per 10,000. The death-rates by five-year periods were as follows: 68.6, 68.1, 76.2, 83.8, 73.3, 72.9, 54.4, 48.2. There was an increase up to the fourth period, and then a greater decrease to the close.

The great epidemic of cerebro-spinal meningitis in 1873 caused 747 deaths, and in the year of the next greatest prevalence, 1888, 171 deaths were from it; the minimum number of deaths, 78, was in 1878.

The whole number of deaths registered as due to influenza from 1856 to 1875 was 943, and the mean annual death-rate per 10,000 from this cause was 0.35. From 1876 to 1895 the deaths were 3,372, and the mean annual death-rate 0.83 per 10,000. In no year of the first period did the deaths attributed to this cause exceed 92 (1857), and in no year of the second period previous to 1890 did they exceed 48, but in 1890 they suddenly rose from 27 to 411, and in the six closing years of the period they were, respectively, 411, 546, 967, 296, 370 and 457, the deaths from this cause in these six years constituting more than 90 per cent. of all the recorded deaths from the same cause in the twenty-year period, 1876-95.

The striking increase in malarial diseases shows itself to only a slight extent in the death-rates.

While the death-rate for the forty years has remained nearly uniform, the factors which compose it have varied in a remarkable degree. Certain causes of death or general groups of causes have diminished notably in their incidence upon the population, while others have quite as notably increased. Infectious diseases generally, including consumption, have diminished, while most of the so-called local diseases (those of the nervous, respiratory, circulatory organs, etc.) have increased, and the result has been a balance or a maintenance of uniformity in the general death-rate. These changes also affect the death-rates at different ages, since the diminishing causes of death (the infectious diseases) are mainly diseases of childhood and early life, while the increasing causes are chiefly those of advancing age, and the general effect would be the prolonging of the life of the population.

MEDICAL NOTES.

THE TENNESSEE MEDICAL COLLEGE at Knoxville, Tenn., was destroyed by fire on December 3d.

DR. CURTIUS TO SUCCEED PROFESSOR MEYER. — Dr. Th. Curtius, professor of chemistry at Bonn, has been called to Heidelberg as successor to Victor Meyer.

FOREIGN MEDICAL STUDENTS IN PARIS. — It is stated that the decree excluding foreign students from the medical classes of the Faculty of Medicine of Paris will shortly be withdrawn.

A VETERAN. — Lawrence McCarthy, said to be the last survivor of the combatants at Waterloo, died late in November in the workhouse at Nenagh, Tipperary, Ire., aged one hundred and fifteen years. He is said to have been born in Nenagh early in 1782 and to have attained his thirty-third year when he fought at Waterloo, where he was severely wounded.

INTESTINAL WORMS IN CHINA. — It is stated that ninety-five per cent. of the children in Pekin suffer from thread worms. Their frequency is supposed to be due to the ingestion of water and raw vegetables from the Chinese equivalent of sewage-farms. Europeans, who habitually boil or filter their drinking-water and cook their vegetables, are comparatively free from the parasite.

THE PIROGOFF MUSEUM. — The Pirogoff Museum of Surgery and Anatomy, in St. Petersburg, was opened at the beginning of the present month. The building will serve not only as a museum, but also as the place of meeting of all the St. Petersburg medical societies. The \$30,000 bequeathed for the purpose by Mme. Musin-Pushkin has been doubled by subscriptions, and some endowment remains after the cost of the building has been defrayed.

"THE PHILADELPHIA MEDICAL JOURNAL." — In January, 1898, the Philadelphia Medical Publishing Company, incorporated under the laws of Pennsylvania, proposes to begin the publication of a weekly medical journal, with the above title. The management of the company is entrusted to a board of trustees in which are representatives of the leading medical schools of Philadelphia. Dr. George M. Gould will be in charge of the editorial management.

THE FIFTH AVENUE WATER PIPES AS A SEWER. — The *Medical Times* of New York City calls the attention of the health board to the fact that the large water pipes which are being laid in Fifth Avenue have been used by the Italian workmen as a urinal, if not worse, during the protracted time during which this work has been in progress. The editor says that he has watched the workmen from his sanctum window and knows whereof he writes.

THE HEALTH OF BRITISH TROOPS ON THE INDIAN FRONTIER. — The *British Medical Journal* calls attention to the abnormal amount of sickness reported among the British troops in the Tochi Valley, and suggests that the unfortunate falling off in stamina and endurance there exhibited may not be due entirely to the hardships of the campaign but on investigation "may point to evils which the Contagious Diseases Act was intended to prevent as the *fons et origo* of the lamentable decline in vigor of the unfortunate victims of a fatuous policy."

MEDICAL VICTIMS OF YELLOW FEVER. — The outbreak of yellow fever in New Orleans, as elsewhere, is over. The *New Orleans Medical Journal* reports three additional cases among the medical profession in that city. Drs. A. C. King, A. R. Choppin

and E. B. Viers, making a total of over a dozen. A death must, at the same time, be reported, that of Dr. E. B. Viers, making a total of two for the whole period. About the same number of trained nurses, as of physicians, were stricken with the disease, but without fatality. The two physicians who succumbed to the disease were young men, unacclimated, and who had lived in New Orleans only a short time.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the week ending at noon, December 1, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 58, scarlatina 33, measles 16, typhoid fever 9. For week ending December 8th, the following cases were reported: diphtheria 55, scarlatina 23, typhoid fever 8, measles 4.

DEATH OF A CENTENARIAN. — Miss Susan Wesson died recently at her home, in Roxbury, at the age of one hundred years.

THE CARNEY HOSPITAL LOSES A BEQUEST. — In the Massachusetts Supreme Court, Judge Allen recently reversed the decree of the Probate Court and disallowed the will of the late Michael Curley of Brighton, who left his estate in equal parts to Rev. Father Francis J. Butler of Brighton, who was made executor, and the Carney Hospital. The amount to be divided between the two would be about \$15,000. The will was disallowed for the reason that the testator was adjudged to have been of unsound mind at the time it was made.

ENDOWMENT OF A HOSPITAL FOR DOVER, N. H. — By the will of the late Mrs. Claragusta L. Hayes of Dover, N. H., after several bequests to relatives, the remainder of the estate, which is estimated at \$50,000, is given for a hospital for the inhabitants of Dover, to be known as the Hayes Hospital.

GRADUATION AT THE DARTMOUTH MEDICAL COLLEGE. — The one-hundredth graduating exercises of the Dartmouth Medical College occurred in the college church in Hanover, N. H., on November 23d. President Tucker presided and Dr. Charles A. Morse delivered the address to the class. Twelve men received their medical degrees.

NEW YORK.

ISOLATION OF CONSUMPTIVES. — As a practical result of the Board of Health's long-continued efforts to curtail the ravages of tuberculosis, the Board of Estimate and Apportionment, at a meeting held December 2d, decided, after a brief discussion, to appropriate the sum of \$60,000 to enable the Health Department to send poor patients suffering from the disease to an isolated hospital. President Wilson and Dr. H. M. Biggs appeared at the meeting as the representatives of the Board of Health. The former stated that it was in 1893 that the Department first agitated the subject of the isolation of consumptive patients. The idea was at first not well received, and in the first year only 216

cases of the disease were reported. But as the matter became better understood the physicians and the hospitals became interested, and this year 1,740 cases were reported by physicians and 7,948 by hospitals and public institutions, and the Board of Health was enabled to map out the habitat of the disease. Now, he argued, if the city could be induced to lend assistance the Board would be able to take many cases out of places where they were a menace to the public health and place them where they would receive enlightened treatment and where in many instances cures could be effected.

Dr. Biggs said that most of the private hospitals now refuse to accept consumptive patients, and about forty were turned away each week. If the Board of Health were given the opportunity, patients might be taken away from their homes in suitable cases, and grave sources of contamination would thus be done away with. One-fourth of all the deaths among working people was due to tuberculosis. "There is no question," he continued, "about the possibility of stamping out the disease. Any contagious or infectious disease can be stamped out."

The resolution passed by the Board of Estimate authorizes the Health Department to send tuberculous patients to any desired hospital, but the latter has selected Seton Hospital as the most suitable for the purpose. It is finely situated, in an isolated position, on Fordham Heights, near Spuytenduyvil, and is one of the best constructed and equipped hospitals in the country. It was erected in 1894 and was especially designed for the treatment of tuberculosis. When opened it had a ward capacity of 120, beside accommodation in private apartments; but this can be extended indefinitely, as occasion may require. It is understood that no patient will be forced to go there, but all the poor affected with this disease can avail themselves, if they wish, of the opportunity thus afforded for isolation, pure air and the best scientific treatment.

THE EXPENSES OF THE HEALTH DEPARTMENT. — The Board of Health's budget for 1898, amounting to \$503,077, has been passed, but this appropriation will necessarily have to be revised by the new Board of Estimate of the Greater New York. If it is allowed to stand it will be for the year's expenses of the Health Departments of the Boroughs of Manhattan and the Bronx.

TYPHOID FEVER AND MILK. — Health Inspector Leale, of Paterson, N. J., has successfully traced the origin of a recent outbreak of typhoid fever in that city. There have been about thirty cases of the disease already reported, but up to this time no deaths. It was ascertained that the milk used by the families of the affected was supplied from a dairy at Branchville, Sussex County, and that the water in which the milk cans were washed was procured from a contaminated brook, the source of the contamination being three cases of typhoid in the family of the proprietor of the dairy. More than a dozen cases of typhoid

which were reported within three days in Kearney township are also believed to have originated from the same source. It was found that all the families in which cases had occurred were supplied with milk by a dealer who obtained his supply, in part at least, from the Sussex County dairy.

DIPHTHERIA WITHOUT ANTITOXIN. — Within ten days a mechanic of Elizabeth, N. J., lost his wife and five out of six children, from diphtheria. When the first child was taken ill the mother thought the trouble was only an ordinary cold and sore throat, and when medical aid was at last summoned antitoxin was refused.

DEATH OF DR. GILCHRIST. — Dr. William N. Gilchrist, well known among the older physicians of New York, died at the Windsor Hotel on December 3d, after a long illness. He was seventy-four years of age, and was born in Kortright, Delaware County, New York. He was a graduate of the Vermont Medical College, and came to New York in 1847. He took up his residence at the Windsor Hotel when it was first opened in 1873, and practised there until three years ago, when his wife died and his health began to fail.

DEATH OF DR. JAMES OLMSTEAD. — Dr. James Olmstead, of New Haven, died at the Hotel Grenoble, New York, on December 4th. He was born in New Haven in 1849, and was a graduate of Yale College and the Yale Medical School. In 1877 he received an appointment at the Connecticut Hospital for the Insane, of which he became superintendent in 1886.

Miscellany.

PRESIDENT McKINLEY RECOMMENDS A COMMISSION FOR THE INVESTIGATION OF YELLOW FEVER.

THE President of the United States, in his message to Congress, refers to the recent outbreak of yellow fever in the Southern States, and recommends the appointment of a commission of experts in the following terms:

The recent prevalence of yellow fever in a number of cities and towns throughout the South has resulted in much disturbance of commerce, and demonstrated the necessity of such amendments to our quarantine laws as will make the regulations of the national quarantine authorities paramount.

The Secretary of the Treasury, in the portion of his report relating to the operation of the Marine-Hospital Service, calls attention to the defects in the present quarantine laws, and recommends amendments thereto which will give the Treasury Department the requisite authority to prevent the invasion of epidemics from foreign countries and in times of emergency like that of the past summer will add to the efficiency of the sanitary measures for the protection of the people and at the same time prevent unnecessary restriction of commerce.

I concur in his recommendation of further effort to prevent the invasion of the United States by yellow fever. The importance of the discovery of the exact cause of the disease, which up to the present time has been undetermined, is obvious, and to this end a systematic bacteriological investigation should be made.

I, therefore, recommend that Congress authorize the appointment of a commission by the President to consist of four expert bacteriologists, one to be selected from the medical officers of the Marine-Hospital Service, one to be appointed from civil life, one to be detailed from the medical officers of the Army, and one from the medical officers of the Navy.

THE INJURIES IN MODERN NAVAL WARFARE.

FROM the report on the wounded in the naval battles between Japan and China, presented at the International Medical Congress, at Moscow, by S. Suzuki, M.R.C.S. Eng., L.R.C.P. Lond., Fleet Surgeon of the Imperial Japanese Navy, we are able to obtain for the first time in the history of naval warfare an adequate idea of the physical effects upon the combatants of sea fighting under the modern conditions of the opposition of powerful armament to massive armor.

The naval conflict of the Yalu was the first in history in which these conditions were exemplified, and although from the recently published personal experiences of Commander McGiffen, who fought so valiantly in command of a Chinese ship in that conflict, we gained some idea of the fearful effects of concussion, splintering of iron and wood by shell explosions, etc., which, as is well known, ended in his own case in insanity and suicide, the carefully compiled reports of Fleet-Surgeon Suzuki give us the first careful statistical information on the subject.

Of the 298 men killed or injured in the battle of the Yalu, a greater number suffered injuries to the head than any other part of the body. The injuries to the greater part of the body naturally caused the largest percentage of deaths, for the reason that a large number of them consisted of burns covering an area of more than one-third of the body. Only two out of 57 cases of this class recovered. Wounds to the abdomen and lumbar region were very fatal, because, unlike the simple punctures of rifle bullets, these consisted for the most part of fearful lacerations of the body and contained viscera by fragments of shell.

On comparing the number of wounds received in a land battle with those of a sea fight between opposing forces of equal numerical strength, Suzuki finds that the number of wounds is almost identical, but that while in naval battles wounds of the head, in land battles wounds of the extremities, predominate. Suzuki explains this by the fact that bullets and shells, the chief causes of injuries in fighting on land, are more apt to hit the extremities, while in sea fights the flying splinters of steel and wood from shattered armor, planking and rigging are more apt to hit the heads of the combatants. As an example of the damage from flying splinters, it is related that the funnel of the *Fuso* having been perforated by a shell, the fragments of it were dispersed around and either killed or injured ten seamen.

The antiseptic treatment of the wounds received in battle was carried out with excellent results in the saving of life and limb. No infectious diseases of wounds occurred except one fatal case of erysipelas.

The sanitary condition of the navy during the war was excellent, and the average body weight of the force actually increased during its continuance. Venereal diseases were the cause of 37.69 per cent. of the cases of illness occurring during the war. Forty-three

cases of beri-beri and only three cases of cholera occurred in the navy. The total number dying at sea during the war was 227, of whom 150 were killed and 177 died of disease.

The report, which has recently been published in attractive pamphlet form, gives many details of great interest, and will well repay perusal. The author is to be congratulated upon the success and thoroughness of his work, both as a surgeon and a statistician.

SURGERY ON THE BATTLEFIELD WITHOUT ANESTHESIA.

"It was here that I performed my first big operation, the patient being a Turkish infantryman who was brought in from Alexinatz with his knee shattered by a shell. He refused to take chloroform, and I took his leg off above the knee without any anesthetic. He never said a word and went on smoking a cigarette all the time. When the captain came round with his note-book afterwards, to take down the name, age and regiment of each wounded man, my patient answered all the questions quietly and unconcernedly while I was stitching up the flap of skin over the stump. It was a marvellous exhibition of fortitude."

The above passage is taken from a book by Charles S. Ryan, an Australian, lately published by John Murray, London, in which the author relates his experiences as an army surgeon in the Turkish service during the campaign around Plevna in 1877. Many other instances of Turkish fortitude and of other virtues are given. The narrative is as thrilling as a Stanley Weyman or an Anthony Hope story, and, withal, impresses the reader with the feeling that the incidents occurred as they are described.

DR. HARRISON ALLEN.

RESOLUTIONS OF THE PHILADELPHIA NEUROLOGICAL SOCIETY.

At a meeting of the Philadelphia Neurological Society, held on the 22d of November, the following action was taken:

Whereas, the Philadelphia Neurological Society has heard with great regret of the death of Dr. Harrison Allen, it desires to offer its sympathy to his family and to give expression to its sense of the great loss which has been sustained by science and the medical profession.

Dr. Allen was deeply interested in neurology, not only as a human and comparative anatomist, but also in various practical directions, as indicated by his valuable contributions to this society and other medical bodies.

CHARLES W. BURR, *President*.
WM. G. SPILLER, *Secretary*.

Correspondence.

[Special Correspondence.]

PUBLIC HEALTH IN LONDON.

LONDON, November, 1897.

MR. EDITOR:—London is so vast, geographically, and is composed of so many practically distinct townships or parishes, that it is almost impossible to obtain any idea of the city as a whole. It has, for instance, no one public health department. There are forty-one separate medical health officers, each one appointing his own clerks and inspectors, and each one answerable only to his own vestry.

To be sure, all must conform, in important particulars, to the provisions of the London Public Health Act of 1891, and all must submit, in certain cases, to the supervision of the London County Council, through its medical officer. There is no uniformity, however, as to the details of the work. The law provides, for instance, that every house must be disinfected after each case of infectious disease, but does not prescribe the method of such disinfection. The result is that one medical officer may still cling to old and obsolete methods, while his neighbor, across the street, may work in a new and absolutely scientific manner. Again, such a short street as Drury Lane may, and, as a matter of fact, does, belong to three separate and distinct parishes. No power on earth can prevent each particular parish from paving its own part of the street according to its own fancy.

I have said that the medical officer of the London County Council was able to exercise a certain amount of supervision over the various local health physicians. This is true, but he must be extremely careful in his interference, and absolutely certain of his ground, because he must antagonize not only the local health-officer, but also the vestry of the district. The present incumbent, Dr. Shirley F. Murphy, manages affairs with rare tact, and is gradually introducing uniform methods throughout the city. English conservatism, however, prevents any rapid progress.

Of extreme interest are the charts and tables prepared by Dr. Murphy during the last few years, and especially so are those relating to infectious diseases among children. He has followed, unconsciously, the exact lines taken by Dr. McCollom in our own city, and has arrived at a precisely similar result. His charts, prepared independently, are almost exactly like those of Dr. McCollom, and he finds the great increase in cases notified at the same time of the year, namely, about a month after the holidays. He also made investigations as to the ages of the patients, and found that the school-children were principally attacked; and as the period of incubation had more than elapsed each half-year before the great rise, he concluded that many of the cases were contracted not at the homes but at the schools. After publishing his report, he was answered by several health-officers of surrounding places, who said that while his conclusions might be true of a large city like London, they would not necessarily follow in smaller communities. He then took the figures which had been furnished him from year to year by these very opponents, and proved to them that the same thing obtained in their several towns. Such a complete verification of our own city physician's investigations and conclusions was exceedingly gratifying.

Perhaps the most interesting thing in public-health work in London to-day is the plant at St. Leonard's, Shoreditch, for the destruction of garbage (or "dust" as it is here called) by burning, and the subsequent utilization of the power thus obtained for the electric lighting of the parish. Shoreditch is one of the most densely populated of the London districts. It covers about one square mile, and contains about 120,000 people. The furnaces, engines and dynamos are located in the middle of the parish, and yet not one complaint has been made. Remember, too, that an Englishman is not prone to submit to a nuisance without growingl.

Before the commencement of this summer the parish of St. Leonard's paid 3s. 2d. per ton to bargemen to barge away its refuse and throw it into the sea. The present works were experimentally started some time in May last, and formally opened by Lord Kelvin about the first of July. They have thus been running about five months, and it seems as if, now, a fair idea might be obtained of their value.

The dust bins of London contain all sorts of household refuse, from decayed meats and vegetables to empty, broken bottles. The dust is collected at regular and frequent intervals, and carried in the parish carts to the electric-light station. Here it is dumped into an immense iron car which is divided into five distinct sections. After the car has been filled it is hoisted by means of electricity to the top of the furnaces and is then run along a track by means of a trolley until it is over the particular fire which it is intended to

feed. The top of the furnace is then opened from above, by means of a sliding door, and one of the sections of the car is emptied into it. The refuse falls on the back of the fire, quickly parts with its moisture, and is then pulled over the fires by means of rakes handled from below. Three large fans are used to send a continual blast through the furnaces. Two of these collect air from the upper part of the furnace house, so that any noxious fumes arising may be destroyed, and the third ventilates the sewer running under the building. Such a method of sewer ventilation would be very valuable were it not so exceedingly limited in its application. It can only be of value, unfortunately, as far as the nearest sewer opening.

The slag, accumulating in the furnaces, is being constantly removed to the yard, and the finer particles, falling through the grates, are also removed, but placed in separate heaps. The finer residue is bought by builders, and used in the manufacture of fireproof cement. The larger pieces, consisting of about 30 per cent. of the total refuse dumped into the furnaces, are at present carted away. Successful efforts are, however, being made to manufacture artificial stone from them for pavements, steps and floorings. I saw some very fine specimens of this stone already in use, but its employment in this way is hardly as yet economical enough to be practical.

The contractors agreed to furnish 120,000 tons of steam per annum from an equal amount of dust. They have done somewhat better than this. At present they furnish steam enough to run all the dynamos for the electric lighting of the parish, using from 200 to 850 horse-power, according to necessity. At the time that I saw the plant, only ten tons of coal had been needed in the preceding month as auxiliary fuel. Of course, we must reckon that the dust bins contain more or less partly-consumed coal, provided by careless housemaids.

In his opening address, Lord Kelvin mentioned one thing which should not be omitted in the consideration of the general economy of the undertaking. He said: "A very important novelty is Dr. H. Halpin's heat-storage system, in virtue of which part of the steam raised will be used to meet the daily demand, and part laid up in store. That store is a cylinder of water, ready to feed the steam engines when night comes on and a greater supply is wanted. Thus the engines will get water into their boilers ready heated up to their full temperature and pressure, and only the heat of evaporation will have to be supplied by the combustion of the dust during the lighting hours."

A thermal vessel which would stir up energy for use at a later period would of course be an immense desideratum in the production of power. In point of fact, however, this vessel has not been as yet used. It was poorly made, and leaks at the rivet holes. Besides, it is not of such great practical value in London as it would be in other cities, because the prevailing fogs of winter require full pressure most of the time. I must confess that I am a bit sceptical as to its ultimate employment, since the radiation from such a huge vessel must be very great, and the preservation of heat must consequently be exceedingly difficult. The Vestry of Shoreditch are now building a large public swimming bath next to the electric-light station, and intend heating their water through pipes connected with the present furnaces.

At this time, when the problem of the disposal of garbage is being discussed in all our large cities, it would seem that a system which not only destroys without offence but utilizes the destruction for such a practical town purpose as electric lighting should meet with some consideration. There is, at least, no odor apparent, and no nuisance created in the neighborhood. I climbed to the tops of the furnaces, and went along the upper part of the building, and detected nothing unpleasant except the inevitable dirt arising from the dumping of the cars. It has certainly, so far, done its work, and, although the initial cost must have been great, the Vestry of Shoreditch seem perfectly satisfied as to its ultimate economy.

Very truly yours,
WM. G. MACDONALD, M.D.

METEOROLOGICAL RECORD

For the week ending November 27th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter		Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches	
	Daily mean.		Daily mean.	Maximum.	Minimum.	Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
						8.00 A. M.	8.00 P. M.							
S...21	29.89	49	61	37	99	87	93	W.	W.	6	10	O.	O.	.29
M...22	30.05	40	50	29	72	73	72	N.W.	N.	9	5	O.	O.	
T...23	29.96	25	33	17	93	82	84	N.W.	N.W.	10	14	O.	C.	
W...24	30.46	24	34	13	65	63	64	W.	S.W.	12	11	C.	C.	
T...25	30.42	37	46	28	65	73	69	S.W.	S.W.	10	12	F.	O.	
F...26	30.13	54	64	43	87	85	86	S.W.	S.W.	20	24	O.	O.	
S...27	30.10	42	61	24	97	60	78	S.W.	N.	20	12	R.	C.	.03 .56

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, NOVEMBER 27, 1897.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					Diphtheria and croup.
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.		
New York . .	1,868,000	611	193	10.24	16.32	1.76	.80	3.52	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . .	1,160,000	354	95	10.36	18.20	1.68	.56	4.48	
St. Louis . . .	570,000	171	48	12.18	11.60	—	.90	6.38	
Baltimore . .	550,000	158	42	11.97	10.70	1.26	2.52	6.93	
Boston	517,732	184	58	8.10	20.52	.54	2.70	3.24	
Cincinnati . .	405,000	135	—	4.44	7.40	—	.74	2.22	
Cleveland . .	350,000	—	—	—	—	—	—	—	
Pittsburg . .	275,000	101	32	15.84	14.74	2.97	1.98	4.94	
Washington .	277,000	108	30	8.28	13.80	1.84	1.84	3.68	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	105,050	26	9	19.25	19.25	—	3.85	7.70	
Worcester . .	105,050	30	15	16.66	6.6	—	—	10.00	
Fall River . .	95,919	37	11	8.10	13.50	8.10	—	—	
Lowell	87,123	29	8	6.90	20.70	—	—	6.90	
Cambridge . .	86,812	26	12	7.70	15.40	3.85	—	3.85	
Lynn	65,220	16	6	6.25	18.75	—	—	—	
Charleston . .	65,165	25	9	4.00	4.00	—	4.00	—	
New Bedford .	62,416	19	5	10.52	—	5.26	—	—	
Lawrence . .	55,510	24	11	12.48	12.48	—	—	12.48	
Springfield .	54,790	17	3	11.76	—	—	—	11.76	
Holyoke . . .	42,364	—	—	—	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem	36,062	8	0	—	37.50	—	—	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden	32,884	6	2	16.66	16.66	16.66	—	—	
Chelsea	32,716	9	2	44.44	33.33	—	11.11	11.11	
Haverhill . .	31,406	7	1	—	28.56	—	—	—	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton	28,990	7	2	28.56	28.56	—	14.28	—	
Fitchburg . .	28,392	3	1	—	—	—	—	—	
Taunton	27,812	8	1	—	25.00	—	—	—	
Quincy	22,562	5	2	—	—	—	—	—	
Pittsfield . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	4	3	25.00	—	—	—	—	
Everett	21,575	8	4	25.00	—	—	—	12.50	
Northampton .	17,448	—	—	—	—	—	—	—	
Newburyport .	14,794	5	0	20.00	—	—	—	20.00	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,225; under five years of age 625; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 234, acute lung diseases 331, consumption 271, diphtheria and croup 98, typhoid fever 35, diarrheal diseases 31, measles 20, scarlet fever 16, cerebro spinal meningitis 14, whooping-cough 8, erysipelas and malarial fever 6 each.

From measles New York 11, Pittsburg 6, Brooklyn 2, Baltimore 1. From scarlet fever New York 6, St. Louis 3, Brooklyn 2, Baltimore, Boston, Cincinnati, Washington and Waltham 1 each. From cerebro-spinal meningitis New York and Brooklyn 3 each; Worcester and Somerville 2 each; Boston, Providence, Lynn and Chelsea 1 each. From whooping-cough Brooklyn 4, New York 2, Boston and Cincinnati 1 each. From erysipelas New York and St. Louis 2 each, Newton and

Everett 1 each. From malarial fever New York, Brooklyn and Nashville 2 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending November 20th, the death-rate was 18.6. Deaths reported 3,927; measles 159, fever 67, diphtheria 64, whooping-cough 63, diarrhea 52, small-pox (Bristol) 1.

The death-rates ranged from 11.3 in Bradford to 24.7 in Leeds; Birmingham 20.1, Cardiff 14.4, Gateshead 19.6, Huddersfield 15.4, Leicester 17.7, Liverpool 24.3, London 18.9, Manchester 21.0, Newcastle-on-Tyne 18.0, Nottingham 17.9, Portsmouth 13.4, Sheffield 16.7, Sunderland 21.3.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM NOVEMBER 26, 1897, TO DECEMBER 3, 1897.

MAJOR JOSEPH K. CORSON, surgeon, having served more than thirty years in the Army, is on his own application by direction of the President retired from active service this date, November 30, 1897.

FIRST-LIEUT. BASIL H. DUTCHER, assistant surgeon, is relieved from duty at Fort Leavenworth, Kansas, and ordered to Fort Grant, Arizona, for duty at that station.

Leave of absence for three months to take effect December 1, 1897, is granted CAPTAIN NORTON STRONG, assistant surgeon.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 4, 1897.

S. S. WHITE, passed assistant surgeon, detached from the "Concord" and ordered to the "Wheeling."

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 13th, at 8 P. M.

Dr. W. N. Bullard will present a paper entitled, "The Increase of Intra-dural Pressure in Head Injuries."

Dr. E. O. Otis will read on "Hospitals and Sanatoria for Consumptives Abroad." The following gentlemen are expected to discuss this paper: Drs. F. I. Knight, V. Y. Bowditch, and A. Worcester.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene. A regular meeting will be held at 19 Boylston Place, Wednesday, December 15th, at 8 P. M.

At 8 o'clock, short communications by Drs. Brackett, Hogner and Victor.

At 8.30, Dr. Theobald Smith, "The Tetanus Toxine"; Drs. Munro and Withington will report cases and open the discussion.

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

WARNING!

A YOUNG man, who states that he is twenty-three years of age, is going the rounds among physicians, and possibly other professional men, representing that his young wife is in imminent peril from some (variable) cause. He gives a fictitious address and is suspected of being a half-way or entry sneak-thief.

RECENT DEATH.

EDWARD AUGUSTUS WELCH, M.D., M.M.S.S., died in Sutton, November 30, 1897, aged thirty-five years.

BOOKS AND PAMPHLETS RECEIVED.

Surgical Melange. Abdominal Incision for Ascites. Appendicitis, Report of Four Cases. Craniectomies, with Report of Four Cases. By Merrill Ricketts, Ph.B., M.D., Cincinnati, O. Reprints. 1897.

Handbook of Materia Medica, Pharmacy and Therapeutics, including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy, and Minute Directions for Prescription Writing. By Samuel O. L. Potter, A.M., M.D., M.R.C.P., Lond., Professor of the Principles and Practice of Medicine and Clinical Medicine in the College of Physicians and Surgeons of San Francisco; Medical Superintendent of St. Mark's Hospital, etc. Sixth edition. Fully revised and greatly enlarged. Philadelphia: P. Blakiston, Son & Co. 1897.

Lecture.

CHARACTERISTICS OF INSANITY.¹

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

(Concluded from No. 24, p. 588.)

THERE is danger that students may become impressed too much with the idea that delusions in mental disease stand out definite and clear cut, being limited to one special, specific subject. This is an error, which should be most carefully guarded against. There is hardly any man, however strong he may be mentally, who could keep any idea alone by itself for many minutes in the field of consciousness. By the association of ideas, others of an allied character spring up, and so even in the pursuit of one subject, there is an interchange and interplay of a multitude of ideas, though there is a continuity and system in their sequence. In the insane there is the same method of mental action, less orderly, more perverted, but following the general rule. Now, there may be one central false belief, as, for instance, in a case of melancholia, the committal of the unpardonable sin. But these words are merely the verbal expression of a tremendous emotional change that has taken place. The patient may have been growing for months depressed. First, it may have been simple morbid conscientiousness; then sorrow for the wrong things he had actually done; then sorrow for his sins of omission; a feeling he was bringing ruin on his family; a consciousness of wickedness; despair at the hopelessness of the future; certainty that he was eternally lost; and, finally, the committal of the unpardonable sin. The patient's mental state cannot be summed up by saying he has this particular delusion, but must include all the elements which combined together display the emotional disorder, as well as the purely psychical. The temperature is pathognomonic of typhoid fever, this particular delusion of melancholia; yet in neither case are we giving more than one factor in the disease.

In mental disease, therefore, you may be sure you will find more than the single delusion, if you happen to have picked that out, as often you cannot. You will find a *delusional state, characteristic of the disease, rather than a single delusion*. The mind will be permeated, and often honeycombed, by ramifications of the false beliefs. Many things, perhaps most things, the patient does will be tinged by the character of his disease where he has a chance to act out his own personality with any freedom. In studying mental disease one is made strikingly aware of how little originality there is among average men. We are creatures of habit, the result of our close family and communal life. Even the insane, who more than any other class throw off the shackles and restraints of social convention, are kept in grooves and ruts, and, as they wear clothes, fit themselves in after a fashion. Their docility and amenability (often they are much more manageable than the sane), give the impression of adaptability, but underneath the surface will be found characteristic and consistent indications of the mental disease. The threads are all there, out of which we may with patience weave a diagnosis. To do this successfully we must bear in mind two things: (1) not to be disappointed if we do not discover the presence of a single well-defined delusion; (2) not to be surprised if the

surface indications of the disease are not very noticeable.

The varieties of delusion are necessarily very numerous, depending both on the form of the disease and the country, race, surroundings and intelligence of the insane person. One writer enumerated fifty-two varieties of delusion he had noticed. While the innate character of the false belief may be of the same nature from one period of time to another, the outward way it expresses itself may change. For instance, those who have delusions of persecution often think they are visited in their rooms at night, for the purpose of being injured. Formerly, their rooms were violently broken into, or there was a trap-door in the floor through which the visitor entered. Later, electrical wires were carried to their rooms, and powerful shocks of electricity were administered. At present, they add the telephone to the electric batteries, and often receive threatening and terrible messages from their enemies. Even the phonograph is occasionally brought into requisition.

According to Ball and Ritti, delusions met with in mental disease may be divided into the following:

- (1) Delusions of satisfaction, of grandeur, of riches.
- (2) Delusions of humility, despair, ruin, culpability.
- (3) Delusions of persecution.
- (4) Hypochondriacal delusions.
- (5) Religious delusions.
- (6) Erotic delusions.
- (7) Delusions of bodily transformation.⁷

Nearly, if not all these classes of delusions will be mentioned in describing the various forms of mental disease in subsequent lectures; they need not, therefore, be mentioned in detail here.

The physical evolution of delusions in a subject on which we have little light; but as a prelude to the subject which will next occupy us, namely, hallucinations, Kirchhoff's views are of interest:

"In patients," he says, "belonging to the most different classes, and in all parts of the world, we always find certain definite series of delusions in constant repetition. In many such, series of ideas persist throughout the entire course of the disease; they are called fundamental, or primordial. Like central hallucinations and imperative concepts, they either develop directly in the diseased brain, or are excited by slight external impressions, or by processes within the body. The latter factor requires some explanation. In ordinary health, but more frequently in morbid conditions, irradiated sensations in the body are often associated with irritations in the same, or other nerve tracts. For example, auditory impressions often produce sensations of light, or colors give rise to auditory impressions. In such cases of irradiation it can often be proved that the origins of both nerves lie adjacent to one another. In a similar way the development of certain delusions is connected with sensations located in adjacent parts of the brain. But as the expression in speech of these associated sensations always revolves within very narrow circles, the contents of the associated concepts are also limited by certain individual ideas and words, and these recur constantly in all individuals, after the same internal stimulus. This sheds light on the uniformity of so many delusions in different individuals. They must develop in certain anatomical tracts, and find expression only in generally known terms of speech."⁸

¹ A lecture delivered to the students of the Tufts College Medical School.

⁷ Practical Manual of Mental Medicine, E. Régis, p. 64.

⁸ Handbook of Insanity, B. T. Kirchhoff, p. 76.

Hallucinations have been defined by Clouston as "false beliefs in sense impressions." Dr. Stearns calls them "false perceptions." Griesinger defines them as "subjective sensorial images, which are, however, projected outward, and thereby become apparently objects and realities." Either one of these definitions is, in a way, a good one, and worthy of consideration. That of Clouston is simple, and easily remembered. The only criticism to be made of it is that it possibly in some cases might be applicable to delusion, as well as hallucination. Of course, a complete definition ought to stand clearly and definitely without qualification for the word or term it is intended to define, and for nothing else. It should not have two meanings.

Another criticism of almost any definition might be that it would make hallucinations appear to be the result of disturbed psychical processes on the one hand, or disturbed sensory ones alone on the other. At present it would appear to be the case that they are of mixed or psycho-sensorial origin, which admits in their production both a sensory and psychic element. Régis thinks there can be "no doubt of the physical element in the genesis of hallucination because of the finding of various lesions in the sensory organs involved, in their nerves, in the thalami,*and corpora striata, in sensory centre of the cortex."

Twenty years ago hallucinations used to be defined as "errors of sensation," showing that at that time they were regarded as a physical rather than a psychical lesion. And in observing a patient where the hallucination is well marked the sensory anomaly is what chiefly impresses one, often to a degree to lead one to momentarily overlook the other symptoms of the disease. A patient will say, for instance, that he hears a voice on the other side of the door, when you are talking with him. He may be saying nothing in any way suggestive of mental disease; you suddenly notice that he begins to listen intently, then directs his attention toward the door, as if he heard something; finally, he walks toward it, and satisfies himself not only that he hears a voice, but that it is, perhaps, the voice of his father.

What impressed me in this case was the perversion of the sensation of hearing. It seemed as if there must be some lesion in the auditory centre which was at the bottom of the misinterpretation. It was hard to get away from this conclusion. Yet, on reasoning further, you will see that the sound of the voice grew out of nothing external. My voice was not mistaken for the father's (which would have been an illusion); no other sound of any kind was to be heard anywhere, so that there was no chance in that way for a mistake. Where, then, did the voice come from? We must answer, from the patient's own mind; in other words, it was a wholly subjective phenomenon. It was not only a voice, but the voice of a particular person; which further demonstrates the falseness of the perception. In this case, as in most others, it will be found that delusions are woven into the hallucinations, and practically give them their form and coloring—a proof of their psychical character. The subject of this hallucination had many delusions concerning his father, about whom he was constantly talking, and always wanting to see; it was in keeping with the development of the disease that it should be his voice he heard. He might have heard his father talking from a longer distance, or from some unusual place, like the roof, but he was a quiet-mannered, dignified young

man, and it was consistent with his character that he should not shout at his father, but talk to him from a point near by. Often in studying cases of mental disease you may be able to reconstruct the normal personality of patients from what you can see of their tendencies and peculiarities.

Clouston attempts to account for hallucinations in this way: "We may either suppose that, through morbid activity in the nutrition and energizing of the centres of sensation, those molecular changes, which each previous perception had left, are rendered more vivid, and more like the original, as when a photograph by the stereoscope is made to look real and solid; or through failure in the judging and comparing power of the brain, those faint images which we in health call memories, are actually mistaken for real perceptions of real impressions on the senses, just as when in a dim light, and dreaming humor, the pictures on the wall stand out as real men and women."⁹

"The voices heard are so natural, and the conviction of their existence so irresistible," as Régis says, "that very intelligent patients, physicians, and alienists, themselves will not suffer a doubt, and have recourse in explaining their existence to all kinds of incredible and absurd interpretations; for example, to the intervention of various forces, electricity, acoustic tubes, the phonograph, etc."¹⁰

There are as many species of hallucinations as there are senses, but there are numerous varieties. The chief kind is that of hearing, or *auditory hallucinations*. These generally take the form of voices talking directly to the patient. Their character depends on the nature of the case. If exaltation is present, they will be cheerful, agreeable, or grand and inspiring voices. They may even come from God, or the Virgin Mary. If depression is present, they will be gloomy, despondent, telling the patient of his wickedness, and commanding him not to eat, or drink. If the case is one of delusions of persecution, the voices will be of a threatening, or denunciatory character, and usually come from the enemy. They warn the patient of intended injury, perhaps of designs to kill him; and command him to kill first, as the only way of saving his life.

Hallucinations of hearing are not often of a pleasant nature, but rather of a painful one. They are particularly characteristic of the cases of persecutory disease, a point to which I wish especially to call your attention, as of medico-legal importance. Homicides committed by insane people are often done under the command of a voice, which is absolutely irresistible. Look most carefully for hallucinations of hearing when you examine an alleged insane murderer. He often will make no reference to any voice, or false hearing for various reasons, one of which, and the one that concerns us here, being that after he has obeyed the command of the voice, he hears it no more, and naturally, as you will perceive on reflection, for the deed was in the nature of an explosion, and its consummation is followed by a period of relief from the previous mental tension. Nothing is left for the present to be commanded. In trying to get your clue for the auditory hallucination, you may be told no more then: "He had to do it" (the murder)—"He was told to do it"—"It was a put up job"—"He couldn't help it"—"He didn't have anything to do

⁹ Clinical Lectures on Mental Diseases, T. S. Clouston, p. 139.

¹⁰ Practical Manual of Mental Medicine, E. Régis, p. 69.

with it." All of these statements carefully analyzed, will turn out to be remote references to the hallucination and should lead to further investigation.

False hearing is not limited to one voice, though as above said, it takes its character largely from the form of disease, and individuality of the patient. I had a patient, who heard in the house usually only one voice, but when he walked in the street he heard a great many. All the voices told him what a bad man he was, and purposed to generally expose him. Sometimes the voice is constantly active, keeping up a lively conversation, as in a patient I have, who at the same time carries on a rational conversation with me, and a less rational one with a voice located a little behind her, so that she has to turn her head a little, when trying to catch what it says. The voice generally says very much the same thing, so that she answers it rather mechanically. It tells her that every thing she does is just right, and approves of what she wants to do, which makes her more difficult to manage, as she has many bad habits, which have to be corrected. She sometimes thinks she is to be buried alive, which I think another voice tells her. The first voice, and her own seem to be limited to her own thoughts, one asking questions, the other answering—hence of psychical origin.

Auditory hallucinations have always been regarded as a very grave and practically hopeless symptom from a prognostic point of view, indicating that the disease has become organic. At present we should say a case in which they were found was serious, but not hopeless. This change in opinion is owing to our better knowledge of mental disease, and the discovery of such hallucinations in curable cases where we had not before noticed them.

Visual hallucinations are much less common than the above. They may occur in company with them or alone, perhaps generally alone. They are, of course, false perceptions of sight. Objects are seen which have only a subjective existence. A patient I had saw men at night who came to his room to carry him off to prison. He had no auditory hallucinations, therefore he explained their making no noise by saying they wore felt slippers. Objects seen may be ordinary persons, or the most exalted personages; or places, terrifying spectacles, pleasing sights. Things of a disagreeable nature are oftenest seen at night, and take the form of robbers, murderers, electrical machinery; in women, men who attempt to outrage them, etc. The prognosis where these hallucinations exist, I regard as serious in proportion to the degree they have become organized, but they do not usually indicate a form of mental disease dangerous to others, and are more curable than auditory hallucinations.

Tactile hallucinations, or false perceptions of touch, are not common. As far as my own observation goes they can be more directly attributed to physical causes than those mentioned above. They are often due to imperfect nutrition of the skin, and consequent irritation of the cutaneous terminal nerve filaments. They are perversions of cutaneous sensation, which are subjectively falsely interpreted. The patients feel things on the hands and skin, which may be skin disease or insects or filth. Out of these false perceptions (as it appears to me) sometimes grow the delusions of filth and contamination. The prognosis is not very favorable in these cases. They may recover after a time, or get better, but are very obstinate.

Hallucinations of taste and smell are also rare. They are false perceptions of these senses, and also lead one to regard them as arising in large part out of a physical background. In some cases taste and smell or either one, may be altogether abrogated. I remember one such case, a woman who became mildly depressed after the birth of her first child. She had so largely lost her sense of smell that violets and other flowers had no odor at all to her. Her sense of taste was blunted, but not wholly lost. As she began to get better, she gradually recovered both smell and taste. In health there are frequent perversions of these senses, as one easily discovers on making an investigation.

It is quite common for patients to think they have poison in their food. This idea may arise as a delusion in the mind of a diseased victim of persecution. But it may further develop into an hallucination, and the patient will see the arsenic put in his food, or taste it on his tongue as a fine powder. The hallucinations of smell take the form of perceiving horrible odors, such as sulphurated hydrogen, or ammonia, or some deadly and noxious gas. Occasionally, I have known a patient to suddenly turn around, and perhaps hold his nose. Being interrogated as to what was the matter, he has said; "he could not breathe there was such a stench." If these hallucinations are not well defined and evanescent they have no serious prognostic import, but where they are very dominant, so that a patient becomes suspicious because of the poison he sees, or is all the time trying to escape from the noxious vapors, the disease has become or is becoming fixed, and the prognosis is therefore unfavorable.

In addition to the specific forms of hallucinations already spoken of there are others of a more general character, especially those which are referred to the genital organs, which are usually of a painful character, and occur in the persecutory form of mental disease. In conclusion, brief mention must be made of the third group of what I have called classical characteristics of insanity, namely, illusions.

Illusions are mistaken perceptions. The definition of Régis is: "The false interpretation of a perceived sensation." An hallucination is wholly subjective or invented; an illusion is a distortion, a sense deception. If we refer to the young man already spoken of who heard his father's voice on the other side of the door, you will remember we called his doing so an auditory hallucination because no voice was heard. But if some one proved to him not to be his father had actually spoken, and he had said, that is my father's voice, he would have been the subject of an auditory illusion. He insisted on it that much of the furniture in the room had come from his father's house, and was sure that the stable was his father's stable. These were illusions of sight, which are the most common kind.

Mistakes in identity also come under this head. The same young man recognized several people in the house as persons he had previously known, and even spoke to them and called them by name, yet he had never seen one of them before. Another patient addressed an unknown lady in a familiar way as his wife, and in spite of her protestations was satisfied of her identity. He also thought that he recognized her voice in the room over his head, and was sure when he heard the furniture being moved about, that she was being attacked and maltreated. These were auditory illusions.

Illusions of taste and smell are not uncommon. Salt and sugar are sometimes regarded as arsenic, strychnia

and other poisons. Milk has the taste of poison. Egg-nogs are made of rotten eggs. Rare beef looks and tastes like human flesh. Any smell is like putrid flesh, or decaying matter, or sewer-gas.

Illusions of cutaneous sensation are occasionally met with, as in a patient with a dry and badly-nourished skin, who mistook the irritation and itching for insects which were crawling over her.

Illusions occur in both curable and incurable cases, and are not regarded as unfavorable indications in the prognosis. Uncombined with hallucinations, this is true; combined with them, the opposite is the case.

Original Articles.

THE INSANE POOR IN PRIVATE DWELLINGS IN MASSACHUSETTS.

BY A. R. MOULTON, M.D., PHILADELPHIA, PA.,

Late Inspector of Institutions, Massachusetts State Board of Lunacy and Charity.

In the *Boston Medical and Surgical Journal* of November 4, 1897, is a paper bearing the above title, contributed by Sir Arthur Mitchell, Ex-Commissioner in Lunacy of Scotland, which is, in fact, a review of that portion of the work of the Massachusetts State Board of Lunacy and Charity which refers to the boarded-out insane, as set forth in its report for 1895-96. While the review (one might almost denominate it a *criticism*) is phrased in such courteous language as its distinguished author would only use, it is in part so misleading that I deem a few remarks bearing upon this matter not out of place.

Not now being connected with the Board of Lunacy and Charity, nor a resident of Massachusetts, I cannot be charged with obligation or bias.

To one familiar with the lunacy laws of Massachusetts, and with the methods of the public authorities in administering the same, the conclusions of the Board of Lunacy and Charity and its analysis of the boarding-out system must appear fair and convincing; indeed, the unofficial remarks of Dr. J. L. Hildreth, a member of the State Board, in his paper upon the "Public Care of the Insane in Massachusetts," the first section of which is published in the same number of the *JOURNAL* as Sir Arthur's paper, coincide precisely with my experiences, and bear out the opinions of others who have had practical contact with this work in the United States and elsewhere. So fairly are the remarks summarized by the doctor that I venture to quote the paragraph containing them:

"Since 1886 the Board has had authority to place in families insane patients of the quiet and chronic class. Experience has shown that convalescent cases receive the most benefit from this system. There are comparatively few patients who receive more benefit than if they remained in a hospital. Neither the hospitals nor the Commonwealth have been very much benefited by the system, and there are obvious reasons connected with the welfare of the community at large which suggest, that under the present laws the system should be extended very carefully, if at all."

There are three classes of patients in Massachusetts lunatic hospitals, namely, State, town and private patients; which titles indicate the sources of their support in the hospitals. On September 30, 1896, there

were 5,868 patients in the Massachusetts State institutions, classified as follows: 1,445 as State, 3,819 as town, and 604 as private patients. Under the law the Board of Lunacy and Charity may place in families quiet, harmless chronic patients of the State class only. Its officers, however, act as agents for the placing of town and private patients, and of the 129 patients in families under its supervision on September 30, 1896, 75 were supported by towns and 16 were supported by individuals. Though persistent effort has been made by the board to place out patients, there were on September 30, 1897, only 121 in families, and they were supported as follows: 34 by the State, 69 by towns, 17 by individuals, and 4 were self-supporting, or cared for in families at no expense, their labor being sufficient compensation. State patients are those who have no known settlement in the Commonwealth, and they are a charge to the State. The board, through its officers, undertakes to determine the settlement of all such paupers, and when it is found to be in a given town of the State, the patient becomes a charge of that town. If, after inquiry, it is ascertained that a patient supported by the Commonwealth belongs to another State or country, the individual is very properly sent to that place, if in the judgment of the hospital superintendent he is well enough to endure the journey, usually accompanied by a proper care-taker. In exceptional cases the patient is unaccompanied, but never unless supposed to be sufficiently strong, mentally and physically, to travel alone.

For a number of years there has been a disposition on the part of overseers of the poor of towns to remove their patients from hospitals to almshouses, most of which are wholly unsuited to the care of the insane, and in none of which, as I found those places from 1888 to 1891, nearly so suitable for any insane person as is the least desirable State establishment.

There remain, then, in the hospitals for the Board of Lunacy and Charity to draw from, for family care, the small number of State patients whose settlement is undetermined, who are quiet and harmless, and whose disorder has become chronic; for it must be remembered that State patients whose disorder is acute are not legally permissible for boarding out. A considerable number of State patients have a known settlement in other States, but they are too excited, or otherwise unsuitable to move, and are therefore not usually proper cases for family care.

There is a considerable number of town patients who might be placed in families, or such was the case a few years ago, and I have no reason to suppose that the conditions have materially changed; but the consent of the overseers of the poor must first be obtained, and as the suggestion to those officials that a particular patient is suitable for family care usually results in landing the invalid in a wretched almshouse, a conscientious agent of the State Board will hesitate before suggesting that which almost of necessity will result in injury to the lunatic, for the average overseer of the poor is actuated chiefly by the question of cost in his care of the insane, and unless the expense to the board of a town patient is less with the private family than it would be in the almshouse, he will almost certainly go there if removed from the hospital before recovery takes place.

The conditions are quite different with private patients; the friends are able to provide for such cases

in their own homes when they are in a condition warranting removal from the hospitals, and the small number of this class boarded out includes cases which for certain reasons should not return to their families, or that have no homes to receive them.

Then, too, another element has recently become operative which has undoubtedly interfered with the boarding out of patients; and to one familiar with the work, and of unbiased judgment, the wonder is, not that so few have been boarded out within the past two years, but that the State Board has succeeded in placing out any during that time. I refer to the occupancy of the Medfield Asylum, which institution has received more than a thousand pauper patients, all transferred from the State hospitals, thus relieving them to that extent of their crowded condition. There is not that incentive existing which formerly obtained for the superintendents to relieve their hospitals numerically by recommending a few to the inspector for boarding out.

When conducting that department of the Board of Lunacy and Charity which includes the work of boarding out insane, there were more applicants for boarders than patients available for placing out; but it by no means follows that every family which asks for patients to board is a suitable one for their care; indeed, the circumstances in New England, especially in Massachusetts, are such that the list of suitable care-takers is a limited one, and the State Board is to be commended that it does not lose sight of its duty to the community, and that it has not become so blinded as to fail to look beyond the family and to consider the proposed environment. The recent shooting of a citizen by a "harmless" lunatic, removed from the hospital against advice, should be a lesson and warning.¹

I frequently had patients recommended to me by superintendents for boarding out whom I could not place, for the reason that, though there were families desiring patients, I knew they would not, or could not, give the patient named suitable care, or the latter was the charge of a town whose overseers disapproved of the boarding-out system.

A good deal has been said about the "home comforts and family surroundings" of patients placed in private houses, and the Scotch commissioners make much of this. There is an element of truth in the sentiment; but neither in Scotland, where I visited a large number of families said to be typical ones, nor in Massachusetts, where I am familiar with the practice, is it a fact that boarded-out patients are, as a rule, taken into the family circle. Even in Scotland, where the crofter's homes are often only two-roomed houses, the patients, as I saw them, seldom eat with the family, though they live in closer proximity to its members than do the patients in Massachusetts, for I saw one woman patient there who slept in the same room — the kitchen — with the husband and wife of the household. In Massachusetts I found some families who permitted their patients to gather around the table of an evening, and who might join in the conversation; but the rule was for the patients to sit by themselves, usually in the kitchen, where they also took their meals, not with the family, or if at the family table, at a different time.²

The circumstances of the care-takers in Massachu-

setts are quite unlike those in Scotland. As I have pointed out elsewhere,² the distinction between the Scotch guardians and those of Massachusetts consists largely in difference in material comforts; for while the care-takers in Scotland feel obliged from stress of circumstances to retain even troublesome patients, those in Massachusetts are, as a rule, so well off that the boarding of patients is not their only or chief means of subsistence, and none but the most placid and least troublesome patients will be retained. The patients in the Scotch asylums are of a much more quiet and orderly class than are those of that nationality which form the asylum majority in Massachusetts, and it is my conviction that did the Scotch authorities have to deal with the latter element they would have a better appreciation of the limitations that are a vital factor in Massachusetts. Conscientious workers under like circumstances will accomplish nearly similar results.

It may be thought that I disapprove of the boarding out of patients; but instead, I am very much in favor of it under proper conditions and limitations.

Some of Sir Arthur Mitchell's criticisms are weighty and to the point, but much of his paper is misleading, due probably to lack of information of the existing conditions in Massachusetts. I fully agree with him that "all the insane poor, *however provided for*, should be as much under the care of the State as those of them who are in asylums," and that "no almshouse should be allowed to receive insane inmates which is not licensed to do so by some State authority, the license being granted on well-considered conditions," similar to those in Scotland.

Were all the indigent insane wards of the State, many of those now languishing in almshouses could be much better provided for in families; and the large number of chronic patients in hospitals now classed as town cases would furnish a ripe field from which to supply boarders to new care takers as they might be developed. Such a method would form a system of boarded-out insane indeed, in place of the present *experiment*, which many think has been "a failure from the beginning."

The State Board of Lunacy and Charity makes the very pertinent remark that the boarding-out system "seems to apply most happily to those who are on the road to recovery"; and Dr. Hildreth, in the paragraph already quoted, expresses the same thought, which is in accord with the experience of all who have had much to do with the insane. In pursuance of just this line, and partly for the purposes indicated, have country houses and seaside villas been established in connection with numerous hospitals both at home and abroad. It is a common experience that for the lack of a suitable place to send them, a few patients are retained in hospitals to their detriment. Were suitable families available, such cases might possibly be stimulated, dementia prevented, and convalescence hastened.

It seems an opportune time, then, to very materially broaden the work of the "boarding-out system" in Massachusetts; and if the State is not ready for the radical changes in the poor-laws herein indicated, which would place all its indigent insane under the supervision and care of the Board of Lunacy, it would not object to the beneficent measures suggested for the insane not yet become chronic.

¹ The case referred to is that of a man, taken from the Northampton Lunatic Hospital by the overseers of the poor, who after roaming the streets for several years finally quarrelled with a neighbor and suddenly, without warning, shot him. The man is now in jail awaiting trial.

² Thirteenth Annual Report of the State Board of Lunacy and Charity.

A GUNSHOT WOUND OF THE HEAD.¹

BY WILLIAM D. SWAN, M.D., CAMBRIDGE.

No class of injuries has received more attention of late years, from a scientific and surgical point of view, than gunshot wounds. Also, with a view to determine the destructive force of new missiles, a vast number of these injuries have been carefully examined, and innumerable experiments have been made on dead bodies and every conceivable kind of material, and results carefully noted. Results of such work are of great value in the examination of wounds, and the determination of instruments and conditions under which they were inflicted. I have been unable to find a case parallel to the following; and while it may not be unique in the history of gunshot wounds, it at least is unusual and interesting from a medico-legal point of view.

The body of a man was found in the woods of Arlington, June 19, 1892. The body lay on the back, arms at the sides. There was a pool of blood beneath and around the head. A pistol lay on the belly. There was no disorder of the clothing or other evidence of a struggle. Rigor mortis was present. No odor of decomposition. Some fresh fly-blows about the head. The pistol was a revolver of cheap pattern, .38-calibre, short barrel. The chambers contained one empty cartridge and one loaded one showing impress of the hammer on its rim. There was not a small round hole in the right side of the head, with blackened edges and surrounded by powder marks. There was a large, irregular-shaped scalp wound in the top of the head, which presented none of the ordinary characteristics of a pistol wound. There was no blood or injury in the mouth or nostrils. There were no means of identification.

An autopsy was held the following morning in the presence of Medical Examiner Durell, of Somerville, and Chief Meade of Arlington, probably thirty-six to forty-eight hours after death.

Body of a man upwards of fifty years of age—lean, long-armed, muscular and well formed. Over coronal suture in the median line a star-shaped, or roughly cross-shaped wound of the scalp, with gaping edges, two inches by one and three-quarters inches in extent. Skin and hair at the edges not burned or blackened. Beneath this wound an irregularly round hole in the skull, three-fourths of an inch in diameter at outer table, and much larger at the inner table. Surface of the skull and periosteum and inner side of scalp about this hole black, and covered with grains of powder and some minute scraps of lead. Frontoparietal suture on the right side separated one-sixth of an inch; on the left side a fracture of the parietal from the bullet hole almost to auditory canal, and thence to left orbit, edges of parietal lobe separated one-sixth of an inch and the inferior edge of the parietal elevated and separated one-quarter of an inch from the temporal. Brain much lacerated in a vertical direction beneath the hole in the vertex, and blood extravasated. At a depth of three inches at the base of the brain were found several pieces of bone and a .38-calibre bullet of which the forward part was flattened and bright and the edges thin and turned back. Considerable blood in the left lateral ventricle.

Above the right eye and along the edge of orbital part of the frontal and the lesser wing of the sphenoid bones the brain adherent by thickened membranes. Considerable cicatricial tissue at this point and old loss of brain substance. Neighboring tissues yellowish. At the tip of the lesser wing of the sphenoid bone and inside the skull, covered with fibrous extension of the dura-mater, is part of a bullet of smaller calibre than .38, of uniform dull lead color. Skull external to this shows evidence of an old fracture, and a small piece of lead is embedded in the bone exteriorly. An old, indistinct, small, round cicatrix found in the skin two inches above and about the same distance anterior to the external auditory canal on right temple. Examination of the organs of chest and abdomen showed nothing of importance. The stomach and intestines were nearly empty. There were no powder-marks on the hands.

The man was fully identified from the photograph, and it was learned that he had attempted suicide by shooting himself in the right temple about three years previous. The fact of suicide being established, it remains only to consider the peculiar aspect of the wound.

The explosive effect of a bullet wound is due to lateral expansion in solid substances and to hydrostatic pressure in fluid or semi-fluid matter. The lateral expansion causes fissuring of a bone for instance, and as a general rule the greater the index of cohesion the more extensive is the splintering or fissuring speed of the missile. Here is an uncertain element, for the element of elasticity sometimes makes the injuries less extensive with a high speed than with a low. In addition to this expansive effect, causing a long fissure on each side of the bullet wound in the skull, is the hydrostatic result of rapid compression of the semi-fluid brain mass confined in the cranium. The molecules of a liquid are readily displaced, and a greater effect will be produced on them by a relatively lower velocity, but with high velocity it is enormous. A rifle bullet will pass through an empty tin can, making two round holes; but if the same can be filled with water, it will be burst and torn to pieces by the impact of the bullet on the water. The base of the skull escapes injury because the dome is already split by the expansive effect of direct impact.

The last and most unusual cause is the direct expansive effect of the powder gases, as shown especially in the splitting of the scalp and the deposit of powder residuum on the inside of the scalp and the separation of the scalp from the bone.

It seems probable that the man, in his second attempt at suicide, chose the top of his head as a more vulnerable spot than his temple, where he had been unsuccessful before. He sat down in a secluded spot, bent his head forward and holding the pistol in both hands, perhaps with a thumb on the trigger, and with the muzzle to the top of his head, fired; the hammer clicked on the cartridge and there was no explosion. With nervous haste and desperation he recoiled the pistol and pressing the muzzle firmly against his head, again pressed the trigger and this time with the desired results. As he fell back dead, his hands fell at his sides, depositing the pistol on his abdomen.

There is a case reported by Ogston of a man who fired a pistol with the muzzle pressed against his breast, with the result that the pistol was blown away and he received only a slight contusion of the skin of the

¹ Read before the Massachusetts Medico-Legal Society, June 8, 1897.

breast. I cannot believe that that is a result to be depended upon.

An important point in determining whether a pistol wound is self-inflicted is the presence of powder smut on the hands. I have lately seen a case of suicide by shooting in the right side of the head, in which the fingers and palm of the left hand were blackened by powder. This bullet wound in the right side of the head was much bruised and blackened. This individual must have steadied the muzzle of the pistol with his left hand.

SUDDEN DEATH DUE TO ALCOHOLISM.¹

BY E. P. HURD, M.D.,
Medical Examiner, Newburyport, Mass.

THE following cases illustrate the difficulties which sometimes present themselves to the medical examiner when called to diagnose sudden death due to alcohol poisoning from death by some other poison, as opium, or by apoplexy.

CASE I. A. B., age thirty-five years, a Swede, hired man and farm-worker, residing in Shepton, Canada, was found one evening dead by the roadside not far from his home. The body was recognized by a passer-by and removed to a barn. Being summoned, I viewed the body and the situation where it was found, and noted that there was no blood on the ground, and that there were no marks of violence on the corpse. The coronor was notified, and arrived early the next day.

The following facts were brought out at the inquest: B. was of intemperate habits, and had been for several days on a spree. On the evening of his death he had been to the neighboring village, and after taking several drinks at the hotel, he had started for home with a whiskey bottle replenished at the bar in his pocket. This was found, nearly empty, by the roadside near the place where he died.

The coronor ordered an autopsy, the details of which are as follows: A man of medium height, light complexion, rather stout and of bloated appearance. Post-mortem rigidity very pronounced. Large ecchymoses on dependent parts (hypostatic congestion), great turgidity and purple aspect of face and lips, a frothy sanguinolent fluid escaping from mouth. Stomach exhibited a patchy inflammation and some ecchymoses; contained half a pint of a sour, sanguinolent liquid smelling of whiskey. Diffuse redness of the mucous membrane of the small intestines. Liver and spleen congested, the spleen softened. Heart and kidneys normal. Lungs edematous; mucosa of bronchi injected.

Cerebral meninges congested; sinuses turgid; venous network of pia distended; punctiform hemorrhages on surface of cortex in both hemispheres. No apoplectic effusion in centrum ovale or in ventricles.

The fact of alcoholism was proved by the autopsy, for these lesions were undoubtedly due to alcohol. The coronor's jury, therefore, brought in a verdict of sudden death due to alcohol poisoning. Query: Why did A. B., a robust man, with sound heart and no disease of viscera incompatible with a much longer existence, come to his death so suddenly? It was said that he had often withstood more liquor than he had imbibed in this drunken debauch. This was in

the month of October, and the deceased was thinly clad, with summer suit and no overcoat. May the chilliness of the season have had something to do with this sudden death? It is known that alcohol retards processes by which animal heat is produced, hindering the transformations of oxyhemoglobin in the blood, and inebriates poorly resist a severe chill. It has been proved that blood cooled below a certain point has a paralyzing influence on the nerve centres, including the cardiac and respiratory centres in the bulb.

CASE II. D. F., aged seventy-five years, farmer, of good early antecedents, had for several years been an inebriate. When I called, on the evening of March 16, 1868, to see him, I found him in bed, in deep coma, with heavy, stertorous breathing, bloated, livid countenance, feeble, flickering pulse—in fact, nearly dead. There was a perceptible alcoholic odor in the breath. That afternoon, as appeared from the testimony of one of his family, D. F. had drunk heavily. It was said that he had lived on whiskey, as, owing to a bad stomach, he had been unable to take food. The autopsy, performed next day, showed a stomach thickened and inflamed with hemorrhagic extravasations and erosions of the mucous membrane. About four ounces of thick mucus was removed from the stomach, and somewhat less of a prune-juice liquid redolent of alcohol. A cirrhotic liver with sclerotic changes not advanced and a fatty heart were also found. The membranes of the brain were thickened and hyperemic, and there was a large subdural clot on the left side covering a large part of that hemisphere. The ventricles were distended with blood and serum, and there was some edema of the convolutions of the right hemisphere. This case was entered as sudden death by apoplexy of which the exciting cause was alcohol.

As physicians and as medical examiners, we are continually meeting instances where the diagnosis of the coma lies between apoplexy, narcotic poisoning, and alcohol poisoning—that condition of the latter where the person is supposed to be dead drunk. In former days when bleeding was in vogue, I have known a person to be bled for apoplexy who was simply dead drunk, and who recovered completely after several hours. I have also known patients to be regarded as dead drunk who were in the coma of apoplexy. As Watson says: "Coma is coma, from whatever cause, and you must seek to ascertain the cause in the history and other circumstances of the case. You inquire whether he is known to have been drinking; you try if you can perceive the odor of wine or brandy in his breath; you endeavor to make out whether he has been low-spirited or in known difficulties; in short, whether it is likely that he may have swallowed poison. But from the symptoms and actual condition of the sensorial and motor functions you cannot solve the question."

The two cases above reported occurred many years ago, and no chemical analysis was made of the contents of the stomachs; it was, however, sufficiently apparent from the odor and from other circumstances that the liquid found in the stomach was impregnated with alcohol.

The following case of sudden death in an inebriate was undoubtedly due remotely to alcohol.

CASE III. F. F., a Norwegian, silversmith, aged forty years, was admitted to the Houston Institute, Newburyport, July 4, 1893. He came of a healthy,

¹ Read at the Annual Meeting of the Massachusetts Medico-Legal Society, June 8, 1897.

long-lived family, and had never been sick prior to entering the institute. He had been a hard drinker for twelve years — daily drams, frequent spree. He had been also an inveterate smoker. The physician at the institute had noticed a weak, intermittent pulse and diagnosed a "tobacco heart." He was placed under the usual treatment for inebriety, tobacco and alcohol being soon completely withdrawn.

August 7th he left the institute "cured" but with more or less pain and discomfort in precordial region with shortness of breath, and complete inability for exertion; he could no longer work at his trade. The night of the 17th of August he was unable to sleep on account of severe stabbing, burning pain in heart, general restlessness and distress. In the morning, he walked to the institute (a short distance) for relief, became rapidly worse, was taken to his home, and died on the way.

On requisition of the mayor, I performed an autopsy on the afternoon of the 18th. Death appeared to be due to fatty disease of the heart muscle, unaccompanied by any fibrosis or occlusion of the coronaries. The accumulation of fat exterior to the sarcolemma was phenomenal, considering that adipose development elsewhere was not up to the normal in a spare, anemic subject; the interfascicular connective tissue was infiltrated with fat in the form of yellowish streaks and deposits crowding and compressing the muscular fibres, which presented a yellowish or fawn color; the heart walls were soft and flabby, and the myocardium in places could be easily torn through or broken down by pressure of the finger. The whole of the left ventricle seemed enveloped in a fatty layer under the visceral pericardium, thinning out and disappearing toward the apex; the coronary arteries, though normal in appearance, were buried in adipose substance in the first part of their course. A section through the middle of the left ventricular wall showed the myocardium interpenetrated by and stuffed with adipose matter. The solid organs of the abdomen were congested and more or less altered. The spleen was enlarged and softened; its pulp of the consistence of *bouillie*. The liver was enormously swollen, firm and hard, cutting with great resistance. The kidneys were enlarged and hyperemic, blood flowing freely on section. Stomach empty and normal in size; no thickening of walls and only a little patchy redness of mucosa about greater curvature. I returned this death as the result of fatty disease of the heart and other lesions, probably due to chronic poisoning by alcohol.

After much reflection on this case and careful study of my notes made at the time, I am convinced that this was a true case of what the French writers call *surcharge graisseuse* — first, fatty increase, second, fatty transformation. It was not primarily fatty degeneration or parenchymatosis myocarditis. Doubtless other factors besides alcohol were operative here to, so to speak, submerge this heart by adipose. When this man went to the institute he was comparatively well, able to work, though under the dominance of his evil habits. In one month's time the organ most essential to the sustenance and nutrition of the whole economy was hopelessly smitten in its vitality.

Interesting questions present themselves here; but they are all unsolvable. How far were the lesions in this case due to alcohol, and what part, if any, had tobacco in their causation? What is the explanation of this etiological rôle (now acknowledged by the best

pathologists) of alcohol in the production of cardiac lipomatosis and steatosis? How far, if at all, were the morbid changes described in this case, and especially the cardiac steatosis, due to suppression of the stimulus of alcohol and tobacco; in other words, did abstinence precipitate the fatal issue?

APPEARANCES OF THE ALIMENTARY CANAL IN SUDDEN DEATH BY ALCOHOLISM.

The effect of alcohol on the digestive tube varies with the dose, the quality and the degree of dilution. That this organ is in some instances very tolerant, long preserving its structure and function unimpaired despite great excesses, is a fact, notwithstanding the asseverations of certain of our school text-books. That the abuse of any alcoholic stimulant does eventually entail inflammatory changes in the alimentary canal is certain. Dujardin-Beaumetz and Andigé, in their experiments on acute and chronic alcoholic poisoning, in animals (principally hogs), found that toxic doses inflame the stomach and intestines even when injected under the skin. Of all the alcohols, ethylic is the least baneful, eight grammes per kilogramme of the animal's weight being a fatal dose. Amyl alcohol (fusel oil) is much more baneful, a dose equal to two grammes per kilogramme being speedily fatal. The effects of ethyl alcohol (spirits of wine) on the stomach are much less pronounced than those of propyl, butyl and methyl alcohol; the latter violently congest and irritate the stomach, cause hemorrhages and obstinate vomiting. The practical lesson is that impure alcohols, such as new rum, and whiskey that has not ripened in casks, and are impregnated with fusel oil (the bane of new liquors), and all such spirits as are fraudulently sophisticated with fusel oil, are much more deleterious than wine and spirits containing only ethyl alcohol, produce more intense inflammatory changes in the digestive tube, and are more likely to be followed by sudden death, generally in coma and sometimes in convulsions.

There are no constant appearances of the stomach and other viscera in alcohol poisoning. In other words, the lesions give no absolutely infallible criteria. There may be uniform redness or there may be redness in patches; there may be petechiæ and ecchymoses of the mucous membrane and punctiform hemorrhages into the gastric cavity, or there may be large extravasations of blood and hemorrhagic erosions, the stomach may be of normal thinness and but slightly injected, or it may be thick and rugous, intensely red in places and black and sloughy in others; and the abdominal viscera may be hard or soft, hypertrophied or shrunken, and yet the death shall have been caused by alcohol poisoning.

It cannot be too much borne in mind that alcohol has a special affinity for the nervous system; or we might say that the nervous system has a sort of chemotoxic affinity for alcohol. In some inebriates the nervous phenomena of alcoholism are far the most marked and the visceral lesions are inconspicuous; even the entire absence of such lesions in a given case would not warrant the affirmation that the sudden death was not due to alcohol. Nor would the failure to obtain a history that the deceased person had prior to death passed through the classic phases of drunkenness (excitement, then perversion, then depression of the faculties and forces) warrant the conclusion that the individual did not die from alcoholism.

"In some cases," says Boehm, "the effects of alcohol

are diametrically opposit [that is, from excitement] having a depressing effect from the very first; and the person goes on to a state of narcotism without any of the ordinary outward signs of drunkenness. The amount of consciousness and rationality retained by the drunken man varies greatly, and is by no means always proportioned to the quantity of poison imbibed. Men who are manifestly drunk often act and transact business for a time with complete reflective faculties, and with a good deal of consideration. Death may occur early in the first stage of drunkenness in consequence of asphyxia and paresis of the heart, but it may occur in the later stages."²

These observations will serve as an introduction to my fourth case.

CASE IV. E. J. C. died suddenly at Grape Island, in Plum Island River, between Newburyport and Ipswich, on the afternoon of August 6, 1896. This woman, considerably under the middle age, strong and robust and of fine physique, was left at the hotel in the afternoon of the date mentioned by her companion, a gentleman from Rowley, in a state of intoxication. The two persons had come down from Rowley in a boat together, and C. had taken copious draughts of whiskey on the way. M., the male companion, stated that he had left C. at the hotel because she was drunk, and he did not know what else to do with her. From an examination of all the evidence, I am inclined to take M.'s statement as the truth. There was, at the same time, the testimony of two parties at the hotel that C. when she entered the hotel did not walk, act or speak like a person actually drunk, nor was any smell of liquor noticed in the breath. There was evidence that the woman took some liquor (furnished by M. from the bar) after arriving at the hotel. M. returned to Rowley in his boat. Shortly afterwards, Mrs. C. rose from her chair, walked across the room, then fell heavily on the floor, and instantly died.

I was summoned by the police from Newburyport, this place being accessible by a straight road over the sand meadows. Dr. Clark, medical examiner of Ipswich, was also summoned, and we both arrived at Grape Island at nearly the same time, my arrival antedating that of Dr. Clark. It was agreed by us to remove the body to Newburyport for an autopsy. The autopsy was held in the afternoon of August 7th. To confine myself to essentials, I may state that we found in the viscera of the abdomen and in the encephalon lesions which could properly be ascribed to chronic alcoholism. The stomach and small intestines were intensely hyperemic, as manifested by a diffuse redness of the mucous membrane and extreme vascular dilatation; there was nothing there to indicate chronic lesion. The liver and spleen were enlarged and softened; the kidneys were very hyperemic, large and soft; blood freely oozed on section. There was some congestion and edema of the lungs and bronchi (perhaps altogether hypostatic). In the encephalon was found an old pachymeningitis existing as a limited lesion along the longitudinal fissure. There was an ecchymosed spot as large as a silver dollar back of the right ear and a corresponding spot within the cranium, and extending to the dura mater, but no free blood; this was evidently produced by the fall, being the part that struck the floor. It was judged that a fall producing a lesion of this kind in a rather stout and heavy woman might cause considerable cerebral concussion. The meninges

were unduly vascular and the sinuses were engorged, but there was no hemorrhage. The heart was normal; the ventricles were empty. Death evidently occurred in systole.

There was found in the stomach a small quantity (about half a pint) of a turbid, somewhat bloody, fluid; this was collected in a bottle and along with the stomach sent to Professor Hills, of Harvard Medical School. In another bottle was sent the urine drawn from the bladder, and in a third, portions of the liver, the spleen and the kidneys. The general public manifested great interest in this case, and there was a wide belief that this woman had died from some poison other than alcohol.

Professor Hills in his report stated that he failed to find any toxic agent excepting alcohol. The presence of that spirit was detected in the stomach, in the urine, and in the other organs. Professor Hills gave as his opinion that the woman died of alcoholism. My own theory was that the fall on the head was an important factor, giving a powerful adjuvant influence to a paralyzing noxa already existing. If this be not so, I fail altogether to understand the suddenness of this death, and can only suggest that now and then alcohol may act as chloroform in rare instances acts — by paralyzing the medulla oblongata before the upper brain is completely subjected to the influence of the poison.³

THE PRESERVATION OF SPECIMENS WITH THEIR NATURAL COLORS BY KAISERLING'S METHOD.¹

BY WILLIAM F. WHITNEY, M.D., BOSTON.

THE necessity for preserving anatomical specimens with their natural colors has always been felt, and the impossibility of retaining the delicate shades which are indicative of many of the morbid processes has always been a great bar to proper teaching of pathology. With the introduction of formaline as a hardening agent and the modifications in its use recently published by Kaiserling,² it seems as if the collections of the future would be able to present something for the student besides variations in shape and size and fractures; for this is all that can be readily seen by him now, and his imagination has to supply the rest.

But it is not only for the instructors, but also for the medical examiner, that this promises to be of advantage; for the soft parts of the body that have been injured can be preserved in this way and shown in court, if necessary, and would often convey much more meaning to the average jury than lengthy technical descriptions.

The method is simple; the only precaution to be observed is not to put too large pieces in the preserving fluid, and to be careful to change them at the

¹ Read before the Massachusetts Medico-Legal Society, June 8, 1897.

² C. Kaiserling: *Virchow's Archiv*, Bd. 147, s. 359.

³ I add in a footnote that this is the case where the Board of Health of Ipswich, thinking their rights interfered with by the removal of this body to Newburyport (that is, from one town to an adjoining town) without their permission, and believing that the law defining the functions of boards of health gives such boards authority over medical examiners in such cases, who must apply to these boards for consent before they can legally remove bodies out of one town into another — this board, I say, appealed to Justice Savard, of Ipswich, who sustained the view of the board, and fined the undertaker who took the body from Grape Island to Newburyport ten dollars and costs. An appeal was made to the Superior Court, and the case was *nolle prosequi* by District-Attorney White, so that, according to this judgment, medical examiners are not amenable to boards of health in the discharge of their duties within the limits of their districts.

² Quoted from Ziemssen's *Cyclopedia*, vol. xvii, p. 393, Am. ed.

proper time. As some shrinkage is inevitable, cavities should be distended with absorbent cotton, which, of course, is to be removed when the specimens are changed. Moreover, freshness of the material adds greatly to its chance of good preservation, and soaking in water (whereby the blood coloring matter is diluted) is to be avoided.

Sections should be made with a sharp knife, and the blood which may have been smeared over the surface removed by pressing (not rubbing) a dry, clean cloth upon it. They are then to be submerged entirely in the fluid, best with a layer of absorbent cotton over them. In this manner, portions of the skin showing stab or bullet wounds, or even extensive ecchymosis, could be preserved, a little cotton being inserted to keep the edges of the wound apart.

The preservation of entire large organs is hardly practicable, as careful injection of the vessels is necessary, much of which should be done before their removal from the body.

Bile pigment will diffuse, and therefore the liver and jaundiced organs are the least fitted for this method.

As regards the length of time they will stand, it depends upon how fresh the substances are, and how carefully they are guarded from a bright light. They have stood the test of a year already, and it would be hardly necessary in any legal case to preserve a specimen longer than that.

The following is the method, and the specimens which are shown with this will enable the members to judge for themselves how successful it has been in my hands:

Slices of organs, from three to five centimetres thick, are placed from three to five days in —

Formaline	200 c. c.
Water	1000 c. c.
Nitrate of potash	15 gm.
Acetate of potash	30 gm.

They are then removed, the fluid allowed to drain off and the specimens are placed in —

Alcohol 80 per cent. for six hours, then
Alcohol 95 per cent. for two hours.

From this directly into —

Water	2000
Acetate of potash	200
Glycerine	400

for permanent preservation in a dark place.

Clinical Department.

REPORT OF A CASE OF ASTHMATIC PAROXYSMS TAKING THE PLACE OF EPILEPTIC FITS.

BY L. PIERCE CLARK, M.D.,
First Assistant Physician, Craig Colony, Souhega, N. Y.; Member
New York Neurological Society, etc.

FOR years many competent observers have urged the nervous origin of all asthmas; but some other observers have spoken of the different forms of asthma as having different origins, and admit only the one special form of asthma known as bronchial asthma as having marked neurotic etiological factors. The theory of the neurotic origin of bronchial asthma was first advanced many years ago by Trousseau, while later Bier-

mier proved quite conclusively that a spastic nervous element entered largely into bronchial asthma, which he stated consisted of a tonic spasm of the muscles of the smaller bronchi. Sommerbrodt proved that sudden attacks of asthma were due, in certain cases, to a reflex cause, an irritation applied to the mucous membrane in some area of the respiratory tract. Bert in 1870 showed by experiment that contraction of the medium-sized and finer bronchi was actually produced in a typical manner by irritating the vagus. Probably the one writer, Sommerbrodt, has embraced in his numerous writings all that has been definitely ascertained in regard to the reflex causation of bronchial asthma.

As to however true all these different theories may be, whether we accept a neurosis as the causation, or a direct disturbance of the vagus itself, it is certain that a disturbance of the nerve supply to the bronchi is primarily the most important factor in the causation of the single asthmatic paroxysm.

Not infrequently we see cases of epilepsy that have as a complication, with the defective bodily organization, a condition allied to true asthma. Many young epileptics have these attacks of asthma as a consequence of deformities of the chest. But it is rare to see a case of epilepsy in which a case of asthma has developed long after the epilepsy has been in existence and in which the asthmatic attacks alternate with epileptic fits. Recently one case has been placed upon record showing that asthmatic attacks alternated with true epileptic seizures. The writer desires to place an additional case upon record in which a little different condition exists, which is peculiar and interesting because of the probability of the concomitance of the two diseases in the same case having a common neurotic origin. The case is reported in detail as follows:

The patient is a male; age fifty-eight, single, a common laborer. At the time of his admission to the Craig Colony, May 22, 1896, his epilepsy had been existent but nineteen months. The first epileptic attack occurred in October, 1894, while he was acting as porter in handling trunks in an uptown hotel in New York City. At this time his convulsions were confined entirely to the right side. He did not recover consciousness sufficiently to know his whereabouts until the end of the second day. This attack was attended by loss of speech for several hours, and since then he has never recovered his speech entirely so as to speak as plainly as he did before. He has had but six epileptic attacks since his epilepsy began, and has had no regular seizures since his admission to Craig Colony. At present there is considerable muscular weakness of the right side, which, the patient states, has been present since his first attack. Dynamometer examination showed 75 pounds under grasp of the right hand; left, 85.

Physical examination of the patient shows the following: Marked mitral regurgitation; pulse lacking in force and rhythm; a condition of mild general arterial fibrosis is present; peripheral circulation is poor. A condition of varicosity was found in the lower extremities, and hemorrhagic areas were found in the face and on the arms. The condition of the lungs presented consolidation at right apex; respiration seemed restricted on right side. The hearing is bilaterally defective, most marked on the right side, which, the patient states, was present for a number of years before his epilepsy began. The patient's eyesight is very

defective; cataract is forming in each eye; arcus senilis was found in both eyes. The reflexes of both sides were very active, being little more marked on the right side.

Stigmata of degeneration: Broad, low arched palate; auricles defective and asymmetrical.

The supposed cause of his epilepsy was due to extreme and prolonged intemperance in the use of alcoholic stimulants, although sufficient cause might be found in the condition of the patient's arterial system following right hemiplegia. No evidence of syphilis was obtained. Since the patient's admission to the Colony he has repeatedly had slight temporary attacks of asthma. The paroxysms occur in the early morning hours without any apparent cause. The character of the diet, condition of weather and general physical state give no clue to the occurrence of attacks. During their presence the patient is considerably disturbed; he becomes quite dizzy and is obliged to sit down because of physical exhaustion. The condition seems to be of the nature of *petit mal* attacks, although most of the disturbance is centred in the respiratory tract and manifested mainly by a difficulty of breathing, presenting in some respects the appearance of paroxysms of typical asthma. These asthmatic conditions have not been particularly modified by the administration of potassium iodide. His asthmatic attacks are quite rapidly relieved by temporary inhalations of stramonium taken in the form of cigarettes. The patient states of his own accord that at times he has had periods of slight "confusion and dizziness, attended by difficult breathing." Occasionally he has some slight sensory disturbance, a numbness of the right side.

The case is not dissimilar to other cases of epilepsy occurring in later life, and would call for no special attention if it were not for the peculiar character of the asthmatic paroxysms, which resemble on their mental side *petit mal* attacks of epilepsy.

MASSACHUSETTS GENERAL HOSPITAL. SECOND CLINICAL MEETING OF THE STAFF.

MEETING of February, 1896, DR. C. B. PORTER, President.

TWO CASES OF CERVICAL MYELITIS.

DR. J. J. PUTNAM: I wish to call your attention very briefly to two cases of cervical poliomyelitis. This form of the disease is rather unusual, and the cases show some peculiar features. This affection usually comes on in extreme youth, though occasionally in adult life, and is now considered as probably toxic if not infectious. It occurs in epidemics, as was the case here two or three years ago. The disease began in this young girl when about three years old. Considering that this supposed toxic substance circulates with the blood through the gray matter in which the vessels ramify, it is certainly very remarkable that so little of the cord should be affected and yet that portion affected so severely. One arm is reduced almost to a skeleton. All the movements she can make are below the elbow. We have a marked example of the claw hand and an extraordinary illustration of the wrist-drop. The motions of the small muscles of the hand are almost abolished, and the muscles involved are exces-

sively atrophied. A few muscles are preserved, and one must imagine that corresponding to those muscles a few nerve-cells are preserved. The disease is mainly of the upper-arm type, probably for the most part of the shoulder girdle. The lower arm is considerably involved. It is quite interesting to note that these cases sometimes follow the type of atrophy and paralysis seen in so-called obstetrical paralysis of children where the brachial plexus is injured during delivery. In that case the upper arm is especially involved and the lower arm less so, the extensors more than the flexors. The extreme atrophy of one arm which came on in this sudden manner is all that this patient has suffered from hitherto, but of late she has noticed a weakness beginning in the other arm. Whether that will increase we do not know. The left hand shows a slight amount of atrophy between the thumb and forefinger. There is a little excavation, and she has more or less pain there. It may be that this is one of the cases where this acute disease is going to take on a chronic and progressive form of which I will speak later. The knee-jerk on the side of the worst arm is slightly exaggerated. We find almost no reference to this in the books, but it shows that the white columns on the same side with the diseased gray matter are more or less involved from either primary or secondary disease. The disease seems to be starting up again in the form of progressive muscular atrophy, an outcome which is occasionally observed.

The next patient is in the same condition except that the lower-arm muscles are better preserved. He has taken great pains to develop himself, and such muscles as he has are quite strong. Here also the arm hangs almost out of its socket. The whole shoulder-blade is much smaller than its fellow — certainly not more than two-thirds as large — and all the muscles that cover it are much wasted. The knee-jerk is exaggerated here also; and this patient, too, recalls the child with obstetrical paralysis which is due to the pressure on or stretching of the brachial plexus at birth. The sensibility is normal and no other part of the body is affected.

Poliomyelitis, or myelitis of the gray matter, is the name under which this disease has gone. It seems evident, however, from the fact that the knee-jerk is exaggerated that the long motor tracts which run near the gray matter are more or less involved. That is interesting in connection with the view held nowadays by some writers, that progressive muscular atrophy and lateral sclerosis are the same disease; and that the gray matter is involved, the motor columns always more or less affected, whether the disease is acute or chronic.

TWO UNUSUAL CASES OF SKIN DISEASE.

DR. C. J. WHITE: Dr. J. C. White is unable to be here; but these cases, he thought, would be interesting. The three patients are machinists, two of them brothers. A little over two weeks ago this one noticed a few vesicles on the face, which were at first the size of a pin's head. A few days after, this patient, who slept in the same bed, broke out and finally vesicles began to appear upon the face of this man, who is the brother. The cases are very peculiar. It is hard to know how to classify them. They resemble the type of impetigo seen in children more than anything else, but clinically they are very different from that. The principal peculiarity is that the vesicle does not become a pustule, but remains a vesicle or bulla and then subsides. In

making cultures on blood serum from this case, although the bulla was perfectly clear, this marked result was obtained, which I supposed to be a colony of *staphylococcus aureus*, but Dr. Ernst thinks it is a little doubtful, judging from the color.

TOTAL EXCISION OF THE SCAPULA FOR SARCOMA.

DR. J. C. WARREN: I have to present a case of total excision of the scapula for sarcoma. It is the first case, so far as I know, that has ever been done in the hospital. A large portion of the scapula has been excised, but not a total excision.¹

The patient has since been subjected to the antitoxin treatment. The method employed is as follows: the doses are given subcutaneously near the tumor, usually in such cases as this near the seat of operation, and vary from one-half to about ten minims of a filtered antitoxin prepared from the erysipelas antitoxin and antitoxin of the bacillus prodigiosus according to the method of Coley. Filtering the solution apparently takes away considerable sediment, which, when injected, sometimes produces disturbance. The material should be injected about once in three or four days and a reaction of about 102° is desirable. This patient has had the injections about two weeks, and this chart shows the variations of temperature when antitoxin has been injected. On one occasion there was a sharp rise of temperature, a chill, and considerable tumor around the seat of injection. The material was used afterwards, and used the same day on another patient without any trouble whatever. A small subcutaneous syringe with asbestos plug carefully sterilized is used.

An interesting point is that there is a fair amount of use of the arm, although the elbow cannot be raised from the side to any extent. Dr. Cabot has a case like this in a boy of the same age, the same scapula, and also produced by a blow, but a much more formidable tumor. It is a large-cell sarcoma.

ADDISON'S DISEASE AND PNEUMOTHORAX.

DR. F. C. SHATTUCK: I have two patients to show. This patient was sent to me by Dr. James J. Minot. He was at "the Island." Nothing very important in his previous history. He was perfectly well until about six months ago, when he began to get short of breath, and since that time he has had progressive weakness and shortness of breath. There is a general bronzing of the skin with atrophic patches which are not scars. Most of these are pigmentary, but the skin is generally of this dark color. He says he used to be fair. The conjunctivæ are clear. No bile-pigment in the urine. Physical examination is practically negative. The blood-count shows moderate anemia, and there seems to be very little reason to doubt that this is a case of Addison's disease in which the pigmentation is rather more marked than the general symptoms, although there has been notable loss of strength and shortness of breath, for which we find no sufficient reason on physical examination.

Cases of Addison's disease are not very common. I have seen not more than half-a-dozen in the last twenty years. There seems to be no reason to think that this pigmentation is arsenical. He has been living in different places and not long enough in one place to get chronic poisoning. There is no history of acute poisoning, and there is no arsenic in the urine. The pig-

mentation is as marked on the trunk as anywhere else.

The second patient, Mr. A., came from Springfield four weeks ago, with the statement that there was some paresis of both vocal cords, and respiration cut off from the right side. Dr. A. Coolidge, Jr., and others examined him, and found no paralysis of the cord. The respiration was cut off from the right side. The percussion note was tympanitic and the heart displaced to the left, the apex being one and a half inches outside the mamillary line. The history is as follows: A perfectly healthy man except that there is the history of a chancre, but no secondary symptoms. He had a terrible cough, lasting about a month, last summer, following exposure to cold. He said the cough was like whooping-cough. He kept at his work and got over the cough about the first of September. During October he began to be short of breath. The shortness of breath gradually increased until it was so great that he could do very little work. When at rest he was comfortable, but on the least exertion he suffered very much from this symptom. What existed was a rare condition of things, namely, a pneumothorax with a healthy lung. Pneumothorax is not at all uncommon in connection with phthisis; but there is no phthisis, and he has not reacted to the tuberculin test. The case is unusual in two respects: first, that the lung is normal except for this, and, second, the gradual onset. Ordinarily, we can fix the date of pneumothorax, the symptoms are so pronounced. The best explanation that has occurred to me is that the violent cough which he had last summer weakened some portion of his lung and that under exertion he burst a little hole, the air gradually leaking out and the lung contracting more and more, so that when he came to me he had no use of his right lung. I have drawn the air out four times by simply introducing a needle attached to a tube under water so that whatever air comes out passes through the water, its escape being shown by bubbles, and none can go back. At first it comes out with a gush and then only on coughing. I tapped him last two weeks ago yesterday. He is a great deal better. It seems as if the opening was somewhat valvular or else that it is still patent, for when the lung expands a certain amount of reaccumulation takes place. The accumulation has not been as great as before tapping, but each time there is more air a few days after the tapping than immediately afterwards. When he came there was no liver dullness and the apex of the heart was one and a half inches outside the mamillary line. It is still beyond the nipple. He has a narrow liver dullness. On percussion, the difference between the two sides is not very marked. The breath-sounds are still very weak. He has had under the clavicle an amphoric respiration only to be heard by immediate auscultation. It is not present now. It has been a pure pneumothorax, not a pneumo-hydro-thorax.

I have seen only one case like this. That was in the servant of a family who are patients of mine. They spoke of her shortness of breath on going upstairs. On examination, I found to my surprise that one side of her chest was full of air. I drew the air out several times and she recovered. I think this patient will recover.

DR. BOWEN: Does Dr. Shattuck know the origin of the scars in the first case?

DR. SHATTUCK: No. The man worked with the sleeves rolled up. I do not think these things on the

¹ See Boston Medical and Surgical Journal, May 21, 1896.

back are scars, certainly most of them are not. They seem to me to be patches of atrophic pigment. Dr. White concurs in that opinion.

DR. BOWEN: Judging simply from the appearance of the skin, it does not seem inconsistent with the long-continued scratching that results from pediculosis. The fact that he has no pediculosis now would not exclude it, because it is only where that has gone on for years and years that you get this condition.

DR. SHATTUCK: That would not affect the face, would it?

DR. BOWEN: It is my impression that cases have been recorded where in vagabond's disease the mucous membrane has been pigmented.

DR. SHATTUCK: Has a case of vagabond's disease been observed in a workingman in this country? This man was working and earning good wages. He went to the Island on account of failure of health and inability to work and support himself.

DR. BOWEN: It seems strange he does not know about these scars.

DR. SHATTUCK: Are they scars?

DR. BOWEN: I should say it was an atrophic process of the nature of scars. As I see him to-night the case is not unlike cases I have seen of that disease.

DR. SHATTUCK: I have never seen a case of vagabond's disease, and I supposed such cases were Austrian or German rarities.

DR. VICKERY: I have asked him about scratching, and he said he never scratched himself.

DR. SCUDDER: Have sections been made of that apparently pigmented skin?

DR. SHATTUCK: No. I am trying to get some adrenals to feed him on, but it is difficult.

A CASE OF CHYLURIA.

DR. VICKERY: This next patient came to the outpatient department last July, when Dr. Ernst saw him and recognized his disease. He is a master carpenter, and works every day. He is well except for this one peculiarity. He is fifty-seven years old. Twelve years ago he was in Florida for a while. About five years ago this passing of white-colored urine came on more or less gradually, and of late years he has passed it every night. The urine clears up with ether. It is a case of chyluria. In the daytime the urine is perfectly clear, and in most examinations has proved entirely free from albumin. Sometimes there has been a little albumin in the daytime, but no evidence of kidney trouble. He can bring on a chyluria by lying down an hour, and more readily if he lies on the back than on the side, so that position would seem to have some influence. The only inconvenience is that the mucus contained in his urine forms clots, and it is hard to get them through the urethra. Sometimes he has to try all day long, when at last a plug will come away affording relief. The way in which this disease is said to be dangerous is by causing emaciation or debility, which has not happened in this case. The filaria sanguinis has been found by Dr. Ernst in his blood. About eight o'clock at night he took the blood from his ear. I had him lie down in the hospital, and have made a number of slides, but have not yet obtained the filaria. What the patient wants is advice about treatment.

DR. CABOT: Is the recumbent posture especially necessary to obtain the filaria?

DR. VICKERY: Not as a rule. They are only found at night, when the chyluria is going on.

DR. CABOT: I once had a patient with lymphscrotum. He came from South America for advice. In that case I examined several times the blood drawn during the day without obtaining the filaria. Finally, I asked his room-mate, who was a medical student, to prick the finger of the patient during sleep about midnight; and in the first slide there were two, and after that I saw several from the blood drawn at night. I supposed there was something really cyclical about it.

DR. VICKERY: There are some unusual cases in which the chyluria occurs in the daytime and not at night. It would seem as if there must be something cyclical.

DR. WARREN: When Mr. Bryant, of London, was here he mentioned two cases of lymphscrotum in which he had performed the operation for phimosis with the result of a cure. These cases he published in the English journals, and the theory was that possibly the organisms resided in the prepuce and invaded the system from that point. The operation was done merely as a palliative operation, but was followed by a cure in these cases.

DR. PORTER: I remember the same statement.

DR. VICKERY: The embryo of the filaria is in the blood. The mosquito gets this by biting a person. It is then deposited in water and develops into the worm, and drinking that water starts the process.

DR. ERNST: I have been interested in studying a number of cases reported in this latitude. There seems to be a marked difference in the number of these organisms that are found in the blood as compared with what are reported as occurring in the tropics. In the cases occurring in India a very large number of filaria are said to be found on each cover-glass, while in my own experience it has been almost impossible to find more than one or two on a cover-glass.

DR. WHITNEY: As I understand it the filariae are entirely innocuous. It is only the parent worm that does harm, and these embryos have no deleterious effect at all upon the individual. When found in the blood they are important simply as a means of diagnosis.

DR. VICKERY: That is true, I believe. One other thing: some cases do not have the chyluria every night as this patient does. They have periods of it, and then it disappears.

MULTIPLE LIPOMA OF THE SKIN, CYSTIC ADENOMA OF SEBACEOUS GLANDS.

DR. PORTER: I wish to present some photographs of multiple lipoma of the skin. The patient entered for stone in the bladder, and on examining we found that he was covered with fatty tumors of different sizes. A point of interest is that he is a miner and works all day naked, and it was suggested that nature had tried to cover him with a layer of fat to protect him but that it was irregularly distributed.

I have also the photographs of a case Dr. Whitney will speak of. The man entered with a family history practically negative. Eight years ago he first noticed the tumor, which was a small lump the size of a melon seed behind the angle of the jaw. This has gradually enlarged. There were no subjective symptoms. The tumor was fully as large as an ostrich's egg, and the one thing noticeable was that for so large a tumor in the parotid region it was quite movable. It was very hard, and seemed to me to be an enchondroma that had undergone more or less calcareous change. I was very much surprised when I cut into it to find a fluid oily

in character, rather sticky and thick, flowed from the small incision I made. This fluid became hard on cooling. The incision was clamped and the tumor, which proves to be a very rare form of disease, was shelled out.

DR. WHITNEY: The tumor is a cystic adenoma of the sebaceous glands. It shows on the inside the peculiar white substance of which Dr. Porter has spoken and which looks as if some one had poured thick cream over the cut surface. When first removed it was fluid, but almost immediately became transformed into this creamy substance on cooling. On microscopic examination it is found to consist of structure, which in character and the shape of the cells correspond exactly with the sebaceous glands of the skin. These showed various degrees of dilatation, forming cysts, some as large as the end of the finger. These lie imbedded in a cellular tissue, part of which is of the nature of the lymph glands, with slight dilatations of the lymphatics in them. This, then, could neither be classed as a wen or a dermoid; the former is a retention cyst of the sebaceous gland, caused by the outlet having been stopped up; the latter, in which is also found sebaceous material, consists of an infolding of the skin beneath the surface into which the sebaceous glands open and pour their contents into the closed sac. The present tumor is a true new formation of sebaceous glands, without any outlet upon the surface of the body, thus growing in an atypical way and forming these retention cysts beneath the skin. As far as my experience goes it is a unique tumor both in size and in the peculiarities of its structure. Dr. Wood has examined the material which comes from the interior of the cyst, and says it is simply fat like human fat and in every way similar to the ordinary sebaceous material formed in abundance in a case of seborrhea.

DR. WARREN: The case of multiple lipoma interested me particularly. One authority has studied the location of lipomata on the surface of the body and has shown, particularly in the case of multiple lipomata, that they develop in those parts of the body that have the least number of sudoriferous glands which need a large amount of fatty tissue for their growth, development and function; and where they are performing their function we do not get an over-accumulation of adipose tissue, but may get over-accumulation of adipose tissue in parts where these glands are less numerous. It would be interesting in this case to see just what the location was. The fact that he works where he is obliged to go without clothing may be considered as stimulating the nutrition of fat over that of sudoriferous glands.

DR. PORTER: On the shoulders and upper part of the trunk, a very common seat for lipomata, he has very few, whereas on the lower part of the trunk, thighs and on the forearms he has many.

DR. WHITNEY showed alcoholic specimens and said: The first specimen is from the scapula Dr. Warren removed.

I wish to call your attention to three specimens of brain tumors, one of which was operated upon, one attempted to be operated upon, and the third was accidentally found at autopsy, being secondary to a primary tumor elsewhere. I will not speak of the clinical side of the cases, but simply show the specimens. The first tumor, which Dr. Richardson removed last May, proved to be a glioma; the patient lived until December, when he suddenly died. The wound in the skull was closed

completely with a fibrous plate beneath which considerable fluid had accumulated. This filled a cavity in the posterior part of the brain communicating with the ventricles. On removing the dura it was found to be more or less adherent over the anterior portion of brain which is seen to be involved in this large growth, occupying the whole of the temporal and frontal lobes, leaving only a portion of the occipital lobe intact, and yet, if I remember rightly the statement of the attending physician, the man, who was completely aphasic, had driven himself in his carriage the week before his death.

Medical Progress.

REPORT ON PROGRESS IN THERAPEUTICS.

BY FRANCIS H. WILLIAMS, M.D., BOSTON.

THE CONTRIBUTIONS OF BACTERIOLOGY TO THERAPEUTICS.

DR. WILLIAM HALLECK PARK in his abstract¹ of the Wesley M. Carpenter lecture delivered October 21, 1897, has presented this subject so admirably that the reporter desires to direct the attention of the readers of the JOURNAL to his statement. Dr. Park begins by saying it is now well known that bacteria cause diseases chiefly by means of the poisons which are elaborated during their growth. The abstraction of food from the body and the mechanical interference with functions which are caused by their presence are also deleterious, but in a minor degree. Although many complex factors influence the degree of susceptibility of the body to infection from any pathogenic germ, the most important and perhaps all-embracing one is whether or not the animal organism at the time and place of infection is in proper condition for the growth and activity of the invading germ. The living body is not a good soil for most bacteria, even after they have penetrated the outer protecting wall of skin and mucous membrane.

The protection against infection exists in different degrees in the same individual toward different bacteria and among different individuals toward the same bacteria. The causes of immunity, either natural or acquired, are still only partially understood. If a few virulent anthrax bacilli are injected into a susceptible animal, the results of inoculation are soon manifest and death of the animal follows. If an animal of the same species, which has previously been immunized, be inoculated with the same germ, the bacilli not only do not increase but soon die. It was found, when seeking the reasons for this varying action of the bacteria, that in non-immunized animals they develop unhindered by the vital activity of the cells or fluid substances of the body, while in the immunized animals certain cells are attracted by the bacteria, and eventually destroy them. Meunier's recent investigation of the pneumococcus infections would seem to show that the attraction of the leucocytes for bacteria is not wholly due to any inherent property of the leucocytes but rather to the effect upon the leucocytes of substances in the serum.

As a working hypothesis it may be considered that a toxin is a substance which is directly poisonous according to the intensity of its affinity for the cells of

¹ Medical News, November 6, 1897.

the living body. The cells of a chicken which can tolerate enough tetanus toxin to kill thirty horses, but which can be affected by still larger doses, may be considered to have 10,000 times less attraction for the toxin than those of the horse. If it is further considered that the toxin even has a stronger affinity for the antitoxin than for the cells, it may be understood how, this affinity being satisfied, the poisonous power is neutralized, and it can no longer injure the cells. Dr. Park states that in his opinion an antitoxin may be best conceived as a toxin which has been changed by contact with the living cell, either within the cell or outside of it.

An important characteristic of antitoxins is the fact that they are gradually eliminated from the blood by the urine, saliva, etc., so that after a few weeks they may have entirely disappeared. As the nature of micro-organisms which cause small-pox, etc., is not known the immunity which follows their occurrence is naturally not clearly understood.

Bacteria differ greatly as to the particular tissues in which they can develop, and, therefore, in the manner in which they produce infection. For instance, a few tetanus bacilli introduced by a splinter into the foot multiply but slightly, but find the soil suitable for the production of sufficient toxin to kill within a few days. The same bacilli introduced into the body by way of the alimentary canal, although readily developing in the intestines, find no lodgment in the mucous membrane, and are, therefore, harmless.

There are certain general factors which temporarily affect the susceptibility or resistance of the living tissues to all micro-organisms. Thus, clinically, as well as bacteriologically, it is known that lack of food, exposure to heat and cold, over-exertion, extreme youth, old age, and many other influences predispose to disease, while opposite conditions assist the body to protect itself.

In order to determine whether curative agents are produced for any individual disease, it is necessary to examine in each, by means of the toxins, or by living cultures, whether immunity may be produced in an animal, and whether in such an animal the blood contains at any time sufficient antitoxin, or bactericidal properties, to confer immunity when introduced into the bodies of other animals. It must further be decided in each individual disease what length of time may elapse from the date of the infection in which the serum or toxin will still be able to prevent the development or arrest the progress of the disease.

Tetanus antitoxin has been applied on a large scale in immunizing animals against possible infection. For instance, horses used for the production of antitoxin serums run a considerable risk of tetanus infection from the large number of hypodermic injections which are necessary. The Health Department lost several valuable animals in this way; and since then the experimental animals are immunized from time to time with 30 c. c. of tetanus antitoxin, with the result that tetanus does not occur. The results of treatment with tetanus antitoxin are not so brilliant as are those of immunization. By the time the symptoms of tetanus are manifested the cells are frequently too profoundly affected to receive any assistance from the antitoxin. The symptoms of this disease develop from one to five days after infection. Judged by a study of the statistics of 31 acute cases developing within eight days and 40 cases of long incubation and

slow onset of symptoms antitoxin seems to have positive curative effect in the less acute cases of tetanus. As it is impossible to tell at the outset which cases will be benefited, it seems wise, in conjunction with the usual treatment, to administer the antitoxin in doses of 20 to 50 c. c. twice daily in all cases of tetanus, and to begin the treatment at the earliest possible moment.

Diphtheria antitoxin is singled out among antitoxins by the success which has attended its employment in the treatment of diphtheria, as vaccine is among immunizing procedures in the prevention of small-pox. The great mass of physicians are convinced that diphtheria antitoxin in doses of 200 to 300 units will confer immunity against diphtheria from two to four weeks and that the period may be lengthened at will by repeated doses. By this means many children's asylums are now kept free from diphtheria. They believe further that when cases are seen early, that is, before general poisoning has occurred, antitoxin may be relied upon to arrest, with but very few exceptions, the progress of the disease.

Tetanus and diphtheria antitoxin, although so nearly identical in their efficacy as agents for immunization, differ greatly in their curative value. The explanation of this is the manner in which the two infections begin and progress. The tetanus infection progresses from five to ten days undetected in the wound, but only after general poisoning has occurred is the disease manifested to the observer. The diphtheria infection starts on the surface and before its toxins are fully developed and absorbed it is diagnosed.

The nearest approach to the powerful tetanus and diphtheria antitoxin is that of the plague bacillus. This with the toxins produces in immunized horses a serum which is distinctly antitoxic and bactericidal. In man the serum has been used in several hundred cases, and given beneficial results both for purposes of immunization and cure, the mortality having been lowered from an average of 80 to 50 per cent.

The serum of animals immunized to streptococcus and pneumococcus toxin and cultures possess bactericidal and antitoxic properties, but of much less power than the plague serums, and the discovery that it rapidly deteriorates accounts for the fact that practically all of the preparations on the market are valueless.

The serum of animals immunized to tuberculosis is also extremely weak in bactericidal and antitoxic substances.

The new tuberculin of Koch requires improvement before it can be advised for practical application. Experiments show that most of the cells contain living tubercle bacilli which are capable of causing tuberculosis in animals. It is too early to judge of the therapeutic value of the new tuberculin, but with an improved technique it should be furnished free from bacilli.

Typhoid fever and cholera may be classed together. Animals may be immunized to both, and their serum will be found to contain feeble antitoxic and moderate bactericidal properties.

No form of micro-organism has yet been found in the brain or spinal cord of men or animals attacked by hydrophobia; nevertheless, it is certain that one exists, for the disease is readily transmitted from animal to animal. The preventive treatment instituted by Pasteur has been subjected to great criticism, but Dr. Park believes the efficacy is finally established. The immunizing value of the Pasteur treatment has been

tested experimentally in the Research Laboratory of the Health Department of New York City, and though these experiments are not yet complete they present striking evidence that the injections do produce immunity, and that when properly carried out they are without danger even in very susceptible animals.

The results of the use of vaccine virus in the prevention of small-pox are almost universally accepted. The serum of vaccinated animals contains very feeble curative properties, too feeble for practical use.

The outlook in the future is bright for obtaining through serums, or through the toxic substances of the micro-organisms themselves, means for immunizing against most, if not all, of the bacterial diseases. This immunity in most instances will not be of long duration, but the difficulty may be overcome by repeating the immunizing injection. When the micro-organisms that cause scarlet fever and measles and the other diseases in which a prolonged immunity follows recovery from infection the hope is that vaccine as efficient as that now used in small-pox may be obtained. The prospect of obtaining serums that will promptly arrest the progress of a disease by the destruction of the micro-organisms and their poisons already in the body is not so encouraging as it at one time appeared.

The serum procured from animals immunized by the pneumococcus has very slight curative power, but sufficient has been accomplished to make further investigation imperative and to justify physicians in using it in the treatment of cases of pneumococcus infection.

The hope for the future is that all growth of the micro-organisms may be stopped and further action of the bacterial poisons be prevented at the moment the treatment begins; but it cannot be expected that the tissue-cells or the activity of the organs will be benefited except by neutralizing certain deleterious products, thus allowing the vital processes and other therapeutic aids a better chance of success.

A FATAL CASE OF POISONING BY CHLORATE OF POTASSIUM.

Dr. Paul Jacob² presents this case in detail: The patient entered the hospital in a comatose state thirty hours after she had taken chlorate of potassium—it was learned later she had purchased about 25 grammes of this drug—and improved very much, but died suddenly on the sixth day of heart failure. During her illness examinations of the urine and careful blood examinations were made which showed the effect of the drug on these two fluids. The writer closes by saying that chlorate of potassium should be used neither as an internal medicine nor as a gargle. The latter use should be especially avoided for children, as they are apt to swallow some of the fluid when gargling. Many articles show that chlorate of potassium, even in small doses, is a strong blood poison, and even if death does not ensue a hemorrhagic nephritis very frequently results.

KOCH'S TUBERCULINS.

A Berlin correspondent³ says it will take years to really decide the therapeutic value of the new serum. The use of the old tuberculin for diagnosis seems to be disapproved in the clinics for internal medicine here. The reaction which occurs after its injection when tubercle bacilli are present is thought to be due to a

necrosis of tissue around the bacilli and the absorption of toxic products therefrom. This necrosis may cause the further absorption of bacilli into the lymph- or blood-vessels and so institute an acute process. The majority of people have encapsulated bacilli in the apices of the lungs or somewhere in the bronchial glands without being at all tuberculous, therefore the reaction cannot be said to be definitely diagnostic of active tuberculosis. In cases where the bacilli are prevented from doing any harm by the barrier of inflammatory lymph there is danger that the quiescent condition may become active under the influence of the injected toxins. The injections are considered practically unjustifiable except in such serious affections as pleurisy or ascites, where the patient's dangerous condition makes an experimental diagnosis with tuberculin less to be feared.

ON TAPPING THE PERICARDIUM, WITH REPORT OF TWO SUCCESSFUL CASES.

Austin Weldon, F.R.C.S.I.⁴ states that at present just one hundred cases of paracentesis pericardii have been recorded, although probably many more have occurred. Out of all these cases only once has the operation been fatal. In this unsuccessful case the right ventricle was lacerated by the trocar. Some others have died soon after the operation, but these were cases that were moribund at the time it was undertaken. The remainder were without exception relieved and many of them cured. Experience, too, has shown that the operation is not attended with great danger and certainly in cases of effusion from rheumatic pericarditis there is every prospect of recovery.

Mr. Weldon's first patient was a woman fifty-eight years old; the effusion was evidently increasing and as death seemed imminent the pericardium was tapped. When eight ounces of a dark-colored fluid had been withdrawn the flow was very slow, the instrument was therefore taken out and the wound covered with flexible collo ion. As the patient appeared faint a little brandy and ammonia were administered. An hour later all difficulty of breathing had disappeared, but although the patient expressed herself as completely relieved, a very slight cyanotic condition remained. On the following morning this was gone, and her pulse was strong and regular. She left the hospital five weeks later in perfect health.

The second case was that of a man twenty-six years old and was evidently of a rheumatic nature. As death seemed imminent also in this case the pericardium was tapped and almost immediately the patient's breathing was improved. Several hours after the operation the pulse was 100, the temperature 100°, respiration 24. Cyanosis, dyspnea and epigastric distress had completely disappeared. The fluid, unlike that of the previous case, was a healthy serum. Two days later the pains in the knees returned but were readily relieved.

Mr. Weldon speaks of one more case that occurred in the practice of Dr. Redmond; 22½ ounces of dark-colored fluid were removed, and seven days later 27½ ounces. A drainage-tube was subsequently inserted. This case recovered perfectly.

The writer closes by quoting Dr. Samuel West's conclusions in an article in the "Medico-Chirurgical Transactions."

(1) Paracentesis pericardii is not only justified, but

⁴ Medical Press and Circular, December 16, 1896.

² Medical News, October 23, 1897.

³ Berliner klin. Woch., July 5, 1897, No. 27.

an operation which may be safely undertaken with ordinary precautions. One case only is recorded in which the operation was fatal. With this exception all the patients were greatly relieved by the removal even of a small amount of fluid, and many recovered completely who would probably have died if the operation had not been performed.

(2) The most suitable place for puncture is, in ordinary cases, in the fifth left intercostal space one inch from the edge of the sternum, but if the pleura be adherent, the puncture may be made safely much farther out, and even in the sixth space.

(3) The instrument employed should be a trocar and canula, with or without aspiration.

(4) The operation may be performed with advantage not only in the pericardial effusion of rheumatic or primary origin, but also those which occur in the later stages of general dropsy, if it should appear that the fluid in the pericardium is adding to the difficulties under which the heart is placed.

(5) Purulent pericarditis is best treated on general principles like an empyema. (a) The pericardial sac may in these cases be safely opened and drained. (b) The treatment, moreover, appears to be the only one which offers the slightest hope of recovery. (c) The results are likely to be more favorable than those of empyema, for the walls of the cavity are better able to contract rapidly and thus permit of complete obliteration.

THE CAUSATION OF CHLOROFORM SYNCOPE.

Leonard Hill, M.B.,⁵ in a valuable address delivered before the Society of Anesthetists, London, February 18, 1897, on the results of an experimental inquiry carried out by himself with the assistance of Harold Barnard and C. Wall of the London Hospital, concludes as follows:

(1) Chloroform produces a primary failure of the circulatory mechanism and a secondary failure of the respiratory centre. The respiratory centre fails to act not only because it is damaged by the drug, but because of the anemia of the spinal bulb produced by the fall of arterial tension. This is proved by the fact that the action of the respiratory centre can be renewed by raising the arterial tension.

(2) Chloroform, more than any other agent, rapidly abolishes the vascular mechanisms which compensate for the hydrostatic effect of gravity.

(3) Chloroform abolishes these mechanisms by paralyzing the splanchnic vasomotor tone, and by weakening the action of the respiratory pump. When these mechanisms are totally abolished the circulation is impossible if the subject be in the feet-down position.

(4) Chloroform also produces paralytic dilatation of the heart. It acts directly like amyl nitrite on the musculature of the whole vascular system.

(5) There are two forms of chloroform syncope. (a) During primary anesthetization, the patient struggles, holds his breath, raises the intrathoracic pressure, congests his venous system, lowers his arterial tension and finally takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second stage it is suddenly filled with blood. This is drawn from the lungs and is full of chloroform. The chloroform passes into the coronary arteries, and the heart is thrown into paralytic dilatation. Respiration and the pulse either

cease simultaneously, or the pulse before respiration. (b) During prolonged anesthetization this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and, secondarily, the respiration ceases because of the anemia of the spinal bulb. The heart is not in this case paralyzed by chloroform, because the drug is taken in gradually by the shallow respiration, and distributed slowly by the feeble circulation.

(6) Artificial respiration and the assumption of the horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope.

(7) Artificial respiration, established with the patient in the horizontal posture, is also the treatment indicated in the first form of syncope; the heart should be rhythmically compressed by squeezing the thorax. If this does not quickly renew the pulse, the patient should be put into the vertical feet-down posture. The dilated right heart is thereby completely and easily emptied of blood. Artificial respiration is maintained during this manœuvre, and the patient is brought once more into the horizontal posture. By rhythmic compression of the chest an efficient circulation is maintained through the coronary arteries, by first emptying and filling the heart a fresh supply of blood is brought into that organ. If this does not prove successful on the first trial it can be repeated.

(8) Inversion, that is, placing the subject in the feet-up position or compression of the abdomen will increase the paralytic dilatation of the heart. In this kind of syncope both these forms of treatment are worse than useless.

(9) In the condition of shock or emotional fear the compensatory mechanism for the effect of gravity is almost abolished, and chloroform may easily be the last straw to completely paralyze the circulation.

(10) Vagus inhibition of the heart is of no importance as an agent in the production of chloroform syncope.

(11) Ether is in every respect a far safer anesthetic than chloroform. According to Ringer's experiments on the heart, ether is fifty times less dangerous than chloroform.

(12) With the practical conclusion of the Hyderabad Commission that the chloroform inhaler should be removed during the struggling of the patient or when the respiration is of irregular depth, I am in absolute agreement, but I consider their interpretation of their own experiments and tracings concerning the origin of chloroform syncope to be mistaken.

Not only the work of all physiologists, but also the tracings of the Commission when rightly interpreted, prove that paralysis of the circulatory mechanism, and not of the respiratory centre is to be dreaded by the anesthetist.

THE THERAPEUTICS OF THE INTERNAL SECRETIONS.

Dr. Francis P. Kinnicutt⁶ presents in this paper the various theories which have been deduced from experimental, pathological, and clinical observations of the functions of the ductless glands, together with a review of the results of therapeutics in their various diseases, based upon such theories.

The Typhoid Gland.—Dr. Kinnicutt discusses its office and then goes on to say that in myxedema the

⁵ British Medical Journal, April 17, 1897.

⁶ American Journal of Medical Sciences, July, 1897.

symptoms are speedily removed by the treatment but that a discontinuance of this is certainly followed by a return of the myxedema at varying intervals, showing that the treatment does not cause the gland to resume its function, but exercises its influence by introducing into the economy something which it is presumably the function of the gland to supply. It has been shown conclusively, first, that complete recovery can be effected even after the disease has existed for as long a period as fourteen years and in the case of patients bed-ridden and presenting the gravest symptoms; and, secondly, that the maintenance of health can only be secured by continuous treatment during the life-time of the patient.

Cretinism, Sporadic and Endemic.—Continued experience during the few years which have elapsed since the treatment of cretinism with thyroid preparations was first instituted has confirmed the hopes which were originally entertained of its efficacy. It has been shown conclusively, first, that in sporadic cretinism the myxedematous symptoms can speedily be removed, thereby effecting a marvellous improvement in the frightful deformities incident to the disease; secondly, that the treatment is capable of developing the natural tendencies of the growth of the skeleton which were in abeyance, and this latent capacity is in inverse ratio to the age of the patient; thirdly, that a striking improvement in the mental condition is effected, although occurring more slowly and in a similar inverse ratio to the age of the patient, as observed in the skeletal growth. In the case of a girl of eighteen years of age at the beginning of treatment, the growth was four and three-quarters inches in the first year of treatment, two and three-eighths in the second and one and three-eighths in the third.

As the child approaches the height normal at a definite age continuous growth apparently is only at the usual rate. In the very rapid growth of the bones a tendency to softening, resembling that which occurs in rickets, has been noted by several observers and has been ascribed to the use of doses of the thyroid extracts, which were probably too large.

Already cases of cretinism in children have been reported where the intelligence after three years of treatment has compared favorably with that of normal children of a similar age.

The therapeutic value of thyroid preparations in cretinism has suggested their use in cases of idiocy more or less resembling in bodily or mental defects the cretinous condition. Bourneville has shown that the weight of the thyroid gland varies very considerably in different cases of idiocy. Telford Smith has tried the treatment in idiots belonging to the Mongol type, who most closely resemble the cretin. His experience has been that a physical and mental improvement occurs, and that it is inversely to the age of the patient; that the improvement is neither so rapid nor so marked as in the cretin.

Goitre.—The benefit derived from the use of the thyroid preparations in cases of goitre in which the absence of constitutional symptoms indicates that the function of the thyroid gland is still largely preserved consists in a retrogression of the goitre through atrophy of the hyperplastic and adenomatous tissues. Recurrence of the tumor after partial or complete disappearance, at varying intervals after the discontinuance of the treatment, certainly occurs in many instances, and suggests the possibility that continued use

of the thyroid preparations in a modified way for indefinite periods may be found necessary.

Bruns has reported 60 cases, non-malignant and non-cystic in character treated by this method; 14 were cured, 29 improved and 17 were not benefited by the treatment. Knœpfelmacher reports 21 cases. In 11 of these the retrogression of the goitre was marked but in none was it completely removed. Nine of these 11 cases were of the hyperplastic type. In five cases of colloid goitre the tumor was diminished in size, and in the remaining cases no improvement was observed. Angerer has treated 78 cases. The most striking results were noticed in the soft goitres of the simple hyperplastic form and especially in those occurring about the age of puberty. In 83 cases of Stabel's, improvement was obtained in 92 per cent.; in two only was there unquestionably permanent recovery.

In explanation of the action of the thyroid-gland preparations in goitre, Bruns, Ewald and others have suggested the hypothesis of a primary toxemia of unknown origin, which invokes an increased functional activity of the gland, accompanied by hypertrophy. If the demand for thyroid products is supplied artificially, the gland retrogrades and atrophy results.

Exophthalmic Goitre.—The natural fluctuations of the disease, improvement alternating with recrudescence, suggest that the exceptional reports of improvement under this treatment have been based upon insufficient grounds.

Insanity.—The use of thyroid preparations in the treatment of various forms of insanity was originally based upon its undoubted power to increase ultimate cell-metabolism. A relatively large number of cases treated by this method have been published.

Bruce believes that the action of thyroid in insanity is a complex one:

- (1) That the feverish condition induced by it is of benefit to the patient.
- (2) That it acts as a direct cerebral stimulant.
- (3) That it supplies some material necessary to the recovery which the gland is supplying in insufficient quantity.

The results of this treatment indicate a decided advance in the therapeutics of certain forms of insanity.

Obesity.—The number of published cases in which the thyroid treatment has been used during the past four years is large, and the results in general have been favorable.

Cutaneous Diseases.—The expectations originally entertained of the value of thyroid treatment in diseases of the skin have not been fulfilled.

Phthisis.—The suggestion of the possible value of thyroid preparations in phthisis rests on the slender basis of their temporary effects in some cases of lupus, upon the assumed antagonism of goitre and tuberculosis, and, finally, upon the atrophy of the thyroid gland in chronic wasting disease.

The Adrenals.—With the exception of Tizzoni's notable experimental investigations, from which he concludes that the adrenals are functionless and derive their importance from their anatomical relation to the sympathetic, all modern work strongly indicates that they are functionally active glands.

Dr. Kinnicut discusses the two theories in regard to the nature of their function, and then says that he has collected 48 cases of Addison's disease treated with various adrenal preparations. Six patients are reported as cured or practically well, 22 improved, though

later some of these died, 18 unimproved, and in two instances an aggravation of the symptoms is stated to have occurred during treatment.

Thymus Gland.—The determination of the true physiological position of the thymus gland in the human economy is especially difficult on account of the several histological phases in its natural history.

In judging of the therapeutic value of the thymus treatment in exophthalmic goitre too much reliance should not be placed upon the relative number of published cases of successes and failures. Favorable results from a new remedy are more frequently reported than failures. The natural fluctuations of the disease are great, and improvement and recrudescence occur often in an inexplicable manner.

Goitre.—In 20 cases reported by Mikulicz complete cure in the anatomical sense was only obtained in two cases, but in twenty cases the goitre was reduced in size.

Pituitary Body.—As in the case of the glandular structures already considered, the function of the pituitary body is variously believed to be of a secretory or excretory nature. In a few cases of acromegaly the administration of pituitary extract was found to relieve certain of the characteristic symptoms.

Dr. Kinnicut closes with tabulated reports of the use of adrenal preparations in Addison's disease in about 50 cases, of thymus therapy in exophthalmic goitre in 62 cases, of pituitary treatment of acromegaly in 13 cases.

Recent Literature.

Tuberculosis of the Genito-Urinary Organs. By N. SENN, M.D. Philadelphia: W. B. Saunders. 1897.

The author reminds us in his preface that there has been a gap in the medical literature on this subject, and it has been admirably filled by him with this work.

In the opening pages the belief is expressed that, in a fair percentage of cases, the male genital organs are the primary seat of tuberculosis, the bacilli reaching these organs through the general blood circulation, and being deposited and reproduced there without discoverable tubercular lesions existing elsewhere. The cases that occur in this way are but a small proportion of the whole number in which tuberculous disease involves the genito-urinary organs, the larger part being those in which the process is primary in other parts of the body and appears in these organs as a secondary infection.

A number of well-attested cases are reported which give proof of the existence of primary tuberculosis of the penis. Tuberculosis of the urethra is mentioned as occurring, but as being exceedingly rare. The spermatic cord is stated never to be the primary seat of the disease. Occasionally the disease originates in the seminal vesicles, but more often it is here secondary to its presence in other parts of the genito-urinary tract.

Gueillot and Broca are quoted as having found examples of seminal vesicles transformed into calcified or fibrous masses, the final result of a preceding tubercular process. Several cases of removal of one or both vesicles are given, and brief reference made to the operations which have been devised for this purpose.

Fenger's case is the most notable of these instances. Primary tuberculosis of the prostate is next considered, but there is little if any post-mortem evidence brought forward to sustain the idea that it occurs. Brief reference is made to the treatment of the disease as it affects the prostate, both radical and palliative measures being enumerated.

Part II deals with the disease as it appears in the epididymis and testicles. The author quotes the opinion of Councilman—with which he agrees—that fifty per cent. of uro-genital tuberculosis has its starting-point in the epididymis. The infection may extend from the kidney downward to these organs, but when the testis is affected, it has generally begun in the epididymis. The infection is noted as beginning most frequently in the globus major of this organ.

The symptoms of the disease as affecting these parts are well set forth, and the chapter concludes by a description of the treatment, in the course of which the contraindications to castration are stated as follows:

(1) Extension of the tubercular process to parts not within reach of a radical operation; (2) tuberculosis of both testicles, as the second testicle is usually involved by the extension of the infection from one to the other through the vasa deferentia; (3) tuberculosis of important adjacent or distant organs. Some interesting observations of what seem to have been examples of the prevention of general extension of the disease to other organs, owing to timely castration, are also given.

The palliative treatment is described at the close of the chapter, the two measures most commended by the author are injections of iodoform glycerine emulsion, or of chloride of zinc, and in cases of limited abscess-formation curetting, and iodoform gauze tamponing.

Chapters III to VIII inclusive, which constitute about one-third of the book, are devoted to tuberculosis of the female organs of generation. The liability to error in diagnosis is considered to be much greater here than in cases of tubercular lesion of the male genitals. Confusion is especially likely to occur with regard to cancer.

The evidence for and against the belief that tuberculosis is more or less frequently primary in the female genital organs, as well as that of their invasion by it from the peritoneum, or *vice versa*, and evidence of its being imparted by coitus is set forth, the disease is then considered in detail as it manifests itself in the various organs of the female genital apparatus. Many interesting observations illustrate this part of the subject. Statistics are quoted which indicate that tubercular lesions of the female genital tract increase the frequency in proportion to the distance from the introitus vaginae, the vulva being the least, the Fallopian tubes the most frequently affected parts.

Some of the cases which furnish proof of the contention that vaginal tuberculosis may be established by coitus are given, amongst them eight reported by Derville which are especially conclusive.

The last part of the book is devoted to the consideration of renal tuberculosis, which is treated with the same thoroughness that marks the whole work.

The volume is fully and well illustrated. It is in all respects worthy of its author, who has thus added another to the number of valuable contributions to medical literature from his pen.

A Manual of Legal Medicine. By JUSTIN HEROLD, A.M., M.D., formerly Coroner's Physician of New York City and County, late House Physician and Surgeon of St. Vincent's Hospital, New York City, etc. Large 8vo, pp. 678. Philadelphia: J. B. Lippincott Company. 1898.

The author in his preface says: "In preparing it the writer makes no pretensions to originality, nor does he profess to be giving information that is entirely new; but he does claim that he has prepared a book of medium size in which the attempt has been made not only to embrace the contents of the more elaborate and classic works, but to present them, together with original material hitherto unpublished, condensed into a comparatively small, but not too scant, space."

As a compilation, the work is, as a whole, a success; and presents in a fairly compact form, a large variety of matter that should be of interest and value to the student and practitioner. His claim, however, that "in the present volume everything that is practical and useful has been inserted, and all idle and superfluous questions which are still *sub judice* are dispensed with," is hardly borne out by the facts.

Certain portions of the book, and especially the examples and explanations, are not so clear as one would wish them to be; but, as a whole, the matter is clear cut and well arranged.

In Part First, something over one hundred and thirty pages are devoted to Toxicology, a rather too large amount of which is given up to the pure chemistry of the subject, when but so few pages are allotted to so large a subject. The unfortunate effects of the various embalming fluids upon the tissues, from a medico-legal standpoint, is well shown, and attention directed to the importance of enacting laws to control this, in many instances, unfortunate practice. Nothing is said, however, of the equal importance of providing some penalty for those who, with or without reason, break such laws.

Part Second, Forensic Medicine, is on the whole well arranged, and in a form which makes those points upon which information is most frequently sought, easy of access. It contains many tables, well arranged and classified, which are of very considerable value.

The chapters on Medico-Legal Autopsies, Personal Identity, and Examination of Blood Stains are worthy of special note, and show that a large amount of time has been spent in their arrangement.

The final chapter is one of Pharmaceutical Jurisprudence, by George F. Roesch; and it presents in a few pages the legal position, liabilities and duties of the pharmacist in the State of New York, in a clear and satisfactory manner.

Diseases of the Eye and Ophthalmoscopy. A Handbook for Physicians and Students. By DR. A. EUGEN FICK, University of Zürich. Authorized Translation by ALBERT B. HALE, A.B., M.D., one of the Ophthalmic Surgeons to the United Hebrew Charities, Consulting Ophthalmic Surgeon to Charity Hospital, Chicago, etc. With a Glossary and 158 Illustrations, many of which are printed in colors. Pp. 488. Philadelphia: P. Blakiston, Son & Co. 1896.

This book is a translation of the manual published in 1894 by Dr. Fick. The publishers have done their duty to the work, both in letterpress and illustrations.

The first part of the book is devoted to methods of examination. These are worked out from a theoretical point of view with great care, and the American editor has supplied such muscular tests as are in common use in this country at the present time. Retinoscopy seems to have been forgotten, however, by both the author and American editor.

The second part, devoted to Diseases of the Eye, covers ground usually treated in hand-books of this class in the customary manner.

The therapeutics, while good, have scarcely been brought up to date, as for instance, there is no mention of the expression of trachomatous follicles or of the success of the treatment of diphtheritic conjunctivitis with antitoxin.

The Physiology and Pathology of the Cerebral Circulation. An Experimental Research. By LEONARD HILL, M.B., Hunterian Professor, Royal College of Surgeons; Lecturer on Physiology, London Hospital Medical College, etc. Pp. 206. London: J. & A. Churchill. 1896.

The volume before us is the substance of three lectures, delivered by the author as Hunterian Professor at the Royal College of Surgeons. The title clearly indicates the scope of the work, which is chiefly of an experimental sort. It is divided into three sections, entitled respectively, "Pulsations of the Brain," "The Cerebro-Spinal Fluid," and "The Cerebral Circulation." The last section occupies the bulk of the volume, and discusses in a most painstaking way various matters relating to this, in many ways, obscure subject.

Appended to the volume is a good bibliography. In short, the book is an excellently presented and concise expression of existing opinion, admirably printed and bound, and one which may be cordially recommended.

The Physician's Visiting List. (Lindsay and Blakiston's, for 1898.) Forty-seventh year of its publication. Philadelphia: P. Blakiston, Son & Co.

This excellent visiting list appears for the year 1898 in the same compact and convenient form as before. The dose tables, comparisons of weights and measures, etc., while complete, are very compact and well arranged for quick reference. Simplicity and thorough adaptation to the purpose for which it is intended characterize the book throughout.

Vita Medica: Chapters of Medical Life and Work. By Sir BENJAMIN WARD RICHARDSON, M.D., LL.D., F.R.S. Pp. 495. London: Longmans, Green & Co. 1897.

Those who are familiar with the admirable work of Sir Benjamin Richardson will welcome this copious volume, giving so intimate a description of his personal and professional life. It will be found of interest to all who look upon medicine seriously; and we recommend it to those whose work permits of an occasional leisure hour for reading not strictly professional.

A Treatise on Gynecology, Medical and Surgical. By S. POZZI, M.D. Translated by BROOKS H. WELLS, M.D. Pp. 936, 600 illustrations. New York: William Wood & Co. 1897.

The second American edition of this well-known text-book is a translation from the third French edition. It is only necessary to say of so standard a work that this third French edition has been brought thoroughly to date, and differs from its predecessors only in this fact.

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THE PROPOSED YELLOW FEVER COMMISSION.

THE recommendation embodied by the President in his message to Congress that a commission be appointed to investigate yellow fever is a timely one, and should be acted upon. Medical science has made great strides in recent years, and the failure of former commissions should have no weight at this time. As the greatest nation on this continent, we should regard it our duty to make an effort to find means to restrict a plague of such far-reaching influence upon the commercial interests of the continent.

In view of the probability that such a commission may be put at work, the question arises, Will such a body limit its labors to weighing the claims of Sanarelli's *Bacillus icteroides* or the bacillus x of Sternberg, or will it take a broader view of its task? Assuredly both these organisms will receive due attention, for the indefatigable labors of Sanarelli have piled up a mass of experimental work which naturally enough would form a convenient point of attack for the commission's work. Similarly the laborious and cautious work of Dr. Sternberg on the bacillus x needs re-examination in view of Sanarelli's discovery.

The *B. icteroides* appears to be closely related to the colon group, more particularly to its many pathogenic derivatives affecting animal life with which we are now familiar. There is nothing peculiar or uncommon about it. The tests upon animals prove it to be an invasive rather than a toxic organism. The effect of the culture filtrates on man is claimed by Sanarelli to closely simulate yellow fever; we must be cautious, however, in interpreting these symptoms due to toxins, for many of them have appeared in cases of poisoning by bacteria in foods.

It has been shown that the serum-test is applicable for diagnostic purposes not only in typhoid and cholera, but in several animal diseases caused by motile bacteria. The *B. icteroides* responds, as the discoverer himself states, very slowly when mixed with serum from convalescents. The fact observed by him, that

in the blood of persons treated with the toxin of the *B. icteroides* agglutinative properties appear, does not prove that this organism is the cause of yellow fever.

Other criticisms might be made theoretically invalidating Sanarelli's main conclusion, but we simply content ourselves with the further statement that the organism does not seem to fit the disease.¹ But if it should prove to be the true cause, the commission would still have before it the pathological and epidemiological relationships to fathom. Why should a bacillus of such characters be suppressed by frosts? Why should it not be transmissible from person to person?

How does it gain its fearful momentum so promptly in the body? The commission may find, as has been experienced so frequently in the recent past, that the discovery of the microbic cause of a disease is but the first, though perhaps the most important, step in the complete elucidation of the etiology. Ulterior steps may be as arduous and perplexing as the first.

If, on the other hand, these organisms should turn out to be secondary invaders, the commission will have the whole subject fresh before it, and for this possibility the members should be prepared. The modern methods of etiologic research demand a division of labor if anything is to be accomplished. This labor should be directed by an acknowledged leader in whose hands the information acquired day by day may be used to gradually mould the working hypotheses in conformity therewith. Whatever may be the outcome of the commission's work in regard to the infectious agent, something clear and definite would be expected from it on the nature of the disease process, the quality of the immunity attained after an attack, the specific channels of infection and better methods of diagnosis. If one or the other of the bacilli mentioned is found to be the specific cause, these problems will demand industry and application rather than genius.

Such a commission should, therefore, be composed not of "bacteriological experts" only, unless this word signifies more in the language of the President's message than should be attributed to it. It should embody, in addition the training of the bacteriologist, that of the pathologist, that of the physician thoroughly conversant with the chemical laboratory methods of clinical medicine, and that of the epidemiologist conversant with the highways and byways of infectious agents. A commission thus constituted would be prepared for unexpected developments, and we should probably not feel disappointed with the product of its labors even though the specific microbe should continue an unknown and elusive organism.

TREATMENT OF FRACTURE OF THE PATELLA.

THE treatment of fracture of the patella (and in this article we shall confine ourselves to recent, simple, transverse fractures, such as are obtainable by a fall

¹ Dr. Sternberg's bacillus x belongs evidently to the same group; but in its pathogenic properties it is quite unlike Sanarelli's bacillus, being toxic rather than invasive.

on a curb-stone) by any of the non-operative methods is slow and tedious. Bony union is hindered by contraction of the quadriceps tendon, which keeps the fragments apart, by intrusion between the fragments of the torn patella aponeurosis, by effusion of blood between the two fragments and into the joint. So difficult in fact is it to maintain the fragments in juxtaposition, that ligamentous union only can be expected in these cases.

It would be a tedious task to enumerate all the appliances which have from time to time been devised to force the fragments into contact, from figure-of-eight bandages and straps to Malgaigne's hooks and Boye's special trough and plaster-of-Paris splints. A long rest of six or eight weeks in bed in a retentive apparatus is required, after which passive motion is permitted, in spite of which some stiffness of the joint often remains. Professor Hamilton states that at the end of four weeks in favorable cases the patient may be allowed to get up on crutches; in six or eight weeks the bond of union may be considered as completed, but the danger of rupture of the ligament is so great that for the next three or four months the patient should walk on crutches with the knee well supported by an inflexible splint secured by straps and buckles. "For six months at least, the patient is incapacitated from using his limb and its motions are likely to be impaired for life."¹

The surgeon who undertakes to treat this fracture by any of the non-operative procedures must take care lest harm be done by misdirected zeal, through too much pressure on the patellar fragments by which the circulation is impeded, and by a tilting forwards of the broken edges of the fragments causing a troublesome deformity. Dr. William Anderson, of St. Thomas Hospital, England, is so impressed with the danger of mischievous interference that he declares that "simple rest and extension of the limb without any attempt to coerce the fragments of the broken bone into position afford the best prospect of sound union." And that it is perhaps to the exclusion of such interference that we are to attribute the success claimed in recent years for the innocent expedient of massage of the extensors.²

Successful wiring of the fragments in broken patella was one of the early triumphs of antiseptic surgery, and when Lister in 1880 first performed the operation under carbolic spray he only carried out those principles which had already given brilliant results in operations on the great cavities of the body. Lister correctly reasoned that the new doctrine — *no microbes, no suppuration*, was as applicable to the knee-joint as to any other part, and that one antiseptic case would exclude pus-microbes in any cutting operation on the knee-joint; and consequently the principal danger apprehended from such operations would be removed. Thence to the institution of free drainage in exudative inflammations of the knee-joint was an easy step; and wiring the fragments of a broken

patella seemed the most sensible and expeditious way of treating a lesion which had long been a *bête noir* to the surgeon. By the method of wiring, bony union might now be obtained and much time saved to the patient who in six or seven weeks' time could be about his work with a firm patella and a good joint. Dr. Ward of London treated three cases of fractured patella, one by apparatus, and two by wiring; in the first the total time lost before resuming work was twenty-seven weeks, and in the two that had been wired, thirteen and eight weeks respectively. He further states that the first could not kneel until nine months, while the other two could do so six and five weeks after the operation.³

If the results of wiring the patella for fracture had been uniformly successful, this would long ago have been everywhere the method of election by the highest surgical authorities. Unfortunately, in a certain proportion of cases where rigid sepsis was attained or seemed to be attained, suppuration and subsequent ankylosis or even death has followed. Conservative surgeons were alarmed at these accidents, and declared that wiring ought to be abandoned. In some quite modern treatises on surgery, wiring is still spoken of as an operation which the surgeon should hesitate to perform. In the sixth and last edition (1896) of the *Dictionnaire de Médecine et de Thérapeutique* by Bouchut and Désprès, the operation of wiring as a mode of treatment in patella fractures is not as much as mentioned. Notable papers have continually been published in favor of non-operative treatment, and some have sought to avoid the dangers of the open method of wire-suturing by subcutaneous wire-suture through the patella, as performed by Ceci, the subcutaneous silk-suture through the tendon of the quadriceps and the ligamentum patellæ as performed by Stimson. Chaput reports successes obtained by silk suture of the fibro-periosteal covering of the bone; mediate suture by silk passed through the tendon of the quadriceps and the ligamentum patellæ after incision. Anderson, of London, passes two stout pins transversely through the skin and the tough anterior fibrous envelop of the bone, and then by pressure upon the projecting ends of the pins draws the fragments together. Barker, of London, passes a silk ligature longitudinally beneath the bone, entering it through the ligamentum patellæ and bringing it out through the tendon of the quadriceps and then between the skin and patella to the point of entrance, where the knot is then tied and the ends cut short; but it would be tedious to enumerate all the methods devised to escape the supposed dangers of the open method, and we may say of these subcutaneous devices (with Stimson) that they expose to the chance of infection and suppuration almost, perhaps quite as much as the open incision does.⁴

It would appear that of late the method by open incision and wiring of the fragments has grown in favor with leading surgeons throughout the world, though it has not quite received the sanction of the

¹ International Clinics, October, 1891, p. 121.

² London Lancet, July 2, 1892, p. 10.

³ International Clinics, 1891, October number.

⁴ Sajous' Annual, 1893.

profession at large. We find surgeons in the country and in private practice still treating fracture of the patella largely by the old methods, while in the metropolitan hospitals where the best antiseptic care is attainable surgeons are more and more preferring the operative treatment. It is probable that not all cases are suitable for operation; cachetic and the alcoholic subjects should be eliminated.

Many surgeons, as Dr. Stephen Smith, Dr. Lucas-Championniere, and Dr. Charles Phelps (the latter reports as a definitive result in forty-two cases bony union in forty-one of the number) do not hesitate to wire in all cases of simple fracture in healthy individuals; others as, Von-Bergmann and König,⁵ still protest against the use of the suture in simple fracture. It may be said to be a truth that most persons to whom time is precious would prefer for themselves the operation by suture provided they could be treated by a competent surgeon. Professor Lister who introduced the operation gives an excellent rule for the guidance of the surgeon: "No man is justified in performing such an operation unless he can say with a clear conscience that he considers himself morally certain of avoiding the entrance of any septic mischief into the wound."

Only a considerable operative experience and the control of trained assistants can give the surgeon sufficient confidence in his asepsis to justify him in suturing the patella. The modern surgeon who possesses these advantages has in the method of suture, a means of greatly diminishing the temporary and permanent disability which follow this fracture.

ON THE FREQUENCY OF PLURAL BIRTHS.

PRACTITIONERS with a large experience in obstetrics, and organizations which are in the habit of making collective investigations of births, have noted the fact that in proportion as the numbers of births under investigation increase, so much the more does the frequency of plural births approach a uniform ratio. In Massachusetts, for a period of forty years (1856 to 1895), this ratio is found to be a little less than one per cent. for twins, or more accurately, .92 of one per cent., and a little more than .01 of one per cent. for triplets, or more accurately, .013 of one per cent. Stating the question otherwise, there were 109 living births to each case of twins in the whole period, and 9,626 births to each case of triplets. In proof of the remarkable uniformity in the occurrence of triplets in long periods of time, it was found that there were 9,623 living births to each case of triplets in the first twenty years (1856-1875), and 9,629 living births to each case of triplets in the second twenty years (1876-1895).¹

These figures are the result of observation upon over 1,750,000 births which occurred in Massachusetts in the forty years (1856-1895).

¹ Erroneously stated as 12,292.7 in the Registration Report of 1895.

⁵ Congress of International Surgery, 1896.

In proof of the uniformity of occurrence of these events when still larger numbers are considered, and for other countries, the following figures are presented:

RATIO OF PLURAL BIRTHS TO EACH 1,000 BIRTHS.

	Twins.	Triplets.
Switzerland	12.2	0.12
Prussia	12.2	0.13
Bavaria	12.4	0.15
Austria	11.7	0.15
Italy	12.1	0.15
France	9.8	0.11
Sweden	14.4	0.17
Massachusetts	9.2	0.13

The foregoing table presents the results of observations upon twenty million births in the countries named. (See Vital Statistics of Massachusetts for Forty Years, in Twentieth-annual Report of the State Board of Health, Boston, 1897.)

MEDICAL NOTES.

RUSSIAN MEDICAL SCHOOL FOR WOMEN.—The newly established medical school for women at St. Petersburg, recently opened with 165 students.

A PROFESSORSHIP OF TROPICAL DISEASES.—A chair of "tropical diseases," with Dr. J. E. Stubbert as the first incumbent, has been established in the New York University Medical College.

A NEW ADULTERATION.—The Department of Agriculture has discovered that many creameries are using an emulsion of cottonseed oil, which, added to the cream, increases the butter product per gallon of milk, with small chance of detection and a large increase of profit. — *Medical Record*.

AN INFIRMARY FOR CORNELL UNIVERSITY.—Mr. Dean Sage and Mr. William D. Sage have given to Cornell University the house of the late Henry W. Sage for a University Infirmary. They also endow the institution with \$100,000 and will equip the building for a hospital, the total value of the gift being \$200,000.

PHRENOLOGIST AS AN EXPERT.—For the first time in the history of the criminal courts of the State of Missouri, or probably of any State, phrenology has been recognized as a science in determining insanity. On the 13th inst., in a murder trial before Judge Zachritz, a phrenologist was permitted to qualify as an expert and testify as to the insanity of the defendant.

VETO OF THE GEORGIA ANTI-FOOTBALL BILL.—Governor Atkinson, of Georgia, has vetoed the Anti-football Bill with the sensible remark that "it would be unfortunate to entirely suppress in our schools and colleges a game of so great value in the physical, moral and intellectual development of boys and young men."

AN ASEPTIC BARBER SHOP.—An aseptic barber shop, probably the first in America, has been established by Emile Caye at the Carrolton Hotel, Baltimore, Md., according to the *Yale Medical Journal*. Everything about the shop is sterilized. The shaving cups, combs, brushes and razor handles are made of aluminum, which is the metal that best stands steril-

ization. The hands and arms of the barber as well as the head and face of the customer are also made aseptic.

FOREIGN PHYSICIANS IN ITALY.—According to recent telegraphic reports from Italy, quoted in the *British Medical Journal*, a deputation sent by the English doctors in Rome to the Italian Home Office, to inquire as to the intentions of the government with regard to the demand of the Italian National Medical Congress for a law obliging foreign doctors to undergo a State examination, was cordially received and informed that for the present there was no danger of such a law being passed.

SMALL-POX IN GEORGIA.—It is reported that small-pox prevails in thirty counties in Georgia. The epidemic in Atlanta will cost the commercial interests of the city over \$1,000,000 during the holiday season alone. Compulsory vaccination here has had the effect of frightening the country people away from Atlanta. In Atlanta there have been 120 cases of small-pox, but no deaths. According to a report in the daily papers, Col. E. E. Cavaleri, a veteran of the Union army, seventy-four years of age, has sued the city of Atlanta for damages. When the city physicians were recently making their vaccination rounds, Colonel Cavaleri's *fiancée*, objected to vaccination, saying she was about to be married. The doctor told her it was better to be vaccinated than married, and persuaded her to be vaccinated. When Cavaleri came next to see her, she told him she had decided to follow the doctor's advice, and refused to marry him; hence the suit for damages.

BOSTON AND NEW ENGLAND.

SCARLET FEVER IN NEWTON.—Two primary schools in West Newton have been closed by order of the Local Board of Health, owing to the occurrence of about twenty cases of scarlet fever among the pupils.

THE NEW ENGLAND HOSPITAL.—The New England Hospital for Women and Children celebrated its thirty-fifth anniversary on September 30th. A new dispensary building, the gift of Col. A. A. Pope, has been opened this year.

FINED UNDER THE MEDICAL REGISTRATION LAW.—In the Municipal Court at Boston recently, Judge Ely fined Augustus R. Gilmore \$200 for styling himself a "doctor" on his cards. The defendant claims to effect cures by the laying on of hands. He appealed and was held in \$500 bail for the upper court.

FIRE AT DEER ISLAND HOSPITAL.—The easterly wing of the hospital building at Deer Island, Boston Harbor, was damaged by fire on December 11th to the extent of \$6,000. The fire was due to the overturning of a gasoline lamp, and demonstrated the insufficiency of the water-power on the island. There were no casualties among patients or attendants.

THE AMERICAN ASSOCIATION FOR THE STUDY AND CURE OF INEBRIETY.—The twenty-seventh annual meeting of the American Association for the

Study and Cure of Inebriety was held last week, under the presidency of Dr. Lewis D. Mason, in the hall of the Washingtonian Home, on Waltham Street. Dr. T. M. French, of Milford, read a paper on "The Prognosis of Inebriety." Dr. C. H. Shepard, of Brooklyn, N. Y., spoke on the "Treatment of Inebriety by Baths." Dr. T. D. Crothers, of Hartford, Ct., read a paper on "The Insanity of Inebriety." Dr. I. N. Quimby, of Jersey City, N. J., spoke on "The Use of Alcohol in Practical Medicine." The other speakers were Dr. T. M. Kellogg, of Battle Creek, Mich., and Dr. Ira Van Giesou, director of the New York State Pathological Institute, who spoke on "Recent Researches into the Action of Alcohol on Brain Cells." The following officers were elected for the ensuing year: President, Lewis D. Mason, Brooklyn, N. Y.; First Vice-President, Isaac T. N. Quimby, Jersey City, N. J.; Second Vice-President, J. W. Grosvenor, Buffalo, N. Y.; Third Vice-President, James T. Searcy, Tuscaloosa, Ala.; Fourth Vice-President, J. T. Eskridge, Denver, Col.; Fifth Vice-President, Henry J. Hall, Franklyn, Ind.; Secretary and Treasurer, T. D. Crothers, Hartford, Ct.

DEATH OF A CENTENARIAN.—Mrs. Marina Gifford died in New Bedford December 11th, aged one hundred years and four months.

DR. MAXFIELD SUCCEEDS DR. McLEOD.—Dr. George A. Maxfield, of Holyoke, Mass., has been appointed by Governor Wolcott a member of the Board of Registration in Dentistry, in place of Dr. E. U. McLeod, secretary, of New Bedford, deceased.

TWO CITY PHYSICIANS AT SALEM, MASS.—An ordinance has been adopted by the Salem Board of Aldermen providing for two city physicians, instead of one, as now. The city is to be divided into two districts, and the salaries are to be \$500 each instead of \$750 for one, as now.

BIRTHDAY OF A CENTENARIAN.—Mrs. Lydia C. Tenney, of West Concord, N. H., celebrated her one hundred and second birthday recently. She was born in Bradford, Vt., and was married in 1816. Of nine children she has one living, Daniel C. Tenney, seventy-five years of age.

NEW YORK.

A PROTEST AGAINST APPROPRIATIONS FOR HOSPITALS.—As a meeting of the Board of Estimate and Apportionment held December 7th, the Executive Committee of the Manhattan Branch of the Medical League of New York, the new Protective Physicians' Association, appeared to protest against the appropriation of public moneys, which is discretionary with the Board, towards the support of such institutions as the Sloane Maternity, the Post-Graduate Hospital and the Homeopathic Hospital. The fundamental purpose of these hospitals, it was urged, was not the dispensation of charity, but to afford opportunities for clinical study. The students paid tuition fees, and it was asserted to be a needless waste of the public funds for the city to put additional money into

the hands of such institutions. It was furthermore contended that while the per capita expense of patients in the children's wards of the City Hospital was only 27 cents a day, it was \$1.01 in the babies' ward of the Post-Graduate Hospital, and as high as \$1.53 in some other institutions. A test vote in the Board showed that three of the five members, including the mayor, were in favor of the appropriations, and they were accordingly made. Among the larger sums voted to charitable institutions were the following: New York Foundling Asylum, \$303,717; New York Juvenile Asylum, \$118,250; Hebrew Orphan Asylum, \$100,000; Nursery and Child's Hospital, \$75,000; Children's Aid Society, \$70,000; St. John's Guild, \$30,000.

THREE OF A KIND AND A PAIR. — The wife of a poor tailor living in a rear tenement house down-town on the east side, on December 7th, gave birth to triplets, three healthy boys, whose combined weight was nineteen pounds. Two days afterward she is reported to have been delivered of two other children, both of which were still-born. The mother, who is twenty-eight years of age and had previously had two children (one of which is three years old, and the other one year) is said to have passed through the trying ordeal in excellent shape and to be now on the high road to recovery.

DEATH OF DR. VAN HÖVENBERG. — Dr. James O. Van Høvenberg, a retired physician of Greeridge, Staten Island, died on December 9th of apoplexy, at the age of eighty. He was a son of the late Dr. Henry Van Høvenberg, who was at one time Health Officer of the Port of New York.

A VERY LOW MORTALITY RATE. — Dr. Roger S. Tracy, Register of Records, reports that the number of deaths in the city during the eleven months ending November 30th was 35,790, as against 38,803 for the same period of 1896. The death-rate for these months of 1897 has been 19.6, while the corresponding rate for 1896 was 21.9. The annual rate for 1896 was lowered during December from 21.9 to 21.5, and if we assume that the number of deaths in December of this year will be the same as in December of 1896, the annual rate for 1897 will be 19.4, a mortality so low as to be without precedent. To what extent an estimated population is a factor in this low death-rate we cannot definitely decide.

Miscellany.

QUOD SCRIPSI.

THE following interesting extract is from the *British Medical Journal*:

"What I have written I have written, and neither I nor you nor anybody else can read it." That is the burden of an amusing paragraph in *Truth* on doctors' prescriptions. There is a good deal of *Truth* in it, and we are sorry to say a little truth too. Doctors write abominably, and we do not wonder that in many cases chemists are puzzled. It is the same cause, we suppose, which leads

a man usually to write his own name and address worse than any other part of his letter, to the tribulation of editors and others. He writes them so often that he gets a habit of shortening the process by a hieroglyphic, which is perfectly plain to himself, and which is quite illegible to other people. But as for the chemist, who said he made out what he could and "guessed the rest," we are afraid that the chemist's young man was endeavoring, kindly but mistakenly, to amuse the poor lady who made the inquiry.

A second paragraph consoles the public by reflecting that luckily it does not much matter, for that faith is the main agent in cure. A friend of *Truth's* had an excellent prescription which he had always believed to be, and always found to be, a specific for rheumatism. Some ruthless critic pointed out that it was only a mild tonic, and it never cured his rheumatism after that. This sad, sad story is so true to life, that we suspect *Truth* of inventing it. It states wittily one of the commonest and most inapplicable things in the whole world. Many who fancy they suffer can be brought to fancy that they do not. That is perhaps more wonderful than it seems. But many, whose sufferings depend upon real and irremovable causes, can be relieved if they can be made to believe that the treatment will do them good. The person who inspires the belief may be a doctor, may be a friend, may be themselves. Some absurd theory of the nature of their illness leads them to take Mattei's blue electricity, or something equally efficacious, and behold they are cured. Faith was defined by the little girl at the Board School as "the power of believing things which you know not to be true." Luckily for human nature, man is a persuadable animal even in Northampton.

Correspondence.

A VISIT TO THE HIGHEST METEOROLOGICAL STATION IN THE WORLD.

AREQUIPA, PERU, S. A., November 13, 1897.

MR. EDITOR: — In these days of high mountain climbing, data as to the physiological effects of high altitudes are rapidly becoming numerous, but it may interest the readers of the *JOURNAL* to learn something of the writer's recent experiences in visiting the highest meteorological station in the world, especially as this station was established and is operated by the Harvard College Observatory.

The establishment of an astronomical and meteorological observatory at Arequipa, Peru, and of the seven other meteorological stations which are now operated in connection with it, was the result of a bequest left to the Harvard College Observatory in 1887 by the will of Mr. Uriah A. Boyden. The terms of the will were that the money should be used in establishing an observatory "at such an elevation as to be free, so far as practicable, from the impediments to accurate observation which occur in the observatories now existing, owing to atmospheric influences." Owing to the remarkable clearness and steadiness of the air at Arequipa, it was decided, after a careful study of the meteorological conditions in other places, that the permanent observatory should be located here, and the buildings were erected in 1891. Arequipa is situated about eighty miles from the Pacific Ocean, in Lat. 16° 22' S., Long. 71° 22' W., and about in the middle of the long desert belt which stretches along the west coast of South America from Lat. 4° S. to 30° S. Over all this region rain-fall is either entirely lacking, or is extremely small, and the almost complete absence of clouds during nine months of the year, as well as the clearness of the air, combine to make Arequipa a remarkably favorable spot for astronomical work.

Within the past few years meteorology has made very rapid advances towards becoming a more exact science, largely because of the records that have been obtained at

considerable elevations above the earth's surface. In these higher strata of the atmosphere, at altitudes up to ten miles and more, important movements occur, a knowledge of which is essential to a proper understanding of atmospheric processes as a whole, as well as to the improvement of our daily weather forecasts. The importance of an exploration of the upper air has led to the establishment of meteorological stations on high mountains, such as Pike's Peak, Mont Blanc and the Sonnblick; to the use of small balloons, sent up with self-recording instruments but without aeronauts; and to the elevation of meteorographs by means of a line attached to several kites, the kite work done at Blue Hill Observatory, near Boston, being by far the most successful yet carried on anywhere in the world.

The small snow-fall and comparatively high temperatures on the mountains of Peru, offer exceptional opportunities for the establishment of meteorological stations at great altitudes, and since 1892 Harvard has had the credit of maintaining, in Peru, the highest meteorological station in the world. In that year a station with ordinary and self-recording meteorological instruments was placed, at an elevation of 16,650 feet, on Charchani, an extinct volcano 20,000 feet high, situated twelve miles north of Arequipa. The exposure of the instruments, however, was not favorable, owing to the fact that the station was in a somewhat sheltered position on the flank of the mountain, and in October, 1893, Prof. Solon I. Bailey, then in charge of the Arequipa Observatory, succeeded in establishing a new station on the summit of the Misti, a quiescent volcano, ten miles northeast of Arequipa, at an altitude of 19,200 feet above sea level. This station is about 3,500 feet higher than the one on Mont Blanc, and is therefore the highest meteorological station in the world. The station on Charchani was abandoned after the establishment of the new one on the Misti. The latter mountain offers extremely favorable conditions of exposure for the instruments. It is an isolated volcanic cone, of surprising symmetry, and the atmospheric conditions at its summit are as nearly like those of the free air as it is possible to attain on a mountain. Since its establishment, the Misti station has been regularly visited by the observers from Arequipa, at first, and for many months, once in ten days, and since then about once a month. On these visits the clocks of the self-recording instruments are rewound, the record sheets changed, and check readings of all the instruments are made.

The writer has twice visited the Misti station during a stay of three months in Arequipa, and on both occasions had some personal experience of *soroche*, or mountain sickness. In fact very few persons who have been to the summit have escaped the unpleasant symptoms of this sickness in some of its forms. The trip from the observatory to the top and back occupies two days and is accomplished entirely on mule-back. The start from the observatory (8,950 feet) is made early in the morning, and the night is spent in a hut at the base of the Misti, at an altitude of 15,700 feet above sea level. This is very nearly the height of Mont Blanc. The ascent from the hut to the summit occupies about four hours, the descent to the hut about an hour and a half, and the ride back to Arequipa, five hours more. It is, of course, an extremely fortunate circumstance that no physical exertion need be made in the ascent, for if persons unaccustomed to climbing at high altitudes were obliged to go on foot up the mountain, they would doubtless suffer very severely from *soroche*. The mules that make the ascent all suffer more or less from shortness of breath, and near the summit they refuse to move more than about twenty feet or so without stopping to get their breath. As a rule, however, they stand the strain remarkably well, and have, on several occasions when grass was taken to the summit, eaten at the altitude of 19,200 feet with the greatest apparent relish. Some of the mules belonging to the observatory have made the trip to the summit more than fifty times.

The writer's first ascent was made on October 7th, and was his first experience at a greater altitude than 9,000

feet. At the height of 14,400 feet, where it was necessary to walk about 300 feet, slightly up hill, to visit the instrument shelter, he was obliged to walk slowly, and even then got quite out of breath; but no considerable effects of the altitude were noticed until after the arrival at the hut, at the altitude of 15,700 feet. Here the slight exertion of dismounting from the mule and walking into the hut brought on a violent headache; and the feeling of exhaustion was so great that any exercise, even of the most trifling character, seemed impossible. The writer was obliged to sit down at once, and could scarcely exert himself sufficiently to unpack the lunch basket, in order to take out the supplies for supper. A feeling of nausea — usually the first, as it also is the most common, symptom of mountain sickness — came on very soon, and the mere thought of eating was distasteful. However, after some delay, and by the use of considerable will power, a cup of hot milk and two soft-boiled eggs were disposed of, but it was found impossible to eat anything more. The night was passed in tolerable comfort, although the cold was so great that it was necessary to sleep with all one's clothing on, in an ulster and felt boots, and wrapped up in a sheepskin sleeping-bag. Headache, a feeling of nausea, and quickened respiration, were the only unpleasant symptoms noted during the night.

The following morning the headache was much improved, but the feeling of exhaustion and of nausea continued. The only food that could be taken was hot milk and an egg. The ride to the summit was accomplished without the appearance of any further unpleasant symptoms, but on the summit itself the feeling of complete exhaustion and of weakness was so great that for an hour and a half the slightest exertion was out of the question, and the writer was obliged to lie stretched out flat on the ground. There was some tendency to faintness during this time, and the headache and nausea continued. In a little less than two hours it was found possible, with great exertion, to change the sheets of the self-recording instruments, which were taken from and returned to the shelter by the guide, the writer remaining seated on the ground during the operation, as he found it impossible to lift the large-size barograph, weighing perhaps ten pounds, up into the shelter. When the time came for the descent, after two hours and a half spent on the summit, it was found necessary to have assistance in mounting the mule. At the hut, which was reached in two hours, the instrument shelter — placed about 300 feet from the hut, and about 75 feet higher up the mountain — had to be visited; and on this short walk, two stops in order to take breath were necessary, and anything but a very slow walk was out of the question. The change to a lower altitude was, however, noticeable in a decrease in the feeling of exhaustion, but the headache and nausea continued for some two hours more, on the return ride. Although provided, on this trip, with clinical thermometers and with a sphygmograph, the writer felt so miserably that he made very little use of these instruments. His temperature at 5.30 P. M., October 5th, twelve hours before leaving Arequipa, was 98.4°; his respiration 24, and pulse 90; on the summit his temperature was 96.4°, respiration 34, and pulse 110; and twelve hours after arrival at Arequipa, at 10.30 A. M., October 8th, the figures were 98.0°, 24 and 85 respectively. A rather unsatisfactory sphygmograph curve was obtained on the summit.

The second expedition to the Misti was made on November 9th, and on this trip the writer suffered much less from mountain sickness than on the first. He was able, immediately after reaching the hut at 15,700 feet, to walk to the instrument shelter, although two stops on the way were necessary, as before. An hour after taking this exercise the pulse was 128; the temperature 97.0°, and the respiration 30, the corresponding figures twelve hours before leaving Arequipa being 91, 98.6° and 20. On this trip there was much less exhaustion than on the previous one — in fact, all the symptoms of *soroche* were less marked. It was possible to walk in the hut without great exertion; there was much less feeling of nausea, and considerable appetite. The night was passed comfortably, except

for the cold, which was very disagreeable. Supper and breakfast consisted of hot beef-tea and milk biscuit.

In the morning, immediately after waking up, the temperature of the body was 96.2°, pulse 112 and respiration 30. On the summit the writer felt fairly well when lying down, but the exertion of walking even a few steps brought on a feeling of exhaustion and nausea, and increased his headache. Otherwise he felt well, and even had considerable appetite, although it would probably have been impossible to eat much, even had there been any food at hand. Twenty minutes after reaching the summit the temperature was 97.2°, pulse 120 and respiration 32. In an hour and a half the respiration was 35, the pulse and temperature remaining the same. In two hours the temperature was 96.8°, pulse 112 and respiration 34. Three fairly good sphygmograph curves were obtained on the summit, not without considerable difficulty, however; and these curves, together with one obtained at the hut, at the altitude of Mont Blanc, it is hoped to reproduce at some future date. These curves, so far as the writer knows, are with one exception the only ones ever secured at so great an altitude as 19,200 feet. In counting the pulse on the summit it was quite unnecessary to place the finger on the wrist, as the heart-beats could plainly be heard. The descent was begun two hours and a half after reaching the top. At the hut, after again walking to and from the shelter, the pulse was 130, but the respiration had decreased to 30. One hour after arrival at Arequipa the temperature was 98.2°; pulse 116; respiration 22, and twelve hours after arrival the pulse had fallen to 82—about the writer's normal at the observatory—and the respiration to 22, the normal being 20.

While the ascent of the Misti is a very easy one, and is not for a moment to be compared with the difficult climb up such mountains as Aconcagua or Mont Blanc, the altitude is so great that a study of the physiological effects it produces is interesting. The present writer fared very well—better, in fact, than most of those who have made the ascent. One of the former assistants at the observatory made the trip more than fifty times, and never experienced any discomfort, and one gentleman was so well on the summit that he was able to smoke there. These, however, are the exceptions. Almost every one has headache, nausea, and a feeling of intense weakness; and many experience faintness. Recently an Englishman who made the trip for the first time fainted when part way up, and fell off his mule. The experience of the native guides, who are of mixed Spanish and Indian blood, is very striking in contrast to that of foreigners. These natives are usually able to walk all the way to the summit from the hut without any difficulty, and feel as well on top as they do at the base.

Very truly yours,

ROBERT DEC. WARD,

Instructor in Climatology, Harvard University.

ACTINOMYCOSIS HOMINIS.

953 MADISON AVENUE, BALTIMORE, MD.

December 7, 1897.

MR. EDITOR:—Will you permit me to make use of the JOURNAL to obtain information concerning the occurrence of *actinomyces hominis* in America.

I have collected all the published cases, and feel sure that other cases have been observed. I shall be grateful for full notes on these cases.

In addition to the general description, I should like to know at what time the organism was observed, what the medical and surgical treatment was, and the result.

I should also like any notes on cases already published where further developments have occurred.

Of course, full credit will be given to the observer when the collected cases are reported.

Very sincerely,

JOHN RUHRÄH, M.D.,

City Hospital, Pasteur Department.

METEOROLOGICAL RECORD

For the week ending December 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direc-tion of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S. 28	30.61	26	32	21	56	73	64	N.	N.	9	8	C.	F.	.10
M. 29	30.19	36	42	30	74	96	85	N.W.	W.	5	7	O.	O.	.01
T. 30	30.14	30	37	24	69	64	66	N.W.	W.	16	5	C.	C.	.01
W. 1	30.16	30	38	23	54	84	69	S.	W.	5	7	O.	O.	.01
Th. 2	30.43	30	36	24	57	50	54	W.	W.	15	9	C.	C.	.03
F. 3	30.56	26	29	24	48	8	68	N.W.	N.	5	11	O.	N.	.03
S. 4	30.16	34	40	28	93	95	94	N.W.	S.W.	8	13	O.	R.	.02

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 4, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,000	626	219	12.32	14.56	1.76	1.12	4.80	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	—	—	—	—	—	—	—	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	—	—	—	—	—	—	—	
Baltimore	550,000	167	49	9.60	7.80	1.20	2.40	6.00	
Boston	517,732	187	48	9.72	16.20	1.62	1.62	4.86	
Cincinnati	405,000	106	—	13.16	12.22	1.88	1.88	7.52	
Cleveland	350,000	34	20	17.64	35.28	8.82	—	7.91	
Pittsburg	285,000	69	29	15.95	14.50	2.90	5.80	7.25	
Washington	277,000	83	19	6.00	19.20	2.40	2.40	1.20	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	105,050	40	2	2.50	10.00	—	—	—	
Worcester	105,050	28	14	7.14	21.42	—	—	3.57	
Fall River	95,919	28	14	3.57	7.14	3.57	—	—	
Lowell	87,193	31	5	9.69	32.25	—	3.23	6.46	
Cambridge	86,812	29	8	10.35	10.35	3.45	3.45	—	
Lynn	65,220	16	5	25.00	12.50	—	—	12.50	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	18	9	11.11	11.11	—	5.55	5.55	
Lawrence	55,510	17	6	11.76	5.88	—	—	11.76	
Springfield	54,790	16	3	12.50	12.50	—	—	12.50	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	12	5	—	—	—	—	—	
Brockton	35,853	8	1	—	12.50	—	—	—	
Malden	32,894	6	0	—	—	—	—	—	
Chelsea	32,716	14	5	—	14.28	—	—	—	
Haverhill	31,406	10	2	20.00	10.00	—	—	10.00	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	6	0	—	16.66	—	—	—	
Fitchburg	28,392	7	1	28.56	14.28	—	—	28.56	
Taunton	27,812	13	2	—	24.07	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	8	2	—	—	—	—	—	
Everett	21,575	—	—	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	8	0	—	12.50	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 1,662; under five years of age 483; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 178, acute lung diseases 233, consumption 188, diphtheria and croup 84, diarrheal diseases 29, typhoid fever 24, scarlet fever 15, measles 13, cerebro spinal meningitis and erysipelas 5 each, whooping-cough 3.

From scarlet fever New York 13, Boston and Cleveland 1 each. From measles New York 11, Cincinnati and Cleveland 1 each. From cerebro-spinal meningitis New York and Somerville 2 each, Worcester 1. From erysipelas Boston 2, New York, Cambridge and Haverhill 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending November 27th, the death-rate was 20.2. Deaths reported

4,258; measles 218, diphtheria 97, whooping-cough 70, fever 70, scarlet fever 58, diarrhea 39.

The death-rates ranged from 11.0 in Cardiff to 28.8 in Sunderland; Birmingham 20.9, Bradford 16.5, Brighton 12.0, Gateshead 18.6, Leeds 22.7, Leicester 16.4, Liverpool 23.2, London 21.0, Manchester 20.1, Newcastle-on-Tyne 20.1, Nottingham 17.7, Oldham 28.2, Salford 22.5, West Ham 17.7, Wolverhampton 19.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 4, 1897, TO DECEMBER 10, 1897.

Leave of absence for four months, from the date of his departure from Fort Keogh, Mont., is granted CAPTAIN MADISON M. BREWER, assistant surgeon.

Leave of absence for one month is granted CAPTAIN WILLIAM O. OWEN, assistant surgeon, Fort Bayard, N. M.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING DECEMBER 9, 1897.

MURRAY, R. D., surgeon. To assume command of Camp Fontainebleau, Miss., in addition to other duties. December 3, 1897.

VANSANT, JOHN, surgeon. Upon being relieved from duty at Wilmington, N. C., to proceed to Charleston, S. C., and assume command of Service. November 30, 1897.

AUSTIN, H. W., surgeon. To rejoin station at Boston, Mass. November 26, 1897.

PECKHAM, C. T., passed assistant surgeon. Upon being relieved from duty at Detroit, Mich., to proceed to Vineyard Haven, Mass., and assume temporary command of Service during absence on leave of Passed Assistant Surgeon W. J. S. STEWART. December 7, 1897.

GLENNAN, A. H., passed assistant surgeon. To report at Bureau on or about January 5, 1898, for temporary duty in Hygienic Laboratory. December 2, 1897.

BROOKS, S. D., passed assistant surgeon. To assume command of Port Townsend Quarantine on or about December 26, 1897, in addition to other duties. December 3, 1897.

WHITE, J. H., passed assistant surgeon. To assume charge of post-epidemic disinfection in Mississippi. December 1, 1897.

MCINTOSH, W. P., passed assistant surgeon. Relieved from duty at St. Louis, Mo., and directed to rejoin station at Louisville, Ky. December 1, 1897.

MAGRUDER, G. M., passed assistant surgeon. Granted fifteen days' extension of leave of absence on account of sickness. December 1, 1897. Upon expiration of sick leave to proceed to Memphis, Tenn., and assume command of Service. November 27, 1897.

WOODWARD, R. M., passed assistant surgeon. To proceed to Philadelphia, Pa., and report to commanding officer of that station for temporary duty. December 7, 1897.

COBB, J. O., passed assistant surgeon. Relieved of command of Camp Fontainebleau, Miss. December 3, 1897. Upon being relieved from duty at New York, N. Y., to proceed to Detroit, Mich., for duty and assignment to quarters. December 7, 1897.

WERTENBAKER, C. P., passed assistant surgeon. Upon being relieved from duty at Delaware Breakwater Quarantine, to proceed to Wilmington, N. C., and assume command of Service. November 30, 1897.

SMITH, A. C., passed assistant surgeon. To report at Bureau on or about January 5, 1898, for temporary duty in Hygienic Laboratory. December 2, 1897.

YOUNG, G. B., passed assistant surgeon. Granted leave of absence for two weeks on account of sickness. November 29, 1897. Upon expiration of sick leave to proceed to Delaware Breakwater Quarantine Station and assume command of Service. November 27, 1897.

STIMPSON, W. G., passed assistant surgeon. Upon being relieved from duty at Port Townsend Quarantine Station to proceed to St. Louis, Mo., and assume temporary command of Service. December 2, 1897.

STEWART, W. J. S., passed assistant surgeon. Granted leave of absence for one month from December 23, 1897. December 7, 1897.

GARDNER, C. H., passed assistant surgeon. To assume temporary command of Cape Charles Quarantine Station on December 14, 1897, in addition to other duties. December 1, 1897.

CUMMING, H. S., assistant surgeon. Upon being relieved from duty at Philadelphia, Pa., to proceed to New York, N. Y., for duty and assignment to quarters. December 7, 1897.

GREENE, J. B., assistant surgeon. To report to chief of Revenue Cutter Service for assignment as medical officer on Revenue Steamer "McCulloch." November 27, 1897.

GRUBBS, S. B., assistant surgeon. To proceed to New York, N. Y., for duty and assignment to quarters. November 27, 1897.

RUSSELL, H. C., assistant surgeon. Upon being relieved from duty at New York, N. Y., to proceed to Boston, Mass., for duty and assignment to quarters. November 27, 1897.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, December 22, 1897, at 8 P. M.

Papers: Dr. Sarah E. Palmer, "Report of Five Cases of Hysterectomy for Fibroids."

Dr. Theodore C. Erb: "Caesarean Section."

F. W. JOHNSON, M.D., Chairman.

C. H. HARE, M.D., Secretary.

BOOK THIEVES.

MR. EDITOR: — Between the hours of 6 P. M. on Tuesday, the 7th instant, and 9 A. M., of Wednesday, the 8th, some one entered my office at "The Pelham" and took the first four volumes of "The Reference Handbook of the Medical Sciences." Other books and articles of greater value they could have more easily taken, and it is curious that only these four volumes were wanted. Any one knowing of these four books being for sale anywhere will confer a favor by notifying

DOUGLAS GRAHAM, 74 Boylston St., Boston.

RECENT DEATHS.

FRANK BOWDITCH CHAPMAN, M.D., M.M.S.S., died in Middleton, June 11, 1897, aged twenty-nine years.

CHARLES EDWARD CLARK, M.D., M.M.S.S., died in Lynn, October 29, 1897, aged fifty-six years.

EBEN THOMPSON, M.D., M.M.S.S., died at Newton Upper Falls, December 7, 1897, aged forty-nine years.

DR. GEORGE C. HOITT, of Manchester, N. H., died December 9, 1897, aged sixty-two years. He graduated from Dartmouth Medical College in the early 80's. He was one of the early members of the board of health and was president of the Sacred Heart Hospital staff.

DR. J. BERRIEN LINDSLEY, secretary of the Tennessee State Board of Health, died in Nashville, December 7, 1897, aged seventy-five years. He was instrumental in establishing the medical department of the University of Nashville, of which faculty he was the first dean, and was for twenty-three years professor of chemistry. His salary was donated to assistants, or went to the support of his journal, the *Nashville Journal of Medicine and Surgery*. In 1855 he was unanimously chosen chancellor of the University of Nashville. In 1870 he took part in forming the "Tennessee College of Pharmacy," of which he had been the professor of materia medica since 1876. In 1880 he was elected to the chair of State preventive medicine in the Medical Department of the University of Tennessee. In 1877 he became a member of the State Board of Health.

BOOKS AND PAMPHLETS RECEIVED.

Heredity. By Clark Bell, Esq., LL.D., New York. Reprint. 1897.

The Treatment of Contusions of the Lids ("Black Eye"). By Charles H. May, M.D., New York. Reprint. 1897.

Transactions of the American Ophthalmological Society, Thirty-third Annual Meeting, Washington, D. C. 1897.

Cerebral Arterial Thrombosis. Chronic Paroxysmal Headache, Commonly Called Migraine, Hemiparesis, or Sick Headache. By Gustavus Eliot, A.M., M.D., New Haven, Conn. Reprints. 1895-1897.

Address in Ophthalmology. Personal Observations on Antiseptics and Anesthetics in Ocular Operations; Perimetry, and Corneal Corpuscular Activity. By Jos. E. Willets, M.D., Pittsburgh, Pa. Reprint. 1897.

Further Experience with Vaginal Fixation of the Round Ligaments for Backward Displacements of the Uterus. With a tabulated report of fifteen cases. By Hiram N. Vineberg, M.D., New York. Reprint. 1897.

Respiratory Paralysis from Hemorrhage around the Medulla. A Case of Hysteria Simulating Organic Disease of the Brain. Nervous Disorders Simulating Peritonitis. By S. D. Hopkins, M.D., Denver, Col. Reprints. 1897.

Manual of Gynecology. By Henry T. Byford, M.D., Professor of Gynecology and Clinical Gynecology in the College of Physicians and Surgeons of Chicago; Professor of Clinical Gynecology in the Woman's Medical School of Northwestern University. Second edition, containing 341 illustrations, many of which are original. Philadelphia: P. Blakiston, Son & Co. 1897.

Original Articles.

CHLOROFORM AND ETHER.

A CRITICISM OF DR. LEONARD HILL'S ADDRESS, WITH SOME REMARKS ON SYNCOPE UNDER ANESTHETICS.

BY D. E. KEEFE, M.D., SPRINGFIELD, MASS.

AFTER the extensive and ought-to-be conclusive study and experiments of the second Hyderabad Commission, the Glasgow Committee, Dr. H. C. Wood's able paper read at the Tenth International Medical Congress, the painstaking work of Gaskell and Shore, and the honest and scientific work of Dr. H. A. Hare, Dr. Thornton, Dr. Dudley Buxton, and many others whom I might mention, one would suppose that the relative position of chloroform and ether would have been settled for all time. But, lo! like Banquo's ghost, the subject will not down.

I notice in your issue of August 26, 1897, an editorial, based largely upon an address delivered by Dr. Leonard Hill, Lecturer on Physiology at the London Hospital, before the London Society of Anesthetists, on "The Causation of Chloroform Syncope." Added to this editorial was a synopsis of his conclusions. While he said many good things, and while I consider his address a valuable contribution to the literature of the subject, many of his statements seem to me inexact, exaggerated or entirely erroneous. I desire to occupy a portion of your valuable space in drawing attention to some of them, also to give expression to some of my own ideas on this subject.

Be it understood at the outset that I have no intention to impugn either his ability, honesty or entire good faith in this matter. I shall here reproduce enough of the sentences or paragraphs that I desire to criticize, so that all readers can the better judge as to the justice of my strictures.

Dr. Hill *very modestly*, as it seems to me, not only endeavors to controvert the conclusions of the Hyderabad Commission but its ability to read aright the records of its own work as well. Referring to the belief that death under chloroform takes place from primary respiratory paralysis, or, in other words, that respiration ceases before the heart, he says: "This doctrine has been industriously spread abroad, and instilled into the minds of the whole medical world." "This doctrine long received by many with credence." First of all, I deny most emphatically that any such doctrine has ever been received by or instilled into the medical world, if by the world we are to understand a majority of physicians. Indeed, speaking from my personal knowledge, and after consulting the literature of the subject, I am convinced that *precisely the contrary* obtains. True, the findings of the Hyderabad Commission encouraged this belief, but these findings were, almost immediately, neutralized by the contrary findings of the Glasgow Committee, the experiments of Wood and Hare and many others. So the subject still remained *sub judice*. With reference to his statement of twelve deaths in one London hospital in a single year being ("This is no exceptional case"), *no exceptional case*, I have to say, that during the summer of 1890, while *en route* to attend the Tenth International Medical Congress, it was my good fortune, and pleasure, also, to spend several weeks in London, during which time I was a daily attendant at the clinics in the different hospitals. At the very hospital with which

Dr. Hill is connected I witnessed a serious interference with the progress of an operation by reason of chloroform syncope, due to the administrator having been more interested in the operation than his administration. As a result of keeping the anesthetic too long applied, the patient was very nearly beyond the need of operation. However, he was resuscitated, and the operation happily completed. Notwithstanding this, I have too much confidence in the ability and discretion of the surgeons and anesthetists of London to easily believe that twelve deaths in a single year is anything but an exceptional case, and I challenge proof of this statement.

With regard to the manner of death under chloroform, the writer believes that death may take place either by primary cardiac syncope or respiratory arrest. In deaths early in the anesthesia, or before complete sopor, respiratory arrest is a frequent cause, as cardiac syncope is in the later period, or after long operations; but usually the suspension of both cardiac and respiratory action occurs synchronously. True, there may be automatic movements of the chest after the heart has ceased to beat, but there is no true respiration, as can be ascertained by placing the ear to the chest. I am convinced that death under ordinary anesthesia is in all cases due, not to the direct action of any anesthetic either on circulatory or respiratory organs themselves, not to any action on the muscular fibres, howsoever powerful it may be, but to their action on the local nerve endings, and principally upon the centres in the medulla presiding over these organs. Moreover, I believe, that excluding the effects of fear, alcoholic and other degenerative changes, a healthy person should never die during the early or pre-soporose stage of anesthesia. In the very few experiments I have performed on animals—old horses, dogs and cats—I have never been able to cause death until the post-soporose period. This is not in accordance with the findings of MacWilliam and Hill, but it corresponds with the experiments of the Hyderabad Commission. I think, therefore, that too many words and too much time have been spent on this subject—ever so important though it be. I say this advisedly, for when such an emergency arises there are few men indeed who retain sufficient calmness and self-control to be certain as to whether the heart beats or not, or if there is absolutely any air entering the lungs, much less tell which was the first to stop, circulation or respiration.

To return to Dr. Hill, he says: "Gaskell and Shore and Hare and Thornton found the injection of chloroform into the jugular vein produced cardiac, followed, not preceded, by respiratory failure, a fact which the Hyderabad Commission failed to find, owing to the fact that pure instead of diluted chloroform was used, that the vein was tied above the point of injection, and that a needle was used as an indicator of cardiac action." The reasons here given are entirely insufficient, and to the unsophisticated would prove that the Hyderabad Commission, instead of being "unphysiological," used a very conclusive experiment, whereas his reasoning is fallacious. If, in the hands of Gaskell and Shore and Hare and Thornton, the injection of diluted chloroform into the jugulars caused primary cardiac paralysis, why should not the same agent in full strength in the hands of the Hyderabad Commission accomplish the same result, especially with the jugulars tied above the point of injection, thus excluding any possibility

of uncertainty.¹ "The heart is rapidly paralyzed by chloroform and the respiratory centre is paralyzed, while the vaso-motor centre is excited to increased action." This sentence, to my mind, is self-contradictory, for while I doubt not that at any time, and especially after long-continued inhalation, the heart and respiratory centre may be paralyzed, I cannot understand how, at the same time, the vaso-motor centre is excited to increased action. Moreover, all who have essayed to locate these centres have located them so near together in the medulla that anything circulating in the blood in sufficient quantity to paralyze the one would, of necessity, act in like manner upon the other. Most assuredly, it would not have a diametrically opposite effect.

We now come to the consideration of his conclusions, ten in number. In number one, he says: "The respiratory centre fails to act not only because it is damaged by the drug but because of the anemia of the spinal bulb, produced by the fall of arterial tension." This is proved by the fact that the action of the respiratory centre can be renewed by raising the arterial tension." One sentence of this paragraph contradicts the other. For, if the centre were damaged by the drug, when more blood was sent by raising the tension, this blood would contain relatively as large, or even larger, quantity of the drug, and hence the damage would be increased, if the centre were not utterly destroyed. So we would lose more by the added quantity of the drug than we would gain by the relief of the anemic condition. The very fact that increased tension will relieve this condition proves, not that the centre is damaged, but directly the contrary. For, were the centre damaged, all our efforts would, I fear, prove futile. The condition, as I pointed out in a paper read at the Tenth International Medical Congress at Berlin (see proceedings), is purely functional, being due neither to anemia nor damage by the drug, but to congestion, and is usually amenable to proper treatment. Again: "The depth of the anesthesia depends, as does the paralysis of the respiratory centre, on the primary fall of the arterial tension." That there is a gradual fall of arterial tension as the anesthesia is prolonged is conceded by all, but that the anesthesia depends as to depth or completeness on this, I would not for a moment admit. The statement is contrary to the experience and posi-

tive knowledge of every one used to the administration of these agents. Moreover, has he not described one, the late kind of syncope of which he says: "The arterial pressure falls lower and lower?" Would he have us believe that the anesthesia is of greater depth during primary struggling than during late sopor? Furthermore, how is it that ether, which most regard as stimulant to vaso-motor centres, produces profound anesthesia? If the anesthesia and paralysis of the respiratory centre maintain a *pari-passu* relation to lowered arterial tension, is this not a good argument in favor of primary respiratory paralysis? Conceding that under these, or, indeed, under any, circumstances, the respiratory centre may be paralyzed, it requires not such a great stretch of the imagination to think that, under some circumstances, this may occur primarily. But the primary respiratory syncope is due, as I insisted in my paper "Studies in Anesthetics and Anesthetics," published in the *Boston Medical and Surgical Journal*, November 28, 1895, to congestion, not anemia, of the motor centres, still that there was a progressive fall in the arterial tension, and that finally the anemia might be of such a degree as to bring us to another danger-point. "Chloroform also produces paralytic dilatation of the heart. It acts directly, like amyl nitrite, on the musculature of the whole vascular system." I contend that the action of chloroform is not directly on the heart muscle, but almost entirely on the nerve endings and on the cerebro-spinal centres presiding over motion and sensation.² Were chloroform so inimical to muscular tissues *per se*, the bronchial tubes and all the respiratory muscular tissues, which receive it most directly and in its greatest strength, and hence sustain the brunt of the blow, so to speak, would be paralyzed before the heart, at least in a greater ratio than now obtains. Truly this would be yet another argument in favor of primary respiratory rather than cardiac paralysis. The lowered arterial tension, which he likens to the action of amyl nitrite, is not without its favorable side. By it the heart gains fully as much by the increased capacity of the vascular apparatus, and by the ease with which the blood is propelled, as it loses by its own want of tone. The very idea of chloroform passing through the lungs without doing any damage — no, not even irritating them, but going thence to another muscle (the heart) and paralyzing that organ — is both unreasonable and unscientific.

"There are two kinds of chloroform syncope: (a) During primary anesthetization. The patient struggles, holds his breath, raises the intra-thoracic pressure, congests his venous system, lowers his arterial tension, and finally takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second stage it is suddenly filled with blood. This is drawn from the lungs and is full of chloroform; the chloroform passes into the coronary arteries and the heart is thrown into paralytic dilatation. Respiration and pulse either cease simultaneously, or the pulse before respiration." Part of this picture is true, but the struggle, holding the breath and congesting the venous system are incompatible with "lowers the arterial tension," for it is the struggling and holding the breath and doing away with respiratory pump action that causes the venous congestion and also the heightened

¹ Dr. Hill's claim that, because in the experiment of the Hyderabad Commission, the jugular was tied before injecting the alcohol, it could not go to the heart but remained in the vessel, would be conclusive and unanswerable if the experiment was performed in the laboratory, with glass or any other rigid or incompressible tubes. But with a collapsible elastic tube, having a suction force at the open end, the walls may be made to approach each other, and the tube may be emptied of its contents. We have, in the jugular, this very condition. The auricle exerts a suction force by reason of the pump action of the respiratory movements. More than this, we have a tube with longitudinal and circular muscular fibres in its walls capable of contracting. In the chloroform we have an irritant to stimulate these fibres, not only to ordinary, but to extraordinary action. All these considerations make the experiment not so unphysiological as he would have us believe. On the contrary, they make it reasonably certain that the chloroform did not remain in the vessel, but all, or part, of it reached the heart. Had it not, would not the experimenters most assuredly have noticed the complete absence of symptoms? Furthermore, if the heart were actually paralyzed by this jugular experiment, as Gaskill and Shore found, it would prove nothing when applied to ordinary inhalation.

I suppose no one will dispute that chloroform, if concentrated enough and long enough applied directly to the heart, will paralyze the nerve endings, the cardiac ganglia and, indeed, even the muscle itself. In this experiment the heart would be the first structure with which the chloroform comes in contact. This is a condition not possible in ordinary anesthesia, for here we are dealing with the vapor of chloroform and the lungs are the first organs with which it comes in contact; hence, if it proved anything, it proved not that it paralyzed the heart, but that it paralyzed the first organ to receive its impact, and in ordinary inhalation the lungs are the first organs to receive it. Therefore, it would be a proof of primary respiratory rather than cardiac paralysis.

² The experiments of Waller, as given before the British Medical Association at Montreal, I think, support this view.

arterial tension. So, too, the lowered arterial tension is incompatible with obstructed respiration and venous congestion, for these very conditions cause increase in arterial tension. Furthermore, I cannot see how ("finally takes deep inspirations and surcharges the lungs with chloroform") the lungs are so surcharged with chloroform. If, as he is common with all other writers advise, the anesthetic be withdrawn during the period of struggling—indeed, though it were not withdrawn, so long as the relative dilution of the chloroform vapor was maintained, as we have a right to assume—how could the lungs be surcharged, for as soon as sopor supervened the inhaler would be again withdrawn?

The writer thinks he has given an explanation of this respiratory syncope more in consonance with the existing physiological conditions than any he has seen elsewhere (see paper in *Boston Medical and Surgical Journal* before referred to). It is as follows: "Believing, as I do, that the heart is beating at its maximum as to force and frequency when the anesthetic is applied, the blood is being pumped into the brain with great force and in large volume, the irritating action of the drug upon the respiratory mucous membrane produces a state of spasm of all the muscles of respiration, thus forming an obstruction to the return current from the brain. The congestion so induced may be of such a degree that the resulting pressure on the cardiac and respiratory centres in the medulla may prove inhibitory and death ensue, either from cardiac syncope or respiratory arrest; most likely the latter." Dr. Hill's statement, that "the chloroform passes into the coronary arteries and the heart is thrown into paralytic dilatation," seems to me entirely untenable. Why has it not acted on the arteries and the veins of the lungs? As I before stated, it acts, not by nutritional changes alone—nor, indeed, to any great extent—but by paralyzing the power of the nervous system to originate and transmit stimuli.

In describing the second form of chloroform syncope, he says: "During prolonged anesthetization, this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and, secondly, the respiration ceases, because of the anemia of the spinal bulb." Here he gives us a sample of primary respiratory paralysis, which, from this paragraph, one would take to be the usual manner of death in prolonged inhalations; the very teaching which he has previously declared to be "one of the most pernicious and dangerous doctrines ever put before the medical profession." "This doctrine, received by many with credence, is that chloroform kills by paralyzing the respiratory centre." Here we have, then, a fine example of that jewel, consistency. He makes mention of "giving chloroform to too great an extent." I cannot understand what he wishes to imply, whether he means too long administration or too large quantity of the drug. I always supposed that one gave only just enough to keep the patient under, and, of course, that is absolutely necessary. From the statement that "artificial respiration and horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope," I must respectfully dissent, as it is much too strong; moreover, the contrary has been repeatedly proven.

Dr. Hill's recommendations for the treatment of the two kinds of syncope which he describes are in the main sound; but I am surprised that in the first kind

(a), where he says the heart is thrown into paralytic dilatation that he does not mention the hypodermic use of digitalis in any of its forms, strychnia, or electricity. Also in the kind (b) where there is respiratory failure with anemia that he fails to mention that great respiratory stimulant, strychnia.

I think a careful review of this paper would enable us to draw the following conclusions:

(1) Statistics are at present of little or no value in deciding as to the relative danger of chloroform and ether, because, as I have shown in a previous paper, the deaths under both bear a lower ratio to the inhalations than the sudden deaths in those who had not taken an anesthetic bear to the population.

(2) Ether is a safer anesthetic in proportion as it is weaker, bearing a relation to chloroform of about one to five. The danger of chloroform is not so much inherent to it *per se* as to its relative greater strength and the greater care and experience required in its administration. I would trust almost any physician to give ether, but not one in twenty to administer chloroform. Just as any child can handle a toy engine, but not every man can handle a steam locomotive.

(3) The difficulties with both chloroform and ether in the pre-soporose stage are, in nearly all cases, due to respiratory spasm, and the consequent heightened arterial tension and venous congestion. This is very likely to be unduly prominent in the brain on account of recumbency, and the few muscular fibres in its vessels in comparison to the general circulatory system. For this reason it is neither so well able to resist the onset by contracting its arteries nor to empty itself.

(4) In the post-stertorous stage, after long application, the death is most likely to be caused by anemia and cardiac paralysis.

(5) The best medicine for the first kind of interference is amyl nitrite, belladonna and strychnia; and for the second, digitalis and strychnia, supplemented by electricity and all the other movements recommended by Dr. Hill.

(6) Were I asked for the greatest advantage ether has over chloroform I would say: The anesthesia of ether is long and lifelike; hence any accident or interference is noticeable on the instant; whereas chloroform produces so quiet a sleep that the patient seems on the borderland of the grave, and there is not so distinct a warning of accident until too late; consequently it requires a degree of vigilance and attention that few possess. Moreover, the administrator, if conscientious, feels that he assumes a greater responsibility than the operator.

(7) Chloroform is a more satisfactory anesthetic for short operations, where the sopor need not be renewed or continued; for obstetrics, where the anesthesia need not be complete; and for patients with lung or kidney disease, and children.

(8) Ether is, I think, pleasanter and safer (for the vast majority of physicians) to continue the anesthetic state after having been induced by chloroform.

(9) I do not believe there is any well-marked difference in the manner of death under ether or chloroform; the stage of the anesthesia has more to do with it than the agent.

A LIFE OF PASTEUR.—It is announced that a biography of Pasteur is in preparation, its author being Pasteur's son-in-law, M. Vallery Radot.

OCULAR HEADACHES.¹

BY ALLEN GREENWOOD, M.D., WALTHAM, MASS.

It is hardly necessary at the present day for me to suggest to you what an important part errors in refraction and muscular insufficiencies play in the etiology of headaches.

During the past few years much has been written on this subject and many valuable statistics have been compiled.

It is undoubtedly true that for a time, as in all new lines of medical progress, the pendulum swung much too far, until it was claimed that in the correction of refractive and muscular errors lay the secret of the successful treatment of almost all the functional nervous diseases. This condition might be compared to the wonderful results promised at one time for the operation of oöphorectomy, except that the slight inconvenience of wearing glasses can hardly be compared with the seriousness of an abdominal section.

At the present day, however, the pendulum has practically settled, and the therapeutic results to be obtained by the wearing of lenses are fairly well understood. Many physicians make a practice of having their patient's eyes tested before beginning any treatment for persistent headache. Physicians often do not realize what an important part these errors play in cases of headache where, to the ordinary rough tests, the eye-sight seems perfect. It should be constantly borne in mind that the errors most productive of eye-strain are the ones that affect the acuity of vision the least.

How often every oculist hears a story like the following: "My family physician has been unable to cure my headaches and has sent me to have my eyes tested to see if there is any cause for my trouble there, but I know it cannot be so for my eye-sight is perfect both for distance and for reading." A careful examination, however, may reveal a slight amount of astigmatism, and when the sceptical patient begins to wear the correcting lenses the headaches disappear to his surprise and gratification.

A history of occasional headaches coming on in the afternoon after reading or sewing, and gradually coming more and more frequently, until they are almost constant and appear with the opening of the eyes in the morning, should make one strongly suspect refractive error as the cause. This cause should always be suspected when a visit to the theatre, picture gallery, concert hall, or a day's shopping ends with a severe headache. In fact, it has been my experience that no severer test can be put on slightly astigmatic eyes than an evening spent at a theatre. Many patients come complaining of what they call their "theatre or Boston headaches," and in some cases this is the only time when they are afflicted and many patients often experience the greatest benefit from their lenses at the theatre.

The occasional attacks of so-called sick-headache, to which some school-children are subject, are often found to be caused by refractive defects, the careful correction of which prevents future trouble. In these cases the child forces the eyes to do the work they are unequal to, until the ciliary muscles and nerves become exhausted and painful. The pain is usually confined to one eye or the region around it and is often severe enough to cause reflex vomiting.

A night's sleep will, by the complete rest afforded the muscles and nerves, cure the present attack, and the next day the child can return to school with eyes capable of keeping up the unnatural strain for a longer or shorter period according to the vigor of the child and the amount of the defect.

In regard to the site of ocular headaches, I have found that the frontal region is most often affected. Next in order of frequency comes temporal, and then occipital, headaches.

In order to present the subject to you, I have very carefully reviewed and tabulated 900 cases of refractive and muscular errors. These are not selected cases, but represent the cases of this kind coming under my care during the past few years. My object in the tabulation is to show what proportion of the cases had headache as the most important symptom and the measure of relief obtained in such cases by the use of lenses.

I have not tabulated the eyes separately, as is often done, but have classified cases where the eyes were very different, according to the error existing in the eye that seemed most at fault.

For instance: in a case where one eye is myopic and amblyopic and the other is slightly astigmatic, but with good acuity of vision, it is evident that the eye which does all the work is the one at fault in causing the headaches, and the case is classified accordingly.

In looking at the table, the number of cases of muscular insufficiency may seem small, but under that head I have put only such cases as had some well-marked muscular trouble, accompanied by a slight or no refractive error.

Very many of the refractive cases were complicated with slight exophoria, esophoria, or hyperphoria, and at one time I was in the habit of ordering prisms combined with the lenses correcting the refractive error. Now, however, I very rarely do so, for, by experience, I have found that the correction of the refractive error will do away with the muscular trouble in the majority of cases, and the use of prisms is often unnecessary, and may do harm by more firmly establishing the lack of muscular equilibrium. The exception to this is in cases of hyperphoria, where a correcting prism is more often necessary.

In studying the table, you will notice that, out of the 900 cases, 480 were found having headache as an important symptom; and in many cases it was the only one, no symptom referable directly to the eyes being present.

In the other column is included those cases complaining of poor vision—blurring after use, and other symptoms pointing directly to the eyes.

Of the cases accompanied by headache and treated by the use of lenses to correct the refractive error, or in some cases by rest and tonics, 239 are classified as entirely relieved, 134 as partly relieved, 43 as unrelieved and 64 as unknown.

It is undoubtedly true that many of those unrelieved could have been had they permitted the more accurate test under the use of atropine; and many of the unknown were probably so fully relieved as to consider it unnecessary to return as requested. Taking these things into consideration, I think these figures are as accurate as is possible in this group of cases.

Every oculist recognizes a class of hysterical patients whose headaches are relieved every time a different

¹ Read before the Waltham Medical Club, May 6, 1897.

oculist changes the glasses, but they soon relapse after the suggestive effect has worn off.

One fact is well brought out by the table, namely, that, except in the case of myopia, the less the refractive error the greater is the liability of its causing headache, and thus we find confirmed the observation that often the cases presenting the most violent headaches have apparently perfect sight and no distinctly ocular symptoms.

Another observation which I have not brought out by the tabulation, but which during my review of the cases was forcibly impressed upon me, is the fact that in cases of astigmatism where the axis was contrary to the rule very great trouble was experienced by the patient, and equally great relief derived from the correcting lenses.

I should state here that in grading the amount of

ILLUSTRATIVE CASES.

CASE I. Hypermetropic astigmatism against the rule. Miss E. A., age twenty-one. August 9, 1892.

For several years has had a good deal of headache. Lately, she has had this constantly, and has been advised to stop teaching school. Under a mydriatic I found astigmatism of $+25$ D.; axis of cylinder, 180° . She has worn lenses ever since, with perfect relief.

CASE II. Myopic astigmatism. Miss G. V. W., age twenty-nine. August 28, 1892.

Always troubled, more or less, with headache, but now has severe occipital headache, extending down into the back between the shoulder-blades.

Under mydriatic examination showed

$$\begin{aligned} \text{O. D. V.} &= \frac{20}{40} \text{ O} - 1 \text{ cyl. axis } 180^\circ = \frac{20}{30} \\ \text{O. S. V.} &= \frac{20}{40} \text{ O} - .75 \text{ cyl. axis } 180^\circ = \frac{20}{30} \end{aligned}$$

Error.	Grade.	Without Headache	With Headache	Entirely Relieved	Partially Relieved	Unrelieved	Unknown	Totals
Hypermetropia	High	5	1	1	..	..	..	6
	Medium	34	19	9	7	2	1	53
	Low	26	48	26	14	..	8	74
Hypermetropic Astigmatism	High	1	1	1	..	..	..	2
	Medium	16	14	8	4	1	1	30
	Low	40	125	58	33	15	19	165
Compound Hypermetropic Astigmatism	High	1	5	1	2	..	2	6
	Medium	17	30	17	8	1	4	47
	Low	10	47	21	14	4	8	57
Myopia	High	16	..	..	..	..	..	16
	Medium	27	2	1	..	1	..	29
	Low	9	5	1	2	..	2	14
Myopic Astigmatism	High	4	..	..	..	..	..	4
	Medium	8	14	10	1	2	1	22
	Low	25	92	49	23	11	9	117
Compound Myopic Astigmatism	High	9	1	..	1	..	..	10
	Medium	19	11	7	2	..	2	30
	Low	2	14	9	4	1	..	16
Mixed Astigmatism	High	1	..	..	..	..	..	1
	Medium	7	15	10	4	..	1	22
	Low	4	11	7	2	1	1	15
Muscular Insufficiencies		14	20	2	11	2	5	34
Presbyopia		125	5	1	2	2	..	130
Totals,		420	480	230	134	43	61	900

error I have included under low degrees all up to one dioptré, under medium all from one dioptré up to five, and under high all above five.

It will be noticed that more than half the cases having headaches came under the simple forms of astigmatism, and of these the greater number were hypermetropic.

If all the cases of myopic astigmatism had been tested under atropine, many of them would probably have been found to belong to the hypermetropic list.

When one is in doubt whether to order the *minus* or *plus* cylinder, I find it a good rule to follow, that, if there is esophoria, order the *plus* cylinder, and exophoria order the *minus* cylinder.

Under the heading of Presbyopia, I have included only the simple cases, the cases accompanied by marked refractive error being classified under one of the headings above, according to the refractive condition.

The cases were worked out by means of skiascopy followed by the use of the trial case. In many cases a mydriatic was used.

Wearing the above correcting lenses entirely relieved all the pain in the head and back.

CASE III. Exophoria. Miss L. B., age twenty. April 15, 1894.

She was so much troubled with headache that she could scarcely keep on with her work. Examination showed

$$\begin{aligned} \text{V. O. U.} &= \frac{20}{30} \text{ Hm.} + .75 \text{ sph.} = \frac{20}{30} \\ \text{Exophoria of } 18^\circ &\text{ for distance} \\ \text{Abduction} &= 15^\circ \\ \text{Adduction} &= 3^\circ \end{aligned}$$

Under cocaine, the left external rectus was cut, and lenses of $+75$ sph. were ordered for constant use. After several weeks, examination showed an exophoria of one degree for distance. The headaches were greatly relieved.

CASE IV. Astigmatism against the rule. Miss N. E. S., age twenty-nine. October 29, 1894.

Has been troubled with headaches ever since she can remember, and was obliged to leave school long before she had finished the course she had begun. During the past four years she has been confined to the house with

nearly constant headaches, and a great deal of the time obliged to lie quiet in a dark room. The frequent vomiting caused by the pain has resulted in a chronic dyspepsia, so that she has to be very careful of her diet. For years she has been unable to do any reading or other fine work, and has been under medical care since she has been confined to the house.

Her condition was such that she could not come to my office, so that the examination was made at her house. Examination showed—

O. D. V. = $\frac{20}{30}$ C — .25 cyl. axis $90^\circ = \frac{20}{30}$
 O. S. V. = $\frac{20}{30}$ C — .75 cyl. axis $90^\circ = \frac{20}{30}$

Lenses afforded her immediate relief, and in a week's time she was able to go to church, the stomach trouble had ceased, and she could read and sew as much as she wished. Since then she has been perfectly well and entirely free from headaches.

CASE V. Myopic astigmatism. Mrs. N. S. A., age forty-five. December 17, 1894.

Has always had headache, especially after reading, and has what she calls Boston headaches when she goes shopping. Examination showed—

O. D. V. = $\frac{20}{30}$ C — .75 cyl. axis $112^\circ = \frac{20}{30}$
 O. S. V. = $\frac{20}{100}$ C — .4 cyl. axis 12° C + .50 sph. = $\frac{20}{20}$

Wearing lenses prevents her having headaches. For reading she wears a + glass added to the above correction.

CASE VI. Astigmatism against the rule. Mrs. F. S., age thirty-eight. February 15, 1897.

She has had headaches all her life; and five years ago she had nervous prostration. The past few months she has had severe headache and has become cross and irritable. About three months ago she had an operation for an old perineal tear, with hope of relieving the nervous symptoms. She is afraid of having nervous prostration again. Examination showed—

O. D. V. = $\frac{20}{30}$ C + .50 cyl. axis $180^\circ = \frac{20}{30}$
 O. S. V. = $\frac{20}{30}$ C + .37 cyl. axis $180^\circ = \frac{20}{30}$

Wearing glasses has relieved all her symptoms.

ACQUIRED IDIOSYNCRASY FOR QUININE, AS SHOWN BY PURPURA AND BLEEDING OF THE GUMS.¹

BY DOUGLASS W. MONTGOMERY, M.D., SAN FRANCISCO,
 Professor of Diseases of the Skin, Medical Department of the University of California.

MANIFEST effects of quinine on the skin are rare when one considers how frequently this drug is taken; but when they do occur, the clinical picture is so dissimilar in different cases as to make it almost incredible that they are to be attributed to one cause. In one man quinine will give rise to violent itching, in another to urticaria, in another to a simple erythema, or a scarlatiniform erythema, or even a rash simulating an erythema multiforme. An erysipeloid, a complete exfoliative, or even a gangrenous dermatitis have been ascribed to quinine. Furthermore, quinine can cause an erythematopurpuric rash, an eczema, or even a bullous eruption.

Besides these disagreeable inflammatory manifestations, quinine may produce more or less extensive extravasations of blood into the skin, and sometimes oozing of blood from the mucous membranes, constituting

a purpura, of which I believe the following case to be an example:

On August 8, 1895, a fairly strong-looking man, twenty-nine years of age, was sent to me by a dentist to ascertain if there would be any risk from hemorrhage in having a tooth extracted. The patient told me that about two years before, the second right lower bicuspid had been pulled out, leaving however, some fragments of roots, which were extracted about two months before he came to me. Two days later he had been awakened at night by bleeding, as he supposed, from the place where the roots had been extracted, and the oozing had continued for about forty-eight hours. At the same time there was subconjunctival hemorrhage of the right eye, and a purpura of the skin of the upper eyelid and of the backs of the hands and feet. He did not remember any rheumatic pains during the attack, but he was quite positive that he had never had any similar eruption before, and there was no history of a hemorrhagic diathesis in the family. The blood was normal.

The opinion was given that there would be no risk in extracting a tooth, as the patient was considered to have simply had an unusual attack of purpura rheumatica with bleeding from the mouth, and little or no pains in the joints. It was thought that the hemorrhage was in no way connected with the removal of the fragments of tooth, and that the patient's story of the bleeding being only from the wound in the gums was not an exact observation. The likelihood of the patient having hemophilia seemed to me to be very remote, as he gave no history of any similar bleeding either in himself or in his family. He had the tooth extracted at that time, and it was not followed by any unusual bleeding.

This opinion was given August 8, 1895, and September 12, 1895, I was called again at 9.30 A. M. to see the man. That morning at 5 o'clock he had wakened with pains in the ankles, knees, hips and in the metacarpo-phalangeal joints. The pains were most marked in the hips. On awaking he had vomited quite a large quantity of blood. The gums were oozing blood, the hemorrhage coming from beside the outer side of the upper and lower right and left molars—most freely, however, from the outer side of the lower right molars. There was a pinhead-sized bright red hemorrhage in the conjunctiva of the right eye over the sclerotic of the outer segment of the eyeball, which he said looked exactly the same in the previous attack, and there were several purpuric spots in the integument of the right side of the neck, over the breast bone and elbow tips, and into the skin of the thighs, and over the second joint of the right middle finger. The next day some very small hemorrhages were noticed in the integument of both upper eyelids. As in the previous attack the hemorrhage from the gums lasted about forty-eight hours, and after the second day no new hemorrhages were noticed in the skin, and as for the pains in the joints, they had only been present during the first half day. There was no rise of temperature nor acceleration of pulse-rate, and except for the symptoms enumerated, the patient felt perfectly well during the entire attack.

While questioning him to ascertain the cause of his trouble, it transpired he had taken a five-grain dose of quinine the night before for a cold, "even as you and I"; and then he remembered that just before the previous attack he had taken a ten-grain dose of qui-

¹ Read before the California Academy of Medicine, June 19, 1897.

nine. He said that quinine always had a disagreeable effect on him, causing sickness of the stomach, insomnia, slight headache and buzzing in the ears. Three years before coming to me, however, he had taken the muriate of quinine for a considerable time in twenty-grain doses a day, for what his physician said was malarial poisoning with enlargement of the spleen. The case therefore stood as follows:

A man who had previously taken large doses of quinine with only a few disagreeable sensations, such as ringing in the ears, sickness of the stomach, etc., got, after taking a ten-grain dose of quinine, a purpura, with bleeding in the mouth. He believed this bleeding to come from the side of a tooth from which a number of fragments had recently been removed. Another similar attack occurred after a five-grain dose of quinine, and this time the bleeding in the mouth was certainly not from any wound or ulcer, but was clearly an oozing from the gums beside the molar teeth. The patient was positive no quinine had been taken in the interval between the first and second hemorrhagic attacks.

In a letter written on June 18, 1897, the patient stated that he had had no hemorrhagic attacks since September, 1895, and also that he had carefully abstained from taking quinine.

Of course, one is aware when studying an uncomplicated case of purpura like the above, that one has to do with a single symptom, minute hemorrhages, and that quite a number of diseases and toxic substances occasion such hemorrhages. It was certainly not a case of sporadic scurvy, because the purpura was not particularly in the lower extremities, nor was there any edema or pain, or painful swellings of the legs. The gums were not swollen or fungous or painful; there was no anemia or loss of strength, and the patient had good hygienic surroundings. It was also clearly not the purpura accompanying any of the acute febrile diseases.

It was more difficult to differentiate it from peliosis rheumatica, but even here there were points of difference. The general appearance of the patient was much better than it usually is when peliosis rheumatica is accompanied by copious hemorrhages from the mucous membranes, and in such severe cases there is generally much more extravasation of blood into the skin than was present here. Then, again, the joint symptoms are generally more marked, for in this instance there was only slight pain and no redness or swelling. Furthermore, in peliosis rheumatica there are almost always several successive crops of purpuric spots, and the whole process lasts two or three weeks, while in the case in hand a considerable number of spots appeared on the first day, only a few the second day, and none afterwards. The first attack, that I did not see, seems to have run fully as short a course.

The fact that the patient had previously taken large doses of quinine without experiencing any such serious effects, would seem to invalidate the diagnosis of a quinine purpura; but, as shown by Allen (1) and by Morrow, the susceptibility to quinine poisoning may be acquired. A person who may be able to take quinine now with few or no bad symptoms may afterwards suffer most disagreeable oblique effects on taking a small dose of the drug.

To sum up, the diagnosis of quinine poisoning was made, first, because of the short course of the purpuric attacks, as well as on account of some other minor differences from the usual course of peliosis rheumatica,

which it most closely resembled; and, secondly, because both attacks followed doses of quinine, a drug that is known to give rise to just such hemorrhages.

REFERENCES.

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A woman, fifty-two years of age, got a scarlet, non-elevated, irregularly circular patch about the size of a half-dollar on the left forearm one hour after taking a one-grain quinine pill. The spot itched, burned and was tender. She continued taking the pills and more spots appeared and by the seventh day the spots became hemorrhagic.
2. Briquet reported the case (quoted by L. Lewin, *Nebenwirkungen der Arzneimitel*, 1893, p. 465,) of a man suffering from typhoid fever, who took daily a three-grain dose of a quinine salt, and who had hemorrhages in the lumbar and gluteal regions, and a bloody diarrhea.
In another case quoted by Lewin (*vide supra*) a woman got a purpuric eruption and the contents of an artificial blister became bloody after 0.1 gm. of bi-sulphate of quinine every six hours the first day, and 0.15 gm. the second day. At another time after taking a few doses of quinine, purpura again developed. Spitting of blood from bleeding of the gums coincident with purpura hemorrhagica after small doses of quinine has also been observed. (L. Lewin, *vide supra*)
3. Acquired Idiosyncrasy for Quinine, showing Peculiar Cutaneous Manifestations. By Charles W. Allen, M.D. Medical Record, January 26, 1895.
4. Quoted by Charles W. Allen, *vide supra*.

Clinical Department.

A CASE OF OÖPHORECTOMY DURING LABOR.¹

BY EDWARD REYNOLDS, M.D., BOSTON.

M. D. entered the service of Dr. C. W. Townsend in the Boston Lying-in Hospital in the small hours of the morning of September 4th last, and I saw her with Dr. Townsend at 6 A. M. that morning. The patient had been in labor under the care of a physician outside the hospital for the greater part of two days. Her temperature was normal. Her facial expression was drawn and anxious, looking not unlike the ovarian cachexia (though, in the light of after developments, this may well have been the facies of peritonitis).

On vaginal examination, a large, round, tense mass was immediately apparent. This lay evidently at the bottom of Douglas's fossa, and was of about the size of a seven months' head. The os, dilated to the size of a five-cent piece, could be reached with difficulty above the tumor. By external palpation, the position was found to be left, the head presenting. The patient was etherized and placed in the knee-chest position, and gentle taxis was tried for about ten minutes. This raised the tumor until its greatest diameter was above the brim of the pelvis, but it refused to rise any higher under the amount of force which we thought justifiable. As we were unable to decide whether the tumor was a fibroid or an ovarian growth, and as we were sure that if it was a fibroid it would shortly retract and dispose of itself, we decided to give the patient a short time longer in labor.

We saw her again, with the addition to our consultation of Dr. George Haven, at 10.30 A. M. There had been slight, if any, retraction of the tumor, but as there had been no labor pains until during the last hour of that time, it was thought best to wait a little longer, and nothing further was done until 12 noon, when fairly strong pains having been present for

¹ Read before the Obstetrical Society of Boston, October 19, 1897.

about two hours without progress, the patient was etherized, again placed in the knee-chest position, and gentle taxis performed. There being no more result than before, the patient was turned to her back, and I opened the abdomen by a median incision. On opening the peritoneum a thick, creamy, bloody fluid of grumous odor poured forth, and on enlarging the incision the whole peritoneum was seen to be intensely injected and purplish in color. So soon as the uterus was lifted out of the abdomen, quantities of this foul-smelling fluid escaped, together with large flakes of gray and necrotic-looking lymph. On passing the hand into the pelvis behind the uterus, an oblong tumor was felt, firmly fixed in position by old exudates, which enclosed two encysted cavities full of the same necrotic lymph. The tumor was firmly adherent to the bottom of Douglas's fossa and was itself necrotic. In separating it from its surroundings, its tissue gave way slightly at two spots and a little of the characteristic contents of a dermoid cyst escaped into the cavity of the pelvis. The tumor was tied off with stout catgut and removed. The uterus was allowed to fall back into the abdomen, and Dr. Townsend applied the forceps. These failed to deliver; and a stethoscope failing to detect the fetal heart, Dr. Townsend passed the hand into the uterus, found the cord still, perforated the head, and extracted the child, which was a male, weighing eight and one-quarter pounds, after the removal of its brain. The necrotic lymph flakes were then picked out from among the intestines as carefully as possible and the intestines and mesentery were scrubbed with sponges, beginning at the sigmoid flexure and progressing upwards until about the middle of the small intestine had been reached, when the patient's condition was so extremely bad that I feared a death upon the table, and thought it better to get her at once to bed. Several quarts of warm salt solution were poured over the as yet uncleansed portion of the intestines, hastily stirred about and allowed to flow out from the abdomen, thus removing a considerable additional quantity of the gray-looking lymph. About a quart of the solution, by estimation, was left in the abdomen; a small wick was passed to the bottom of Douglas's fossa at the lower angle of the wound; the remainder of the wound was hastily brought together by three or four sutures; and the patient was put to bed, with the foot of the bed raised. The pulse was then barely distinguishable, in spite of the free use of strychnia and brandy subcutaneously.

Reaction occurred during the second hour. The pulse varied from 150 to 160 during the afternoon. There was no vomiting except slight ether vomiting immediately after the return of consciousness.

The next day, the abdomen being swollen and tympanitic, the patient was given a drachm of Epsom salts in a half-tumblerful of water. This dose was repeated at the end of two hours, but the second dose was vomited. An enema of soap-suds and glycerine given shortly afterwards was followed by the escape of a large amount of flatus, and from this time on for many days the patient passed gas and feces spontaneously at short intervals. There was no more vomiting. The wick was removed at the end of forty-eight hours from the time of operation. The distention was by that time slight, the patient was taking milk and lime-water, and there had been no further vomiting.

On the third day after operation the temperature was 103°. Inspection of a tear in the perineum which

had occurred during the delivery showed it to be covered with a gray pseudo-membraneous deposit. The amount of uterine tenderness could not be judged, but the uterine lochia was suspicious looking. An intra-uterine douche of corrosive sublimate solution was accordingly given, and the surface of the laceration thoroughly dusted with iodoform.

The next day the temperature was but little over 100°. Its course from that time on was steadily downward, and the remainder of the recovery was wholly uneventful, the temperature being normal on the eighth day after delivery. During the first week, the motions averaged from twelve to fifteen in each twenty-four hours, twenty being the highest, no cathartics being given during this period save the two doses of salts already mentioned.

This case is, so far as I know, the first reported case of oöphorectomy during labor, and is of interest if only by reason of its rarity. It is, however, of far greater interest on account of the questions of judgment involved. Only six years ago I reported before this Society two cases in which I had succeeded in raising, by taxis in the knee-chest position, ovarian tumors obstructing delivery, and after advocating the use of gentle but repeated taxis in this position for such cases, stated that in the event of the failure of the taxis, I would advocate the opening of the abdomen in place of the then generally accepted method of vaginal puncture. It is interesting to me to remember the extreme and, I think, unanimous disapprobation with which that proposal was received, the members of the Society all stating that they would take any of the risks which might follow vaginal puncture in preference to the adoption of so radical a measure as an abdominal incision. I hardly think that such a position could be taken to-night.

In the light of after-events it is probable that both the delay and the use of taxis were unfortunate in this case, yet in view of my personal experience of two ovarian tumors and seven fibroids prolapsed in advance of the head, all treated successfully by expectant methods and the taxis, without the loss of a mother or child, I must still hold that in such cases the abdominal operation should always be preceded by full and repeated trials of the taxis. It had been my plan to have removed the child by the Cesarean section before performing the oöphorectomy, but the fact that the woman had been through a prolonged labor in dirty surroundings before entering the hospital, and the consequent possibility that the uterus was already infected, together with the presence of an active peritonitis, which was first discovered during the operation, made me feel that opening the uterus would probably sacrifice the mother's last chance; and as there was no reason to suspect that the intrapelvic delivery would be difficult, I decided upon this method, with the hearty assent of both my colleagues. This decision, as events proved, undoubtedly sacrificed the child, but I think that it probably saved the mother. The failure of the forceps to extract was due to the existence of a tight constriction ring around the neck, and this is perhaps the first instance in which such a uterus has been seen by direct inspection. Its appearance was most curious, the head of the child being contained in a spherical lower portion of the uterus, while its body was drawn into such extreme flexion by the contracting uterine muscles that its backbone lay almost transversely across the abdomen,

the uterus having thus an extraordinarily hammer-headed or T-shaped outline. The breech occupied one end of the hammer-head and the shoulders the other, while the head in the lower uterine segment, or handle of the hammer, seemed to be almost midway between the two.

In conclusion, and for the sake of exciting discussion, I would state that my personal position on the treatment of ovarian tumors obstructing labor is now —

First, that the first expedient tried should be gentle taxis with the patient in the knee-chest position, and, if necessary, etherized.

Second, if the taxis is unsuccessful, it should be repeated after the lapse of one or two hours; but if this attempt fails, the abdomen should be opened, and under ordinary circumstances the uterus should be incised and the fetus removed. The tumor should then be inspected, and unless its removal promises exceptional difficulty, it should be freed, tied off and removed.

Third, in the event of unusually firm adhesions in the pelvic cavity, it would be better to defer the removal of the ovarian tumor to a subsequent operation at a time when the pelvic veins and arteries are not of the enormous size they attain at the conclusion of pregnancy.

Fourth, when there is a fair probability that the patient has already been infected with sepsis per vaginam, it would be better in most cases to lift the uterus forward without opening it, remove the tumor, and then let the child take its chances with an instrumental intra-pelvic delivery rather than risk putting the mother's peritoneum into communication with an infected uterine mucosa.

ANTITOXIN AS A PROPHYLACTIC.

BY EDWARD L. TWOMBLY, M.D., BOSTON.

THE Gwynne Temporary Home for Children, on Worcester Street, is divided into three separate departments: (1) for babies under one year, received for adoption; (2) for children between two and three years old who are taken in temporarily, when by reason of sickness and poverty the parents, or, more probably, the mother, cannot care for them; (3) the kindergarten for children from four to fourteen years, also taken temporarily for one or two months under the same necessities.

A family of four children was admitted on June 3d, and five days afterwards three of them broke out with measles and gave them to the other children in the home. Meanwhile the eldest, a girl of thirteen, who had had the measles, showed a sore throat, which the culture-test proved to be diphtheria. Her sister (nine years) also developed diphtheria on June 28th, and a boy of five years, who was in the bed next to her with measles, showed the positive signs on July 1st. They were promptly isolated and sent to the hospital.

A second focus of infection came in the shape of a boy of ten years, who brought the disease on July 2d. Two more children were infected through him, diphtheria appearing in them on July 8th and 9th.

The next day, eleven injections of antitoxin were given to the school-room children who had been exposed, and we hoped that there would be no further trouble. But a girl of thirteen in the school-room where there had been no cases up to July 1st had been

sent into the two-year-old nursery to assist the regular nurse with her cases of measles, and she came down with diphtheria on July 9th, and communicated the disease to four others, it appearing on the 13th and 16th.

All the remaining children and the nurse, ten in all, were then injected with the autitoxin, July 16th, and we had no more diphtheria.

Judging by the facts in these cases, it is but fair to conclude that antitoxin was the agent which gave these twenty-one children and nurse who had been exposed, complete immunity from the disease.

The injections were given to children of all ages, as may be seen by the accompanying table, and the disturbance caused by the antitoxin was practically nothing.

Age.	Male.	Female.
2 years	2	0
3 "	3	0
4 "	2	1
5 "	0	1
6 "	2 ¹	1
7 "	1	0
8 "	0	3
10 "	0	1
11 "	2	0
16 "	1 ²	0
	13	7

¹ Enlargement of cervical glands in both cases.

² Enlargement of axillary glands; general urticaria ten days, afterwards for two days.

Last year I gave fourteen injections for the same purpose, with success; but two-thirds of the cases had some form of either local or general urticaria. All recovered from it in a few days without special treatment.

I attribute my better results this year (1) to the good serum, which has been brought to its present state of perfection and freely given to the profession by Dr. Harold C. Ernst, of the Bacteriological Laboratory of the Harvard Medical School; (2) to the smallness of the dose (two to five cubic centimetres instead of eight to ten cubic centimetres, which were used last year) as the serum is made now of greater strength; (3) the care in boiling the needle after rinsing with water after each injection; and (4) the place chosen for inserting the needle, which was in the loose folds of skin in the posterior right axillary line, over the lower ribs and above the line of the bend of the elbow at the side. The antitoxin seemed to be absorbed more readily than if it had been injected on the outside of the thigh, as was done in the cases of last year, when so much urticarial disturbance was noticed.

In conclusion, I would call attention to the small doses (one-third to one-half the regular dose) that seem sufficient to immunize our little patients; the greater susceptibility to diphtherial poison after or during measles; and the absence of any dangerous effect where proper serum is properly given.

At a recent meeting of the Section in Ophthalmology of the College of Physicians of Philadelphia, Dr. de Schweinitz stated that Dr. Barrett, of Melbourne, had described a form of amblyopia in horses which was attributed to their eating some plant, probably the Australian tobacco plant. By the courtesy of Dr. Barrett Dr. de Schweinitz was enabled to exhibit two slides which Dr. Barrett had prepared from the optic nerves of a horse which had become blind. The sections showed fibrosis with degeneration of the nerve fibres.

Medical Progress.

REPORT ON DISEASES IN CHILDREN.

BY T. M. ROTCH, M.D., AND A. H. WENTWORTH, M.D.

THE BACTERIOLOGY OF PERTUSSIS.¹

KOPLIK refers to the contradictory results obtained by various observers during the last ten years from the examination of the sputum of patients with pertussis. His own observations are based upon a careful bacteriological examination of the sputum from 16 cases. In addition to the ordinary culture media, he made use of hydrocele fluid, and found the latter to be superior to the former, inasmuch as it enabled him to isolate a bacillus *x*, and to obtain pure cultures of the same in the presence of other organisms. In 13 of the 16 cases this bacillus was present in the sputum, as shown by cover-glass preparations and cultures, either alone, or associated with various diplococci, diplococcus lanceolatus and streptococci.

In uncomplicated cases the bacillus was easy to isolate. In cases complicated with bronchitis and pneumonia the other organisms grew so profusely as to mask the growth of the bacillus. The author ascribes the failure of many observers to find the bacillus to this cause. The organism is easily found in cover-glass preparations from the sputum, stained with Löffler's methylene-blue, but is difficult to isolate from other organisms on ordinary culture media.

Cultures were obtained from clumps of sputum on hydrocele fluid, or hydrocele fluid mixed with one-third its volume of glyose bouillon. After twenty-four hours the surface of the medium was found to be covered with a thick white growth, composed chiefly of bacilli. A small particle of this growth was diluted with bouillon, and cultures were made from this on hydrocele fluid. In this way isolated colonies of the bacillus were obtained.

Cultures of the organism were afterward made on agar, gelatine, pepton bouillon and Löffler's diphtheria serum-agar.

The bacillus is motile, delicate and short; thinner than the diphtheria bacillus; and not more than one-third or one-half as long. The length is from 0.8 to 1.7 μ , and the width from 0.3 to 0.4 μ .

The organism is apparently identical with the one described by Afanassjew, except that Koplik was unable to find spores. The organism is pathogenic for white mice in small doses (0.5 c. c.) of fresh cultures or in larger doses of old cultures, without, however, producing characteristic lesions. Subcutaneous injections in guinea-pigs and rabbits were attended with negative results. Intravenous injections in rabbits produced pyemia and joint lesions.

No lesions were produced in the lungs, and no characteristic convulsive symptoms were produced. The writer states that the number of experiments was too limited to permit conclusive deductions to be made. A few experiments with direct inoculation of sputum in guinea-pigs and rabbits produced no effect.

The author's summary is as follows: In 13 out of 16 cases of pertussis a bacillus was isolated from the sputum which agreed in all essentials with the organism described by Afanassjew. The difficulty of obtaining a suitable culture medium and the use of cases complicated with bronchitis and pneumonia may

readily account for the lack of success hitherto. The writer cannot state positively the rôle played by the organism in the production of pertussis; but from the constancy and number of the organisms in his cases, he believes that their importance must be admitted. The experiments on animals are thus far unsatisfactory.

SERUM REACTION OBTAINED FROM THE BLOOD OF AN INFANT AT BIRTH WHOSE MOTHER HAD HAD TYPHOID FEVER DURING PREGNANCY.²

Mossé and Dennie describe the following case: A woman, twenty years of age, contracted typhoid fever during the sixth month of pregnancy. Three months later she gave birth to a normal child. During the mother's convalescence the serum reaction was obtained from the blood and from the colostrum. The placental blood gave a marked Widal's reaction, as did also the milk twenty-four hours after the completion of labor. Blood taken from the umbilical vein of the infant gave a positive reaction, and caused agglutination in from one to two hours. The placenta was normal.

ON THE VALUE OF THE BACTERIOLOGICAL EXAMINATION OF URINE FROM AN ETIOLOGICAL STAND-POINT.³

F. Chvostek and Gust. Egger have made an investigation the purpose of which was to determine if in cases of so-called "heterologous bacteriuria" bacteria which are normally present in various organs obtain access to the circulation and are excreted by the kidneys. The writer's conclusions are based upon bacteriological examinations of the urine from a limited number of cases in which paroxysmal rises in temperature occurred not dependent upon bacterial infection (malaria and tuberculin injections).

In two cases of malaria, bacteria were found in the urine during a paroxysm. In three cases which were injected with tuberculin, bacteria appeared in the urine coincident with the rise in temperature and disappeared from the urine after the temperature had reached normal.

The authors conclude that in consequence of the increased temperature, micro-organisms obtain access to the circulation from organs in which they are present normally, and that owing to the diminished resistance of the tissues caused by the action of toxins, the high temperature, and the diminished germicidal power of the tissues and fluids, living organisms are excreted by the kidneys. Only when specific organisms are found in the urine is it permissible to draw conclusions as to etiology (typhoid, actinomycosis, tuberculosis).

It is more difficult to determine the etiological value of other organisms, namely, staphylococcus.

THE INFLUENCE OF COLD UPON THE SUSCEPTIBILITY TO INFECTION.⁴

Fischl gives the results of his experiments upon rabbits to determine the value of cold as a predisposing factor to infection. The rabbits were subjected to cold by confining them in tin receptacles surrounded by ice. In from one-half to three-quarters of an hour

² Société de Biologie, vi ser., tome iv, No. 8, 1897; Fortsch. der Medicin, March 1, Band xv, 1897.

³ Wiener klin. Woch., 1896, No. 50; Fortsch. der Medicin, March 1, Band xv, 1897.

⁴ Zeitsch. für Heilkunde, Bd. xviii, Heft 4, 1897; Fortsch. der Medicin, September 15, Bd. xv, 1897.

¹ Centralbl. für Bacteriologie, etc., September 15, 1897, Band xxii.

the rectal temperature sank ten degrees Centigrade. This produced partial paralysis, slowing of the heart's action, tremors, and for a short time anuria. Recovery from this condition occurred within an hour. As soon as the temperature reached its lowest point the animals were inoculated in the edge of the ear with a culture of pneumococcus. Smaller rabbits which had not been subjected to cold were injected with an equal quantity of the culture at the same time. The infectious material consisted of a very weak culture of the diplococcus pneumoniae in serum, or ascites bouillon. This is an organism to which rabbits are very susceptible. Sixty rabbits were inoculated in this way, thirty of them being used for controls.

In ten cases, neither the animals subjected to cold nor the ones used for control showed symptoms of infection. In two cases, the animals subjected to cold showed symptoms of pneumococcus septicemia but recovered; the control animals showed no symptoms of infection. In three cases, the cooled animals died; the control animals remained well. In ten cases, the cooled animals died of pneumococcus septicemia; the control animals showed a moderate elevation of temperature and pneumococci in the blood, but recovered. In five cases, the cooled animals died sooner than the control animals (virulent cultures). The anuria lasted but a short time and no severe lesions were found in the kidneys of any of the animals; consequently this condition cannot be considered as the cause of the retention of the organisms in the system.

The leucocytes appeared to play an important part in favoring recovery from infection. One of the cooled animals, and all of the control animals which showed symptoms of infection, but recovered, had leucocytosis. There was no leucocytosis in the cooled animals which died and in one of the control animals that died. There was no leucocytosis in the animals in which there were no evidences of infection.

PATHOLOGY OF THE THYMUS GLAND.⁵

Siegel reports the case of a child two and one-half years old who developed what appeared to be asthma which developed into a permanent dyspnea, associated with suffocative attacks. Tracheotomy was performed, but gave no relief to the patient. A canula was introduced, which extended to the bifurcation of the trachea. This also gave but little relief.

When the patient had been two months under observation, the mediastinal space was opened, into which the thymus gland protruded with each inspiration. The partially detached thymus was then pulled forward as far as possible and attached to the fascia of the anterior mediastinum. The breathing became quiet at once, in spite of the removal of the canula. The child improved rapidly and six weeks after the operation she was declared cured.

A STUDY OF THE ETIOLOGY AND HISTOLOGY OF PNEUMONIA OCCURRING IN CHILDREN, ETC.⁶

The purpose of this article by Dürck was to determine what varieties of bacteria are present in children's lungs in cases of primary and secondary pneumonia and their etiological importance.

In the first part of the article the author gives the results of the bacteriological and histological examinations of the lungs from 41 cases of pneumonia.

In two of the cases the cultures and inoculative experiments were negative. In the remaining cases he found the diplococcus pneumoniae 33 times; streptococcus pyogenes 14 times; staphylococcus 21 times; Friedländer's pneumonia bacillus 12 times; the diphtheria bacillus 11 times; the colon bacillus twice; and sarcina and yeast fungi eight times. In 34 of the cases mixed cultures were obtained (see original article for the varieties).

In the cases of secondary pneumonia nothing worthy of note was discovered by means of the bacteriological examinations regarding the connection of the primary disease with the pneumonia, except that the diphtheria bacillus was found only in cases of post-diphtheritic pneumonia. The colon bacillus was found in one case of gastro-enteritis and in one case of syphilis.

The variation in the histological appearances of the exudation were not characteristic of any particular variety of micro-organism. Giant cells were found, especially in cases of post-diphtheritic pneumonia, in cases which had been treated with Behring's antitoxin. According to the author's view, the softening of the membrane in the trachea and larger bronchi, which tends to produce aspiration of the softened material, favors giant-cell formation. (?)

The second part of the article is devoted to a bacteriological and histological study of the lungs from 13 children who died of various diseases other than pneumonia. All of these cases showed the presence of bacteria in the lungs, although the histological examination showed an entire absence of inflammatory exudation. In one of the cases Friedländer's pneumonia bacillus was found and in the remaining twelve cases mixed cultures of the diplococcus pneumoniae, streptococcus, staphylococcus and the colon bacillus were obtained.

For purposes of control, the author examined the lungs of 10 pigs, two horses, two oxen and a calf, and in 14 of the 15 animals found bacteria present in considerable numbers, namely, the pneumococcus, pneumonia-bacillus, etc. In the pigs' lungs, he found a bacillus about the size of the anthrax bacillus, which he was unable to study further. In conclusion, the writer reports the results of a number of experiments on animals.

Cultures of streptococcus, staphylococcus and pneumococcus were sprayed into the lung of rabbits through wounds in the trachea, for the purpose of producing pneumonia. The results were negative in all cases.

In a second series of experiments the above procedure was modified by introducing into the lungs a small quantity of sterilized dust either before or after spraying in the cultures. In all cases areas of focal pneumonia were produced. When dust alone was sprayed into the lungs, the same lesions were produced as when combined with the cultures, if the dust was deleterious. Street-dust was borne in quite large quantities without producing pneumonia.

In a final series of experiments the effects of exposure to cold was tried. Animals were kept for from sixteen to thirty-six hours in a thermostat at a temperature of 37° C., and were then suddenly immersed for from two to seven minutes in ice-water.

⁵ Jahrbuch f. Kinderheilk., Bd. xlv, H. 3, 4; Archives of Pediatrics, November, 1897.

⁶ Deutsch. Arch. f. Klin. Med., Bd. lviii, p. 368, 1897; Centralb. f. Bacteriologie, etc., Bd. xxii, July 20, 1897.

In a limited number of cases, without exception, pneumonia was produced which differed in no respect from the croupous pneumonia of human beings. In three of the cases the colon bacillus was found; in one case Friedländer's bacillus, and two cases could not be examined.

The author's summary is as follows: A more or less complicated mixed infection is found in the primary and secondary pneumonias of children. The diplococcus pneumoniae is found more frequently than the other varieties of micro-organisms. With the exception of the cases of post-diphtheritic pneumonia, the cultures showed no evident connection between the primary disease and the pneumonia.

The normal lungs of children contain bacteria, among which the pneumococcus is most frequently found. The lungs of recently killed animals contain pathogenic organisms. The mere presence of bacteria is, however, not sufficient to produce pneumonia. Some immediate injury to the lung tissue is essential.

The pneumonias produced by dust and exposure to cold are due to injury of the lung tissue, which prepares the way for infection by the bacteria which are present. Cold acts probably by producing an intense acute hyperemia of the lung.

The presence of pathogenic organisms in the normal lung suggests an explanation for the occurrence of secondary infections in connection with tuberculosis.

New Instruments.

A LOCK FOR THE REYNOLDS AXIS-TRACTION RODS.¹

BY F. A. HIGGINS, M.D.,
Assistant in Obstetrics, Harvard Medical School.

This lock was devised to prevent the annoyance and delay occasioned by the slipping off of the traction rods after the obstetrical forceps is applied to the child's head, which frequently occurs in skilled as well as unskilful hands.

It may be adapted to any obstetrical forceps by a good mechanic at very little expense, without refinishing and replating the forceps, and also without altering the traction rods themselves.

The lock is constructed by drilling a small hole, one-quarter of an inch in diameter, midway in the forceps blade, three-eighths of an inch below the narrow end of the fenestra, and by filing a narrow slot through from the end of the fenestra to this drilled hole. As the shaft of the traction rod is narrowest at the tip, it readily slips through the slot when held out at right angles, and then when dropped it remains locked in position and freely movable.

The construction of this lock on the forceps does not prevent the application of the traction rods in the old way, after the forceps is on the head, although the rods cannot be locked at this time.

I believe this device may at times render an extra assistant unnecessary.

A DOCTOR AS MAYOR-ELECT OF BUFFALO.—Dr. Conrad Diehl, a physician of thirty years' standing in Buffalo, N. Y., has recently been elected Mayor of that city by a large majority.

¹ Read, by invitation, before the Obstetrical Society of Boston, October 19, 1897.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, October 19, 1897, the President, DR. FRANCIS H. DAVENPORT, in the chair.

Dr. W. L. BURRAGE read on

DIVISION OF THE UTERO-SACRAL LIGAMENTS AND SUSPENSIO UTERI FOR IMMOBILE RETROPOSITION WITH ANTEFLEXION,

of which the following is an abstract:

Immobile retroposition with antelexion is defined as a uterus placed as a whole in the back of the pelvis and so changed from the normal in shape as to be bent forward either in the neck, in the body, or in both and at the same time impossible of replacement. Such a pathological condition of the uterus is, in the experience of the writer, commonly associated with a greater or lesser degree of shortening and thickening of one or both utero-sacral ligaments, in a majority of cases with prolapse and enlargement of one or both ovaries and almost invariably with endometritis.

The condition coincides very nearly with what B. S. Schultze calls Pathological Antelexion, and the views of this authority are quoted at length in support of the writer's contention that the condition is largely the result of extra-uterine causes rather than changes in the wall of the uterus itself: that the condition is, in many cases, a persistence of one or more characteristics of the infantile or puerile uterus and is not a congenital affair.

The writer does not believe in the obstructive dysmenorrhea theory, but considers that the dysmenorrhea from which patients with retroposition with antelexion suffer is due to the uterine engorgement, with its accompanying endometritis and the inability of the uterus to become relieved of its congestion.

The pathology of this affection has not been satisfactorily determined. The cases due to tubo-ovariitis, following labor and abortion, and from adhesions posterior to the uterus from old hematocele, are easier to explain than those occurring in virgins without previous history of inflammatory attack and showing no appreciable traces of past inflammation in the peritoneum.

The treatment of fixed antelexion with retroposition has always been one of the difficult problems in gynecology. It is probable, that, if pregnancy supervenes before the tissues of the uterus at the point of flexion have become hardened or atrophied, and before the endometritis has gotten well settled in the uterus, that the flexion will be lastingly removed and the utero-sacral ligaments permanently stretched, in a majority of cases.

The pelvic congestion, which stands in a direct casual relation to the symptoms of dysmenorrhea, pelvic pains, bladder irritability, etc., is to be relieved by hot douches, tampons, vaginal suppositories, electricity, massage and, in the obstinate cases, by curetting and gauze drainage. Too often these measures give only temporary relief.

Packing the vagina to stretch the utero-sacral ligaments has been abandoned as ineffectual. Schultze's forcible massage with the patient anesthetized, for the same purpose, is thought to involve too much risk to the ovaries and tubes. Dudley's operation for ante-

flexion is wrong in principle, because it does not seek to do away with the cause of the deformity, the traction exerted by the utero-sacral ligaments. The Alexander operation on the round ligaments, intra-abdominal shortening of the round ligaments, and suspensio uteri, are by themselves contraindicated, because of the fixed condition of the uterus.

The author's method of treatment is one he devised for the intractable cases — those that do not yield to the ordinary modes of treatment. It is, in brief, as follows: Dilatation of the uterine canal with curetting, and abdominal section. A short incision is made; the utero-sacral ligaments are put on the stretch and divided in sight at the points where they have the posterior uterine wall; the uterus is suspended to the parietal peritoneum and transversalis fascia by sutures of chromicized catgut, passing through the anterior face of the fundus; and the abdominal wound is closed by layer suturing of the same material.

The cases numbered nine, the operations having all been done in the last few months, and the results were offered at this time, not as indicating final conclusions on the subject, but as suggesting a promising means of treating a hitherto baffling class of cases.

In the cases of retroposition with ante flexion, where the ovaries are quite normal to the feel and normally placed with reference to the uterus, the author prefers to perform the Alexander operation on the round ligaments, after having first divided the shortened utero-sacral ligaments by a posterior colpotomy and rolling each ligament into view in the vagina on the operator's finger. As a rule, one or both ovaries are prolapsed or cystic degenerated. The Alexander operation is, as a rule, not effective in restoring a displaced ovary to its normal position. This the writer accomplishes by taking a reef in the ovarian ligament. As to the steps of the operation, the chief interest centres in the division of the utero-sacral ligaments and in the method of suspension.

For dividing the ligaments, careful preparation of the patient as to the bowels is of supreme importance. In very stout women and in those patients in whom by previous insufficient preparation the intestines are inflated with gas and the intra-abdominal pressure correspondingly great, division of the utero-sacral ligaments by sight is an extremely difficult procedure.

To divide the ligaments a broad, flat spatula in the hands of the assistant — the patient being in the Trendelenburg posture — holds back the gauze-covered intestines; and the utero-sacral ligaments, put on the stretch by the uterus, held well up by means of a carrying thread passed through the anterior fundus, are brought into view. They are seen as two tense, white bands coming from the pelvic wall at the region of the second piece of the sacrum and meeting on the posterior aspect of the uterus in the form of a pointed arch with its apex at about the level of the internal os. Each ligament is cut with a knife at the place where it leaves the uterus, by a small incision at right angles to the long axis of the ligament. The toughness of the structure of many of the ligaments has been a noticeable feature, and they cut as if made of fibrous tissue. The uterus, freed from behind, springs forward, and a lozenge-shaped raw surface is left where each ligament is divided. These raw surfaces may be covered with peritoneum by two or three transverse stitches of catgut, or left as they are if, as usual, they are small. There is generally little oozing.

Cutting the ligaments by touch instead of by sight is not safe. By attaching the anterior surface of the fundus to the parietal peritoneum the direction of the intra-abdominal pressure on the body of the uterus is altered from a faulty to a more normal one.

When the patients were examined at the end of three weeks, it was found that in every case the uterus was suspended in good position in the pelvis, the ovaries were in good position, the cul-de-sac free, primary union in the abdominal incision and the flexion nearly (or quite) gone from the uterus.

Time and observation alone will determine the remote anatomical and symptomatic results. The immediate results leave little to be desired.

DR. A. D. SINCLAIR spoke of the very unsatisfactory methods of treatment formerly employed for this condition. The operation, as described, appealed to him as very rational, and he complimented the reader on his success.

DR. M. STORER said that the usual treatment of packing and massage is often discouraging. He has curetted and suspended the uterus, but has not divided the ligaments as described by Dr. Burrage. In one case of his he felt a distinct giving way, which was no doubt a subperitoneal rupture of the ligaments.

DR. EDW. REYNOLDS said that there were cases among the working classes where an immediate operation for this condition is demanded as the women cannot afford the time. In other circumstances, however, he should not feel justified in subjecting the patient to such a severe operation for a comparatively slight affection.

DR. G. J. ENGLEMAN objects to the operation of suspension especially in women of the child-bearing age. If possible he should much prefer to cut the ligaments and free the uterus, but not suspend the uterus.

DR. F. H. DAVENPORT spoke of a case he operated on where the utero-sacral ligaments were abnormally placed so far posteriorly that he could not suspend the uterus until he had divided the ligaments. In his experience retroposition with ante flexion was an unusual form of displacement.

DR. EDW. REYNOLDS said that he had obtained entire relief from symptoms in these cases by freeing the cervix and allowing it to go back.

DR. W. L. BURRAGE said, in reply to Dr. Davenport, that in his experience cases of retroposition with ante flexion were very common. It was treating a large number of these cases in the out-patient department of the hospitals, and following the cases up from month to month and from year to year, and noting that many were not relieved even after curetting, that led him to adopt the operative procedures described in the paper of the evening. The operation is only intended for the obstinate cases that are not relieved by less vigorous measures. As yet it is too early to speak of the permanent results. He did not fear any bad effect of suspension of the uterus by means of absorbable ligatures applied to the anterior surface of the fundus uteri.

The recent trend of opinion on this subject would tend to prove that dystocia during labor following ventral fixation was due to the fastening of the posterior surface of the fundus with permanent ligatures to the fascia and muscles of the abdominal walls. As the uterus developed in size the anterior segment became incarcerated behind the pubes. He followed Dr. Charles P. Noble in his ideas on this subject, and

drew a sharp distinction between ventral fixation and suspensio uteri.

The attachment of the anterior face of the fundus was necessary in antelexion in order so to direct the intra-abdominal pressure as to remove the flexion. The manner in which uteri became straightened following this operation was little short of marvellous.

In regard to Dr. Englemann's position, that division of the ligaments alone would be sufficient to restore the uterus to its proper position in the pelvis, he thought the anterior supports of the uterus had become so weakened in cases of immobile retroposition with antelexion that suspension as well as division of the utero-sacral ligaments was necessary.

DR. EDW. REYNOLDS reported

A CASE OF OÖPHORECTOMY DURING LABOR.¹

DR. W. E. BOARDMAN referred to cases where the tumor obstructed labor in an apparently hopeless way, but were finally delivered in the natural way after the drawing up of the tumor. He thought longer delay in the case reported might have been followed by this result.

DR. J. B. SWIFT, referring to the difficulties of exact diagnosis in these cases, spoke of a case thought to be fibroid complicated with pregnancy which disappeared after the child was born. Six months later she was thought to be pregnant but a tumor was found which was decided to be fibroid and the diagnosis was confirmed by two good physicians in New York. This diagnosis was also made in Europe, and non-interference was advised by all. Coming back to Boston, the position of the tumor had changed, operation was advised and a dermoid cyst removed.

DR. F. A. HIGGINS exhibited, by invitation

A LOCK FOR THE REYNOLDS AXIS-TRACTION RODS.²

NEW YORK NEUROLOGICAL SOCIETY.

MEETING of October 5, 1897, DR. B. SACHS, President.

A CONSIDERATION OF THE PARESTHETIC NEUROSES, PSYCHROESTHESIA AND KAUMESTHESIA.

DR. C. L. DANA presented a paper with this title. He said that paresthesia included nearly all the subjective sensations of the skin except those of pain. When these sensations fastened themselves to a particular part, as a nerve, they developed a definite picture, and were as much entitled to a distinctive name as was neuralgia. Sometimes paresthesias of the head caused sensations of burning, pressure and cold, which were entirely comparable to headache. They affected the cerebro-spinal nerves just as did neuralgias. The cephalic paresthesias were usually symptomatic of a lithemic state. The most frequent causes of local paresthesias were those concerned with occupations. Women were affected more frequently than men. The feet and legs were most affected; next the hands alone, and next the hands and feet together. The nerves most affected were the brachial and their branches. The most common form of paresthesia was a sensation of tingling or numbness; more rarely there was a sensation of heat. Among the rarest forms

of paresthesia were sensations of cold, which were entirely apart from an actual lowering of the temperature of the part, and which occurred without any objective vascular changes. This form was not usually very distressing. The term "psychroesthesia" was first applied by a French physician in 1886. The reader of the paper said that he had himself met with a number of those cases, of which the following were illustrations:

CASE I. D. C., a washerwoman, had suffered from chronic tinnitus for three years, and had some disease of both middle ears. She complained especially of a cold sensation which she had felt continually in the forehead for three years. The sensation was bilateral, and involved the upper part of the forehead. The skin was not cold to the touch, nor did it appear in any way abnormal. Examination revealed no anesthetics, and no signs of organic disease.

CASE II. A man, fifty-six years of age, a mechanic. He was compelled to stand all day at his work. For a year and a half he had had some paresthesia of the lower part of the legs, and had also suffered from a distressing sensation of cold in the feet. The physical examination showed absolutely no anesthesia of the affected part, and no change in vascularity. The reflexes were slightly exaggerated.

CASE III. A man, forty-two years of age, a butcher, whose previous history was negative. He complained of a sensation of cold over the left thigh, particularly over its anterior surface. This sensation had been continuous for the past six months, and was increasing in severity. There were absolutely no objective signs over the affected part. The man was a dyspeptic.

None of the cases, the speaker said, was an example of beginning or terminal alcoholic neuritis, in which paresthesias are so common. He had noted particularly two classes of cold anesthetics, namely, one, not definitely limited to certain areas, but involving the whole extremity or all four extremities; and the other, to which the name psychroesthesia proper should be given. The former was associated with pain or vasc-motor disturbance, and was due to irritation of the peripheral nerves; it indicated an abortive type of degenerative neuritis. Cold sensations were very rare when neuritis was marked, as in alcoholic neuritis. Such diffuse cold sensations also occurred in syringomyelia, and in lesions of central gray matter of the spinal cord. The second class represented a disease in which the patient suffered from a sensation of cold exclusively, there being no associated tingling or prickling. It was usually confined to some small area. These patients felt as though some cold object were lying upon the part. These sensations were usually of traumatic origin, and were associated with lithemia, and with the degenerative changes of middle life. In his experience, they had occurred more often among men than women. Apparently, the cold paresthesias were not produced by lesions of any of the sensory neurons, that is, by any lesions above the spinal cord, nor did they seem to be produced by lesions of the spinal ganglia. The only two conditions in which cold sensations were found were: (1) lesions of the central gray matter, possibly involving the terminals of the first sensory neuron or the beginning of the second sensory neuron, for example, in beginning syringomyelia; and (2) in lesions of the peripheral sensory nerves. They must

¹ See page 647 of the Journal.

² See page 652 of the Journal.

be due to lesions of the very terminal portions of the peripheral filaments. The pure types of psychroesthesia he considered to be always due to irritation of the peripheral filaments, and that the cold paresthesia found in tabes and various lesions of the spinal cord were always mixed pains.

DR. WILLIAM H. THOMSON said that he had a case to report which was not in harmony with Dr. Dana's decision with reference to the central relations of psychroesthesia. On March 7th, a gentleman, fifty-one years of age, had called upon him, stating that he had awakened the night before with a sensation of "universal numbness" over his right side. It involved the face, right arm and legs, and the numbness was accompanied by a prickling sensation, and by a binding sensation just above the right knee. The pulse was 94 and of high tension; the artery was somewhat thickened; there was no real anesthesia to pain. There was a decided increase in the knee reflex on the right side. There was no aphasia or deviation of the tongue. His special complaint was a sense of coldness distributed over the shoulder and down the arm, involving the fingers and back of the hand, but more particularly the leg and foot. The urine showed no albumin or casts. The case was kept under observation until June 4th. At that time it was noted that there was the same distribution of the cold sensation, except in the face. There was also a pronounced redness of the skin extending from the crest of the ilium to the knee, but quite as marked on the other extremity as on the affected side. The speaker said that the lateral distribution, involving the face, seemed to be an exception to the cases reported in the paper.

DR. GEORGE W. JACOBY thought Dr. Dana was right in ascribing many of the one-sided paresthesias to neuritic conditions, but he was of the opinion that the symmetrical paresthesias were due to some general condition—one which exerted an influence on the central gray matter of the spinal cord. This general condition was usually a toxemia of some kind—quite commonly an auto-intoxication from the intestines. He had seen a number of examples of paresthesias resulting from the inordinate use of tobacco. In these cases there was a general feeling of heat extending down one or both arms, along the distribution of the ulnar, and such a paresthesia was to him almost symptomatic of tobacco poisoning as the etiological factor. Another characteristic paresthesia was a sensation of heat or tingling passing along the penis and into the scrotum; and a third was a paresthetic condition distributed along the inner part of the thigh, usually symmetrically. These three paresthesias he had found very frequently in persons using tobacco to excess, and they had disappeared after the use of tobacco had been *entirely* given up.

DR. C. A. HERTER said that he had met with several instances of paresthesia of cold in which the distribution was somewhat different from that mentioned in the paper. For example, he had twice met with paresthesia on the abdomen, and also upon the chin. He agreed with the reader of the paper in ascribing most of these cases to peripheral irritation of nerves, but whether this irritation depended upon auto-intoxications was a matter about which we could not speak very certainly as yet. In one of his cases there had been an actual lowering of the surface temperature of about one degree, as compared with

the other side. He could not say whether or not this was a common feature.

DR. WILLIAM HIRSCH said that these cases were in all probability due to peripheral lesion, or were cases which had developed as a result of chronic alcoholism. He had seen four cases (including one he had already presented to the Society) in which trauma had acted as an exciting agent. One patient, while travelling, had carried another passenger in his lap for a long time. Following this he had developed a paresthesia of the thigh. Another patient, also a sufferer from chronic alcoholism, had experienced trauma in the upper portion of his thigh. More than one of them had noticed on taking a hot bath that the part complained of did not feel heat with the normal acuteness.

DR. W. M. LESZYNSKY said that he had seen three cases, all in persons nearly fifty years of age. One was a man with general atheroma, who had a large area of cold sensation over the lower part of the leg. He was given nitroglycerin, and the sensation disappeared. In another case, the cold feeling existed for a long time, and then was succeeded by a sensation of heat. Subsequently the hot and cold sensations alternated. In still another case, the urine was of high specific gravity, and contained indican in excess. One of these last two cases improved decidedly.

DR. A. D. ROCKWELL asked if Dr. Dana included among his cases these paresthesias which result from acute diseases—for example, typhoid fever—for he could recall a great many instances of paresthesia following such acute diseases.

DR. FRAENKEL said that he had examined the sensory disturbances in tabetics, paying particular attention to temperature paresthesia. Out of 36 tabetics, only two had cold paresthesia. One complained constantly of a cold sensation along the back and down the legs; the other complained of cold paresthesias along the back part of the legs and the extensor surfaces of the upper extremities. The general appearance of this case was rather that of cerebro-spinal syphilis, and the condition appeared to be the result of some meningitic pressure. There was no disturbance of the temperature sense in these cases. The last case he would explain by pressure on the posterior horns simply.

DR. LEOPOLD STIEGLITZ had seen some paresthesias of the temperature sense—one very marked one in a case of multiple sclerosis. The patient had been under his observation for five or six years, and had suddenly begun to complain of a sensation of cold extending from the umbilicus down through both legs, as if he were standing in cold water up to the waist. This sensation lasted about two weeks, and then gradually wore off. Following this were occasional sensations of cold in one or both extremities. Probably in this case it was the result of transient disturbances in the circulation in the spinal cord. The examination of the patient at first showed a diminution of sense of cold, much more than of heat. He did not think all the cases were due to peripheral neuritis; in some the paresthesia seemed to be an early symptom of tabes.

DR. J. F. TERRIBERRY said that, inasmuch as tobacco was supposed to play such a small part in the peripheral sense apparatus, outside of the optic nerve, he had been deeply interested in the remarks of Dr. Jacoby. It was well known that under certain circumstances tobacco was a decided depressant, and an

excitor of dyspepsia, and it was possible that it acted indirectly in this way by causing auto-intoxications.

The PRESIDENT said that he had seen a number of the special forms of pure paresthesia described in the paper. One case was that of a physician, thirty-five years of age, who had been moderate in his habits, yet ever since his student days had had a sensation of cold on the inner aspect of the left thigh. This was aggravated by severe exercise but not influenced by changes in the weather. The examination was entirely negative, and treatment had no effect. The speaker said that he had been particularly troubled with a class of cases with a persistent burning sensation in the heel. This was not affected by exercise or by posture, or by treatment, either surgical or medical. He thought these cases were generally due to some lithemic or gouty condition; he had suspected osteitis or periostitis in some cases.

DR. DANA, in closing the discussion, said that the more pure the cold paresthesia, the surer might one be that it was a lesion of the peripheral nerves and terminal filaments. In some of his cases, similar to that described by the last speaker, there had been originally an eczema or some slight form of trauma, which had ultimately become a mere dermal hallucination. Regarding the case reported by Dr. Thomson, he said that it compelled him to admit that these paresthesias might be caused by central brain lesions as well as by peripheral lesions. He could confirm Dr. Jacoby's statements regarding the effect of tobacco, for he had seen obstinate and distressing paresthesias of the hand, which disappeared very promptly on giving up the tobacco. The authors that he had consulted had not made systematic observations of the temperature of the skin. In reply to Dr. Rockwell he would say that after pneumonia and typhoid fever he had only seen the general anesthetics such as were observed in the mild types of neuritis. He had some experience with the troublesome cases of "burning heels," and had come to believe that many of them, at least, were due to a certain degree of traumatism, resulting, perhaps, in periostitis.

STATED Meeting November 2, 1897, DR. C. A. HERTER in the chair.

THOMSEN'S DISEASE.

DR. GEORGE W. JACOBY exhibited a typical case of Thomsen's disease. The patient, a young man, had been referred to him by Dr. Schwiun, of West Virginia, with a correct diagnosis. The patient was twenty-eight years of age, and had lived in this country since 1884. There was nothing in the family history bearing upon the condition especially, except that a distant cousin was said to have walked stiffly and in a peculiar manner for fifteen years. The patient himself had always been delicate, but had been as active as other boys. He had had typhoid fever in 1889, and on recovering from this had first noticed a cramp in the legs. After a little while it was found that he could not execute movements as quickly as before. In 1893 he first sought treatment. For the past year or two his arms and hands had also been affected. The condition varied considerably at different times, but was apparently not affected by meteorological changes. The examination showed quick reaction of the eye muscles, with spasm of the external rectus; cramp of

the masseter muscles on bringing the jaws together forcibly; no involvement of the pterygoids. All the muscles of the upper extremity and of the thorax were involved — indeed, nearly all the muscles of the body. The contraction of the muscles was decidedly tetanic, and was very marked at first, but, on repeated tests, it gradually subsided. The electrical examination showed marked myotonic reaction, and also a wave-like appearance, but he could not make up his mind that this latter phenomenon consisted of a series of waves, such as are observed in water. A piece of muscle had been excised from the biceps, and also from the quadriceps, but they had not yet been minutely examined. The case was quite characteristic on account of the marked variations occurring from time to time. The speaker said that in an article published by him ten or more years ago he had taken the stand that these cases were probably of myopathic origin, due to some congenital defect in development; but in the light of modern investigation he was now disposed to believe that some central cause was at work — that there was a functional hereditary derangement of the central nervous system, a condition of lessened resistance in the cells. This did not seem to him a strange assumption, when one considered the well-known idiosyncrasies exhibited to various toxic influences. On the theory that some kind of toxemia was at the foundation of this disease, he thought the observed phenomena could be explained — at least, in this direction seemed to lie the possibility of solving the pathogeny of this class of cases. This patient had not been affected by the disease until eighteen years of age; hence, there was no propriety in calling such a case "myotonia congenita." He would divide these cases into three classes, namely, (1) myotonia congenita, (2) myotonia acquisita, and (3) myotonia transitoria.

DR. FREDERICK PETERSON asked why a theory of causation might not be founded upon chemical changes in the muscles. Changes in the structure of the muscles, he said, were known to arise, for instance, in connection with typhoid fever.

DR. HERTER thought that we must look to toxic agents as furnishing at least a clew to the causation of such conditions. The peculiar susceptibility to certain types of poisons, seen, for instance, in epilepsy, must be referred to peculiarities of the central nervous system. He would agree with Dr. Peterson that these cases did not seem to be of central origin, and that it was more probable that they arose from chemical changes in the muscles. To study this subject successfully, it would be necessary to inquire into the condition of the secretions and excretions at the time of the onset of the disease, and not after it had become chronic.

PACHYMENINGITIS HEMORRHAGICA INTERNA IN CHILDREN.

DR. C. A. HERTER said that internal hemorrhagic pachymeningitis was usually considered to be a very rare condition in children, yet one German observer had found it in about 17 per cent. of his autopsies. The following cases were reported:

CASE I. A female child, five and a half months old, was admitted to the Babies' Hospital on May 15, 1897, with an entirely negative family history. The child's illness had begun one month previously with persistent vomiting. The head was of normal shape, and the

fontanelles were not bulging. There was a soft spot over one parietal bone. The child had no teeth. On the fifth day after admission tremor and nystagmus developed. Nine days after admission there was a general convulsion, in which the mouth deviated to the left. Cyanosis was a feature of the convulsion. A second one occurred in ten hours. After these seizures the fontanelles were sunken. The child now became semi-comatose, and died after a few days. The autopsy showed the presence of hemorrhagic pachymeningitis, fibrino-purulent pleurisy, pulmonary congestion, fatty liver and nephritis. Along the superior longitudinal fissure, over the entire base and over the island of Reil on both sides was a membrane covering the pia. The ventricles were normal in size, and contained about one drachm of hemorrhagic fluid. There was fluid blood in all the sinuses. The cervical cord showed the same conditions. Under the microscope the right occipital region showed the pia attached to the cortex in many places, and there was a splitting up of the membrane overlying the cortex into two or more layers. The inner layer was infiltrated with small round cells. The outer membranous layers consisted of small round cells, fibroblasts and connective-tissue fibres. The island of Reil showed the same condition, but much more marked, and about the same condition was present over the cerebellum. In the spinal cord there were only slight traces of hemorrhage.

CASE II. Female infant, colored, twenty-two months old. The child had been nursed for seven months. It had never walked or stood alone, and was markedly rachitic. The first two months in the hospital were marked by slight loss in weight and considerable prostration. In October, 1897, the child was readmitted, with the statement that she had been well up to three days before, at which time she had had four convulsions, followed by three more the next day. The general condition was very bad. The hands and feet were in a position of persistent flexor contraction, characteristic of tetany. The knee-jerks were unobtainable; the fontanelles were bulging. There was slight, but varying rigidity of the muscles at the back of the neck. Bloody mucous diarrhea was present, and the child died comatose. The autopsy showed pachymeningitis hemorrhagica interna, broncho-pneumonia and acute and chronic ulcerative colitis. Over the right side of the brain was a recent blood-clot covering the entire hemisphere, and over the left occipital lobe. The inner surface of the dura was covered with a membrane extending from the superior longitudinal fissure on either side. The pia was congested. The ventricles and brain substance were apparently normal. All the sinuses were filled with recent clots. The microscopical examination showed thickening of the pia over the right temporo-sphenoidal lobe, and the vessels of the pia were thickened. There was also a thick membrane splitting up into layers, as in the other case. There were numerous small blood-vessels, and hemorrhages had occurred into the meshes of the membrane. In places, there were aggregations of small round cells undergoing fragmentation. They were found chiefly in the superficial layers of the membrane. In the dura the fibres were separated from each other by serous infiltration, and the dura was covered with a membrane similar to that already described. In places, there was very extensive pachymeningitis.

It was at about five months of age, the speaker said, that this disease was especially frequent. The major-

ity of these infants were badly nourished, many of them being subjects of rachitis or of chronic colitis. The new membrane must be regarded as originating from proliferation of the dural endothelial cells. In some cases there was little inclination to hemorrhage. The membrane was very variable in thickness; sometimes it reached a thickness of two or three lines. It was especially prone to occur in the basal fossæ. There seemed no good reason for thinking that the locality of the pigmentation indicated that the layer of blood originated from the inner surface of the dura. On the other hand, there was no conclusive proof of the old notion that the disease was of inflammatory origin. It was so common to find severe intoxications without such lesions, that the intoxication theory did not seem to him tenable. It was apparently impossible to recognize the condition until the hemorrhage occurred, and even then it was extremely difficult to make a positive diagnosis. Slight cerebral symptoms were probably masked in these very young and usually marantic children. The hemorrhage was probably more often unilateral, and the usual symptoms present were rigidity, hemorrhage and coma. Paralysis was rarely noted. The pyrexia was usually less than in meningitis, but these cases were so commonly complicated with other diseases that the range of temperature was very variable. He did not think there was any symptom or combination of symptoms in hemorrhagic internal pachymeningitis which might not be encountered in any acute infection without any cerebral affection being present; but whenever unilateral rigidity and convulsions, with deepening stupor, were present in a cachectic or rachitic child under one year of age, we should think of that diagnosis. It was probable that relatively slight traumatism to the head might occasion rupture of vessels in the highly vascular membrane. This gave these cases a certain medico-legal importance.

DR. PETERSON remarked that the condition was interesting to him because of the possibility of its being found occasionally in infantile cerebral palsy.

DR. HERTER said that he was inclined to think that these membranes were considerably more frequent than one would suppose from the literature. It was quite possible to overlook the presence of the membrane if it were not decidedly vascular.

THE PATHOLOGY AND MORBID ANATOMY OF HUNTINGTON'S CHOREA, WITH REMARKS ON THE DEVELOPMENT AND TREATMENT OF THE DISEASE.

DR. JOSEPH COLLINS said that the neurologist frequently encountered knotty problems, and among these none had the secret of its genesis more carefully concealed than the hereditary degenerative diseases. The pathogenesis of the acute inflammatory diseases of the nervous system was an open book, but the degenerative diseases were discouragingly slow in yielding the mystery of their being. This was especially true of such degenerative diseases as the hereditary ataxias, choreas and dystrophies. The status of the original lesion could not always be inferred from a consideration of the lesion found at the time of death, and this was particularly true if the disease had existed a great number of years. No one could do much laboratory work on the central nervous system of individuals who had succumbed to degenerative nervous diseases of long duration without having forced upon him the fact that there are certain abnormalities

of the circulatory system — varying degrees of degeneration of vessels, change in the size of the lymph spaces, and relative disproportion of glia tissue to the parenchyma — which occur with all degenerative diseases, considered entirely apart from their causation. He felt convinced that such changes were very often secondary, and had no other significance than as evidences of protracted disturbance of nutrition, and that this nutritional depravity was the result of the existence of the original lesion. There was nothing more certain than the occurrence of glia proliferation in all slowly progressing destructive lesions of the nervous system, but nothing could be more misleading than to consider this glia overgrowth to be primary, and the changes in the parenchyma secondary.

Huntington's chorea, Dr. Collins said, was a comparatively rare disease, and of rather recent recognition; hence, the reports made upon its pathology had not been uniform. The discrepancies were apparently the resultant of the varying points of view of different observers. In studying the nervous system in cases of Huntington's chorea it was scarcely justifiable to maintain that all the morbid conditions were inherent to the disease, for, as had been said, many of them might be the consequence of prolonged interference with nutrition. Although the present study of the pathology of the disease was upon an individual who had had the disease for a considerable time, it was compared with a case of much shorter duration reported by Dr. C. L. Dana. A study of these two cases, he felt confident, would go far towards establishing the morbid anatomy and hinting at the pathogenesis.

His patient was a man, fifty-five years of age, who had married in early manhood, and who was the father of three children — all of them giving evidence of neuropathic inheritance. The known duration of the disease in his case was ten years. At the beginning the hands only were affected, but in the last years the lower extremities were also involved. The mind remained in fairly good condition up to about three years before his death, when he began to have suspicions about his relatives and friends, and became forgetful and suicidal. His speech was so imperfect that in the last years of his life he was understood with difficulty. Dr. Collins had seen him for the first time a few days before his death. He then had a temperature of 105° F., and it remained at about this point until the end. The movements were very severe and incessant, except during sound sleep, although even then they frequently awakened him. He was quite conscious, but made no response to questions. The cause of death seemed to be exhaustion and high temperature. The disease was traceable to the maternal grandfather — an Irishman — who had three children, two of whom were affected with the disease. One of these was the mother of this patient, and of her seven children, five were afflicted with the disease. The other daughter had two children, one of whom became choreic. In three generations there had been no less than nine affected, and when it was considered that many of these children died in infancy, the number of cases that had developed was surprisingly great.

At autopsy, on opening the skull, the dura was considerably adherent, the diploë dense and the Pacchionian depressions marked. The brain had a wet appearance, as did also the cord. The pia was not

adherent to the brain. The convolutions of the anterior pole of the brain were very small, and the entire encephalon weighed 43½ ounces. The dura was intimately adherent to the spinal column. The principal fissures were somewhat wider and shallower and shorter than in the normal brain, but there was nothing pointing to defective convolutions. The average thickness of the gray matter was uniformly less than in the normal brain cortex, but this thinness could not be attributed here to age. An examination of the pons and medulla oblongata did not show any marked variation from the normal, but the changes were more noticeable lower down. Microscopical changes were not confined exclusively to the Rolandic region, but the process here was more advanced. The specimens were stained by various methods, and carefully examined.

The macroscopical changes were briefly as follows: (1) Thinness and atrophy of the cortex. (2) The mottled, streaked appearance and cribriform state on cross-section of the brain in the fresh state, due to diminution in number and in health of the ganglion cells, and to the increased perivascular and pericellular spaces and increased patency of blood-vessels.

The microscopical changes were: (1) A decay or slowly progressive degeneration of the ganglion cells of the cortex throughout the brain, especially of the two deepest layers, the layers of large pyramids and polymorphous cells. This cell death was particularly evident in the Rolandic region, very much less so in the anterior pole of the brain, and incomparably less in the posterior pole. (2) Increase of glia tissue, but not sufficiently prominent to constitute sclerosis, the conspicuous increase being about blood-vessels and ganglion cells. (3) Enlargement of the pericellular spaces and distention of the pericellular spaces. (4) Slightly diseased blood-vessels consisting principally of a proliferation of the nuclei of the adventitia and a thickening of the intima. This involvement of the vessels was not regular or symmetrical, but showed itself in certain sections of vessels only. (5) Relative paucity of the medullated fibres of the cortex. In short, it might be said, that the lesion was a chronic parenchymatous degeneration of the cortex, with consecutive and secondary changes in the interstices, the brunt of the disease having been borne by the motor regions. There was, in consequence, a degeneration of the pyramidal tracts in the spinal cord. In Dr. Dana's case the central convolutions suffered most, and the process occurred in patches throughout the affected cortex. There was nothing to justify the opinion that it was an inflammation — the process was evidently one of degeneration.

In connection with the treatment, Dr. Collins said that he desired to emphasize the necessity for delaying the advent of the disease in those who had a hereditary tendency to it, and also to emphasize the folly of tenotomy of the eye muscles — a method of treatment now being carried out upon one of these unfortunate individuals in this city, with a promise of a cure. If we wished to influence the course of hereditary chorea after it had once become manifest, it would be necessary to administer whatever drug was selected in the largest possible doses consistent with life, and to maintain this medication for a long time.

DR. ONUF said that he had been present at the autopsy on the case reported in the paper, and had been especially impressed with the general narrowing

of the gyri—a general atrophy. On section, the mottled appearance of the cortex had been most striking, but the cribriform appearance produced by the enlargement of the perivascular spaces was also worthy of note. The general appearance of the brain resembled very closely that of a brain from a case of general paresis. The microscope confirmed the macroscopical appearances, although the changes were not as marked as one would have expected from the gross appearance. The cell changes were of the atrophic order. The characteristic feature was the accumulation of neuroglia cells in the pericellular and perivascular spaces. His impression was, that this accumulation was due to a secondary process following atrophy of the cells. The disease was evidently a degenerative one, originating in the parenchyma of the brain, and not in the interstitial tissue.

Recent Literature.

Sexual Disorders of the Male and Female. By ROBERT W. TAYLOR. New York and Philadelphia: Lea Brothers & Co. 1897.

The profession is naturally prepared to give a cordial welcome to any work coming from so strong and well-known an authority as Dr. Robert Taylor. In the larger part of this work the author fulfils one's favorable anticipations. Its scope is limited to the consideration of the conditions, in both sexes, which interfere with, or prevent, the normal accomplishment of the sexual function. It is characterized by the clearness of statement, terseness and vigor which mark the previous writings of this author. The opening chapters deal with the anatomy and physiology of the parts. The chapter on anatomy does not seem to us to be as full or instructive as it should be. An example of this is the absence of any proper description of the fibrous investment of the septum of the penis or of the perineal muscles, fascia or ligaments. The parts selected for detailed description are those which are especially concerned as the most essential ones in carrying out the sexual function. Of these the portrayal is admirable.

A large part of the book is devoted to the consideration of impotence and sterility in the male; and a thorough discussion of the many causes which are the starting-points or lend to these conditions is included in it. Some interesting examples of the conditions causing organic impotence are quoted, amongst them are certain instances of ossification and fibroid sclerosis of the penis.

The chapter on chronic inflammation of the prostate is particularly instructive. That upon hypertrophy of the gland cannot be said to be adequate.

The latter part of the book deals with sterility in the female, some of the organic causes of which, as, for example, growths of the vulva, are interestingly illustrated by numerous well-reported cases and by prints.

The work seems to us deficient with respect to the treatment of some of the conditions it deals with, in that this part of the subject is often dismissed with a few words, or else only general principles are outlined; and hence we think it will be found more useful to those who are already more or less familiar with the subject than to students.

Appendicitis and its Surgical Treatment. With Report of Seventy-five Operated Cases. By HERMAN MYNTER, M.D. (Copenhagen), Professor of Operative and Clinical Surgery in Niagara University, etc. Pp. 303. Philadelphia and London: J. B. Lippincott Co. 1897.

This work is the publication of a monograph written by the author, and presented at Copenhagen to fulfil one of the requirements for a degree of Doctor of Medicine in Denmark. This demands that a thesis shall be presented showing special study and individual experience.

The writer has in this book tried to sift the evidence for and against the operative treatment of appendicitis, and has, after a careful study of a large number of foreign and American authors and statistics, concluded, as many other surgeons have also done, that appendicitis is a surgical disease and should be treated by surgical means, and that the physician is unable to prophesy the result in a given case, or prevent gangrene and perforation from resulting in a fatal peritonitis.

Part I opens with a historical review of appendicitis from 1759 to the present time. Then follow sections on Anatomy, Histology, Function, Etiology, Pathology, Classification, Symptomatology, Complications and Sequelæ, Diagnosis, Prognosis, Treatment and Statistics.

In Part II Dr. Mynter gives the clinical histories of 75 cases taken from his own records. These are classified according to age, sex, previous attacks, etiology, complications, kind of operation, gangrene, perforation, localized abscess, etc.

The writer has evidently given a great deal of time and thought to his work, and his book is an interesting contribution to the subject.

A Text-Book for Training Schools for Nurses. Including Physiology and Hygiene and the Principles and the Practice of Nursing. By P. M. WISE, M.D., Medical Superintendent, St. Lawrence State Hospital, etc. With an introduction by Dr. EDWARD COWLES. In two volumes. New York and London: G. P. Putnam's Sons. 1896.

The two small volumes before us are designed to cover the general subject of nursing, more particularly with reference to the insane. Dr. Cowles writes an appreciative introduction, in which he very properly calls attention to the need of skilled nursing in mental disease, a need of which has been too slow of recognition.

Dr. Wise has attempted to condense into the comparatively small space at his disposal a large number of facts bearing upon the principles of medicine as well as upon the principles of nursing. Such an attempt always has its accompanying dangers; it means, of necessity, superficiality, and at once raises the question whether it is worth while. What sort of an idea, for example, of the anatomy of the brain can be conveyed in six pages. A little knowledge is, no doubt, here as elsewhere, a dangerous thing, and certainly if such knowledge goes no further, must be of little value to the student. The second volume, dealing with more practical details, is much more to be commended.

The criticism suggested above is by no means peculiar to these volumes, but seems to us inherent in the whole system of training for nurses, as now generally adopted at our larger hospitals.

Simon's Clinical Diagnosis. A Manual of Clinical Diagnosis by Microscopical and Chemical Methods. For Students, Hospital Physicians and Practitioners. By CHARLES E. SIMON, M.D., late Assistant Resident Physician, Johns Hopkins Hospital, Baltimore. New second edition, revised and enlarged. In one octavo volume of 530 pages, with 135 engravings and 14 full-page colored plates. Philadelphia and New York: Lea Brothers & Co. 1897.

The second edition follows the first at the end of the year. This exhibits not only the demand for a book of this character, but also the rapid changes in methods of work and enlargement of knowledge in regard to the subjects of which it treats. This is from one point of view encouraging, and from another discouraging. The size of the volume has been increased by fifty pages, new methods of chemical examination have been given and some of the older ones have been omitted.

The chapter devoted to the examination of the cerebro-spinal fluid, which consisted of a few lines only in the first edition, now occupies several pages. The parasitology and bacteriology of the blood and of many of the secretions have been almost entirely rewritten. We do not doubt that a year hence in another edition as great and as numerous changes would be required.

A Hand-Book of Midwifery. By W. R. DAKIN, M.D., Obstetric Physician and Lecturer on Midwifery and Diseases of Women to St. George's Hospital; Physician to the General Lying-in-Hospital; Late Examiner in Midwifery and Diseases of Women on the Conjoint Board of the Royal Colleges of Physicians and Surgeons in England. Pp. 629, 400 illustrations. London, New York and Bombay: Longmans, Green & Co. 1897.

One is impressed with the large amount of well arranged information contained within the covers of this book. The illustrations are numerous, and for the most part small original diagrams, free from unnecessary details. As in most English books, the operations are described with the patient lying on the side, so that the text and diagrams are confusing to the American student. Hegar's sign seems to be mentioned by name in the index only. The important matter of prophylaxis and treatment of septicemia is rather inadequate. It is to be noted that the author prefers the finger to the curette for cleaning the septic uterus, and in fact mentions the latter instrument only in a note. Iodoform and gauze drainage are not mentioned at all. One naturally turns with interest to the articles on Eclampsia and Placenta Previa. In both early delivery by dilatation and version are recommended. For dilatation of the os the author prefers the Champetier de Ribes's bag to the fingers.

The index of 40 pages is very satisfactory.

THE present epidemic of typhoid fever at King's Lynn and the investigation of its water-supply, recall the fact that in 1423 the lack of drinking-water caused such distress that Henry VI gave powers to cut a canal to Gayton River, the water of which was considered to be very pure. Under Cromwell the water-canal was carefully cleaned out and a larger supply provided for. Strange to say, the keepers of ale-houses alone were made to pay for this improved water-supply.

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THE RELATIVE SAFETY OF CHLOROFORM AND ETHER.

A NEW method for testing the efficiency of anesthetics has been claimed by Dr. Augustus Waller, President of the Section of Anatomy and Physiology at the recent meeting of the British Medical Association at Montreal, and was explained by him in an extremely interesting and important paper published in the *British Medical Journal* of November 20th.

The method in brief consists in subjecting freshly prepared nerves, while under the influence of the vapors of the anesthetics, to electrical stimulation, and studying their reactions. He found that anesthesia of the nerve was produced by various anesthetics, ether, chloroform, bromide of ethyl, etc., so that while the nerve was subjected to the vapors, the galvanometer failed to indicate response to electrical stimulation.

If the vapor is removed, the nerve recovers itself, and the response to stimulation again appears. In testing the various vapors, Waller found that exposure to any of them if sufficiently long continued produced the death of the nerve, so that it no longer after the removal of the vapor responded to stimulation.

As a result of his experiments, Waller found that chloroform, as compared with ether, was seven times more deadly when tried upon the isolated nerve, in other words, that in the case of ether there was a seven times greater margin between the lethal and non-lethal doses than in that of chloroform.

Nitrous oxide, according to Dr. Waller, is an anesthetic which has little or no action on nervous tissue. Carbonic dioxide, which Snow and Richardson landed as an anesthetic, is, Dr. Waller finds, a powerful agent to produce "immobilization," thus confirming the assumption of the older observers. But a fact of extreme interest, because, unless carefully explained, liable to fatal misunderstanding, is Dr. Waller's observation that the presence of carbonic dioxide favors anesthesia and lessens its risk. The combination of chloroform and carbonic oxide is not, it must be distinctly understood, simply chloroform given with

very little air. This distinction is made very plain by Dr. Waller himself.

By Dr. Waller's simple and beautiful methods we are set in a measure free from the necessity of settling the complicated question upon which previous experimenters have been divided as to whether chloroform killed by paralyzing the respiration through the nervous system, or by producing circulatory failure by direct action upon the heart or indirect action through the vaso-motor system. If chloroform actually attacks nervous tissue and destroys its irritability, and its action in this respect is seven times more powerful than that of ether, without going into the exact mechanism by which it produces death we are furnished with an excellent reason for the fact that in the statistics of deaths under the two anesthetics ether stands better than chloroform.

The actual proportion in its favor is about thirteen to one, but, as Dr. Waller has pointed out, the action of anesthetics on the whole organism, though exemplified simply and forcibly by their action on nerve tissue, is far more complex.

"From a practical point of view," writes Dr. Waller, "from the most immediately practical point of view possible, that of the man in the street, who if he has to submit to an operation wishes to take least risk, the question is more elementary. He desires to be most safely anesthetised by any drug, not necessarily by chloroform, and would probably express a somewhat emphatic indifference as to whether, if he is killed, his death is to be by the lungs or by the heart."

The "chloroform dilemma," with which Dr. Waller concludes his paper must prove a difficult one for those to dispose of who administer chloroform as a routine anesthetic for all surgical procedures.

"With reference" he says, "to the admittedly large number of deaths by chloroform, there seems to me to be no escape from the two horns of a dilemma. Such deaths are the result (a) of an agent dangerous under all circumstances, or (b) of an agent dangerous only when unskillfully administered.

"(a) If chloroform is dangerous under all circumstances, it may not be employed in minor surgery. Death in this class of cases is therefore unjustifiable, and should be considered as a criminal offence.

"(b) If chloroform is dangerous only when unskillfully administered, then, again, death by chloroform is unjustifiable, and ought to be considered as a criminal offence.

"There can be no escape from one or other of these two alternatives. There have been deaths due to careless or to unskilled administration; there have also been deaths in skilled and careful hands. But unless we are to admit that chloroform is a 'safe' anesthetic, and any death the result of carelessness or ignorance, we must admit that chloroform, being a potent reagent, is, *ipso facto*, a 'dangerous' reagent, to be used only on serious grounds, and not to be employed as a routine drug in all kinds of cases, simply on account of its superior convenience."

THE TWENTY-EIGHTH ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF HEALTH.¹

THE general report of the Board includes a condensed statement of the work done under the statutes defining the duties of the Board, to which is appended a statement in brief of a sanitary survey of the sewerage question of Salem and Peabody, of a plan for the improvement of the Nepouset Valley and of the joint report of the Board with the Metropolitan Park Commission on the improvement of the Charles River.

The second part of the report contains the fuller details of the work of the Board under the acts relating to water-supply and sewerage, food and drug inspection, reporting of infectious diseases, and special papers on a comparative study of the toxin production of diphtheria bacilli, on the production and use of antitoxin, on diphtheria cultures, on the diagnosis of malaria, on examinations for tuberculosis, on a forty-years' summary of the vital statistics of the State, and finally, statistical summaries of disease and mortality, and the usual notes on the health of towns. An admirable index adds to the value and completeness of the report.

Five cases of small-pox were reported in the State; and, under the provisions of the interstate agreement, thirty other cases were reported from the other States and Canada. Notice was also received of three steamers' arrivals in New York, with cases of small-pox on board among the immigrants.

Several investigations were made of limited outbreaks of typhoid fever, and advice was given suitable to each case. The gratifying decrease in the mortality from this disease continues, and the careful analysis of its comparative prevalence and fatality in the cities of the State for the last twenty-five years furnishes many hints for its further control.

In order to restrict the prevalence of diphtheria, a system of examination of throat cultures has been established, whereby such cultures may be forwarded to the Board for examination from any city or town in the State; and antitoxin is furnished as required.

The investigations with regard to the prevalence of malaria have been continued, especially in the Charles River Valley; and three serious outbreaks of the disease in Uxbridge, North Andover and Woburn were made the subjects of special inquiry.

In consequence of the more efficient organization of the local Boards of Health no complaints were made to the State Board during the year with regard to offensive trades.

A new edition of the Manual of the Health Laws has been prepared, an indispensable aid to local health boards, physicians and court officers.

A few towns have reported the extensive prevalence of poisoning from lead service-pipes; and in others cases have occurred, as a result of which the Board is investigating the subject of the action of lead pipes on water-supplies in all its bearings.

¹ Public Document, No. 34. Twenty-eighth Report of the State Board of Health of Massachusetts. Boston: Wright & Potter Printing Co., State Printers, 18 Post Office Square. 1897.

One hundred and thirty summer resorts were inspected during the year as regards their sanitary condition. Notice was sent where the existing conditions were found unsatisfactory, and the aid of the Board was offered in examining and approving satisfactory plans for remedying evils.

The relation of the State Board to local boards has become much closer, especially since the quarterly meetings for discussing together matters of interest to the public health; and an evident improvement in the sanitary condition of the several towns is an evident result. Among the duties imposed upon local boards in more recent years are those which relate to cattle diseases, the inspection of plumbing, the licensing of stables, the inspection of bakeries, the reporting of cases of infectious diseases and of annual mortality returns to the State Board of Health. And to these duties will doubtless soon be added inspection of dairies.

Of the population of the State, 89.8 per cent. has public water-supplies. In 11 cities and towns, with an aggregate population of 98,287, and in several large public institutions purification of the sewage is effected by filtration. The Board gave advice on questions of water-supply, sewerage, and sewage-disposal during the year, in 42 cases; and the consideration of these important subjects occupies nearly 600 pages of the Board's report, closely packed with useful information.

During the year 8,357 samples of drugs and food, including milk, were examined by the Board's chemists.

The special topics of report on malaria, tuberculosis and diphtheria from the laboratory of the Board indicate a beginning of investigations of the greatest scientific interest and practical value.

The forty years' summary of the vital statistics of the State, a model report, by the Secretary of the Board, has already been discussed in the *JOURNAL*.² In saying that this twenty-eighth report of the Board is fully up to the standard of its predecessors we give it the greatest praise.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

THE annual report of the Surgeon-General of the Navy for the year 1897 contains many interesting features. From the report of the Bureau of Medicine and Surgery we learn that all the naval hospitals have been fitted up with modern aseptic operating-rooms and bacteriological and chemical laboratories, thus greatly increasing their efficiency.

During the year ending June 30, 1897, thirty-six candidates appeared before the examining boards of the navy, only eight of whom were successful in passing the examination. Within the past year the number of vacancies has increased, there being at present fifteen vacancies to be filled, with no immediate prospect that a sufficient number of satisfactory candidates will present themselves. "Legislation toward the improvement of the present status of assistant surgeons

in the navy, and placing them on a similar footing with assistant surgeons in the army is urgently needed, and a bill having this object in view will be submitted to the Department at an early date, with the recommendation that it be transmitted to Congress with a favorable endorsement."

It is the intention of the bureau to provide facilities for the use of x-rays in the principal naval hospitals.

The health record of the Naval and Marine Corps for the calendar year 1896 was very satisfactory. There was a considerable decrease in the rate of admission to the hospitals and a marked diminution in the number of deaths, although the numerical strength of the force has increased 7.62 per cent. There were 78 deaths during the year (64 from disease and 14 from injury). In the previous year, with a smaller force, there were 90 deaths.

Malarial diseases head the sick list of the year, with 850 cases. There were 593 cases of wounds, 586 of rheumatic affections, 468 of diarrheal affections, 400 of epidemic catarrh, 201 of alcoholism, 66 of pneumonia, 59 of heat stroke, 56 of typhoid fever, 48 of pneumonic tuberculosis, 31 of mumps, 16 of nephritis, 15 of measles, 14 of organic heart disease, 11 of erysipelas, 5 each of cholera and small-pox, 4 of scarlet fever and 2 of varicella.

Of the 59 cases of heat stroke, 40 were caused by heat in the fire- and engine-rooms.

The five cases of cholera all occurred on the *Boston*, the first case appearing while she was stationed at Shanghai, on August 20th, in a man who had been allowed shore liberty.

Five cases of small-pox occurred during the year, and there were eight deaths from drowning.

Among the special cases of interest occurring on board ship was that of two apprentice boys who contracted syphilis from the process of tattooing their left forearms. These cases are reported by Passed Assistant Surgeon G. B. Wilson, as occurring in the gunboat *Castine* while at Buenos Ayres in July.

A case of successful operation for penetrating wound of the abdominal cavity with protrusion of omentum is reported by G. Tucker Smith, Passed Assistant Surgeon, U. S. S. *Adams*. Remittent fever occurred on board vessels stationed at Woosung, China, and at Key West.

Full statistical tables are given of the data upon which the report is based, and full reports of the surgeons in charge of the naval hospitals and in medical charge on board ship.

A full and interesting report on "Cholera in Japan and Plague in China," by W. F. Arnold, Passed Assistant Surgeon, is a feature of the report, as is also an article on "The Practical Disinfection of Ships of War," by Thomas C. Craig, Surgeon, retired.

The general principles applying to the disinfection of ships, and the special measures to be taken in case of special infective diseases, such as cholera, typhoid, etc., are discussed in this last article, which is of special interest and value.

² Vol. cxxxvii, p. 606.

THE NOTIFICATION OF MEASLES.

THERE appears to be a divided opinion in England as to the utility of considering measles as a notifiable disease. Dr. H. Kenwood, Medical-officer of Health of Stoke Newington, presented the subject in a paper before the Sanitary Institute (April 7, 1897),¹ in which he opposed the notification of measles. His chief reasons for this ground of belief lay in the rapidity of the spread of the disease, the notification coming too late to be of use, and the difficulty of diagnosis at the onset of illness, all those who are susceptible having been fully exposed to infection during the exceedingly infectious pre-eruptive stage of the disease. In summing up the results, he says:

The conclusion to which I am driven is that it may be useful to bring measles under the Notification Act in rural districts and in small, isolated communities, if in these cases every advantage is taken of the information thus obtained, if efforts also be made to detect unnotified cases and the means of hospital isolation be provided; but, in large communities, especially when not adopted in neighboring districts, the measure is not to be recommended in the absence of sufficient isolation provision, a large permanent staff and the adoption of other means than "notification" of bringing the existence of cases to the knowledge of the sanitary authority. In short, if it were possible, in urban districts, to deal with every case notified with the same care and thoroughness as in a case of small-pox, it might prove of value, but certainly not without.

The best remedy lies not in notification, but in the education of the masses, and in the taking of certain precautions against school infection.

Efforts hitherto made in this direction are of two classes: the distribution of handbills or booklets, which are seldom read; or free lectures, which are seldom attended except by those who least require them. We must begin at the beginning and educate in childhood. The State must deal with the individual while he is still under the control of its compulsory education, while the simple and priceless knowledge of the laws of health and disease prevention may be taught and instilled into plastic minds.

The active co-operation of school authorities is necessary, since infectious diseases spread largely through the schools. Scholars in each school should be subject to frequent medical inspection, and this inspection should be made with much greater frequency during epidemic prevalence. A scheme which fully takes advantage of all the means which schools offer, of (a) educating the future parents, and (b) of gaining early information and checking the spread of infection, appears to me as likely to offer a surer means of reducing measles mortality and at considerably less trouble and cost than any scheme involving "notification."

With this paper Dr. Kenwood presents a list of the districts in England, 77 in number, in which measles was compulsorily notifiable before March, 1892. During the succeeding five years, to March, 1897, the notification had been revoked in 32, or two-fifths of the number, and in the remaining 45 there were very few which presented satisfactory results. In the discussion which followed the disputants *pro* and *con* were in nearly equal numbers.

The significance of the foregoing extract will be better understood by brief reference to the Notification Act of England, which became a law in 1889. By the terms of this Act the notification of infectious diseases to the sanitary authority was made compulsory throughout London, while the principle of local option was applied to all other districts. Great opposition

was at first made by the medical profession, but the fallacy of these objections has been abundantly proven by seven years' experience. The notification is made upon a certificate furnished by the physician, for which a fee of two shillings and sixpence is paid, except in the case where the certifier is the medical officer of a public institution, when the fee is one shilling. The diseases to which the Act applies are small-pox, cholera, diphtheria and membranous croup, erysipelas, scarlet-fever, typhus, typhoid fever, puerperal fever, and any other infectious disease which may be added at the option of the district. In some instances measles, hydrophobia and chicken-pox have been added. The Act is now in force in districts containing about 90 per cent. of the population.

In the United States some form of notification is in force in most of the cities and large towns and in some entire States.

MEDICAL NOTES.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, December 22, 1897, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 92, scarlatina 51, measles 24, typhoid fever 12.

DIPHTHERIA IN BOSTON, MARKED DECREASE OF MORTALITY. — The last weekly statement of the city's health tabulated at the office of the Board of Health shows not merely a decrease of the death-rate over the corresponding week of last year, but a decrease of 50 per cent. on deaths from diphtheria for the same corresponding period.

THE SUMMER HOSPITAL AT RAINSFORD ISLAND. — In the second annual report of the medical director of the Summer Hospital on Rainsford Island a marked improvement is shown over the record of the first year, both as regards the number of patients admitted and in the decrease of mortality. The yearly expenses have been reduced greatly by the combining with the hospital the training school for nurses, whose services are paid chiefly by the instruction they receive. The hospital was opened to receive cases on June 11th, and was closed on September 30th. During that time 124 babies under two and one-half years of age were admitted. Of these 35 died, which, in consideration of the serious condition of many at entrance, is regarded as a low percentage.

TREFFLÉ GARCEAU, M.D. — Dr. Trefflé Garceau, one of the best-known physicians of the Roxbury district, died suddenly at his home, No. 22 Highland Street, December 19th, of myocarditis. He was born in Montreal sixty years ago. He obtained his early education in the schools of that city, and then entered St. Mary's College, from which he was graduated with high honors. He entered the College of Physi-

¹ Journal of the Sanitary Institute, July, 1897, p. 161.

cians and Surgeons in Montreal, and was graduated in 1863. He came to the United States and settled in Lowell, where he practised two years. About 1866 he came to Boston and began practice in Roxbury, where he has ever since had an extensive practice. He was a member of the Massachusetts Medical Society, Roxbury Medical Club, and was one of the prominent members of the French Catholic Church, on Isabella Street. Fifteen or twenty years ago he was a member of the school committee. He leaves three sons, one of whom, Edgar Garceau, M.D., was associated with him in his practice.

ANNUAL REPORT OF THE LYNN HOSPITAL. — The annual report of the Lynn Hospital for the year ending December 1, 1897, shows that during that time 800 patients were treated in that institution. The average daily number under treatment was 35. The whole number of out-patients treated was 8,000, and the whole number of new out-patients treated was 3,000. The number of deaths during the year was 81; of these 26 died within thirty-six hours after entering the institution. There were 321 operations performed with the patients under the influence of ether, and 51 of these were cases of abdominal section. There were 19 cases of appendicitis. There were 40 cases in the confinement ward and 42 births. The training-school now has 14 nurses and two head nurses, which gives the hospital 16 nurses, with the matron. It is the wish of the superintendent that the district nursing done in co-operation with the Associated Charities should be continued.

NEW YORK.

CHARITABLE INSTITUTIONS AND THE PUBLIC FUNDS. — At the meeting of the Board of Estimate on December 15th the claims of the charitable institutions for public funds which were not provided for the previous week, when the Medical League protested against the giving of money to hospitals connected with medical schools, were again considered. The appropriations asked for the Post-Graduate School, the Polyclinic, and Homeopathic School hospitals were not passed, as the vote on the matter resulted in a tie, one of the five members of the Board being absent. The sum of \$127,500 was voted for an addition to Bellevue Hospital and for buildings on Ward and Blackwell's Islands.

POLICE SURGEONS APPOINTED UNDER CIVIL-SERVICE RULES. — On December 17th Drs. Arthur S. Vosburgh and John J. Quigley were appointed police surgeons, to fill two vacancies on the board, they being the highest, by examination, on the eligible list of the civil service. The salary of the position is \$3,000 per annum.

THE HEALTH OF NEW YORK CITY. — In his report on the health of the city during the eleven months ending November 30th, referred to in last week's JOURNAL, Dr. Tracy, Register of Records, points out that not only has the death-rate been excep-

tionally low, but the actual number of deaths, notwithstanding the great increase in population, has been smaller than in the same period of any other year since 1886. The very marked decrease, from 1896, of 726 in the deaths from sunstroke is explained by the cool summer of 1897. The other marked decreases are in diphtheria, croup, measles, diarrheal diseases, Bright's disease, pulmonary tuberculosis and pneumonia. With the exception of scarlet fever, all the causes of death which show an increase belong to classes of affections which are not regarded as amenable to sanitary regulation. Dr. Tracy believes that the decrease in the death-rate can be accounted for, at least in part, by such improvements in the methods of sanitary administration as the use of anti-toxin in the treatment and prophylaxis of diphtheria, the permit system for regulating the sale of milk, the treatment of consumption as an infectious disease, the medical supervision of schools, and the recent cleanliness of the streets. The influence of all these factors, he also thinks, is to be felt even more strongly hereafter. In conclusion, he says it should be stated that the deaths of children under five years of age, an acknowledged test of the sanitary condition of a community, have numbered only 14,301, as against 15,907 in 1896. This represents only 39.9 per cent. of the total deaths, and a child death-rate of only 68.9 per thousand living children of that age, as against 78.9 for the corresponding months of last year.

Miscellany.

BRAIN DESUETUDE.¹

SPEAKING at Selkirk on the 8th instant, Sir James Crichton-Browne dwelt on the dangers to health involved in indolence and disuse of the brain. The medical profession, he said, adapting itself to the needs of the times, had felt it incumbent upon it during the last decade to insist mainly on the evils of misuse of the brain, on the excessive strain not seldom imposed on it in these days in the fierce struggle of the race to be rich, and more especially on the overpressure imposed on it in the name of education when in an immature state; but they were not less keenly alive to the correlative evils of the disuse of the brain. Elderly persons who gave up business and professional men who laid aside their avocations without having other interests or pursuits to which to turn were in many cases plunged in despondency or hurried into premature dotage. He did not know any surer way of inducing premature mental decay than for a man of active habits to retire and do nothing when just past the zenith of life, and, on the other hand, he did not know any surer way of enjoying a green old age than to keep on working at something till the close. It had been said that one of the rewards of philosophy was length of days, and a striking list might be presented of men distinguished for their intellectual labors which they had never laid aside, who had far exceeded the allotted span of human life. Galileo

¹ The Lancet.

lived to seventy-eight, Newton to eighty-five, Franklin to eighty-five, Buffon to eighty, Faraday to seventy-six, and Brewster to eighty-four years. Sir James Crichton-Browne drew special attention to the great age generally attained by English judges. They were, he said, men who could never fall into routine, but were called upon, as long as they held office, for mental effort in considering and deciding on the new points and cases which were constantly submitted to them. For the most part, they had at one period of their lives undergone some overstrain in the active practice of an exacting profession, and yet they lived to a ripe old age, and were, he believed— notwithstanding the jokes and jibes of hungry aspirants at the bar—more exempt from dotage than any other class of the community. The sustained brain-friction in their case kept that organ bright and polished.

These facts, he thought, ought to inspire us with some doubt as to the wisdom of the compulsory retirement and pension *régime* under which we lived. He had known several cases of mental disease induced solely by enforced idleness in men turned out of the public service, and more particularly the army, in conformity with a fixed rule, while still in the prime of life and capable of useful work. On entering the public service a man had to ascend by graduated steps of increasing work and responsibility. Was it not possible to arrange graduated steps of diminishing work and responsibility by which he might descend on leaving it? Much waste and wretchedness might thus be saved. The physiological notion of life was not cruel overpressure at the beginning, penal servitude in the middle, and silly superannuation at the end, but the timely, continuous, orderly, well-balanced exercise of all the functions and faculties with which the being is endowed.

ABUSES OF MEDICAL CHARITY.

RESOLUTIONS ADOPTED BY THE BOSTON MEDICAL SOCIETY, DECEMBER 18, 1897.

Whereas, the unrestricted abuse of Medical Charity in the large hospitals and dispensaries of Boston is being seriously complained of by a large number of general practitioners, and

Whereas, the State has granted charters to hospitals and dispensaries for the definite purpose of giving medical and surgical care and treatment to indigent persons within this city and the Commonwealth, and

Whereas, the Boston Medical Society, individually and collectively, recognize, with every feeling of sympathy, the rights and the just claims of some of our citizens to the benefits of public and private charity, and will not be found wanting in generosity in whatever may tend to foster the moral, social and physical well-being of the sick, the poor, the destitute, the lowly, the worthy and the unfortunate, and

Whereas, large numbers of persons, of both sexes, frequently, daily and repeatedly receive medical and surgical advice and treatment gratuitously, for numerous cases of minor surgery and ordinary illness, who are believed to be financially competent to pay moderate fees, and

Whereas, the time, facilities and attention at the dispensaries being necessarily limited, that which is received by the well-to-do and the undeserving is, in that proportion, withheld from those who, by the chartered rules of those institutions, are justly entitled to their benefits, and

Whereas, the practitioners of medicine and surgery of any community who have duly graduated from accredited medical colleges and have incurred the expense of locating in such communities naturally and justly feel that their

present and prospective rights and privileges are wrongly encroached upon by the abuses now in practice in connection with medical charities;

Therefore, *Resolved*, that it is the opinion of this Society that some means can be found to check or modify this formidable evil, and

Resolved, that an urgent call be made upon all members of the profession who are in sympathy with this movement and have at heart the best interests of the profession to render such moral assistance and financial support in the adoption of such measures as will tend to eradicate and prevent these evils, abuses and practices, and

Resolved, that an open meeting be held in the near future and the profession at large be invited to be present, and

Resolved, that a copy of these resolutions be sent to the *Boston Medical and Surgical Journal*, *Journal of the American Medical Association*, *Medical Record*, *New York Medical Journal* and *Medical News*, for publication.

For the Society,

M. GERSTEIN, M.D., *Secretary*,
1038 Washington Street.

Correspondence.

[Special Correspondence.]

BERLIN LETTER.

INCREASE OF TETANY IN BERLIN.—GERMAN INTEREST IN THE DISEASE.—THE PUPILS IN HYSTERIA AND EPILEPSY.—PROFESSOR MUNK'S STARTLING CONCLUSIONS AS TO THE THYROID NOT BEING ESSENTIAL TO LIFE OR HEALTH.—MOMMEN'S EIGHTIETH BIRTHDAY AND GERMAN SEPTUAGENARIAN SAVANTS.

BERLIN, November 26, 1897.

MR. EDITOR:—Professor Heubner showed, in his children's clinic at the Charité last week, some cases of tetany in very young children. During the course of his remarks on the disease, he stated his conviction that it was on the increase here in Berlin. This would not seem to be the result merely of more careful methods of diagnosis, but to represent an actual invasion of the disease. This increase has been noted not alone in Professor Heubner's clinic, but in other clinics for children.

It is to be hoped that its present occurrence at Berlin may prove the source of some more definite information with regard to this as yet rather mysterious disease. Its peculiarity of geographical distribution has always been one of the special mysteries. Though first studied at Paris in the early '30's, where a good many cases of it were observed, its frequency has greatly decreased there and cases are exhibited as rarities. Vienna has always been especially the favorite home of the disease, but it has been even more frequently observed of late years than formerly. Berlin practically has had no cases of the disease until now. Eichhorst, in his long years of service here in Frerich's clinic, never saw a case.

At Prague it is so common that it constitutes over one per cent. of all the diseases treated in Escherich's clinic; in children under three years of age, about one-half per cent. of all the diseases treated in the University Clinics there. Professor Escherich, who is one of the acknowledged authorities on children's diseases in Europe at present, has considered it of sufficient importance to make it the subject of a special communication to each of the last three International Medical Congresses.

The accepted theory of its etiology now seems to be its ascription to toxins. These are usually considered to be the result of faulty or incomplete digestion with consequent absorption of unsuitable digestive products. That certain bacterial products are pathogenic of the disease too is admitted, and even the existence of a specific bacillus is maintained, though not by many. Difference in foods in various places has been suggested as the cause of its peculiar geographical distribution, while variations in the

form of popular food-stuffs at different times is thought to account to some extent for the changes in its curve of frequency of occurrence at different periods. Generally, however, there is a vein of distrust of former examinations running through the present literature of the subject that would seem to indicate that exacter methods of diagnosis have led in some cases to the seeming increase in frequency of the disease. One is tempted to wonder if the employment of these methods in America, where only some 70 cases (I believe) of tetany altogether have been reported, would not lead to the discovery of the latent forms that have occupied so much attention here of late.

As Escherich and Heubner both point out, one of the suspicious symptoms that have led them to look for and find other confirmatory signs are laryngospastic attacks —, and these are frequent enough in America. If, in addition to some such unexplained spastic condition as this, Troussseau's symptom can be developed with the facialis phenomenon (Chivostek's sign) and exaltation of the mechanical and electrical excitability of the muscles, then the diagnosis of tetany is justified even though no generalized spasms occur. Von Jaksch and Frankl and Hochwart, the most recent writers on tetany, and who have each been very favorably situated (Prague and Vienna) for seeing a number of cases of the disease, consider that, with the symptoms described present, not even the spasms of hands and feet that used to be called carpopedal spasm are necessary for the justification of the diagnosis. Some years ago this slight form was itself scarcely considered to justify the diagnosis tetany.

The question of the differentiation of cases of hysteria from true epilepsy when the attacks take on the form of hysterio-epilepsy would seem to be growing more rather than less difficult, as observers investigate supposedly differential symptoms more carefully. The reversal of the formulæ of the alkaline and earthy phosphates pointed out by Gilles de la Tourette and Cathelineau as distinctive of hysteria is too difficult of determination for practical purposes, is surrounded by too many modifying circumstances that limit its value and besides has not been confirmed by all observers. In consequence one hears scarcely anything of it here in Germany.

Some recent work of Dr. Westphal in Professor Jolly's clinic at the Charité would seem to destroy the value of almost the only other differential diagnostic sign that was left, the failure of the pupils to react to light in true epileptic attacks. Scattered cases of hysteria with loss of pupillary light-reflex have been reported occasionally in the literature, but have been considered as instances of faulty observation as a rule. When Karplus, from Krafft-Ebing's clinic, reported some cases last year of *pupillenstarre* in hysteria, he called attention to the general feeling of incredulity with regard to such cases, and now Dr. Westphal does the same. Both are, however, thoroughly competent observers, so that the loss of pupillary reflex to light can no longer be considered pathognomonic of epilepsy.

Professor Munk's article on "The Physiology of the Thyroid," in the last number of *Virchow's Archiv*, is rather startling in its conclusions. He absolutely denies that the thyroid is essential to animal life, or that its removal leads to myxedema in animals, or that when it is removed its influence may be supplied by implantation or ingestion of the thyroids of other animals. In other words, there is an official contradiction from the department of physiology of the University of Berlin of all the present prevailing opinions as to the physiology of the thyroid.

As only articles of whose scientific value there can be no doubt find their way into *Virchow's Archiv*, and the editor prides himself on the personal supervision of the material that appears in the *Archiv*, the present article represents in a way the school of scientific medical thought in Germany. The experiments were too carefully done to admit of cavil as to the results, and there are too many of them for a series of coincidences to have had a disturbing influence on the conclusions they suggest. The opinion is

openly expressed from many quarters now, that, after serving as the basis for therapeutic measures which are undoubtedly efficient, and having led to a set of conclusions as to the importance of the thyroid in man which can scarcely be questioned in the light of therapeutic results, the conclusions drawn from the removal of animal thyroids are now to be materially modified, at least as regards the animals.

Professor Mommsen, the famous historian of ancient Rome, will celebrate his eightieth birthday next week, but he has absolutely refused to allow of any public felicitations on the occasion. Addresses are to be sent him by the various faculties, however, and due honor will be shown to the man of whom all think so much. He is still doing some University work and like Virchow, who celebrated his seventy-sixth birthday a month ago and his fiftieth anniversary as a teacher at the University of Berlin a few days ago, he insists on remaining in harness. Like so many of the German savants who at seventy and over are still vigorous intellectually and still able to do good work, he is a living proof that intellectual work, even when intense, persistent and absorbing for a lifetime, does not wear out the human machine before its time.

It is worry, not work, that causes serious friction. Mommsen's absorption in his work has for years been so great that the stories of his abstractedness are many. His failure to move from his place in the Vatican Library where he was at work, though the Pope and his suite were passing through; his failure to recognize his best friends at times when he met them — once even one of his own children, it is said — show how thoroughly all his mental attention was centred around the great subjects that occupied him continually. At eighty, however, he is still hale and hearty and planning new work. It reminds one of Ranke beginning at ninety years of age a Universal History to fill twelve volumes, of which one volume a year was to appear. The ordinary impression, so universally prevalent that intellectual work is especially wearing, could not receive a more striking contradiction.

BILLROTH AND PIROGOFF.

BOSTON, December 15, 1897.

MR. EDITOR: — In connection with the editorial on N. I. Pirogoff, which appeared in the JOURNAL of December 9th, the following facts, as related by a certain Dr. Wilhelm von Vragassy (*vide Deutsche Revue* for November, 1897), may be of interest to your readers.

It appears that the famous surgeon Theodor Billroth (1829-1894), a statue of whom was recently erected in one of the lecture halls of the medical department of the University at Vienna, where he occupied the chair of surgery, entertained the highest respect for Pirogoff. On the back of his (Billroth's) picture presented to Pirogoff during the latter's visit to Vienna, there is the following autographic inscription: "Dem verehrten Meister Nicholas Pirogoff. Wahrheit und Klarheit im Denken und Empfinden, wie in Wort und That, sind die Sprossen auf der Leiter, welche die Menschen zum Sitze der Götter führt. Ihrem ebenso kühnen als sicheren Führen auf diesen nicht gefahrlosen Wege nachzufolgen soll stets mein eifriges Bestreben sein. Ihr aufrichtiger Bewunderer und Freund — Billroth." This respect was evidently reciprocated.

Some two years before Pirogoff's death his wife observed that he rinsed his mouth rather too frequently, not only after meals, but also at other times. To her somewhat anxious inquiries as to the cause of such a procedure Pirogoff, who was an inveterate smoker, replied that by that means he hoped to protect the mouth from the possible injurious effects from excessive smoking. While once thus rinsing his mouth with too hot water, he scalded it, and on examining it, his wife detected a little swelling, of a somewhat

painful nature, on the hard palate near the alveolar border. As it increased in size and became more painful, there arose a suspicion in Pirogoff's mind that it might be a malignant neoplasm, but his anxiety was somewhat allayed by Dr. (now Professor) Sklifosovski, who diagnosed it—at least he told Pirogoff so—as an incurable fistula, but by no means of a malignant nature. However, the rumors gained ground among the profession that Pirogoff was suffering from a carcinomatous growth, and he was urged by many of the most prominent Russian surgeons to subject himself to an operation. But so great was his faith in Billroth, that he left for Vienna to seek his advice in the matter. Contrary to all expectations, Billroth made light of the diagnosis of the Russian surgeons, and not only advised against any operative interference, but stoutly denied the malignancy of the growth in his answers to anxious inquiries from a great many prominent persons in Russia concerning Pirogoff's health. Reassured, Pirogoff returned to Russia, where he died a few months later of a cancer of the superior maxillary bone.

The occurrence naturally raised a storm of indignation and abuse in the press and the profession, but the great German surgeon explained his position in the affair which makes it appear in a different light. In a letter to a Russian surgeon he declares, that notwithstanding the fact that the diagnosis of carcinoma was but too evident, and also substantiated by microscopical examination, he could not but advise against operating on a man, who was on the wrong side of seventy, presenting marked symptoms of senile marasmus, with indications of approaching double cataract. Even if he were to stand the operation (which was hardly possible), a recurrence of the growth was sure to take place. "Let me assure you that I would hesitate to perform such an operation on a patient twenty years younger and of a more robust constitution; because my thirty years' experience as a surgeon has taught me that carcinomatous and sarcomatous tumors arising from the posterior part of the superior maxilla can never be removed thoroughly, even in cases where we are sure that the patient will bear the operation well. A total extirpation of such a tumor by the aid of the knife is impossible in this place, partly because of the anatomy of the part, partly because of the technical difficulties, unless we expect growths enclosed in a sac. I am no longer that bold operator whom you knew years ago in Zürich. Before deciding on the necessity for an operation, I always propose to myself this question, Would you permit such an operation as you intend performing on your patient to be done on yourself? Years and experience bring in their train a certain degree of hesitancy (Zurückhaltung). Every year brings out clearer and clearer the shortcomings of our art."

Very truly yours,
A. ROVINSKY, M.D.

WINTER PARK, FLORIDA, AS A WINTER RESORT.

ANDOVER, MASS., December 15, 1897.

MR. EDITOR:—As the cold weather of winter approaches, many invalids and semi-invalids, who realize that they can obtain increased length of days, complete or partial renewal of health and strength with greater comfort, by fleeing from the rigors of our northern season to a softer and more congenial climate, are doubtless discussing the important question of a suitable location. In behalf of these valetudinarians, I believe that I am doing a positive service in directing the attention of physicians who may not be familiar with the locality to Winter Park, Florida, a resort which possesses some advantages not to be found in many better known and more frequented places.

Centrally located on high land, on the "backbone" of the State, away from the windy coast, it has a dry and porous soil and is free from the malarial dangers of the swampy districts. The surface of the country is pleas-

antly diversified by pine groves, by handsome orchards of orange trees with their deep green foliage and golden fruit, now just beginning to bear after the set-back by the frost of three years ago, and by many small but delightful fresh-water lakes. The climate during the winter months is very agreeable, with a large preponderance of clear days, varied by occasional refreshing showers. The temperature from the first of January until the middle of March is very equable, ranging from 60° to 85° F., and the warmer days are tempered by cooling breezes impregnated with the balsamic odor of the pine forests.

Winter Park, in my opinion, is one of the most inviting places in the Southern States for a winter home for those who seek rest and comparative quiet, with pleasant and rational society.

I will add that there is a fine hotel, "The Seminole," at Winter Park, which furnishes an excellent *cuisine* and other attractions at reasonable rates for those who desire hotel life, while for those who may prefer them, furnished cottages afford the opportunity for more private family life. The best evidence of the excellence of this resort is found in the considerable number of those whose annual pilgrimage thither attests their satisfaction and the benefit which they have received. Having learned by observation and personal experience of the merits of Winter Park, I feel justified in recommending it to the profession as worthy of consideration as a winter home for those who are not too far advanced in invalidism, but who wish to avoid our inclement New England winters and are able to make the journey in safety.

Very truly yours,
C. N. CHAMBERLAIN, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 11, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	1,868,060	704	276	12.60	17.92	.98	1.96	4.36	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	401	122	22.00	24.40	2.80	4.80	12.80	
Brooklyn	1,160,000	346	93	8.12	18.56	3.77	1.45	3.77	
St. Louis	570,000	—	—	—	—	—	—	—	
Baltimore	550,000	164	56	13.14	7.32	1.22	1.83	7.32	
Boston	517,732	191	51	7.28	21.84	—	2.08	2.60	
Chicunauti	405,000	104	—	5.82	10.67	1.94	—	3.88	
Cleveland	350,000	98	32	3.00	18.00	—	—	—	
Pittsburg	285,000	88	28	20.62	13.68	5.70	1.14	5.70	
Washington	277,000	96	31	6.24	19.76	1.04	2.08	2.08	
Milwaukee	275,000	—	—	—	—	—	—	—	
Nashville	106,050	30	7	6.66	13.33	—	3.33	3.33	
Worcester	106,050	28	12	28.56	14.28	3.57	3.57	3.57	
Fall River	96,919	29	9	10.35	25.15	3.45	3.45	—	
Lowell	87,193	32	10	6.30	25.20	3.15	—	—	
Cambridge	86,812	27	12	3.70	22.20	—	—	—	
Lynn	65,220	21	4	28.56	—	—	—	4.76	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	22	6	4.15	12.45	—	—	4.15	
Lawrence	55,510	16	4	—	25.00	—	—	—	
Springfield	54,790	13	3	15.38	23.07	—	7.69	7.69	
Holyoke	42,364	—	—	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	7	0	28.56	14.28	—	14.28	14.28	
Brookton	35,853	—	—	—	—	—	—	—	
Malden	32,854	5	0	40.00	10.00	—	—	—	
Chelsea	32,716	16	2	12.50	37.50	6.25	—	6.25	
Haverhill	31,406	7	2	—	—	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,980	13	5	15.38	7.69	7.69	—	—	
Fitchburg	28,392	10	1	—	20.00	—	—	—	
Taunton	27,812	12	4	—	25.00	—	—	—	
Quincy	22,562	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	1	—	—	—	—	—	
Everett	21,576	—	—	—	—	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	5	0	—	20.00	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,577; under five years of age 794; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 276, acute lung diseases 437, consumption

294, diphtheria and croup 109, typhoid fever 50, diarrheal diseases 33, scarlet fever 32, measles 19, whooping-cough 15, cerebro-spinal meningitis 7, erysipelas 7, malarial fever 4.

From scarlet fever New York 16, Brooklyn 4, Philadelphia and Lynn 3 each, Baltimore 2, Cleveland, Pittsburg, Washington and Fall River 1 each. From measles New York 17, Philadelphia and Pittsburg 1 each. From whooping-cough New York 7, Pittsburg 3, Baltimore 2, Brooklyn, Boston and Cleveland 1 each. From cerebro-spinal meningitis Boston 3, Worcester 2, Somerville and Newton 1 each. From erysipelas New York 3, Pittsburg 2, Baltimore and Cambridge 1 each. From malarial fever New York and Brooklyn 2 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending December 4th, the death-rate was 19.8. Deaths reported 4,172; measles 215, diphtheria 89, whooping-cough 77, fever 61, scarlet fever 53, diarrheal 46.

The death-rates ranged from 9.9 in Croydon to 27.9 in Norwich; Birmingham 19.2, Bolton 15.9, Bradford 17.1, Cardiff 13.2, Gateshead 23.2, Huddersfield 23.1, Leeds 26.2, Leicester 17.2, Liverpool 23.8, London 20.2, Manchester 19.4, Newcastle-on-Tyne 18.0, Nottingham 15.4, Salford 14.2, Sheffield 22.4, Sunderland 18.0.

METEOROLOGICAL RECORD

For the week ending December 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humid- ity.		Direction of wind.		Velocity of wind.		Weath'r. *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...5	29.58	46	54	38	100	75	88	W.	W.	14	8	R.	O.	.25
M...6	30.12	33	38	28	65	63	64	W.	N.E.	10	9	O.	C.	
T...7	30.24	30	34	26	82	87	88	N.	N.	11	8	O.	C.	.09
W...8	30.30	33	38	28	95	88	92	N.	W.	5	8	O.	O.	.04
T...9	30.26	45	56	34	96	90	93	S.	S.W.	12	12	O.	F.	
F...10	30.13	56	64	47	89	86	82	S.W.	S.W.	9	12	O.	O.	
S...11	29.92	57	63	51	81	88	86	S.W.	S.W.	12	12	O.	C.	.03
EP														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 11, 1897, TO DECEMBER 17, 1897.

Leave of absence for one month, to take effect about December 15, 1897, with permission to apply to the Adjutant-General of the Army, for an extension of two months, is granted MAJOR LOUIS BRECHEMIN, surgeon, Fort Sherman, Idaho.

The ordinary leave of absence granted CAPTAIN ISAAC P. WARE, assistant surgeon, under orders for duty at Benicia Barracks, Cal., is extended one month on account of sickness.

FIRST-LIEUT. GUY C. M. GODFREY, assistant surgeon, will be relieved from duty at Fort Sheridan, Ill., and will report in person to the commanding officer of the detachment of troops at Finn's Point, N. J., for duty at that place and at Fort Delaware.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 18, 1897.

A. C. H. RUSSELL, surgeon, detached from the "Lancaster," and ordered home on waiting orders.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DECEMBER 16, 1897.

PECKHAM, C. T., passed assistant surgeon. Upon completion of duty at Vineyard Haven, Mass., to proceed to Pittsburg, Pa., and assume command of Service. December 14, 1897.

WHITE, J. H., passed assistant surgeon. To rejoin station at New York, N. Y., reporting at Bureau en route not later than December 22, 1897. December 13, 1897.

VAUGHAN, G. T., passed assistant surgeon. Granted leave of absence for ten days from December 22, 1897. December 15, 1897.

YOUNG, G. B., passed assistant surgeon. Granted fourteen days' extension of leave of absence on account of sickness. December 15, 1897.

OAKLEY, J. H., passed assistant surgeon. To proceed to New Orleans, La., and report to Passed Assistant Surgeon J. H. WHITE for temporary duty. December 13, 1897.

NORMAN, SEATON, assistant surgeon. To report to Passed Assistant Surgeon J. H. WHITE at New Orleans, La., for temporary duty. December 13, 1897.

LAVINDER, C. H., assistant surgeon. To proceed to Delaware Breakwater Quarantine and report to the commanding officer for temporary duty. December 15, 1897.

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give four informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association. The lectures will be given at the Harvard Medical School on successive Thursday evenings in January, beginning January 6th at 8 p. m. Members of the profession and students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., Secretary.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, December 27th, at 8 o'clock.

Dr. A. C. Klebs, by request, will present the subject of "The Diagnostic and Therapeutic Value of Tuberculin and its Derivatives." Dr. V. Y. Bowditch will open the discussion, followed by Drs. A. Worcester, H. F. Hewes and others.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

RECENT DEATHS.

TREFFLE GARCEAU, M.D., M.M.S.S., of Roxbury, died suddenly on December 19th, aged sixty years.

PROFESSOR TARNIER, the eminent obstetrician, died recently in Paris, in his seventieth year. He took his Doctor's degree in 1837, and succeeded Professor Depaul in the Chair of Midwifery and Diseases of Women and Children in the Paris Medical Faculty in 1834. In 1839 a special Chair of Clinical Obstetrics was founded for him. In collaboration with MM. Chantrenil and Budin he produced a great work on obstetric medicine, which appeared between 1878 and 1886; and he was the author of important works on the hygiene of infancy. He took a prominent part in introducing antiseptic principles into midwifery practice and was the recognized leader in his special department of medicine in France.

BOOKS AND PAMPHLETS RECEIVED.

Eighteenth Annual Report of the Indian Industrial School at Carlisle, Penn. 1897.

On the Transmission of Syphilis to the Third Generation. By George Ogilvie, B.Sc., M.B. Edin., M.R.C.P. London. Reprint. 1897.

Des Caractères et du Processus du Syphili-Virus et de l'Ex-
crète du Syphilôme. Par le Dr. G. Richard d'Aulnay, Ancien
interne de Saint-Lazare.

Transactions of the Medical Society of the State of North Carolina, Forty-third Annual Meeting held at Winston-Salem, N. C., May 12, 13 and 14, 1896.

Royal Institution of Great Britain, Immunization against Serpent's Venom and the Treatment of Snake-bite with Antivenene. An Address delivered by Professor Fraser, M.D., LL.D., F.R.S., March 20, 1896.

Medico-Chirurgical Transactions. Published by the Royal Medical and Chirurgical Society of London. Volume VIII (Second Series, Volume LXII). London: Published for the Society by Longmans, Green & Co. 1897.

Primary Sarcoma of the Iris. A Statistical Study, With the Report of an Additional Case, in Which the Growth Was Successfully Removed by Iridectomy. By Clarence A. Veasey, A.M., M.D. Illustrated. Reprint. 1897.

The Surgical Treatment of Ano-Rectal Imperforation in the Light of Modern Operative Procedures. By Rudolph Matas, M.D., Visiting Surgeon to the Charity Hospital of New Orleans; Fellow of the American Surgical Association. From the Transactions of the American Surgical Association, 1897.

Clinical Methods. A Guide to the Practical Study of Medicine. By Robert Hutchinson, M.D., M.R.C.P., Demonstrator in Physiology, London Hospital Medical College, and Harry Rainy, M.A., F.R.C.P. Ed., F.R.S.E., University Tutor in Clinical Medicine, Royal Infirmary, Edinburgh. With 137 illustrations and 8 colored plates. Philadelphia: Lea Brothers & Co.

Original Articles.

OPERATION FOR CORRECTING DEFORMITY OF THE NASAL SEPTUM.¹

BY F. E. HOPKINS, M.D., SPRINGFIELD, MASS.,

Laryngologist to the Springfield City Hospital, Fellow of the New York Academy of Medicine, Fellow of the Massachusetts Medical Society, etc.

DEFORMITY of the triangular cartilage, with attendant occlusion of the nasal passage, has long presented a difficult problem to the rhinologist. This difficulty is due to the resiliency of the cartilage and to the redundancy of tissue embraced in the wide bending from the straight line. I purpose to demonstrate to you a method of operating which, because of its efficiency, deserves to be more generally known. This operation restores the septum to its normal position and thus overcomes the obstruction to nasal respiration.

The evil results of nasal obstruction are so well understood that it is unnecessary more than to allude to the more prominent, namely, the interference with facial development, the lowered vitality which it induces, and the consequent interference with general development. In this paper I shall limit myself to the consideration of but one form of that obstruction, namely, deviation of the septum; and I shall invite your attention to the treatment of only that part of the septum which we find most commonly deflected—the triangular cartilage.

Allusion will be made to a few of the operations which have been more prominently brought before the attention of the profession, for the correction of this deformity; but there will be no effort to go into the literature of the subject—it would prove but wearisome—and a detailed description of but one method of operating will be given, that method adopted and perfected by Dr. Morris J. Asch, of New York. This method seems to me the most rational, and promises to secure better results than any other with which I am familiar.

As to etiology, it is probable that by far the most common cause of deviation of the septum is traumatism, and for the most part the injury is received early in life.

It has seemed to me that those cases in which the cartilage is not much thickened, being simply bent in a wide arc, making one nasal passage large and occluding the opposite one, were examples of a lesion beginning in early childhood, when the cartilage is yielding and more easily displaced; while those cases presenting marked thickening—*ecchondroses*—upon the convex side are examples of an injury received later in life, when the tissues are firmer and a much severer blow is necessary to displace the parts and the accident is followed by inflammation and a consequent piling up of tissue along the line of fracture.

It will be well to inquire into the condition which obtains when the nasal passage is wholly or partially obstructed in its anterior portion. The air-current passes into the lungs through the open nostril, drawn in by the active movement of the muscles of respiration. It enters with difficulty or not at all upon the obstructed side. One can thus readily appreciate the fact that at every inspiration, behind the point of

obstruction, a process of dry-cupping takes place with the consequence of determining an increased supply of blood to the mucous membrane and a thickening—hypertrophy—of this tissue. This thickening tends still further to close the affected naris, and in proportion to its narrowing a new force comes into play—atmospheric pressure. This force of fifteen pounds to the square inch exerted upon yielding tissue steadily forces the cartilaginous septum toward the outer wall of the affected side, until it rests upon it.

These are factors which must be borne in mind in performing any operation for the relief of the deformity under consideration. Not only must the resiliency of the cartilage be overcome, but good space must be provided upon either side, that the air-current may pass freely through each nostril. In one of my cases, a lad of nine years, the septum was over-corrected, and from deviating toward the left and occluding that side, it was forced over so far toward the right that that side was partially occluded, and had not this condition received early attention, the two forces, of tendency to vacuum behind the obstruction and air-pressure against the cartilage, would simply have changed a deviation to left for one to the right.

This influence of the never-ceasing, remorseless, so to speak, air-pressure upon the yielding, growing tissues of children is an interesting subject for study. The child who has nasal obstruction is, perforce, a mouth breather. The constantly open mouth permits of the exertion of air-pressure upon the hard palate and there results the high arched gothic-shaped palate; the upper part of the face is narrowed from the action of the same force, and this gives the peculiar facial conformation which in its more pronounced forms you have all observed.

The symptoms produced are, first, mouth breathing with its attendant discomfort of a congested and irritated pharynx, larynx and bronchi. In the pharynx we usually have a chronic follicular inflammation of the mucous membrane, the larynx is apt to be dry, which, aside from the annoyance given, affects the quality of the voice. The voice is, of course, further influenced by the lack of nasal resonance, which produces that wooden quality called nasal. The sense of smell is lost on the affected side.

Aside from these symptoms there result the structural defects first alluded to.

The diagnosis is easy as the lesion is situated so far forward that it can be seen without the aid of even a nasal speculum. One observes the obstruction in one nostril and examination of the other shows that to be correspondingly enlarged. There is a convexity upon one side, a concavity upon the other. The fact that adenoids are often associated with deviation of the septum need not be considered in examining a case. This is simply an added element to be considered in the care of the case. The object to be attained in performing operation for the relief of the condition under consideration is first to overcome the resiliency of the cartilage and then to retain it in its new position.

Adams attempted this by the use of strong forceps, which, though modified, have been retained by many operators, and having broken up the septum, kept it in position by ivory plugs.

Roberts, after the first step, retained the septum in position by a pin carried directly through from the concave side, then passing along the septum over the point of greatest convexity it enters the tissue again

¹ Read before the Springfield Medical Club at its regular meeting, March 10, 1897.

and is buried to a sufficient depth to hold it firmly. Ree uses a modified Steele's punch, then strong forceps. Moure seeks to correct the deformity by the use of electrolysis, inserting the negative needle into the tissue at the greatest convexity, the positive pole over it. And thus one could enumerate almost as many methods as there are men who have devoted special attention to this point.

I will now show you the instruments necessary for performing the Asch operation: they are a probe, to aid in examining the extent of the deviation and the degree of the adhesion of septum to outer wall, a gouge to break up adhesions, if such exist, the scissors for making the crucial incision through the septum, the strong forceps to overcome the resiliency of the septum, and the splint to retain it in position. After the septum has been thoroughly broken up by the use of the strong forceps, and then, with the finger forced far over into the opposite nostril, the tubular splint is inserted into what was the occluded side, to retain the septum in its new or vertical position. After hemorrhage has ceased, the patient is able to breathe through the hollow splint, so that a degree of nasal respiration is at once restored.

This splint should be worn for a period of about six weeks, that the septum may become thoroughly organized in its correct position. It must be removed daily for cleansing. After the first soreness has passed away, the patient can attend to this himself; in fact I have seen it done by children of ten years of age.

When the splint has been worn for a sufficient length of time to secure firm position of the septum, it then becomes necessary to remove any projections caused by the overlapping of fragments or due to the presence of spurs. The nares are then left smooth and the operation can be considered complete.

I report herewith a few cases illustrative of what can be accomplished by this method of operating:

CASE I. E. M., male, American, fifteen years of age. This case is perhaps deserving of a somewhat detailed description, for the obstruction to nasal respiration was almost complete and the evil results correspondingly marked. The lad was undersized, thin chested, and ill developed both mentally and physically. In weight he was much lighter than a brother two years younger. At school he made but poor progress, not being able to keep along with boys of his own age. He was unable to join in the active pastimes of his fellows because he was so quickly "out of breath." His appetite was not good and he would eat only soft food, mushes and bread soaked in coffee being favorite food. Meat and solid food he refused apparently because of the greater difficulty in swallowing, rather than because of any aversion to the taste of solid food. This difficulty in swallowing solids was due to the interference with respiration. The voice was entirely lacking in nasal resonance and there were many letters which he could not sound. The facial appearance was characteristic of nasal obstruction. The mouth constantly open and the face narrowed at the level of the malar prominences elongated his features and at the same time gave him an idiotic expression. Examination showed the septum deviated to the right and a large exostosis so that the right nasal fossa was entirely occluded. The left nostril was not enlarged in proportion to the deviation of the septum to the right, as there was hypertrophy of the inferior turbinated upon the left side filling up the enlarged space.

There was also pharyngeal obstruction due to the presence of adenoids and enlarged tonsils. The uvula was elongated. Happily for patients, it is rare to find so many lesions in the nose and throat of a single individual.

With Dr. Hooker's assistance, the Asch operation, as I have described it, was done December 27, 1895. He wore the splint seven weeks, and later the exostosis was removed and the other lesions above referred to given attention. The results in this lad's case can properly be spoken of as remarkable. He promptly began to take ordinary diet, he gained in strength and could run, skate and take part in boyish sports. At the end of six months he had grown four inches in height, and gained forty pounds in weight, — a promptness of rebound which suggests the removal of a weight. His appearance changed greatly for the better and his work at school became more nearly normal.

I have given this case at some length because it was an unusually good one to illustrate the evils of nasal obstruction and to show what can be done for its relief.

CASE II. D. B., male, American, nine and a half years old, was referred to me by Dr. Hooker March 9, 1896, for deafness and nasal obstruction. The deafness yielded readily to inflation, and arrangements were made to correct the obstructive lesion which consisted of a deviation of the septum to the left occluding this nostril. The obstruction to respiration was further aggravated by the presence of adenoids and enlarged tonsils. The septum was operated upon April 27, 1896, and the adenoids and tonsils removed under the same anesthesia. There was such redundancy of tissue in the septum, and the nose was so small that the septum was a little overcorrected though there is now good breathing space through the right nostril. The case is a successful one and the boy has grown rapidly since the operation.

(There is absence of history of traumatism in this case and the mother states that she discovered the septal defect when the child was three years old. He has a normal broad, hard palate.)

CASE III. A., male, American, aged twenty-one years. Deviation of septum to right with marked thickening, nasal fossa of this side being absolutely occluded. Adenoids also present. This patient was taken to New York about three years ago and was there operated upon with a trephine and saw, the large projecting overgrowth being removed. This afforded a measure of relief, but it did not sufficiently free the passage, and after the lapse of some time, the soft tissues, for reasons already explained, became so hypertrophied as to again obstruct respiration.

On August 29, 1896, the Asch operation was performed upon the septum, and the adenoids removed. The patient was under my observation but three weeks, as he left town for school on September 19th. From this time the care of the case was entirely in his own hands. He removed the splint twice daily for cleansing, and at the same time cleansed the nostril.

Examination, January 3, 1897, showed a free passage and a consequent restored nasal respiration.

Owing to the fact that previous to the operation so large a mass of tissue was removed, the septum was left unduly thinned at a certain level, and at this point there resulted a small horizontal perforation. The saw should not be used in these cases until after the

more radical operation has been performed, and the septum has become solidified in its new position.

CASE IV. A. H., male, of German parentage, aged sixteen years, referred to me by Dr. Hooker and with his assistance operated upon September 24, 1896. There was complete occlusion of the left nasal fossa by deviation and thickening of the septum. He also had adenoids. The cause of the septal deformity in this case was attributed to traumatism, a fall down stairs at the age of two years, and the external confirmation of the nose corroborates this statement, for it is noticeably deformed. The adenoids were removed and the septum straightened under the same anesthesia. Owing to the great thickening of the septum there was an unusual amount of trimming up to do after the tube was discarded. To-day the septum remains in the perpendicular plane in which it was left, and to his great comfort the patient breathes through both nostrils.

CASE V. G. K. P., male, American, aged twenty-six years. A slight, thin-faced, delicate-looking young man came to me September 23, 1896. His own diagnosis was hypertrophied tonsils, and the distress referable to his throat and the peculiarity of his voice made his diagnosis seem a fair presumption. There was in his speech not only a lack of nasal resonance but a quality of sound suggestive of the presence in his throat of a mass of adventitious tissue. Examination revealed tonsils somewhat hypertrophied, a chronic follicular pharyngitis and a throat congested and irritated out of proportion to the local lesion. The left nasal fossa was found entirely occluded by deviation of the septum. He could not remember when it had been possible for him to get air through that side. The throat symptoms seemed to me largely secondary to the enforced mouth breathing, and upon receiving this opinion he consented to an operation upon the nose.

It is worthy of remark in this connection, as bearing upon the evil effects of a lack of nasal respiration, that this young man belongs to a family possessing better than the average physical development. His father is above six feet in height, his two brothers are each six feet tall, his mother was at least of average height, yet he is much below the average height and of slight physique, having the pinched features and the high arched palate of a mouth breather.

With Dr. Bates's assistance I operated upon this case October 27, 1896. The after-treatment was unusually prolonged because of the patient's poor health, as he had frequent attacks of acute illness, tonsillitis, derangements of digestion, etc., none serious, yet of such frequency as to keep him reduced in strength. Early in January of this year his family had decided to send him to Bermuda for the rest of the winter, but about this time he began to improve and in a few weeks was able to return to business. To-day he is in better health than he has known for years. His father laughingly says, "George is going to be worth raising after all."

I shall have the pleasure of showing you this case.

CASE VI. E. B., male, French, aged twenty-six years, came under my observation November 8, 1896. Left nasal fossa completely occluded by deviation of the septum to that side, and by thickening of the cartilage. Asch operation performed November 12, 1896. The septum seemed fragile, which is rare, and upon use of the forceps for breaking up its resiliency

it crackled in an ominous way. No harm, however, was done save that a fragment at the angle of incision was broken off leaving a small perforation. Examination on March 4, 1896, shows both nostrils free and perfect nasal respiration.

One may be justified in considering every one of these cases successful and they include all I have operated upon by this method in this vicinity. They certainly are successful so far as restoring the function of respiration is concerned, and they are successful also in putting the septum permanently in a correct position. Time and patience are required, owing to the great resiliency of the cartilage, but most good results are obtained only at the expense of labor and vigilance.

NOTE. — Since the foregoing was written, I have performed the Asch operation in six additional cases, and in each of these free nasal respiration is restored.

CEREBRAL SYPHILIS.

WITH REPORT OF A CASE OF CHRONIC MENINGO-ENCEPHALITIS SECONDARY TO SYPHILIS.¹

BY CHAS. NORTON BARNEY, M.D.

THE patient whose case I am about to report entered the Massachusetts General Hospital first in July, 1895, on the service of Dr. Gannett, having been recommended for admission by Dr. James Putnam. She was at that time twenty-five years of age, and had already borne four children, the youngest of which was four years old. For a year she had had ulcers on the left leg. For two months before entrance these ulcers had been treated with mercury and iodide and had improved much, but were not yet entirely healed.

Since February, 1895 — that is, for five months — she had complained much of severe frontal headache, and at intervals, for periods of a week or more at a time, had appeared very dull and stupid. Some vomiting without relation to food, and occasional dizziness, but no paralyzes nor twitchings. Headache, vomiting, dizziness and stupor, then, through the spring.

In July, nine days before entrance, mental dulness became more marked, headache very severe, her speech became "thick," and she often used the wrong words. The next day tingling in the little finger of the left hand, then of the whole left arm, and, later, paralysis of the arm. In two or three days more her face became drawn to the right, and the next day the paralysis involved the left leg. During the week, then, there were added to the previous symptoms of headache, vomiting, dizziness and stupor, a degree of motor aphasia, and left hemiplegia of gradual onset. There were also incontinence of urine and constipation.

Examination showed a fairly well-developed and nourished woman of small build, with dull expression and dull mental condition. She could answer questions, however, and recognize objects. There was slight internal strabismus at times. Movements of eyeballs were good. Pupils equal and reacting to light. Left facial paralysis not involving the upper segment. Paralysis also of the left arm and leg. There was some enlargement of glands in the neck, and scars of former abscesses. The knee-jerk was

¹ Read at a meeting of the Clinical Section of the Suffolk District Medical Society, October 20, 1897.

present on the right, but was not tested on the left because of the ulcers which extended from knee to ankle. No ankle-clonus on either side. Temperature, pulse and respiration were normal. Examination of the fundus of the eyes was negative. Examination of the urine negative. Blood examination showed no anemia and no leucocytosis.

During her stay in the hospital there were noted dulness, involuntary micturition, constipation, occasional headache and vomiting, aphasia, paralysis, and labial herpes. These symptoms rapidly cleared up under iodide administered by mouth and by rectum in doses pushed to 180 grains a day. The mental condition was the first to improve, becoming normal in four days. The paralysis disappeared first in the face, then in the arm, and last in the leg. The patient was under treatment one month. At the end of that time her intellect was perfectly clear, and she was able to walk several blocks with no help but a cane.

All the late summer and early autumn her husband considered her practically well. Catamenia did not appear in October nor in November. At this time she began to show slowness of thought and speech, failing memory, and "said odd things." Early in December she had an abortion and her uterus was curetted. Under iodide her mental symptoms improved. Later, however, headache became continuous and especially severe at night.

At the end of January, 1896, about a year after the first appearance of cerebral symptoms, she entered the hospital a second time, on the service of Dr. Fitz. She was unable to give any account of herself, but her husband stated that the chief symptoms had been mental confusion, thick speech and headache; and also, that for two days she had complained of tingling in the arm and lip, the symptoms which preceded the hemiplegia of six months before. At this time, however, the tingling was on the right, whereas before it had been on the left. There had been no vomiting, and the eyes had been straight.

On examination, temperature, pulse and respiration were found normal. Nutrition and color not as good as at the examination six months before. Expression very dull. Questions were answered slowly or not at all. The eyes showed nothing wrong. Chest and abdomen were negative. There was ankle-clonus on the left, and a tendency to clonus on the right. Both knee-jerks were active. The patient moved the left foot only very slightly, and the right foot not at all. All movements were weak and sluggish, but possibly partly on account of hebetude.

The night of entrance she became noisy, was transferred to a private room, tied in bed, and given trional. Antisyphilitic treatment was begun. Mercurial ointment half a drachm by inunction every night, and iodide forty grains a day, to be increased fifteen grains each day. For the next week she was delirious most of the time. These days are perhaps worth reporting in detail.

February 1st. The temperature, previously normal, was now ranging between 99° and 100°, with a corresponding rise in the pulse. Patient shrieking when nobody was in the room, and crying when anybody entered. She was emotional and forgetful. Got out of bed unless tied. Slept only after hypnotics. Trional fifteen grains, and sulphonal ten grains were ordered to be given every morning and night if the patient were noisy.

On the second day she was in the same condition, shrieking and trying to get out of bed if alone and not under hypnotics. Hallucinations and delusions. Emotional. She shrieked all night, in spite of trional and sulphonal, and of hyosine given subcutaneously.

On the third day she slept in naps, but would shriek as soon as she awoke; and when anybody would come into the room she would cry out that she was being killed. She heard the voices of her friends and children, and had various other hallucinations. The daily dose of mercurial ointment given by inunction was increased to one drachm, and the order for trional and sulphonal changed to ten grains of trional and five of sulphonal every six hours if necessary. Three doses were required on this day.

On the morning of the fourth day she was awake and quiet. She screamed very little and got along with only one dose of the hypnotic.

On the fifth day she was crying, but not yelling. This day also she required only one dose of the trional combination.

The sixth day she was perfectly quiet and required no hypnotic. Headache was complained of and relieved by phenacetin.

On the seventh and eighth she took trional and sulphonal twice.

By the tenth she was rational, bright and quiet. She took a hundred and sixty-five grains of iodide, and showed no toxic effects from either iodide or mercury.

On the thirteenth she was taking one hundred and eighty grains of iodide and was kept at this dose from this time on. She had not required trional for two days and did not take it again. She was not noisy, and only occasionally had to be tied in bed.

By the eighteenth she had still shown no toxic symptoms from the mercury and iodide. It is interesting in connection with the question of the toxic effects of trional that this patient took considerable doses without evil result. She had improved remarkably and was discharged from the hospital to go home in care of her husband.

After this iodide treatment was neglected. She was thought to be pretty well, though all her mental faculties were still slightly dulled, and before long was trusted to walk alone daily to the house of a friend. One day she started out on her walk as usual, but got lost and turned up in Tewksbury. This was about three months after she left the hospital. Then a woman was hired to look after the house and children. The patient's mind was becoming more dull again; her memory was very poor; she was emotional and occasionally irritable. There were no hallucinations. Ptosis appeared, and disappeared. At one time she was jealous and threatened to kill her husband; but when he put a carving-knife in her hands, she broke out crying. After this he slept with her wrist strapped to his, so she should not get out of bed without his knowing it. At this time defecation and micturition were involuntary. She could not dress herself. She could not read. Her eyesight was good, but she could not tell one word from another. She had been getting distinctly worse all summer, but in August she was delivered of a living child, and then improved. The same improvement was noticed for a while after she had the miscarriage the previous December. The baby died in one month. The cause of death was stated as "cholera infantum."

October 3d I saw her for the first time since she had left the hospital. She was slow of comprehension, but talked fairly well; was polite, and apologized for the boisterousness of her children. She remembered nothing about the birth of her last child till certain circumstances were called to her mind; and after I left she remembered nothing of my visit. She had no delusions of grandeur, and no tremors of tongue and lips in talking. The only remains of the old hemiplegia were seen in a weakened grasp on the left side.

The next day she had a general epileptiform convulsion—the first. There was no warning. There was no cry. Her husband heard the thud of her fall, and, running in, found her unconscious, stiff, blue and twitching. The convulsion lasted about a minute and left her sleepy. Iodide treatment was now begun a third time.

Long before any nervous symptoms developed in this case the diagnosis of syphilis was made by the dermatologists. Syphilis was diagnosed at the patient's first stay in the hospital, from the irregularity and remittance of the symptoms and from the effects of antisyphilitic treatment. Again, at her second stay in the hospital the diagnosis of syphilis was made by independent observers. Her subsequent progress has confirmed the diagnosis. It is interesting that no history of infection can be obtained. The husband has denied secondary as well as primary symptoms, and presents no evidence whatever of syphilis on the most careful examination. The children are, and have been, perfectly healthy. The following data of past history and of family history are noteworthy. The patient has never been perfectly well. Throughout childhood she presented glandular and skin lesions. All her brothers and sisters died in infancy or childhood—most of them in convulsions. Her father and mother led very dissolute lives, but the causes of death could not be learned. In considering the possibility of hereditary disease the question comes up whether these facts are admissible as evidence.

ETIOLOGY OF CEREBRAL SYPHILIS.

Cerebral involvement in syphilis may occur at any time from a few months to twenty or even thirty years after infection. It is not necessarily a late manifestation. Over half the cases occur within three years, and as syphilitic infection is most common in young adults, so is the cerebral involvement. It is more likely to develop in cases where the skin lesions have been insignificant, perhaps because antisyphilitic treatment in these cases is more commonly neglected. Causes weakening the nervous system are thought to predispose to the localization of the disease in the brain. Such are trauma, meningitis and sunstroke, in addition to excesses and the other usual causes of neurasthenia.

PATHOLOGICAL ANATOMY.

Brain syphilis may result by extension of the disease from nodes in the bones of the skull, but is usually secondary to lesions of the membranes and vessels. These lesions consist of circumscribed gummata, large or minute, single or multiple, or of a diffuse gummatous infiltration in single or multiple patches. They extend from the membranes and involve the cortex, especially the anterior and middle portions of the base. The gummata are at first red

and soft, vascular and diffuse, but later become yellow and hard, fibrous, shrunken and more definitely circumscribed. Gummatous infiltration of arteries results in stenosis and thrombosis. Secondary results are hemorrhage, softening, or atrophy of the brain tissue.

SYMPTOMATOLOGY.

The symptoms of brain syphilis are variable on account of the variety in the nature and situation of the lesions, but there are certain general symptoms common to most cases and there are certain characteristics in the mode of development of symptoms.

Headache is ordinarily the first complaint. It is constant for considerable periods of time, and grows progressively more severe, though having remissions and exacerbations from day to day or week to week. It is, as a rule, more severe toward evening, and at night may be unbearable. *Insomnia* is another early symptom. *Torpor* comes next. The patient sleeps little, but is dull and stupid much of the time. He loses power of concentrating attention. *Memory* fails. *Dizziness* may be troublesome. These symptoms, like the headache, are progressive and remittent.

Finally, after days or months, aphasia, convulsions, paralysis, coma, delirium or dementia develop, and the other symptoms become less prominent. These symptoms also are slowly progressive, continuous or intermittent.

The *disturbances of speech* vary according to the centres involved. Any form of aphasia may be present, and may be the only localizing symptom. Motor disturbances are perhaps more frequent than sensory.

Paralysis also is more likely to be motor than sensory. The same lesion which produces the aphasia may extend and involve the adjoining motor area. The paralysis, unless due to hemorrhage, advances rather slowly, and has its exacerbations and remissions like the other symptoms. Loss of power is slight or complete. Hemiplegia and paralyzes of cranial nerves are the usual forms. Optic neuritis is common.

Disturbances of cranial nerves and convulsions are not often prominent symptoms in the same case, for the former are due to gummatous growths about the base of the brain, and convulsions, as a rule, to growths on the convexity.

Epilepsy, secondary to syphilis, may take the form of convulsions without loss of consciousness, loss of consciousness without convulsions, or both convulsions and loss of consciousness. It is to be distinguished from idiopathic epilepsy by the recognition of the existence of syphilis, by the precedent paroxysmal headache, by precedent or coexistent mental disturbance, optic neuritis, aphasia, hemiplegia or other paralysis, by the results of treatment and by the age of the patient at the first onset. Excluding uremia, hysteria and alcoholism the onset of epileptiform convulsions in a patient over twenty is probably due to syphilis. The aura and cry are not so often present as in idiopathic epilepsy.

Changes in mental condition due to syphilis are hebetic, delirium, coma, confusional insanity, hallucinations, or a dementia resembling general paralysis of the insane. There has been much dispute as to the nature of the dementia following syphilis. Mickle and Fournier conclude that syphilis produces a dementia resembling general paralysis, but that the two are not identical. A tenable view is that general

paralysis is not necessarily gummatous, but may be secondary to gummata as well as to other causes. The lesion is a chronic meningo-encephalitis resulting in atrophy of the cortex, or encephalo-malacia. Perhaps the division of general paralysis into an idiopathic and a secondary variety, as with epilepsy, would clear up the confusion. The characteristics of the dementia secondary to syphilis, as opposed to the idiopathic general paralysis of the insane, are as follows: Precedent syphilis; precedent headache, continuous, intense, worse at night; precedent or coexistent hemiplegia, aphasia, or paralyzes of cranial or other nerves, having the irregular characteristics of development and course already described. Greater variety and more fantastic combination or sequence of symptoms. Absence or inconspicuousness of the delusions of grandeur and of the tremors of face and tongue. And, finally, the beneficial effects of thorough antisyphilitic treatment upon many of the symptoms.

PROGNOSIS AND TREATMENT.

As prognosis in cerebral syphilis depends largely upon treatment these two will be considered together. Gummatous lesions are favorably influenced by iodide and mercury; secondary lesions are not. Treatment of the gummatous lesion is so effective that a case may present the very gravest symptoms of severe brain disease—delirium, convulsions, coma—and yet get well. Whereas treatment of the secondary changes is ineffective, though these are usually associated with syphilitic lesions susceptible to iodide. Prognosis, therefore, depends not so much upon the extent and situation of the syphilitic lesions as upon their age at the beginning of treatment and consequently the nature and extent of the secondary changes which they have set up. Earliness of treatment, then, is a most important consideration in prognosis. And as this depends upon the earliness of diagnosis the importance of making a correct diagnosis at the earliest possible period is supreme. As these patients are at any time liable to become blind, or to die in an epileptiform attack, or of hemorrhage from a gummatous artery, it is important also to get them under the influence of antisyphilitic drugs as soon as possible. For this reason mercury should be given as well as iodide, and both in doses rapidly increased to the limit of toleration. The mercury may be given in the form of mercurial ointment by inunction, in doses of half a drachm to a drachm or more every night, unless toxic symptoms appear; and at the same time iodide, beginning with thirty drops of the saturated solution a day, and increasing at first rather slowly to a drachm, and later, if toxic symptoms are not conspicuous, increasing very rapidly. If the patient is vomiting, the iodide may be given by rectum. Two hundred grains a day by mouth is not at all an extraordinary dose. Ten grains, three times a day, constitutes neither a reliable therapeutic test nor efficient treatment.

The practical points of this paper are the importance of the early diagnosis of cerebral syphilis, the importance of early treatment, treatment by mercury and iodide together, and both increased as rapidly as possible to the limit of toleration.

It is stated that the Emperor of Abyssinia has appointed a young Swiss woman as physician to his household. One can hardly realize that such a triumph of evolution is possible in that ancient land.

AN EXAMINATION OF FORTY-THREE PUBLISHED CASES OF OPIUM OR MORPHINE POISONING.¹

BY EDWIN J. BARTLETT, M.D., HANOVER, N. H.

Occasion.—The greater number were suicidal; a few were accidental; none were reported as homicidal.

Sex and Age.—Thirty-four were adults; nine were children. Of the adults 24 were male, 10 were female. Of the children seven were eighteen months or less (one was fifty hours; one was five weeks); two were over eighteen months.

Death or Recovery.—Thirty-six recovered; seven died. Of the deaths one was a boy; six were adults: one was a female; six were males. All of the cases but two had treatment; of the two, one was found dead in the morning; one died almost immediately.

Of the seven deaths, three seemed to be solely from the effects of the drug; one, complicated by previous medicinal doses of chloral, is described as from the exhausting effect of the remedial measures; delirium tremens, angina pectoris, uremia are complications in one case each.

Form of the Drug.—This is stated in 39 cases: laudanum, 19; morphine, 16; opium, two; soothing syrup, one; opium and morphine, one. Deaths following laudanum, two; morphine, two; opium, one; opium and morphine, one; unknown, one.

Quantity.—The quantity taken is recorded in 38 cases. Laudanum, fluid ounces, 3, 2 (2), $1\frac{1}{2}$ to 2, $1\frac{1}{2}$ (3), $1\frac{1}{4}$, 1 (5), $\frac{1}{2}$ (2), $\frac{1}{4}$, $\frac{1}{8}$, 3 minims; total 18.

Morphine, three teaspoonfuls, grains 51, 36, 30 (3), 20, 15 to 20, 16, 7, $1\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{4}$ (2), $\frac{1}{8}$, $\frac{1}{10}$; total 16.

Opium, grains 150, 6; total 2.

Opium, $2\frac{3}{4}$ gr. and morphine $\frac{1}{8}$ gr. in three days.

Soothing syrup, two teaspoonfuls divided.

The deaths followed the opium and morphine (no treatment); 3 oz. of laudanum (uremia); 1 to 2 oz. laudanum (delirium tremens); 150 gr. of opium; $\frac{1}{4}$ gr. of morphine (angina pectoris); $\frac{1}{8}$ gr. of morphine (after chloral); and one unreported dose; total, 7. All the other cases recovered.

Three minims (estimated) produced thirty-six hours' stupor in a five-weeks' infant, requiring artificial respiration nearly all the time for sixteen hours. One-sixtieth of a grain of morphine in two doses produced immediate alarming condition in a female adult somewhat reduced at the time, but tolerating one grain of opium at another time. On the other hand, thirty grains of morphine produced no effect whatever on an adult male, the only treatment being a somewhat late emetic.

Onset of Symptoms.—The time to the onset of disturbing symptoms is stated or implied in 19 cases. Five are described as "soon," "very soon," "immediate," "a few minutes"; one in fifteen minutes; six in thirty minutes; one in forty minutes; five in one hour; one in about two hours. Two of the fatal cases are in the "very soon" group, and the other five lack data; four of the early group resulted from the very small doses; the fifth is from six grains of opium. Of the six earliest cases, two were males and four were females. Of the seven latest cases, five were adult males, one was a female infant, one was an infant, sex not reported.

¹ Boston Medical and Surgical Journal, Medical News, New York Medical Record, Medical Journal, American Journal of Medical Science, 1882 to 1896 inclusive—fifteen years.

The conspicuous initial symptom is nearly always drowsiness, stupor, inability to stand; in one case the intoxication began with convulsions, coma later.

The interval before treatment is given in 34 cases, and ranges from nothing to thirteen hours; it does not seem to bear any definite relation to the subsequent gravity of the case. Of the seven fatal cases, however, two received no treatment, and in the others the interval was one hour, two hours, five hours (2), seven hours.

Termination of Case.—In the seven fatal cases death took place "in a few minutes," "next morning," 12 hours, 13½ hours, 36 hours, third day, three days. The second, third, fourth were apparently uncomplicated.

In 31 of the cases of successful treatment the time is given to partial recovery or encouraging improvement. It ranges from "a few minutes," 12 minutes, 15 minutes, 20 minutes to 21 hours; in seven cases it was from 11 to 13 hours. The average time was very nearly six hours from the beginning of treatment.

The time of complete recovery is stated in 25 cases, and ranges from 1, 3, 6, 12 hours to 4, 5, 5, 10 days in cases in which there was complete unconsciousness. The average was two days and two hours.

Pulse.—The condition of the pulse or heart is stated with more or less accuracy in 27 cases, four of which were fatal. "Little affected," "fair," two cases. "Just detectible," "absent," "pulseless," "barely perceptible," "feeble," five cases. "Full, slow" (3); "slow, strong"; "slow, intermittent"; "slow, 65"; six cases. "Rapid, feeble, intermittent"; "rapid, small, weak"; "rapid, irregular, weak"; "rapid, weak"; 110, 148, 156; 68, 84, 100, 120; 140, 148; 124 to 134; 96, 100; 85, 90, 100, 110; 110, 160; 150; 160, 130, 120; accelerated, 14 cases.

The fatal cases were 110, 148, 156; 124; 96, 100; "absent," four cases.

Face.—The appearance of the face is mentioned in 20 cases. Cyanotic, purple, dusky, livid, congested, 18 cases. Dull eyes, one case. Pale, one case. The pale case took three ounces of laudanum, was complicated with albuminous urine and uremia, and died on the third day; two other fatal cases are included in this list—one purple and one cyanotic.

Pupils.—The condition of the pupils is mentioned in 36 cases. Pin-point, dot, or some word indicating extreme contraction, is used of 22 cases; contracted is applied to 11 cases; total, 33. Dilated is applied to two fatal cases; one was not observed until after death, and the other died in a few minutes. Widely dilated is the only term applied to a non-fatal case, in which no mention is made of the treatment. In many cases dilatation soon after the use of atropia or belladonna is mentioned.

Mouth.—The condition of the secretions of the mouth is not mentioned in any case. In one case the lips and tongue are spoken of as black.

Temperature.—Mention of the temperature is made in only six cases. The statements are—normal; 102.2° in 12 hours; 96.4°, 104°, 103°, 101.3°; 101.6°, 105.8°; 103.5°, 104.5°. The second, third and fourth were fatal—complicated with delirium tremens, uremia, chloral and exhaustion, respectively.

Skin.—There is some description of the condition of the skin in 17 cases. Cold skin, six; cold and wet, seven; warm, moist, one; profuse sweat, one; dry, one; livid, one. Four of the fatal cases are in this list,

and were respectively—warm, moist; cold; cold, moist; dry.

Bladder.—The condition of the bladder is mentioned in only four cases. Thirty-eight ounces of urine was drawn in 15 hours; the urine was retained 24 hours; the urine was retained nine hours; the urine was retained 19 hours. The last three were infants.

Urine.—Urine is described twice, once as albuminous, once as scant and high-colored.

Respiration.—The condition of the respiration is mentioned in 35 cases. In four cases it is described as "little affected"; "rapid, shallow"; "26 a minute"; "10, 12, 14." In the other 31 cases the frequency is much diminished; in 12 it is described as stopping entirely; in 15 other cases it is noted as going down to 1, 2, 3, 4, 5, 6 or 8. They are described as "slow, gasping with occasional deep sighs"; "stertorous, intermittent"; "shallow, feeble"; "abdominal."

Stupor.—Complete unconsciousness is mentioned in 34 cases; three others died; unconscious, 37; partially unconscious, one; conscious, one; no symptoms, one; no data, three; total, 43.

The period of complete unconsciousness is mentioned or implied in about one-third of the cases, ranging from a few minutes up to 11, 12, 12½, 13 to 20, 20, 26, 36 (2) hours, with recovery. In one of these cases artificial respiration was maintained 12½ hours upon a man apparently dead; in another it was maintained 16 hours, with brief intermissions, upon an infant capable of making only slight and irregular efforts to breathe.

In one case the subject, though conscious, went to sleep while talking, after 46 hours.

Other Symptoms.—Of other symptoms little classification can be made on account of the meagreness of the data. Late vomiting is mentioned repeatedly, but cannot be separated from the effects of the remedial measures; one instance of vomiting is mentioned prior to the use of any remedies. Thirst is mentioned once or twice. Injection of the conjunctivæ once or twice. Inability to swallow is frequently mentioned or implied. Partial recovery followed by a relapse appears to be a frequent occurrence. Convulsions prior to stupor are mentioned once. Limpness or complete relaxation is mentioned six times. "Intense itching," "scratched leg," "rubbed face and nose," three cases.

After-Effects.—The scanty statements lead to the conclusion that the after-effects are usually slight and chiefly attributable to the strenuous measures employed to save life. Laryngitis, pneumonia, sore throat or cough are mentioned in four cases. Irritability, prostration lasting ten days, a rash, hallucination or mild delirium (presumably from atropia or belladonna) are mentioned; also sore mouth (from permanganate of potassium). In one case the attending physician ascribes the death to exhaustion from the violence of the treatment.

Treatment.—Aside from the maintenance of respiration, no particular remedial measure can be judged from these cases to have had especial value. The gravity and duration of the cases led to variety of treatment in the same case; nearly all the cases recovered under the most diverse treatment. Atropia and permanganate of potassium figure by far the most numerous; coffee very little; caffeine, amyl nitrite, strychnine, apomorphine, oxygen, whiskey, milk, electricity, etc., appear, and improvement followed them all.

Clinical Department.

CHRONIC HYDROCEPHALUS—PUNCTURE.

BY H. H. A. BEACH, M.D., BOSTON.

THE patient, a child nine weeks old, was sent to the Massachusetts General Hospital by Dr. Horace B. Marion, the condition having existed since birth. Upon entrance the temperature was 99.4°, pulse 180 and respiration 30. There was much deformity due to the forward and lateral bulging of the skull. The eyes were nearly hidden by the projecting and overlapping frontal region.

The skull had become distended to nearly twice its normal size through the separation of the frontal, parietal and occipital bones at the sutures, by the accumulation of serum. The child could not lift its head from the bed, but was constantly moaning or crying, and very restless—rolling the head from side to side. No convulsions.

The possibility of a tuberculous origin in this case, considered with the favorable results that have followed operative interference in tuberculous peritonitis and the desperate condition of the patient, prompted an attempt at relief by diminishing the intra-cranial pressure.¹

Under ether, an incision was made in the soft parts to the dura, and through an aspirator needle pushed about four inches in the direction of the lateral ventricle, 10½ ounces of colorless fluid were withdrawn.

On examination by Dr. W. F. Whitney, he reported "its specific gravity 1.007; a little white sediment; albumin, a trace; chlorides in large amount; sediment showed crystals of oxalate of lime and a very fine amorphous material with an occasional blood corpuscle and flat cell."

The distention was relieved by the aspiration. The patient became quiet, passed a good night, and on the two following days was much brighter, and the eyes could be seen. After that, the fluid reaccumulated. As the swelling and pressure increased the child became more restless and uncomfortable. She was crying and moaning incessantly, and each day becoming more feeble.

Thirteen days after the first aspiration a second was made. Fourteen ounces of fluid were withdrawn having the characteristics of that from the first puncture. The parietal bones then overlapped three-quarters of an inch. The thermometric variations were insignificant, excepting the night after the second puncture, when 101.5° was recorded. By the following morning the temperature was normal. The pulse was rapid during the whole time she was under observation, ranging between 150 and 170. After the first puncture it sank to 140, and after the second to 120, regaining rapidly as the fluid reaccumulated and pressure became re-established.

Within the following fortnight the fluid had accumulated to as great a degree as at first. Death followed in a few weeks. No autopsy.

The question of permanent drainage by canula was considered, but was not adopted in view of the tendency to an early and large return of the fluid. Compression by adhesive plaster after the withdrawal of fluid was not employed, as the relief from compression was evident. It seemed inexpedient to substitute a

fresh compression by plaster as suggested by Pott.² In his case the fluid reaccumulated in spite of the compression.

THE DIAGNOSIS OF TRICHINOSIS.¹

BY DR. R. C. CABOT.

ABOUT ten days ago I went to Cambridge to examine a specimen of blood. The impression I got was that I was to look for malarial organisms; beyond that I had no special impression as to the nature of the case. I did not find any malarial organisms. On making the differential count of white corpuscles, I found 27 per cent. of eosinophiles. I should not have had a guess as to the interpretation of this fact but for a communication of Dr. Thayer's about which he wrote me last spring and which has been published in the *Lancet* of September 25, 1897. They had last spring at the Johns Hopkins Hospital a typical case of trichinosis in which the diagnosis was easily made: great muscular pains and tenderness in special spots were present. A blood examination was made which showed a leucocytosis of 17,700 and an extraordinarily large percentage of eosinophiles, as high as 68 per cent. of the entire number of leucocytes. A piece of muscle was excised and showed the presence of trichinae. About two months after another case entered with a history of chills, fever, headache and backache, anorexia and weakness. There was edema about the eyes.

There was nothing special about the case by which the diagnosis could be made. The spleen was slightly enlarged, no diazo-reaction, a few rose-spots apparently on the abdomen. The case was supposed to be malaria and the blood and splenic pulp were carefully examined but no parasites found. The blood-count showed a slight leucocytosis, 13,000, which led to a differential count, and the same state of things was found as in the first case, a high percentage of eosinophiles. In both these cases trichinae were found in the muscles.

In the second case the diagnosis could hardly have been made without the blood-count for the symptoms were very indefinite. The patient recovered very easily, and shortly after the time of the blood examination he left the hospital and was not traced. With those two cases in mind, when I got this count of 28 per cent. of eosinophiles I telephoned to the doctor to find out the history of the case, which is as follows: The patient had been sent abroad this year for his health being somewhat run down, and went to Germany. While in Germany he did not improve very much, but in the middle of the summer had a very severe gastro-intestinal attack and after that a great deal of muscular soreness. When he returned in September his physician found what at first seemed to be neuritis with a great deal of soreness over the muscular bellies of the calves and biceps. That gradually lessened, but there came on edema of the face and hands. The diagnosis of trichinosis had suggested itself to the physician before the blood-count was made. He had not said anything about it to me because he wanted to see if it suggested itself to me independently. It would be very desirable to take out a piece of muscle to confirm the diagnosis, but the patient is getting well and I fear that he will not be willing to have it done.

¹ Read at a meeting of the Clinical Section of the Suffolk District Medical Society, October 20, 1897.

² Archives of Pediatrics, July, 1894.

¹ Ord and Waterhouse: *Lancet*, 1894, p. 597.

THE SOFT CATHETER IN PLUGGING THE NOSE.

BY M. P. SMITHWICK, M.D., BOSTON.

EMPLOYMENT of the soft rubber catheter in plugging the nose requires no suggestion to those familiar with its use in nasal feeding.

Except in nasal operations under a general anesthetic, it is rarely necessary to plug the nose. Experts are usually correct in considering the frequency with which one resorts to this procedure in cases of spontaneous epistaxis to be inversely as his skill.

Last May a gentleman out of town, seventy-three years of age, a patient of Dr. C. F. Folsom, had been bleeding from the nose, with intermissions, for two days. Early in the attack the insertion of anterior plugs, by a physician who was called in the emergency, was followed by cessation of bleeding. This cessation was undoubtedly spontaneous. Later he found that a posterior nasal plug was necessary to control a vigorous return of the bleeding. He tried to insert this by means of a Belocque's canula, but was unable to pass the instrument.

When Dr. Folsom first saw the case bleeding had ceased again spontaneously. Later, when notified by telephone of a sharp recurrence, he asked me to insert a posterior nasal plug.

Blood was trickling from both nostrils and down the throat. Examination under good illumination failed to show the bleeding point, as a ridge on the right side of the septum met the turbinate and nearly occluded the passage. Even after the turbinate had been cocaineized the point could not be seen owing to the crookedness of the passage. It would have been difficult to pass a Belocque's canula and, if possible, very disagreeable to a nervous patient.

A medium-sized, soft-rubber catheter, threaded with waxed dental-floss, was passed quite easily. A carefully prepared piece of sponge, moistened with Monsel's solution, was inserted in the usual manner and allowed to remain forty-six hours. No plug was placed in the left nostril and no anterior plug was needed in the right. There has been no subsequent bleeding.

TECHNIQUE.

A soft-rubber catheter, a string more than twice the catheter's length (waxed dental-floss is excellent), a wire (the stilette of a gum-elastic catheter will do if the soft catheter is shortened), material for a plug, some styptic and a lubricant are necessary. A solution of cocaine is helpful and may be necessary to shrink the parts. Forceps are convenient.

An end of the waxed string wound about the end of the wire is passed through the catheter. Bring the ends of string together behind the catheter. Lubricate catheter; pass along floor of nostril, and, when the tip appears below the soft palate, grasp with forceps and draw it out of the mouth. Draw out the half of string not contained in the catheter. An end of the catheter carrying an end of string now projects from a nostril and from the mouth.

Attach the plug and draw it near to the catheter's tip, leaving outside the plug sufficient string to project from the mouth when the plug is in position. Then withdraw from the nose the catheter and, until the plug is fixed firmly in position, the string simultaneously. Considerable swelling, at least of the soft palate, will follow. If the plug is aseptic there need be no apprehension.

The soft catheter is available, of innocent appearance and effectual. It is as good as any instrument for the simple cases and the best for the difficult.

QUININE NOSE-BLEED.

BY ROBERT W. HASTINGS, M.D., BROOKLINE, MASS.

F. W., AGE seventeen, after playing foot-ball on Friday afternoon, sat down on the ground and became chilled. Within a few hours he had a very sore throat, fever, hoarseness and general pains. Slept but little that night. Saturday he gargled faithfully and the swelling in his throat and dysphagia disappeared. Slept well that night, but woke very hoarse and with some cough.

Thinking to throw off the approaching "cold," as he had often done before, he took six grains of sulphate of quinine. There was no apparent effect on the "cold"; but three hours later, after blowing his nose, he began to have nose-bleed, and had six sharp attacks within three hours. Pressure under the upper lip checked the flow each time in two or three minutes. On account of this recurrence he called at my office.

Examination showed a throat nearly normal; nose closed with dried mucus and blood; pulse full and hard, but not rapid; occasionally a beat not so full as the others; temperature 99.2° F.; skin rather dry; no tenderness of abdomen; no headache or other pain. He said he had had no ringing in the ears, headache, dizziness or disturbances of vision. Sense of fulness in his head was the same as before taking the quinine.

He was started on five-grain doses of bromide of soda, and given ten grains of Dover's powder and a codeia, chloride of ammonium, liquorice and cubeb cough-tablet for his "cold."

He had no further attacks of nose-bleed, but in two days was rid of his "cold" and back at school.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, Wednesday, October 20, 1897, DR. W. F. WHITNEY presiding.

DR. CHARLES NORTON BARNEY read a paper on CEREBRAL SYPHILIS, WITH REPORT OF A CASE OF CHRONIC MENINGO-ENCEPHALITIS SECONDARY TO SYPHILIS.¹

DR. TAYLOR: Dr. Barney has covered most of the points in regard to this extremely important affection, but possibly I may reinforce one or two things he has said and quote a few cases. In the first place, I should entirely agree with him in laying stress on the importance of large doses of iodide instead of small ones. I have no doubt that oftentimes these cases go from bad to worse because heroic doses are not administered. Undoubtedly the disease provides a sort of immunity from the toxic action of the drug, and it may be given up to 300 or 400 grains a day without any serious

¹ See page 671 of the Journal.

toxic results. I have seen very remarkable results from the use of iodide alone, and iodide seems to me to be rather more important than mercury in the treatment of these cases. It is often possible to control the symptoms with the use of iodide in doses of from 150 to 200 grains a day.

The case of which Dr. Barney has spoken is one I saw a few weeks before he saw her the last time, with reference to possibly committing her to some institution; her mental condition was most peculiar, a curious apathetic state, indifference to her surroundings, and a remarkable forgetfulness of the fact of her recent confinement. She remembered events which occurred some years before, or before she had been so seriously ill, but had complete loss of memory for more recent events. Her treatment should, unquestionably, be prosecuted vigorously, and I have no doubt many of the symptoms of which she now complains might in that case be alleviated. It is evident in these cases, from the pathological anatomy, that after a certain point is reached, after the brain tissue or the cord tissue is once involved to the extent of destruction, treatment becomes less efficacious. The disease should be attacked early, before the syphilitic process has gone much further than the vascular stage. When the gumma is definitely formed in the brain it has the significance of a tumor, and the most that may be hoped is checking of the symptoms with but slight possibility of complete cure. This is peculiarly the case in lesions of a destructive sort, such, for example, as the syphilitic hemiplegia we so often see in young persons. I remember a case in which a patient was suffering from hemiplegia which had gone on for years. There was a fairly definite syphilitic history. This went on some months, when suddenly a spasm of one hand accompanied with epileptiform seizures of the Jacksonian type called attention to the probably syphilitic origin of the hemiplegia. Vigorous treatment controlled the spasmodic affection, which was practically relieved up to the time of his death. The hemiplegia, which was undoubtedly the result of a more serious vascular lesion, continued; and that was certainly only to a certain slight extent benefited. So far as the pathological anatomy is concerned, the lesion is usually cerebrospinal. It seems, perhaps, a little wrong to speak of cerebral or of spinal syphilis, since, as a rule, there is a combination of both lesions. Dr. Barney has distinguished the disease from dementia paralytica and from the analogous condition in *tabes dorsalis*. This is a distinction which should be borne sharply in mind, and which is perhaps not sufficiently recognized by the general practitioner, namely, that neither *tabes* nor *dementia paralytica* is properly a syphilitic disease. In both we suppose that syphilis is prominent in the etiology, particularly so in *tabes*, but pathologically there is no evidence whatsoever in either of these conditions of a tertiary syphilitic lesion. In *tabes* we have chronic degeneration in certain portions of the brain and spinal cord, and likewise in paralytic dementia, but purely of a parenchymatous sort, unassociated with evidence of previous syphilitic infiltration.

We have in addition a large number of cases, of which Dr. Barney's is an example, of so-called meningo-encephalitis, a term open to objection since the evidence of inflammation is not by any means apparent. It is in these latter cases of definite tertiary lesion in which the antisiphilitic treatment has so marked an effect. There seems to be no doubt that there is a variety of

conditions between these tertiary forms and primary degenerative states, of which *tabes* and *dementia paralytica* are examples, and that very likely paralytic dementia may in certain cases be associated with definite syphilitic lesion.

In conclusion, one more case which I saw a year ago, and about whom it was impossible to get any definite information on account of a curious mental state, which may be called, for want of a better term, a stuporous melancholia. His whole attitude was one of great depression, to such degree that he declined to speak, and had not spoken for months; he was apathetic; he sat in his chair and refused to go to bed or to help himself in any way — a perfectly immobile, helpless individual. Physical examination in his case showed a coincident cord lesion which probably was of syphilitic origin; and with that hint a vigorous anti-syphilitic treatment was instituted which led almost immediately to the clearing up of the mental state and to the possibility of his leaving the hospital. A short time ago he came to see me; the improvement was most remarkable. He had been in the interval under homeopathic treatment, receiving fifteen grains of iodide daily, which may have done something. On attempting to write the alphabet he failed, and had certain symptoms which, if he had been seen now for the first time, would suggest *dementia paralytica*. Undoubtedly in his case the primary lesion was syphilis, meningo-encephalitis, which has resulted in a certain degree of degeneration of cortical cells with partial recovery. These combined cases are certainly not infrequent.

DR. WHITNEY: As regards the possibility of there being two actions I do not see why that is impossible. We may suppose that the syphilitic virus, be it what it may, produces by one action the exudation and proliferation of cells with their subsequent necrosis, the conditions usually known as local syphilitic lesions and the gummata, whereas by another, in *tabes* and *dementia paralytica* it seems almost as if the poison picked out specific elements, causing their degeneration without any associated cell formation or an exudation. It, of course, is entirely speculative, but there may be a certain amount of analogy between that and the way some inorganic poisons act, which seem to have a selective affinity for certain cells, as, for instance, lead.

DR. BARNEY: It may be possible that in some of the cases of general paralysis and of dementia following syphilis, in which no gummata are found after death, gummata may have existed at some time during life and have cleared up, leaving only degenerative changes as the cause of symptoms.

The term "meningo-encephalitis" I used in the same way that the terms "interstitial nephritis" and "myocarditis" are used — meaning degeneration and not necessarily inflammation. The term "peri-encephalitis" is given by Dr. Wood, but this is equally objectionable. There is no term which covers the anatomical condition exactly.

DR. R. C. CABOT read a paper on

THE DIAGNOSIS OF TRICHINOSIS.²

DR. WHITNEY: I should like to ask how long this condition of excess of eosinophiles remained in Dr. Thayer's cases? Was it present when the man left the hospital?

DR. CABOT: Throughout the course of the disease; in the first case until death; in the second it was still

² See page 676 of the Journal.

marked at the time the patient left the hospital though not as marked as at some other periods.

DR. WHITNEY: Does a high percentage of eosinophiles ever occur as an idiosyncrasy?

DR. CABOT: I think not so high as that. Sometimes a high percentage of eosinophiles occurs in bronchial asthma, sometimes after injections of tuberculin.

DR. WHITNEY: Have you any theory as to the cause of the increase?

DR. CABOT: Dr. Thayer's first case was worked up carefully histologically, and they found a much larger percentage of eosinophiles among the leucocytes in the muscles than of the vessels, which led him to suppose the eosinophiles arose in the muscles and found their way to the blood from there. He noticed that the only two varieties of leucocytes affected were the eosinophiles and the polynuclear cells, and the polynuclear cells lost as many as the eosinophiles gained, suggesting that the polynuclear cells were transformed into eosinophiles. That is in accordance with some theories and very much against others as to the development of leucocytes.

DR. J. L. MORSE: Was there any absolute increase in the number of white cells?

DR. CABOT: Yes; in all these cases there was absolute increase. In a case reported by Packard⁸ there was no increase.

SCURVY.

DR. J. L. MORSE: I wish to call the attention of the members to the investigation which the American Pediatric Society has undertaken regarding infantile scurvy. As the disease is rather uncommon, the committee is very anxious to get as full a report as possible. I have here some blanks which I shall be glad to give or send to any who have had cases. I shall be glad if the members will call the attention of their friends to this investigation.

Recent Literature.

Hare's Practical Diagnosis. The Use of Symptoms in the Diagnosis of Disease. By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. New (second) and revised edition. In one octavo volume of 598 pages, with 201 engravings and 13 full-page colored plates. Philadelphia: Lea Brothers & Co. 1897.

It is not long since we noticed the first edition of this book of Dr. Hare's. The second and revised edition follows the first at the short interval of a year, which indicates that it has quickly achieved a certain popularity and met a demand. In this edition faults where noted have been corrected and new facts added; the two indexes of the first edition have been combined in one. The author's plan, it will be remembered, was to present symptoms first, and then application to the disease second. The book consists of two parts, first, the Manifestation of Disease in Organs and second, the Manifestation of Disease by Symptoms.

THE CRAIG COLONY FOR EPILEPTICS. — Dr. Marie Louise Benoit has been appointed a medical interne in this institution.

⁸ Journal of the American Medical Association, July 10, 1897.

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ANNUS MEDICUS MDCCCXCVII.

THE year 1897 has not been marked by great medical events or discoveries, unless in medicine the bacillus icteroides and antitoxin serum of Sanarelli, and in surgery the procedure of forcible straightening of the spine in Pott's disease, introduced by Calot, and now being extensively practised in England and on the Continent, shall stand the test of time.

Medical progress during the year has, however, been substantial, and has been greatly facilitated by the free interchange of thought and opinion which has been made possible by the great Congresses of the year, and in particular by the International Congress at Moscow. Many of the discussions at this Congress will undoubtedly be fruitful in the broad diffusion of the additions to our knowledge, practical and theoretical, which were brought out during their continuance.

The year's experience has confirmed the value of the antitoxin serum of diphtheria, and given encouragement in the serum treatment of tetanus. We still await further proof of the substantial value of the serum treatment of plague, of the serum treatment of streptococcus infection, and of the tuberculin treatment of phthisis and the other forms of tubercular disease.

The year has been marked, as have none of the years recently preceding it, by the devastation of large tracts of country by disease and famine, as evidenced in the plague, cholera and famine-ridden peninsula of India; in these respects 1897 will be long remembered by the swarming native population as one of sickness, misery and death.

In the Western Continent the island of Cuba has presented a revolting picture of the evils of war among a semi-barbarian population; and yellow fever, small-pox and starvation have devastated the unhappy island, the conditions growing steadily worse with the apparently indefinite prolongation of the struggle.

The costly and fatal epidemic of yellow fever, which has for the first time since 1878 visited our own Southern territory, is one of the results of these conditions, and we may well inquire how long they are to be allowed to remain uncorrected.

The probability of legislation which shall either establish for this country a new department of public health, or of such reorganization of the Marine-Hospital Service as shall render its work in the protection of our coast-lines and frontiers from the invasion of epidemics is an encouraging result of the work of the American Medical Association and the American Public Health Association toward this end.

The recommendation to Congress, by President McKinley, of the appointment of a commission to investigate yellow fever, it is hoped may lead to substantial increase of our knowledge of this disease and of the methods by which it may be controlled.

The profession has lost this year, by the death of Sir Spencer Wells, one of its bravest members, a man to whom humanity owes an incalculable debt, and who was the true pioneer in Abdominal Surgery.

The death of Alarik Frithiof Holmgren has deprived it of one of its most eminent scientific members.

YELLOW FEVER.

To the perennial presence of yellow fever in Rio de Janeiro, Mexico and West Indian ports, which is a constant menace to this country, and in particular to the Southern sea-ports, there has been added this year a great increase of the disease in Cuba, owing to the continuance of miserable sanitary conditions, which have grown worse with the continuance of the war. The Spanish indifference to sanitation, as is evidenced by the fact that the main sewer of the city of Havana debouches in the harbor close to one of the important wharves, and that in a city of the size of Santiago there are no sewers at all, has given yellow fever a continuous hold in Cuba. When this fever-infested land becomes the home of unacclimated troops, who are kept for the most part crowded together in the cities, and when the agrarian population are herded into the towns in a starving condition, fever finds an all too easy prey in the famine-stricken population. These conditions, which prevailed during 1896, have been accentuated during 1897, as the continuance of guerrilla warfare has exhausted the food-supply of the island.

Yellow fever and small-pox have continued epidemic during the year, small-pox affecting most severely the natives of the country, and yellow fever the unacclimated Spanish troops. The Spanish military hospitals have been filled to overflowing with yellow-fever cases all through the year, and especially during the summer and autumn months.

Although during the autumn yellow fever has somewhat declined, the general death-rate, owing to the prevalence of dysentery and other diseases due to hardship and poor food, and of malaria, has continued to increase.

The total number of deaths in the city of Havana and the town of Regla during the month of November from all causes amounted to 2,317, equivalent to an annual death-rate of 139 per thousand inhabitants. In June there were 1,041 deaths; in July, 1,193 deaths, equivalent to a death-rate of 71.52; in August, 1,439 deaths, equivalent to a death-rate of 86.34; in

September, 1,778 deaths, equivalent to a death-rate of 106.68; in October, 2,272 deaths, equivalent to a death-rate of 136.32. Such figures as these are a sufficient comment on the sanitary conditions in Havana.

The danger to the United States from the extent of the prevalence of yellow fever in Cuba has been throughout the year fully realized by the officers of the Marine-Hospital Service; and from the very first of the year, the same regulations which had protected this country from an invasion of yellow fever during 1896 were continued in force. The inspection of passengers and baggage at Cuban sea-ports, the labelling of the latter, and the detention at quarantine of suspected vessels, have been kept up with the utmost vigilance throughout the year. Through the spring and summer, evidence of the increased extent of the disease in Cuba, and consequent danger of its introduction into the United States, was given by the number of vessels which it was necessary to detain at quarantine at New York or Southern ports owing to the presence of yellow fever on board, or the fact that cases of the disease had occurred during the voyage. The disease was constantly knocking for entrance at the sea-gates of the country, and at length, late in the autumn, for the first time since 1878, gained so extensive an entrance as to result in an epidemic which cost us many lives and a vast amount in money.

In Rio Janeiro, throughout the year, although more or less yellow fever was continually present, the cases have been few and there has been no serious epidemic.

In March the Norwegian bark *Homewood*, from Rio for Pensacola, Fla., had two deaths from yellow fever on the voyage and was held for disinfection at the Tortugas quarantine station. On April 22d, a passenger on the steamer *Finance*, from Colon, was found at New York to be ill with yellow fever and died at the New York quarantine station. In June a case of yellow fever was brought to quarantine at San Francisco by the steamer *City of Para*, from Panama. In August two cases of yellow fever were brought from Havana to New York on the steamer *Allianca*, and on September 22d two more cases were brought to New York from Colon on the *Finance*. In October the British steamer *Honiton*, from Progreso, Mexico, for Boston, was detained and disinfected at the Boston quarantine station, as three men had died from yellow fever on the voyage.

Yellow fever was carried, in April of the present year, from Guayaquil in Ecuador to Panama, and then across the isthmus from Panama to Colon. It was epidemic in the isthmus all summer.

A severe epidemic of yellow fever occurred in the island of Jamaica in October and November, several American residents and officers of British troops falling victims to the disease. Information was forwarded to quarantine stations in this country, by bills of health and other reports, and for a time the Boston Fruit Company's steamers ceased taking passengers

from Jamaica. The epidemic served to call attention to the fact that the British government enforced no compulsory report of contagious diseases on the island, so that the epidemic attained uncontrollable proportions before its outbreak was known.

About the 20th of August, at Ocean Springs, Miss., a summer resort on the Gulf Coast, the population of which is made up chiefly of excursionists from New Orleans, Mobile and the interior country, it was reported that five or six hundred cases of disease had occurred, which had been pronounced by experts appointed by the boards of health of Mississippi and Louisiana to be dengue. September 6th, Passed Assistant Surgeon Wasdin, of the Marine-Hospital Service, performed an autopsy on a case which had died with the symptoms of the prevailing disease and pronounced it yellow fever. An immediate exodus took place of the residents of Ocean Springs to their homes in New Orleans and the surrounding country, and a detention camp was established at a point on the Louisville and Nashville railroad, twenty miles east of Ocean Springs. John Guiteras, M.D., Professor of General Pathology and Morbid Anatomy, University of Pennsylvania, appointed temporary Acting Assistant Surgeon of the Marine-Hospital Service, visited Ocean Springs September 8th, and made the diagnosis of yellow fever in three cases, this diagnosis being subsequently confirmed in one case by an autopsy made by Dr. Wasdin. The large majority of the cases of prevailing fever, Dr. Guiteras pronounced to be dengue.

On September 8th a death from yellow fever occurred at New Orleans in the case of a patient who had just returned from Ocean Springs, and on September 10th the disease appeared at Scranton, Miss., and at Barkley, La., a river port on the lower Mississippi. By the 15th, Dr. Guiteras had established the diagnosis in several cases in Mobile, and at Edwards, Miss., the disease having been brought to the latter town direct from Ocean Springs. The disease also appeared at Biloxi and by September 15th, 14 cases had occurred in New Orleans. By September 19th it had spread up the Mississippi valley as far as Cairo, Ill., where two cases were reported. On September 23d one case occurred at Atlanta, in a refugee from Louisiana.

During September and early in October the disease spread in New Orleans; and by October 5th from 30 to 40 cases a day were being reported in that city. A large number of cases occurred in Edwards and Biloxi during September, but early in October the epidemic in these towns markedly diminished. In New Orleans, however, the disease increased during October, 60 cases being the highest number reported on any one day (October 20th). From this date until November 6th, from 30 to 50 cases a day were reported; but in the week ending November 11th, frosts were reported in the Gulf States and Mississippi valley, and a coincident sharp decline in the epidemic took place. During the month of October, 1,285 cases and 149 deaths had occurred in New Orleans. Early in November an epidemic of so-called dengue in Galveston and Houston,

Tex., was shown by Dr. Guiteras to be yellow fever; and during October a considerable epidemic occurred at Montgomery, Ala.

On November 29th, there were, for the first time since the epidemic begun, no new cases and no deaths reported in New Orleans. From the beginning of the epidemic to that time, 1,893 cases and 293 deaths had occurred in that city. From the beginning of the epidemic to December 1st, when it was practically ended, 4,385 cases and 462 deaths had occurred in this country, as computed from the tables in the Public Health Reports.

Throughout this epidemic the Marine-Hospital Service was active in carrying out rational measures for the detection and prevention of the spread of this disease. Numerous quarantine regulations of the shotgun variety were established, however, by the local authorities in many of the affected districts, which had the result of seriously crippling trade and travel, and even of preventing the government experts, who were taking all due precautions against conveying the disease, and were visiting infected points for the purpose of detecting and restricting the disease by rational measures, from reaching the points to which they were detailed. The results of such clumsy and inefficient methods tended to favor rather than to restrict the spread of yellow fever.

As to the source of the present epidemic, there is little doubt, and such is the published opinion of Dr. Guiteras, that the disease was imported from Cuba. It has become evident that a proper sanitary administration of the port of Havana is the only means for securing public safety of our Southern States, and also that under the present attitude of the Spanish government this condition is not likely to be obtained in the near future.

If the recent epidemic had begun early in the summer season, and not in the autumn, and a comparatively short time before the early frosts, its ravages, which in New Orleans at least were evidently beyond the control of the sanitary authorities, would have undoubtedly been fearful in extent and severity. A disposition of certain local authorities to doubt the early reports, and later to belittle the prospects of the disease spreading and becoming epidemic, undoubtedly was influential in allowing it to gain a foothold.

The conditions afford ample food for reflection on the necessity of eternal vigilance, the adoption of proper, and rejection of improper methods for the prevention of other such visitations as that through which we have just passed.

PLAGUE.

We have no need to remind our readers that the year 1896 closed with a fearful epidemic of plague in Bombay and Calcutta, which had already caused nearly two thousand deaths, and which was still increasing. The city was being depopulated by death and flight and the disease was spreading to the surrounding country, already stricken by famine. The increase and spread of the epidemic continued through

January and February, and by the end of January there had been 4,396 cases officially reported — 3,275 deaths from plague in Bombay alone, which was probably half the actual number. There was a serious epidemic at Kurrachee and the infection was spreading along the coast to the north of Bombay and into the interior. The disease, as will be remembered, first appeared in one of the most squalid quarters of the city and was believed to have been introduced by shipping from Hong Kong, in which city plague was epidemic during the autumn of 1896. At first only natives of the poorer classes, who, as is well known, live in filthy and crowded dwellings, where the most primitive sanitary provisions are disregarded, furnished the food for the epidemic; but soon the wealthier classes and even Europeans were attacked, and Dr. Robert Manser, the English physician in charge of one of the larger Bombay hospitals, fell a victim.

During the winter the local plague commission of Bombay established hospitals in every ward, started a house-to-house inspection and destroyed by fire uninhabitable and unsanitary houses, thus endeavoring to atone for their unwillingness to recognize that plague was epidemic at its inception, when vigorous sanitary measures might have stamped out the disease and saved thousands of lives, an inestimable amount of suffering, and an enormous loss of money, due to the paralysis of trade. Partly, perhaps, in consequence of these measures, and partly of the fact that the exodus from the city had left few fresh victims for the disease to feed on, a slight decline took place in Bombay during March, but its spread and virulence in the interior remained unabated.

Up to March 30th, when the epidemic had begun to abate, there had been 9,118 cases and 7,602 deaths from this disease in Bombay, according to the official reports, which figures were undoubtedly very far indeed below the actual number of cases and deaths. At this time it had markedly declined in the wards first affected and was evident in those parts of the city which it had reached last in its course.

With the return of refugees, which began during March, fresh cases began to be reported in parts of the city where the disease was supposed to have been stamped out by disinfectants and lime washing, and large numbers of the servants of European families fell victims. In April there had been 41 hospitals established for the treatment of plague in Bombay, and one of them, the plague ward of St. George's Hospital, was reserved exclusively for Europeans. Plague was then epidemic in Western India from 15° to 28° north latitude and had extended 150 miles into the interior.

By the end of April the population was returning to Bombay at the rate of 1,500 to 2,000 per day, and in spite of this fact a gradual decrease in the number of cases and deaths was reported. In the beginning of May there was a marked decline, and from the middle of June the number of deaths had fallen to 20 or 30 a week. The disease smouldered in that city

through July and August, the death-rate falling to 50 or 60 a month. During September and October there was a recrudescence, although no epidemic approximating that of the closing months of 1896 is reported. In Poona and other towns and country districts in the Bombay presidency, plague continued all summer, and in spite of the efforts of the officers of the Indian Medical Service had gradually spread further into the interior, and in October was active in the Punjab, in Cutch, the Central Provinces and Sind. At Poona a severe recrudescence took place in November and the disease claimed 1,100 victims a week, more, in fact, than at any time previously.

The epidemic of plague in India, although strenuous efforts were made to control it by the British military and civil authorities, was favored in its spread and continuance by the filthy habits and ways of living of the native population, a condition upon which a glaring light was thrown by the investigation which the pestilence in the affected districts, and in others its impending danger, made necessary.

The city of Calcutta, although it fortunately escaped the plague, was, as usual, the seat of a severe cholera epidemic, and an investigation disclosed frightful sanitary conditions prevailing among the native population. In the words of a writer in the *British Medical Journal*: "The question is forced into urgent consideration whether the natives of India — even the educated and enlightened — are fit to be entrusted with the responsibility of sanitary administration. Skilled and intelligent opinion in India has pronounced on this question very emphatically in the negative, and the facts displayed in this correspondence make it quite certain that the Governments of India must for some time to come either resume the care of the public health, or take such steps, in the way of supervision and command, as will ensure the proper and thorough execution of all those arrangements and contrivances which advancing civilization has demonstrated to be necessary for healthy existence."

The severity and continuance of the epidemic in India this year has naturally aroused anxiety lest an invasion of Southern Europe, particularly Turkey and the Mediterranean countries, should take place, and every precaution has been taken to prevent such a disaster. In this country early in the year, the cholera restrictions of the previous season were put in force against plague-infected ports. The Government of France imposed strict quarantine regulations and forbade the annual Mohammedan pilgrimage from its African dependencies. Austria imposed quarantine regulations, and the Italian government called an International Conference at Venice to consider measures against the importation of plague and cholera. The Turkish Superior Council of Health put in force stringent regulations with regard to the sanitary care of the pilgrims visiting Mecca from January to June, including quarantine at the Island of Camaran.

At the International Sanitary Conference which met at Venice in February, the origin and nature of

the plague, its means of transmission, duration of inoculation, means of disinfection and measures to prevent its entrance into Europe and bring it under control in case entrance should have been effected, were the subjects of discussion. Measures for quarantine, inspection and disinfection of vessels from infected ports were adopted, and were, it is understood, put in force by the governments signing the convention.

In April the British Governor-General of India, after some vacillation and delay, forbade emigration from the plague-stricken districts of India, thus preventing the Mohammedan pilgrimage to Mecca. As a result of this and of the precautions of the Persian and Turkish governments, no outbreak of plague took place in the Yemen during the pilgrimage. On June 10th, after the close of the pilgrimage, a slight outbreak of plague occurred in Jeddah, the port of Mecca, but it was limited to 16 cases and did not spread to Mecca or into the interior. Special sanitary officers were detailed by the Turkish government to get it under control.

Plague has been epidemic along the southern coast of China all through the summer of 1897 to an extent which it is impossible to estimate, as the government takes no census and keeps no record of births or deaths. In April plague was epidemic in Swatow and the surrounding country, and the government of Hong Kong took the unprecedented step of prohibiting immigration from the Swatow district. In April there was an epidemic in Macao, the Portuguese settlement but a few miles from Hong Kong. A few cases occurred in Hong Kong during the summer, but the worst visitation on the Chinese coast occurred at Amoy and the neighboring towns. In July the deaths in Amoy and four neighboring towns are believed to have reached a total of 400 daily. Almost all the attacks were fatal. The disease diminished during August and had practically died out in September.

Only one case of plague reached Egypt during the year, that being on board the British steamer *Bombay*, which arrived at Suez on March 31st. On the same date a case of plague was carried to the Russian port Theodosia on the British steamship *Baldwin*. In the autumn two cases of plague occurred at a sailors' hospital in London, both being sailors recently arrived from Bombay.

In Formosa plague was epidemic all summer, and a few cases were communicated to points on the Japanese coast.

SMALL-POX.

The most extensive visitation of small-pox in this country during the year has been that which began in Pensacola, Fla., during the winter, and later extended through the neighboring districts of Alabama,—Birmingham, Montgomery and Mobile being chiefly affected. As a result of extension from this source an epidemic occurred in Atlanta, Ga., and the surrounding country. Only a few scattered cases have occurred in other parts of the United States.

During the winter a mild epidemic occurred in Pensacola, Fla., and the surrounding districts, and the disease continued there, though in a mild form, through the spring and early summer, the last case being reported in July. The district which suffered most severely was Birmingham, Ala., and the surrounding country, where small-pox began in May and has continued the rest of the year, diminishing, however, during the autumn. Between May 8th and November 21st, 188 cases occurred, resulting, however, in only two deaths. During August there were 28 cases at Montgomery, Ala., and there have been during the year 33 cases at Memphis, Tenn. During the autumn there has been a not inconsiderable epidemic at Atlanta, Ga., 90 cases having been reported up to November 12th. The first case occurred in Atlanta on October 12th. All necessary sanitary measures have been enforced in the Southern cities where small-pox has appeared, and in connection with the Alabama epidemic, shotgun quarantine has been maintained by local authorities in the neighboring districts. The disease at Atlanta has been largely among the colored population, who have resisted vaccination and disinfection.

A few scattered cases have occurred during the year in widely separated parts of the country, about 20 cases occurring in New York and Brooklyn between March and August.

In May five mild cases occurred in Boston, the first case, from which the infection spread, occurring in a car-cleaner, who was employed in cleaning sleeping and parlor cars. Three cases, two of them fatal, occurred in June at Gloucester, Mass., the first patient being a man recently arrived from New York. There were three cases at Cambridge, Mass., in June and one at New Bedford in April. Other States in which scattering cases occurred during the year were Connecticut, Illinois, Michigan, Missouri, Ohio (14 cases at Toledo), Pennsylvania and Washington.

As is evident from the above report, the disease was widely scattered, and has followed no definite routes of travel. It is probable that the epidemic at Atlanta was communicated by refugees from the yellow-fever and small-pox epidemics in Alabama and Mississippi.

There was a slight epidemic at Montreal, Can., in July and August, 17 cases occurring and nine deaths. The outbreak was brought readily under control by the authorities.

In Great Britain and on the Continent there have been no notable epidemics of small-pox during the year, though the disease has been continuously present in London, and has occurred in Dublin.

In March the steamer *Delaware* brought 22 cases of small-pox from London to Rudy Island Quarantine. The crew were vaccinated, and the sick were removed and treated at Delaware Breakwater Quarantine.

During the first six months of 1897 a serious epidemic of small-pox prevailed throughout Japan. Between January 1st and 22d, 5,711 cases and 1,600 deaths were reported from all parts of the Japanese empire. The epidemic was of wide extent and the

type of the disease malignant. In February the steamship *Victoria* from Yokohama arrived at Port Townsend, Washington, having had a case of small-pox on board during the voyage, and the third engineer of the vessel afterwards developed the disease in Tacoma.

The arrival of steamers at Angel Island, the California quarantine station, reporting deaths from small-pox during the voyage was frequent, and detention at quarantine, disinfection of ship and cargo, and revaccination of passengers and crew was practised whenever necessary. In April three cases of small-pox were brought to Port Townsend Quarantine by the steamer *Alice A. Leigh* from Japan.

During April, though still very prevalent throughout Japan, the disease had markedly declined in Yokohama, Kobe, and Tokyo, the ports from which infection was most likely to be carried to this country by steerage travel.

In Cuba small-pox has been epidemic to a serious extent throughout the year. During a single week in January 990 cases and 108 deaths were reported in Havana. During one week in February there were 30 deaths daily from small-pox in Havana. During April and May the disease declined to a marked extent in that city, and through the summer and autumn months no increase took place.

In Naples, Italy, small-pox has been prevalent as it was during 1895 and 1896. In Zanzibar during July an epidemic occurred among the Indian and native population, though few Europeans were attacked.

CHOLERA.

The history of cholera this year presents little of interest, for the reason that it has fortunately been practically confined to the districts which are its constant habitat in India and China. During the first half of the year the plague-ridden city of Bombay almost entirely escaped it, and Calcutta, whose position at the mouth of the Ganges makes it the perennial home of the disease, was, as usual, the seat of the severest epidemic of the year. In that city it was moderately prevalent at the end of 1896, and during the winter months it gradually increased, until it reached its maximum in March, April and May, during which time there were nearly 1,500 deaths. The disease declined rapidly during the summer, and by October had almost disappeared. In Bombay, the disappearance of the plague during the summer was attended with an increase in cholera. In the month of August there were over 500 deaths from cholera in Bombay, but in September and October a considerable decline took place.

In Madras and Singapore cholera has been constantly present through the year, though there has been no epidemic.

In Ceylon there was a moderate epidemic during the last two months of 1896, and January, 1897.

On January 9th the P. & O. steamer *Nubia*, from Ceylon for Plymouth, England, arrived at the latter port, having had five deaths from cholera on the voyage, and having on board four convalescents from mild attacks of the disease. The patients were all members

of a regiment of troops homeward bound from Ceylon. The cholera was believed to have been contracted from eating infected fruit at Port Said, where the vessel stopped on December 29th, and not to have been brought from Ceylon, but the fact that two native members of the crew had died of dysentery on the way from Ceylon to Port Said, and that Port Said was not known to have been infected, point to the possibility of Ceylon having been the source of infection. Quarantine of the soldiers and isolation of the patients prevented any spread of the disease in Plymouth.

Cholera is known to have been present in Hong Kong during the year, and during the last six months has been mildly epidemic in certain Japanese ports. In July there were about 30 cases in Tokyo.

On March 22d the British ship *Clan McFarlane* arrived at Angel Island Quarantine, California, from Hong Kong, with 18 cases of cholera on the bill of health. Five days out of Hong Kong, one of the crew had died of diarrheal disease, and four more had been attacked soon after. The water-supply taken on at Hong Kong was known to have been bad, and believed to have been the source of infection.

The pilgrimage to Mecca this year was unattended by any outbreak of cholera. It seems probable that several reasons may have accounted for this, the chief of which was the prohibition, by the Indian Government, of the Mohammedans from leaving that country on account of the plague epidemic. The unusual precautions taken with regard to the sanitary care of the pilgrims by the Turkish Government for the same reason may have contributed to this result, as well as the activity of the other countries bordering on the Mediterranean against the transmission of infection by the pilgrimage.

BERI-BERI.

Beri-Beri is known to be always epidemic in the seaports of China and Japan, and this year has proved no exception to the general rule.

This disease has also been reported from disease-ridden Cuba throughout the year, being chiefly confined to the Chinese population in Havana. During the autumn it began to spread among the lower-class native population in Matanzas.

The usual number of cases have occurred during the year at Rio Janeiro.

A noteworthy outbreak occurred this year, as it has for several years past, in the Richmond Asylum, at Dublin, Ireland. The disease appeared in June, and by August 124 cases had occurred. Overcrowding and other unsanitary conditions are believed to be the reason for the tenacity with which beri-beri clings to this institution, though it is thought that it must have been first introduced there by patients, or in food and clothing from some Eastern country. Steps were taken during the year to relieve the overcrowding and improve the sanitation.

Beri-beri was brought to the port of Cork, Ireland, in August by a vessel arriving from the west coast of Africa.

In November the whaling bark *Greyhound* arrived at New Bedford, Mass., with five cases of beri-beri on board, and having had three deaths from it during the last month. The bark was returning from a five years' whaling voyage.

TYPHUS FEVER.

In March there was an outbreak of typhus fever in Tokyo, Japan, 47 cases and 37 deaths occurring up to March 1st.

In October two cases of typhus occurred in San Francisco. The origin of the infection was not discovered.

TYPHOID EPIDEMICS.

In September and October an epidemic of typhoid fever took place at Maidstone, Kent, England, which was due to the infection of a large part of the water-supply of the town by the drainage from a camp of hop-pickers from London. The camp was pitched in a field draining into a pond from which part of the water-supply was taken. When the epidemic began to decline, late in October, there had been about 2,000 cases, and during October there were 20 or 30 deaths per week.

In October and November there was a severe epidemic of typhoid at King's Lynn, a port of about 8,000 inhabitants at the mouth of the River Ouse, in Norfolk, England. This was also traced to infection of the town water-supply with sewage, being surface drainage from a village situated on the banks of the Gayton River, from which the town supply is taken.

In Belfast, Ireland, an epidemic of typhoid occurred in November.

Marseilles, France, was the seat of an epidemic of typhoid in May. There were at one time 1,000 cases in the city. An impure water-supply was probably the source.

CEREBRO-SPINAL MENINGITIS.

During the winter and spring of 1897, an epidemic of cerebro-spinal meningitis occurred in Massachusetts, the extent of which, owing to the fact that physicians throughout the State do not notify their local boards of health of the occurrence of this disease, is not definitely known. Numerous cases were treated at the hospitals in Boston, 47 cases being treated in the Boston City Hospital from December 30, 1896 to June 1, 1897. The mortality in these 47 cases was 72 per cent. Lumbar puncture was done in a large proportion of these cases, and in most of them the diplococcus intracellularis meningitidis of Weichselbaum was found in the cloudy serum of pns obtained. An investigation is in progress by the Massachusetts State Board of Health, into the extent of the epidemic and it is to be hoped that some light may be thrown upon the modes of dissemination of the disease.

During the last six months of the year the disease has not died out, and cases have been constantly under treatment in the Boston City Hospital.

ANTITOXIN IN DIPHTHERIA.

The reports on the use of antitoxin in diphtheria which have appeared during the year have continued to show a reduction in mortality amounting to the saving of thousands of lives by this invaluable product of modern medical science.

The second report of the collective investigation of the American Pediatric Society on the antitoxin treatment of laryngeal diphtheria in private practice, gave the results of 1,704 acceptable cases of laryngeal diphtheria in which antitoxin was used. Of this total nearly 61 per cent. were not operated upon, and give a mortality of 17.18 per cent., a result which, though good, the committee rightly believes can and ought to be improved upon. Of the cases operated upon the mortality was 27.24 per cent. The mortality in both classes of cases it is believed might be reduced were the standard of the antitoxic serum assured, and were both physicians and friends of patients less timid in its use.

The report of the Imperial German Board of Health upon the use of diphtheria antitoxin in the hospital in the German Empire from April, 1895, to March 1, 1896, published early in 1897, showed a fall in mortality from an average of 26.7 per cent. in 157,724 cases treated in the twelve years from 1883 to 1895, to 15.5 per cent. in 9,581 cases treated during the period mentioned above.

Every additional contribution to the statistics of the treatment has confirmed the fact which was demonstrated when the diphtheria antitoxin first came into use, that the prospect of success in a given case depends very much upon an early beginning of the treatment.

The mortality from diphtheria and croup in Massachusetts from 1891-94 had been 28.3 per cent. in 13,332 cases. The mortality in 1,209 cases since antitoxin has been employed has been about 13.5 per cent.

The report of the Metropolitan Asylums Board of London on the antitoxin treatment during 1896 shows that the favorable results which were reported during the first year of the use of antitoxin have been maintained.

The report closes with the following conclusions as to the effects of the treatment arrived at by all the signatories except one:

(1) A great reduction in the mortality of cases brought under treatment on the first three days of illness.

(2) The lowering of the combined general mortality to a point below that of any former year.

(3) The still more remarkable reduction in the mortality of the laryngeal cases.

(4) The uniform improvement in the results of tracheotomy at each separate hospital.

(5) The beneficial effect produced on the clinical course of the disease.

All other reports from whatever source have confirmed the value of the antitoxin in diphtheria.

ANTITOXIN IN TETANUS.

Partly perhaps on account of the rarity of tetanus, which is surprising considering the number of punctured and dirty wounds likely to furnish breeding ground for the bacillus, and partly perhaps from the difficulty or securing a supply of suitable antitoxin in time to be of effective service, but few reports of tetanus treated by antitoxin have come under our notice this year. A few cases of recovery from tetanus in which the inoculation took place by wounds about the face and head, the "head tetanus" which was formerly found particularly fatal, have been reported under antitoxin treatment. In general the cases of tetanus which have recovered under antitoxin have not been of the most acute and fulminating type of the disease, in which the absorption of the toxin is so rapid that it is impossible to supply enough antitoxin units to neutralize it. However, there is reason to believe that certain cases on the border-line between the most acute and chronic forms of the disease have recovered under antitoxin treatment and as a result of it.

The difficulty of securing a serum of sufficient strength (and in order to be effective against the rapid production of toxins in the body it must be extremely concentrated) has rendered effective preparations of tetanus antitoxins rare and expensive. In this disease an inferior or weak preparation will prove of no service whatever, and in order to secure good results, it is especially important to begin the treatment at the earliest possible moment and with a preparation of known strength.

Two cases of traumatic tetanus have been treated during the year at the Boston City Hospital with the antitoxin serum prepared under the auspices of the Massachusetts State Board of Health. One a moderately acute case, but infected through a wound of the face, recovered. The other, belonging to the most fulminating type of the disease, succumbed in spite of copious doses of the serum.

There is reason to believe, on the whole, that the recovery in the first case was due to the serum, for although the symptoms were not of the most rapidly progressive type, they appeared early (within five days after the infection), and as noted above, the infection was through a wound of the face, and was attended by facial paralysis.

Lambert¹ gives a mortality for all cases of tetanus treated without antitoxin, of 60 per cent., and a 30 per cent. mortality for all cases treated with antitoxin.

Goodrich² gives the mortality in 113 cases treated by antitoxin and of a like number treated by antispasmodics at about 63 per cent., but calls attention to the fact that fatal cases treated without antitoxin are not reported, while those treated with antitoxin usually are.

ANTISTREPTOCOCCIC SERUM.

The value of the serum treatment of streptococcus infection is still *sub judice*.

Steele³ has tabulated 26 cases in which the antistreptococcic serum was employed in puerperal septicemia, of which 16 recovered and 10 died. It is noteworthy that in 14 of these cases intrauterine douches or curettage were employed in addition to the serum treatment. If four cases in which the treatment was

begun late (from the twenty-second to the twenty-fifth day in two of them), and all of which died, be excluded, we have six deaths to 16 recoveries, or a mortality of 18.18 per cent. An early administration is admittedly essential in order to secure good results in these cases; but there are so many other causes for transitory rises of temperature during the puerperium beside streptococcic infection, that in case the serum is given early and a rapid recovery ensues, we remain in doubt as to whether the disease was a true streptococcus infection. It is important to secure, if possible, a bacteriological examination of the uterine discharges with reference to the presence of the streptococcus.

Cases of lymphangitis and of erysipelas have been reported during the year as recovering under treatment with antistreptococcic serum, but, as is well known, erysipelas results in a spontaneous recovery in a very large percentage of the cases.

Several cases of malignant endocarditis have been reported as treated with antistreptococcic serum with some measure of success.

THE BACILLUS ICTEROIDES OF SANARELLI.

In July of the present year, Prof. G. Sanarelli, director of the Institute of Experimental Hygiene in the University of Montevideo, published, as a result of investigations carried on at the island of Flores and at Rio Janeiro, an account of his isolation and cultivation from the blood and tissues of yellow-fever victims a bacillus which he considered that he had proved to be the specific organism of yellow fever. He had isolated it in 58 per cent. of the cases, and attributed his failure in the remaining number to the fact that the toxin produced so early a death of the organism that no extensive multiplication took place. Death was also attended by the intervention of secondary infections. Heat, moisture, darkness, want of ventilation, are the conditions favorable to the growth of Sanarelli's bacillus; and common moulds are its great protectors, and exert some influence most favorable to its growth.

Surgeon-General George M. Sternberg, U. S. N., has recently published⁴ a further account of his bacillus *x*, isolated by him in connection with yellow fever during researches pursued at Havana by the United States yellow-fever commission between 1887 and 1889, and which he considers probably identical with the bacillus *icteroides* of Sanarelli.

In spite of the brilliant and laborious work of Sanarelli, his claim that the bacillus *icteroides* is the specific organism of yellow fever, cannot be said to have been proved; nor does the bacillus *x*, of Sternberg, satisfy the requirements which must be fulfilled by an organism which claims to be the specific cause of yellow fever. There is a possibility that ultimately both may be proved to be secondary invaders.

The President's recommendation to Congress that a commission be appointed to investigate yellow fever, will, it is to be hoped, result in the early authorization by that body of the appointment of such a commission, made up, as suggested in our editorial of December 16th, of men who should ably represent clinical, pathological and bacteriological science. The labors of such a commission ought to result in a broadening of our knowledge of the disease, and of our methods of controlling it, even if the question of the specific organism should remain unsettled.

¹ Quoted by Dennis, *Annals of Surgery*, December, 1897.

² *Loc. cit.*

³ *British Medical Journal*, October 3, 1897.

⁴ *American Journal of the Medical Sciences*, September, 1897.

Koch's NEW TUBERCULIN.

On April 1, 1897, Professor Koch published in the *Deutsche Medicinische Wochenschrift* the description of a new and improved tuberculin, the result of several years of study and experiment. This new product was believed to have been purified by complicated processes of trituration and filtration of dead bacteria and other impurities to which the severe constitutional reactions and occasional abscess formations resulting from the use of the old tuberculin were thought to have been due. In short, it was supposed to possess the curative properties of the old tuberculin without its irritating effects. Of the new tuberculin Koch claimed to have established by trial on a large number of suitable cases of lupus and early phthisis that its action was much more effective than that of the former product. It was not necessary, in order to produce immunity by the new tuberculin to administer enough to produce a reaction, and the disagreeable effects of the old tuberculin were according to his report, not seen with the new.

Since the publication of his article, and the simultaneous marketing of the product by a large German chemical establishment, great activity has been displayed in the trial of the new product in German and other European clinics, and it has been also employed to some extent in this country.

The early reports from its use, which were made in July by Schulz, of Bonn, and Fränkel, of Berlin, were not encouraging and failed to confirm the expectations aroused by Koch's paper. In many instances the unpleasant effects, reaction, etc., of the old tuberculin were found to characterize the new. Chills and high fever developed, and the constitutional reaction was fully as severe as under the treatment with the old tuberculin. There was no satisfactory evidence of a definite influence of the treatment upon the course of the disease.

Doutrelepont, of Bonn, reported in August, as a result of trial in fifteen cases, that the new tuberculin had a favorable effect in lupus, but that great care in the increase of the injections had to be taken in order to avoid undesirable reaction.

Leick tried tuberculin in fifteen cases of pulmonary tuberculosis, and noted improvement in but three.

Herzefeld found improvement to result in but one out of seven cases of laryngeal tuberculosis.

Baudach, physician in charge of a sanitarium for tuberculosis, treated twenty patients with tuberculosis of the lungs, and found the treatment in general to be followed by good results, and productive in a number of cases of more rapid improvement than would otherwise have been the case. His patients had the benefit of the most favorable possible conditions for improvement, even if tuberculin had not been employed.

Neucki, Maczewski and Logucki⁵ demonstrated the contamination of the new tuberculin with pyogenic cocci, and found decided reaction and fever resulting from its use.

Malcolm Morris, of London, and Lassar, of Berlin, report favorable results from the use of the new preparation in lupus.

Cutler, of Boston, has reported in the JOURNAL marked improvement and gain in weight in two cases treated by him with the new tuberculin. Hewes, of

Boston, has treated four cases, two of which gained in strength and spirits under the treatment, but all lost weight, and the subsequent history of these cases was not favorable.

It is a self-evident fact that sufficient time has not elapsed to enable a definite opinion to be formed as to the curative effect of the new tuberculin. As to whether its action is in general beneficial, sufficient evidence has not accumulated, and the question must for the present be regarded as undecided.

It has certainly been proved that the new product is not as free from danger of producing reaction as Koch had led us to expect. The complication and delicacy of the procedures necessary for its preparation, render it extremely difficult to secure a uniform product. Although it is to be hoped that good results may be attained by the use of the new tuberculin in the future, patient and long-continued trial will be necessary to settle the question.

THE RÖNTGEN RAYS.

During 1897 great activity has been displayed in the perfection of radiographic and fluorescent apparatus, with the result that those who are expert in the invention and practical employment of such apparatus are enabled to secure clearer and larger pictures than ever before. The rays have proved of value in the detection and sometimes the rectification of obscure deformities following fracture and dislocation, in the location of foreign bodies in the body, and in particular in the esophagus and other portions of the gastrointestinal tract. Foreign bodies in the eye have been successfully located by their use.

The work of their application to the diagnosis of internal disease, particularly of the chest, has been actively pursued during the year, and they have proved of value in the diagnosis of thoracic aneurisms and other tumors, tubercular processes in the lungs, and in accurately mapping out the extent of cardiac enlargements. With regard to proving of service in the early diagnosis of phthisis, it may be said that, in the early stages when the disease is simply a catarrhal bronchitis at the apex, for instance, and no solidification has occurred, the interference with the rays would hardly be sufficient to produce a shadow, although the stethoscope would reveal the presence of fine crackling râles.

It is improbable that the rays will prove of value in the diagnosis of phthisis in the early and therefore the most important stages, until the apparatus is perfected so that it will bring out much finer differences in the consistence of tissues than it does at present.

MEDICAL CONGRESSES AND MEETINGS

The International Medical Congress at Moscow, August 19th, fostered and supported with lavish liberality by the Russian Government, and attended and participated in by the leaders of European medical science in its varied departments, was a gathering which will long be notable in medical annals for the advanced and progressive character of the scientific work there reported.

The International Congress of Leprologists in Berlin, October 11th, was productive of important results, in that Hansen's bacillus was admitted to be the cause of the disease, and isolation of lepers agreed upon as the most important means for preventing its spread.

The meeting of the British Medical Association at

⁵ Presse Medicale, No. 46.

Montreal was of great interest to American physicians, and the proceedings contained much in the line of medical and surgical progress.

The Fourth Congress of American Physicians and Surgeons, including fourteen special Associations, was held in Washington, D. C., May 4, 5 and 6. The Fiftieth Meeting of the American Medical Association, was held in Philadelphia, June 1 to 4. The American Society of Naturalists and the affiliated societies met at Ithaca, N. Y., on December 28, 29 and 30. The other societies meeting with the Naturalists were the Association of American Anatomists, the Association for Botanical Morphology and Physiology, the American Morphological Society, the American Physiological Society, the American Psychological Association, Section H (Anthropology) of the American Association for the Advancement of Science. The American Association of Obstetricians and Gynecologists, met at Niagara Falls, August 17 to 20. The Association of Military Surgeons of the United States, met at Columbus, O., May 25 to 27. The Mississippi Valley Medical Association, at Louisville on October 5 to 8. The Southern Surgical and Gynecology Association, at St. Louis, Mo., November 9 to 11. The Tri-State Medical Society of Alabama, Georgia and Tennessee, at Nashville, Tenn., October 12 to 14.

An International Congress of Forensic Medicine was held at Brussels, August 2 to 7, and a Second International Congress of Sanitation and Hygiene of Railways and Navigation at Brussels, during September. The Sixty-fifth Annual Meeting of the British Medical Association was held at Montreal, August 31 to September 3. The Fifteenth German Congress of Internal Medicine was held in Berlin, June 9 to 12. The Twenty-fifth Annual Meeting of the German Surgical Association at Berlin in May. The Eleventh Congress of the French Association of Surgery was held at Paris, on October 18. The Association of German Naturalists and Physicians at Brunswick, in October. The Seventh Congress of the German Gynecological Society was held at Leipzig, June 9 to 11, the French Congress of Alienists and Neurologists in August at Toulouse.

LECTURES.

In connection with established lectureships in the United States and Great Britain, the following lectures and orations were delivered:

The Shattuck Lecture before the Massachusetts Medical Society, on "The New Surgery," by David W. Cheever, M.D., LL.D.; the Bradshaw Lecture on "The Correction of Certain Deformities by Operative Measures upon Bones," by Alfred Willett, F.R.C.S.; the Hunterian Lectures on "The Pathology and Surgery of Intussusception," by D'Arcy Power, M.A., M.B. Oxon., F.R.C.S.; the Harveian Oration on "Science and Modern Civilization," by Sir William Roberts, M.D., F.R.S., F.R.C.P., Lond.; the Hunterian Oration on "John Hunter as a Surgeon," by Christopher Heath, F.R.C.S.; the Croonian Lectures on "The Means by which the Temperature of the Body is Maintained in Health and Disease," by W. Hale White, M.D., F.R.C.P., London; Supplementary Croonian Lecture on "Points Connected with the Pathology and Treatment of Diabetes," by F. W. Pavy, M.D., LL.D., F.R.S.; the Lumleian Lectures on "Some Problems in Connection with Aphasia and other Speech Defects," by H. Charlton Bastian, M.A.,

M.D., Lond., F.R.S.; the Goulstonian Lectures on "The Chemistry and Pathology of Gout," by Arthur P. Luff, M.D., B.Sc., F.R.C.P.; the Bradshaw Lecture on "Prognosis in Heart Disease," by E. Markham Skerritt, M.D., F.R.C.P.; the Milroy Lectures on "Quarantine," by W. Collingridge, M.A., LL.M., M.D., the Ingleby Lectures on "The Operative Treatment of Cancer of the Breast," by Bennett May, F.R.C.S.; the Lettsomian Lectures on "Diseases of the Nose and Throat in Relation to General Medicine," by F. De Havilland Hall, M.D., F.R.C.P. Lond.; the Morison Lectures on "The Anatomy and Physiology of the Nervous Mechanism of the Viscera," by Dr. Alexander Morison; the Harveian Lectures on "Syphilitic Diseases of the Eye and its Appendages," by Henry E. Juler, F.R.C.S., Eng.

NECROLOGY. — FOREIGN.

P. Ambrosoli, M.D., physician-in-chief to the Maggiore Hospital of Milan, died in September, aged fifty-four.

Prof. Oscar Boer, of Berlin, known for his work on infectious diseases, died in September.

Ernest Braud, M.D., the modern advocate of the cold-bath treatment of typhoid fever, died at Stettin, Germany, on March 8.

Sir John Bucknall, F.R.S., the author of important contributions to neurology and insanity, formerly editor of the *Journal of Mental Science* and one of the editors of *Brain* and of the *British Medical Journal*, died at Bournemouth on July 20, aged seventy-nine.

Louis Pascal Casella, the inventor of the clinical thermometer, died at Highgate on April 23, aged eighty-six.

Dr. Thomas W. Evans, the famous American dentist, died at Paris, November 12, aged seventy-four.

Carl Eisenlohr, M.D., of Hamburg, a neuropathologist and anatomist, died in May at the Madeiras, of tuberculosis, in his fifty-first year.

C. Fumagalli, M.D., surgeon-in-chief to the Hospital Maggiore of Milan, died in September.

Rudolphe Pierre Henri Heidenhain, M.D., incumbent of the Chair of Physiology at the University of Breslau, died in October at Breslau, aged sixty-three.

John Braxton Hicks, M.D., London, F.R.C.P., F.R.S., the eminent obstetrician and gynecologist to Guy's Hospital, died on August 28, at Lymington, Eng., aged seventy-two.

Alarik Frithiof Holmgren, M.D., professor of physiology in the University of Upsala and founder of the first Physiological Institute in Sweden, died in October, aged sixty-six.

Johann Ritter von Leich, M.D., formerly dean of the medical faculty of the University of Vienna, died in July, aged eighty-four.

Jules Bernard Luys, M.D., an eminent alienist, member of the Academy of Medicine and officer of the Legion of Honor, died in September, aged sixty-nine.

Jacques Maisounenve, M.D., the distinguished Parisian surgeon, died in May, at the age of eighty-seven.

Surgeon-Major Robert Manser, physician to the Jamsetjee Jeejeebhai Hospital and Professor of Medi-

cine in the Grant College Medical School, Bombay, died of plague in that city in June, aged forty-eight.

Victor Meyer, M.D., professor of chemistry at Heidelberg, died in that city on October 8.

Dr. Morvan, who was the first to describe the group of clinical symptoms known as "Morvan's disease," died at Lannuès, France, aged seventy-three.

M. A. Muniz, M.D., professor of medical physics and hygiene; superintendent of National Insane Asylum and chairman of the National Board of Health of Lima, Peru, died in June, aged thirty-six.

M. J. Oertel, M.D., a laryngologist, died on July 13 in Munich, aged sixty-two.

George David Pollock, F.R.C.S., consulting surgeon to St. George's Hospital, died in London in February.

Walter Rivington, M.S. Lond., F.R.C.S. Eng., consulting surgeon to the London Hospital, member of the Council of the College of Surgeons and of the Senate of the University of London, died on May 8, aged sixty-two.

James Greig Smith, M.A., M.B., C.M. (Aber.), F.R.S. (Edin.), distinguished in abdominal surgery and professor of surgery in University College, Bristol, Eng., died on May 28.

Professor Stukowenkoff, professor of dermatology and venereal diseases in the University of Kieff, died in April, aged fifty-seven.

Professor Tarnier, of Paris, the distinguished obstetrician, died in Paris in December, aged seventy.

Dr. Welcker, who was for a great number of years professor of anatomy in the University of Halle, died in August, aged seventy-five.

Sir Spencer Wells, of London, the distinguished pioneer in abdominal surgery, died at Antibes, France, in the seventy-ninth year of his age.

NECROLOGY. — UNITED STATES.

Harrison Allen, M.D., emeritus professor of comparative anatomy in the Medical School of the University of Pennsylvania, died November 14, aged fifty-six.

Charles H. Avery, M.D., for many years corresponding and recording secretary of the Medical Society of the County of New York, died November 2, aged sixty-three.

Surgeon-General Newton L. Bates, of the U. S. Navy, died at Washington, October 18.

John H. Bemiss, M.D., president of the faculty and professor of the chair of physical diagnosis in the New Orleans Polyclinic; visiting physician to the the Charity Hospital of New Orleans, died of yellow fever, September 5, aged fifty.

John C. Bolles, of Montville, Conn., one of the oldest members of the New London County Medical Association, died September 11, aged eighty-one.

John O. Bronson, M.D., formerly professor of anatomy at the Sheffield Scientific School and chief medical officer of the Department of the Pacific, died at his home at Rhinebeck, N. Y., March 28, aged seventy.

Bedford Brown, M.D., a former president of the Virginia Medical Society; and of the Southern Surgical and Gynecological Association, died at Alexandria, Va., September 13, aged seventy-six.

Edward Seaman Bunker, M.D., for many years a professor in the Long Island College Hospital, Brooklyn, died June 7, aged fifty-seven.

Samuel H. Charlton, M.D., of Seymour, Ind., a former president of the Indiana State Medical Society, died January 12, aged seventy.

Robert M. Denig, M.D., at one time professor of medical jurisprudence in the Starling Medical College, and who later on became lecturer on Diseases of Children in the Columbus Medical College, died January 17, in Columbus, O.

John Evans, M.D., ex-Governor of Colorado, and formerly superintendent of the Indiana State Insane Asylum and for a time president of Northwestern University, Evanston, died July 3.

George F. French, M.D., professor of obstetrics and gynecology, Minnesota Hospital College and president of the Minnesota Academy of Medicine, etc., died at Minneapolis, Minn., July 5, aged sixty.

P. G. Frye, M.D., at one time president of the Queens County Medical Society, died at Oyster Bay, October 9, aged eighty.

A. J. Fuller, of Bath, Me., died January 10, aged seventy-four. He was first vice-president of the American Medical Association and for eighteen years president of the Bath Board of Trade.

Richard John Hall, M.D., of New York City, formerly lecturer on the principles of surgery at New York College of Physicians and Surgeons, died January 24, at Santa Barbara, Cal., aged forty-one.

Henry Hartshorne, M.D., at one time professor of practice of medicine and later professor of hygiene in the University of Pennsylvania, died at the age of seventy-three, at Tokyo, Japan, February 10.

Archibald A. Higgins, M.D., a leading physician and former judge of Monmouth County, N. J., died at his residence at Manasquan, N. J., October 9, aged seventy.

Peter Dirck Keyser, A.M., M.D., formerly professor of ophthalmology and dean of the faculty of the Medico-Chirurgical College of Philadelphia, died October 9, aged sixty-two.

Edwin M. Kitchell, M.D., assistant professor of histology and pathology in the College of Physicians and Surgeons, New York, died in September.

Cornelius Kollock, M.D., a former president of the South Carolina Medical Association in 1887; and of the Southern Surgical and Gynecological Association, died in Cheraw, S. C., August 16, aged seventy-three.

John J. H. Love, M.D., of Montclair, N. J., a brigade surgeon-in-chief in the Army of the Potomac in 1863, died on July 20.

William Thompson Lusk, M.D., LL.D., professor of obstetrics in Bellevue Hospital Medical College, a visiting and consulting physician of many hospitals and author of "The Science and Art of Midwifery," died in New York City, June 12, aged fifty-nine.

Perry H. Millard, M.D., of St. Paul, Minn., dean of the College of Medicine and Surgery at the Minnesota State University, died on February 1 at Baltimore.

Robert B. Morrison, M.D., of Baltimore, dermatologist at Johns Hopkins Hospital and formerly president of the American Dermatological Association, died suddenly September 30.

Byron W. Munson, M.D., formerly superintendent at the State Soldiers' Home at Noroton, died at Sharon, Conn., January 2, aged fifty-three.

William H. Pancoast, M.D., of Philadelphia, formerly professor in the Jefferson Medical College and later president of the Medico-Chirurgical College in Philadelphia, died January 8, aged sixty-two.

Luke Robinson, M.D., an ex-president of the State Medical Society of California, died October 10.

James Simpson, M.D., of San Francisco, Cal., a former president of the State Board of Health of California, died October 22, aged seventy-one.

Julius A. Skilton, M.D., who was an army surgeon during the Civil War and Consul-General in the City of Mexico under General Grant, died in Brooklyn, November 20.

Job Lewis Smith, M.D., clinical professor of Diseases of Children in Bellevue Hospital Medical College, died in New York, June 9, aged seventy.

Anthony Eugene Stocker, M.D., for many years on the surgical staff of the Pennsylvania Hospital, died May 23, in Philadelphia, aged seventy-eight.

George Thomas, M.D., professor of laryngology and physical diagnosis at the College of Physicians and Surgeons, Baltimore, died in October, aged thirty-eight.

Benjamin H. Throop, M.D., of Scranton, Pa., one of the founders of Scranton and of the Lackawanna Hospital, died June 26, aged eighty-six.

Geo. B. Twitchell, M.D., of Keene, N. H., one of the leading practitioners of New Hampshire, who was during the war surgeon of the 13th New Hampshire Volunteers and was promoted surgeon-in-chief of the 17th corps, with the rank of major, died at Keene, March 30. He was for years president of the board of trustees of the New Hampshire Asylum for Insane, and was instrumental in the establishment of the Elliot Hospital in Keene.

James P. Walker, M.D., assistant surgeon nearly a year on the medical staff of the Fourth New Hampshire Volunteers and for a number of years member of the Board of Education and the Legislature, died in Manchester, N. H., May 6, aged sixty-nine.

Dulaney L. Washburne, M.D., of Louisville, professor of anatomy in the University of Louisville, died in March, aged forty-two.

William C. Wey, M.D., for many years Health Officer of Elmira, N. Y., and a former president of the New York State Medical Society and of the Board of Managers of the New York State Reformatory, died June 30.

H. P. C. Wilson, M.D., a former vice-president of the American Gynecological Society, died in Baltimore, December 27, aged seventy.

Theodore G. Wormley, M.D., professor of chemistry and toxicology in the medical department of the University of Pennsylvania, died April 3, aged seventy-one.

NECROLOGY. — MASSACHUSETTS MEDICAL SOCIETY.

Edward Payson Abbe, M.D., M.M.S.S., died in New Bedford, February 25, aged sixty-nine.

William Shepherd Beaumont, M.D., M.M.S.S., died in Jamaica Plain, January 7, aged thirty-one.

Henry Blanchard, M.D., M.M.S.S., died in Neponset, February 10, aged eighty-five.

Joseph Jackson Boynton, M.D., M.M.S.S., died in South Framingham, June 17, aged sixty-four.

George Washington Burdett, M.D., M.M.S.S., died in Clinton, May 10, aged seventy-eight.

Frank Bowditch Chapman, M.D., M.M.S.S., died in Middleton, June 11, aged twenty-nine.

Charles Edward Clark, M.D., M.M.S.S., died in Lynn, October 29, aged fifty-six.

Charles Wendell Cooper, M.D., M.M.S.S., of Northampton, died at sea, February 7, aged forty-five.

Benjamin Eddy Cotting, M.D., M.M.S.S., died in Roxbury, May 22, aged eighty-four.

Joseph Whitney Cushing, M.D., M.M.S.S., died in Brookline, May 9, aged sixty.

William Baxter Cushman, M.D., M.M.S.S., died in Oxford, February 25, aged forty.

Charles Henry Davis, M.D., M.M.S.S., died in Worcester, September 16, aged fifty-one.

John Osborn Dow, M.D., M.M.S.S. died in Reading, February 22, aged seventy-four.

Edward Pearson Elliot, M.D., M.M.S.S., first assistant in the Danvers Insane Hospital, died January 10, aged forty.

Thomas Joseph Hayes, M.D., M.M.S.S., died in Beverly, August 26, aged thirty-five.

Samuel Hutchins Hurd, M.D., M.M.S.S., formerly of Charlestown, died at Atlantic City, N. J., February 5, aged sixty-six.

Daniel March, Jr., M.D., M.M.S.S., of Winchester, died in Woburn, January 1, aged fifty-two.

Frederic Joseph McNulty, M.D., M.M.S.S., died in Roxbury, June 13, aged sixty-two.

Ira Loriston Moore, M.D., M.M.S.S., died in Boston, October 2, aged seventy-two.

Varillus Linus Owen, M.D., M.M.S.S., died in Springfield, September 7, aged seventy-two.

Asa Flanders Pattee, M.D., M.M.S.S., died in Boston, May 31, aged sixty-two.

John James Savage, M.D., M.M.S.S., died in Lowell, January 12, aged twenty-four.

Charles A. Stark, M.D., M.M.S.S., died in Marshfield, January 22, aged thirty-five.

Isaac Holden Stearns, M.D., M.M.S.S., died in Cliftondale, September 6, aged seventy-two.

William Henry Thayer, M.D., M.M.S.S., died in Lanesborough, December 22, aged seventy-five.

Eben Thompson, M.D., M.M.S.S., died in Newton Upper Falls, December 7, aged forty-nine.

Frederick Moncrieff Turnbull, M.D., M.M.S.S., died in Cambridge, January 15, aged forty-three.

George Webb West, M.D., M.M.S.S., died in Chestnut Hill, Newton, August 5, aged forty-seven.

Edward Augustus Welch, M.D., M.M.S.S., died in Sutton, November 9, aged thirty-two.

William Goodnough Wheeler, M.D., M.M.S.S., died in Chelsea, April 17, aged seventy-six.

Fred. Webster Whittemore, M.D., M.M.S.S., died in Cambridge, April 14, aged forty-five.

Thomas Womersley, M.D., M.M.S.S., died in Woburn, March 7, aged eighty-one.

During the year 1897 thirty-two members of the Society have died, two less than in the preceding year. The average age was fifty-six years, that of 1896 having been fifty-seven and one-half years, and of 1895, sixty-six years. Three were over eighty years of age, nine were seventy or over. The lowest age of death was twenty-four and the highest eighty-five.

MEDICAL NOTES.

CIGARETTE SMOKING AS A CAUSE OF DEATH.—A coroner at Felling, near Gateshead, Eng., has brought in a verdict as a result of an inquest on the body of a sixteen-year-old lad, to the effect that he died from "syncope due to nicotine poisoning, caused by the excessive smoking of cigarettes." The coroner also stated that there was quite an epidemic of deaths from this cause. A careful exclusion of other causes would seem to be essential to the establishment of the truth of this somewhat improbable statement.

MEDICAL PERIODICALS IN THE UNITED STATES.—We find, from a newspaper directory recently issued, that the medical profession of that country supports directly or indirectly 275 periodicals, of which 10 are issued weekly, 11 fortnightly, 225 monthly, 6 bi-monthly, and 23 quarterly, with a combined yearly circulation of 16,017,200 copies. Estimating that there are in round numbers 120,000 medical men of all schools north of the Gulf of Mexico, of whom probably not over 80,000 subscribe to a medical journal of any kind, this vast amount of literature seems an enormous burden to carry. — *Health.*

THE BACILLUS OF EBERTH IN WATER, EARTH AND FECES OF NON-TYPHOID PATIENTS.—Remlinger and Schneider (*Compt. Rend. de la Soc. de Biol.*, 1896, No. 26; *Centralblatt f. Innere Medecin.* No. 43) claim by means of Elsner's method to have isolated in 8 out of 36 specimens of water, in 6 out of 10 specimens of soil, and in the feces of three patients suffering from tuberculosis, malaria and nephritis, who had never had typhoid fever, a bacillus which presented all the characteristics of the typhoid bacillus, upon which typhoid serum produced its specific reaction, and which caused the death of 12 out of 18 guinea pigs inoculated with it. If the guinea-pigs had received a preventive inoculation of one cubic centimetre of typhoid serum, they invariably recovered.

NEW YORK.

SMALL-POX AT QUARANTINE.—The steamer *Edam*, which on December 19th arrived from Amsterdam and Boulogne, was found to have small-pox on board, and by order of Health Officer Doty 275 steerage passengers were vaccinated and transferred for observation to the quarantine station on Hoffman Island, where they will have the pleasure of enjoying Christmas and New Year's dinners at the expense of the steamship company.

DEATH FROM PHENACETINE POISONING.—A death from phenacetine occurred on December 23d.

A patient suffering from influenza who was ordered by his attending physician a six-grain tablet of the drug every two hours, swallowed all the tablets prescribed at once. The total amount of phenacetine taken is not given. The patient was a young man twenty-three years of age.

FATAL CLUBBING BY POLICEMEN.—Two policemen have lately been arraigned for clubbing patients over the head with fatal results. One of the victims died at Roosevelt Hospital on November 28th, from a fractured skull, and the other at Bellevue on December 14th, of acute meningitis complicated with erysipelas.

THE USELESSNESS OF THE CORONER.—The Kings County Grand Jury for December, in its presentment made to Judge Hurd, of Brooklyn, on December 23d, recommends the Legislature to abolish the office of coroner. "We believe," it states, "the office is useless; that it has no practical effect in the ferretting out of crime; that the methods in vogue are open to the most severe censure; that the continuance of the office in its present shape, as the law now stands, will lead to further abuses; that the law governing the rights, duties and obligations of the coroner is not clear or specific."

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 18, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,868,060	690	219	10.80	17.40	1.00	1.95	3.00	
Chicago . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . .	1,160,000	341	96	13.31	11.02	.58	2.03	5.51	
St. Louis . .	570,000	184	43	7.56	12.96	—	—	7.56	
Baltimore . .	550,000	162	41	14.03	14.64	3.05	4.27	5.49	
Boston . .	517,732	172	46	3.48	16.24	.58	—	2.90	
Cincinnati . .	405,000	104	—	11.64	15.52	—	4.85	4.85	
Cleveland . .	350,000	—	—	—	—	—	—	—	
Pittsburg . .	285,000	91	35	2.20	16.50	—	—	—	
Washington .	277,000	31	—	45.22	—	—	19.38	12.92	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	105,000	24	5	—	8.32	—	—	—	
Worcester . .	105,000	26	8	15.40	7.70	3.85	—	11.55	
Fall River . .	95,919	26	14	3.23	16.15	—	—	3.23	
Lowell . .	87,133	31	11	12.92	16.15	6.46	—	6.46	
Cambridge . .	86,812	14	3	—	21.42	—	—	—	
Lynn . .	65,220	—	—	—	—	—	—	—	
Charleston . .	65,165	33	6	6.06	3.03	—	3.03	—	
New Bedford .	62,416	16	8	—	32.25	—	—	—	
Lawrence . .	55,510	17	4	5.88	5.88	—	5.88	—	
Springfield .	54,790	17	4	17.64	5.88	—	5.88	—	
Holyoke . .	42,364	—	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Salem . .	36,062	4	0	—	—	—	—	—	
Brockton . .	35,863	—	—	—	—	—	—	—	
Malden . .	32,884	3	0	—	—	—	—	—	
Chelsea . .	32,716	17	4	5.88	5.88	—	—	—	
Haverhill . .	31,406	10	—	20.00	—	—	10.00	10.00	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton . .	28,990	8	1	12.50	12.50	—	—	—	
Fitchburg . .	28,392	7	1	—	42.84	—	—	—	
Taunton . .	27,812	6	1	—	33.33	—	—	—	
Quincy . .	22,562	1	0	—	—	—	—	—	
Pittsfield . .	21,891	—	—	—	—	—	—	—	
Waltham . .	21,812	6	0	—	—	—	—	—	
Everett . .	21,575	—	—	—	—	—	—	—	
Northampton .	17,448	—	—	—	—	—	—	—	
Newburyport .	14,794	4	1	—	—	—	—	—	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,134; under five years of age 575; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas and fevers) 231, acute lung diseases 309, consumption 275, diphtheria and croup 95, typhoid fever 51, diarrheal diseases 22, measles 20, scarlet fever 14, whooping-cough 12, erysipelas 10, cerebro-spinal meningitis 6.


From measles New York 12, Pittsburg 5, Brooklyn 2, Providence 1. From scarlet fever New York and Brooklyn 6 each, Baltimore and Newton 1 each. From whooping-cough Pittsburg 4, Brooklyn 3, New York and Cincinnati 2 each, Washington 1. From erysipelas New York 7, Baltimore, Springfield and Medford 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending December 11th, the death-rate was 20.8. Deaths reported 4,393; acute diseases of the respiratory organs (London) 468, measles 231, whooping-cough 95, diphtheria 85, fever 47, scarlet fever 45, diarrheal 48.

The death-rates ranged from 14.4 in Cardiff to 31.1 in Norwich; Birmingham 21.8, Bradford 15.3, Gateshead 25.3, Hull 16.9, Leeds 21.3, Leicester 16.9, Liverpool 26.4, London 21.8, Manchester 19.5, Newcastle-on-Tyne 14.9, Nottingham 21.9, Portsmouth 18.6, Salford 16.1, Sheffield 19.1.

METEOROLOGICAL RECORD

For the week ending December 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermo- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		We'thr. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S..12	29.87	46	52	39	95	92	94	E.	N.W.	4	9	O.	O.	.40
M..13	30.24	37	40	34	80	83	82	N.W.	N.E.	10	8	F.	O.	
T..14	30.18	43	48	38	78	98	88	E.	E.	21	18	O.	R.	1.10
W..15	29.63	52	59	46	95	92	94	S.	S.W.	13	14	R.	O.	1.10
T..16	29.96	46	52	40	75	72	74	W.	W.	15	10	F.	O.	
F..17	30.11	44	48	39	73	73	73	W.	S.	6	6	F.	O.	
S..18	29.92	36	49	23	77	77	75	W.	N.W.	18	18	C.	O.	.02
														2.62

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 18, 1897, TO DECEMBER 24, 1897.

Leave of absence for three months is granted MAJOR WILLIAM W. GRAY, surgeon, Fort Apache, Ariz.

FIRST-LIEUT. ALEX. S. PORTER, assistant surgeon, is granted four months leave of absence.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 24, 1897.

J. G. AYERS, medical inspector, ordered to duty at the Navy Yard, Portsmouth, N. H., January 17th.

J. B. PARKER, medical inspector, detached from the Navy Yard, Portsmouth, N. H., and ordered to duty as member of the Naval Medical Examining Board, Washington, January 22d.

T. B. BAILEY, passed assistant surgeon, unexpired leave revoked and ordered to the Washington Navy Yard.

SOCIETY NOTICE.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, January 5th, at 8 o'clock.

Papers: "Some Modifications of the Operations for Cleft Palate and Hare-Lip," by Dr. Thomas Fillebrown. Drs. C. B. Porter, M. H. Richardson and G. H. Mouks have been asked to discuss this paper.

"Early Diagnosis of a Case of Cancer of the Larynx; Removal of the Growth by Thyrotomy; Recovery," by Drs. J. P. Clark and F. B. Harrington.

"The Ambulatory Treatment of Fractures," by Dr. C. L. Scudder.

"Wood-Fibre Splinting," by Dr. E. A. Tracy.

The presentation of pathological specimens of surgical interest is invited.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give four informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association. The lectures will be given at the Harvard Medical School on successive Thursday evenings in January, beginning January 6th at 8 P. M. Members of the profession and students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., Secretary.

RECENT DEATH.

WILLIAM HENRY THAYER, M.D., M.M.S.S., died in Ladesborough, December 22, 1897, aged seventy-five years.

BOOKS AND PAMPHLETS RECEIVED.

Preventive Medicine in the City of New York. By Hermann M. Biggs, M.D., New York. 1897.

Biennial Report of the Department of Health of the City of Chicago, being for the years 1895 and 1896. Chicago. 1897.

Ambroise Paré and His Times, 1510-1590. By Stephen Paget. Illustrated. New York and London: G. P. Putnam's Sons. 1897.

Transactions of the New Hampshire Medical Society at the One Hundred and Sixth Anniversary, held at Concord, May 24 and 25, 1897.

Report of the Commissioner of Education for the Year 1895-96. Volume II including Part II. Washington: Government Printing Office. 1897.

Fourth Annual Report upon the Births, Marriages, Divorces and Deaths in the State of Maine for the Year ending December 31, 1895. Augusta, 1897.

Mediterranean, Malta or Uodulant Fever. By M. Louis Hughes, Surgeon-Captain, Army Medical Staff. London: Macmillan & Co. Limited. All rights reserved. 1897.

Transactions of the American Orthopedic Association, Eleventh Session, held at Washington, D. C., May 4, 5 and 6, 1897. Volume X. Philadelphia: Published by the Association. 1897.

Sul Lichen Rosso. Studio del Dottore Alfonso Minuti. Con una tavola in zineotopia e due tavole in cronolitografia. Pubblicazioni del R. Istituto di Studi Superiori Pratici e di Perfezionamento in Firenze, Sezione di Medicina e Chirurgia. Firenze: Coi Tipi dei Successori le Monnier. 1891.

Archivio di Anatomia Normale e Patologica. Diretto dal Prof. Giorgio Pellizzari. Volume Quinto, Fascicolo I and II. Pubblicazioni del R. Istituto di Studi Superiori Pratici e di Perfezionamento in Firenze Sezione di Medicina e Chirurgia. Firenze: Coi Tipi dei Successori le Monnier. 1889-90.

Results of Aseptic Celiotomy. Umbilical and Ventral Hernia. Vaginal Hysterectomy for Uterine Myomata and Diseases of the Aduexa. Vaginal Hysterectomy. Treatment of Intraligamentous and Retroperitoneal Uterine Myomata. By William H. Wathen, M.D., LL.D., Louisville, Ky. Reprints. 1893-95-96.

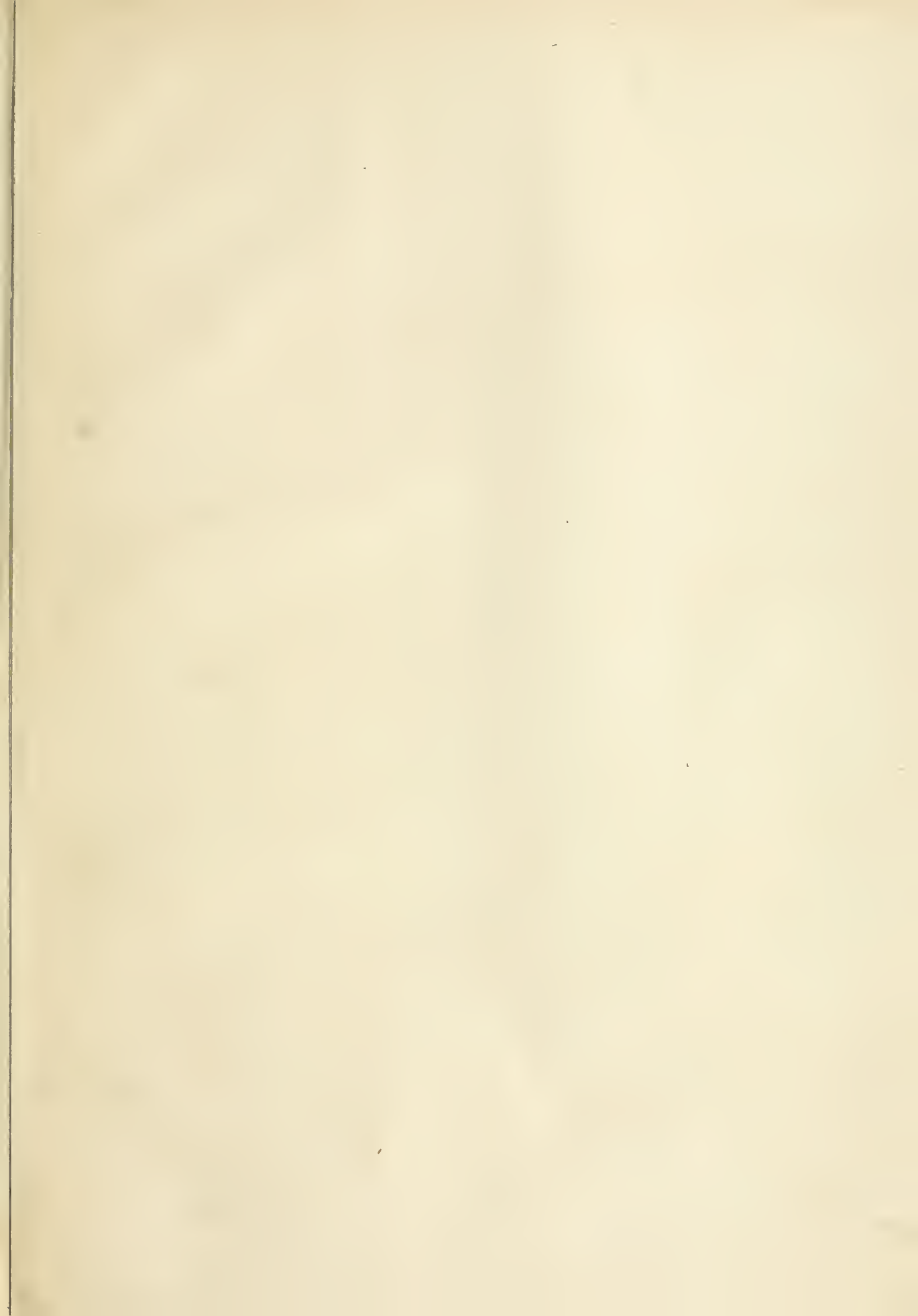
Skin Diseases of Children. By George Henry Fox, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, New York; Physician to the New York Skin and Cancer Hospital, etc. With 12 photogravures and chromographic plates and 60 illustrations in the text. New York: William Wood & Co. 1897.

The Care and Feeding of Children, a Catechism for the Use of Mothers and Children's Nurses. By L. Emmett Holt, M.D., Professor of Diseases of Children in the New York Polyclinic; Attending Physician to the Babies' Hospital and the Nursery and Child's Hospital, New York. Second edition, revised and enlarged. New York: D. Appleton & Co. 1897.

A Clinical Text-Book of Surgical Diagnosis and Treatment for Practitioners and Students of Surgery and Medicine. By J. W. MacDonald, M.D., Licentiate of the Royal College of Surgeons, Edinburgh; Professor of the Practice of Surgery and Clinical Surgery in Hamline University, Minneapolis, etc. With 328 illustrations. Philadelphia: W. B. Saunders. 1897.

A Handbook of Therapeutics. By Sydney Ringer, M.D., F.R.S., Holme Professor of Clinical Medicine, University College; Physician to University College Hospital; and Harrington Salisbury, M.D., F.R.C.P., Physician to the Royal Free Hospital, and the City of London Hospital for Diseases of the Chest, Victoria Park. Thirteenth edition. New York: William Wood & Co. 1897.

Diseases of the Stomach, their Special Pathology, Diagnosis and Treatment, with sections on Anatomy, Physiology, Analysis of Stomach Contents, Dietetics, Surgery of the Stomach, etc. In three parts. By John C. Hemmeter, M.B., M.D., Ph.D., Clinical Professor of Medicine at the Baltimore Medical College; Consultant to the Maryland General Hospital, etc. With many original illustrations, a number of which are in colors and a lithograph frontispiece. Philadelphia: P. Blakiston, Son & Co. 1897.



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